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The Nabataean Façade Monuments of Petra, Jordan: An Assessment of the Façade Monuments and Their Geological Environment

Josie M. Newbold

A thesis submitted to the faculty of Brigham Young University in partial fulfillment of the requirements for the degree Master of Arts

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ABSTRACT


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The Nabataean people controlled the Petra region of modern-day Jordan from sometime before 300 BCE until the Roman Annexation of the Nabataean kingdom in 106 CE. The Nabataeans are known for the monumental façades carved into the sandstone cliffs surrounding their capital city. The first survey of the façade monuments was undertaken by Brünnow and Domaszewski in 1904. They created a typology that has only been slightly modified by subsequent authors including Judith McKenzie (1990). This typology does not account for all of the variations in façade types in Petra, thus creating a need for a new typology proposed in this paper. Additionally, no previous studies of the façade monuments has examined the impact of geological structures such as the orientation of the pre-existing cliffs, the presence of faults and fractures, and the height of the available cliffs. This study also assesses the potential role of naturally occurring zones of weakness in the sedimentary cliffs such as those created by faults and fractures caused by regional and local tectonic activity and their potential impact on Nabataean rock-cut structures. In order to organize the 300 Nabataean façades in this data set, it also became necessary to develop a new and more comprehensive typology of these structures than has been previously developed in Nabataean scholarship.

Keywords: Nabataean, Petra, façade, geology, Dead Sea Fault
I would like to thank Dr. Cynthia Finlayson for allowing me to come with her to Petra and teaching me how to excavate. I would also like to thank her for her support and encouragement as I worked on this project. To Dr. Ron Harris, I give my heart-felt thanks for helping me develop the geological portion of this thesis. I would like to thank Dr. David Johnson for his support and suggestions to help me to improve this project. To Deb Harris, Dr. Glenna Nielsen-Grimm, Bruce Allardice, Jake Hubbert, Emma Collett, Matthew Higham, Ridge Anderson, Cassandra Ball, Rachel Huntsman, Cannon Fairbairn, and all others who aided me in collecting data while surveying the façade tombs all throughout Petra. To Allison Lee, thank you for your help with the maps and the encouragement and advice throughout this whole process. To my friends Elizabeth Whisenhunt, Stephanie Abo, Spencer Lambert, and Robert Bischoff, thanks for all your support.

I would also like to thank my parents who have always encouraged me to follow my dreams, to whatever part of the world they take me. Thanks also to Daniel, Shannon, and Will for your patience and your support.
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Chapter 1. Introduction

The Ad-Deir Monument is one of the largest and most dramatic facades carved out of the sandstone cliffs of Petra, Jordan (See Figure 1.1). Located on the Ad-Deir Plateau, this majestic building may either be a monumental triclinium to honor a Nabataean deity, a memorial to a deified Nabataean king, or a tomb for a Nabataean monarch. The Brigham Young University Ad-Deir Monument and Plateau Project (BYU AMPP) began in the Spring of 2013 with both an aerial UAV survey and an intensive walking archaeological survey of the Ad-Deir Plateau of Petra, Jordan, which was concluded in the Spring of 2018. The purpose of this project was to document all the archaeological features on the plateau as well as to better understand how to mitigate the natural processes that were destroying the Ad-Deir Monument.

At the beginning of the BYU AMPP survey, the number of archaeological sites on the plateau was unknown and no complete archaeological map of the plateau existed. During the initial survey, over 300 archaeological features on the site were documented including several Nabataean tombs and many water control features including water channels, cisterns, and catch dams. The drainage pattern of runoff water was also studied in order to learn which Nabataean water control systems needed to be restored in order to slow the erosion of the Ad-Deir Monument. By the end of the walking survey in the summer of 2018, over 500 archaeological features had been discovered, mapped, and their conservation status assessed and documented through the Middle Eastern Geodatabase for Antiquities or MEGA form system.

Following the initial survey of 2013, the BYU team returned in 2014 to begin a multi-year conservation program to redirect the annual rainwater runoff away from the
Ad-Deir Monument by utilizing and restoring pre-existing Nabataean water control systems. These specific water control systems, which include, settling pools, cisterns, and a large circular pool, were likely constructed between the Nabataean arrival in the Petra region between 400-300 BCE and CE 106 by the Nabataean civilization. During the course of the 2014 excavations and geological studies on the Ad-Deir Plateau, my colleagues and I noticed several unique geological features associated with the Ad-Deir Monument including evidence that a regional brittle deformation event formed fractures that controlled to a large extent how and where the ancient carvers of the Ad-Deir Monument placed the largest rock-cut façade in Petra within a geological landscape. It was further observed that the Ad-Deir Monument was bounded by four geological faults, one to either side of the rock outcrop where the monument was carved, one in front of the outcrop, as well as one to the back of it. These faults are regional geological features created by tectonic activity associated with the formation of the Dead Sea Rift, which is the plate boundary between the African and Eurasian tectonic plates. This Rift runs from the Olduvai Gorge in Africa up to Turkey (for more on the Dead Sea Fault and tectonic activity in the Petra region, see Chapter 2). This thesis addresses the question of how the ancient Nabataeans may have utilized the geologic features of the Petra region to insert their unique stone constructs into a dramatic landscape.
Figure 1.1: Photo looking NE at the Ad-Deir Monument (also known as the Monastery). In front of the monument is the temenos courtyard and to either side of the Ad-Deir Monument are the walls of the outcrop, which was carved back by the Nabataean artisans (Photo by the author, May 2017.)

Significantly, in order to create this massive structure, ancient artisans had removed several meters of rock from the original cliff in front of the Ad-Deir Monument, whose facade formed the NE boundary of the temenos courtyard. Along the northern outcrop, the Nabataean artisans had utilized an E-W striking fault zone as a boundary for the temenos courtyard, removing the rock on the south of the fault and leaving the outcrop on the north of the fault intact. The evidence for the fault is an east-west oriented, vertical slicken-sided surface (See Figure 1.2). Slicken lines are areas of polished stone where the rock along a fault has been ground and burnished by one block of stone sliding past another during an earthquake or slow slip events. Grooves in the smoothed surface (known as striations) document the direction in which the blocks of rock slid relative to one another. Carved over the slicken-sided surface are Nabataean cross-dressing marks that show that the Nabataeans carved away whatever stone was in front of what is now the Ad-Deir Monument, using the fault plane to assist in their efforts. Therefore, the east-west orientation of the fault plane ultimately determined the orientation of the Monastery.
These initial observations demonstrating geological control of the Ad-Deir Monument led me to address the following questions: 1) how much did the Nabataeans understand and utilize geologic features in the construction and ornamentation of their façade monuments? and 2) Were the Nabataean builders aware of and concerned about earthquake hazards? There are a number of studies on the geology of Petra, Jordan, some of which will be discussed in Chapter 2 of my thesis. Although these studies provide much information about the types of sandstone and geological formations in the Petra region, little information is currently available on the structural geology of the area with relation to the archaeological remains of the Nabataeans, specifically in relation to their rock-cut tombs and monuments. Significantly, I propose in my thesis that by investigating the geological structure and other natural features in the rocks of Petra, I could potentially add a new perspective to how the Nabataean people interacted with the fierce landscape they inhabited. By studying the relationships of Nabataean façade monuments to the regional
structural geology, I hope to be able to add information about the placement of Nabataean monuments in a geological context, a subject never before addressed by previous scholars. This will potentially add important information and perspective to our understanding of the Nabataeans as a people.

**Approach**

In order to better explore the Nabataean understanding of the geological landscape around them, I surveyed 300 of the tombs in Petra, focusing on tombs both in the city center, and the outlying regions of the Petra Archaeological Park in order to ascertain if there is a difference in the styles and placement of tombs between the different parts of the ancient city, and how these aspects might be related to the geological features. I will present my findings and suggestions for further research in this volume. First, I will discuss the history of the Petra region, examining the various cultures and civilizations that inhabited this geologically unique area. Next, I will briefly survey and explain the previous geological research with regard to the Petra region and how my research adds to this corpus of data. I test possible correlations between orientations and spacing of fractures with respect to the orientation and size of Nabataean façade monuments. I also test whether the stratigraphic level of particular ornamental layers controlled the placement of these rock-carved monuments.
Chapter 2. A Short History of the Petra Region

In order to better understand the question of the ancient Nabataean use of the geology in the Petra region, one must first understand the people who inhabited the area over time. Petra was inhabited by a number of ancient civilizations before the arrival of the Nabataeans in c. 500-300 BCE. Petra’s ethnic heritage continued to evolve after the arrival of the Romans in the Near East post 64 BCE, significant conversions to Christianity followed by Byzantine control around the 3rd Century CE, and eventually the rise of Islam in the 8th Century CE. This chapter will briefly examine the different peoples who inhabited the Petra area over time and any evidences of their use of geology in their architectural structures.

The Petra region was first inhabited during the Middle Paleolithic (250,000-45,000 BP). Several Late Levantine Mousterian sites have been studied in Jordan including Tor Faraj and Tor Sabiha, which date to between 43.8 and 63 kya. Several Middle Paleolithic


\[4\] D. Henry, “Late Levantine Mousterian Spatial Patterns at Landscape and Intrasite Scales in Southern Jordan,” in J. Le Tènsorier, R. Jagher, and M. Otte, The Lower and Middle Paleolithic in the Middle East and Neighbouring Regions, Études et Recherches Archéologiques de l’Université de Liége (ERAUL) (2001) 116. (kya is the scientific abbreviation for kilo (thousand) years ago, so 43.8 kya becomes 43,800 years ago.)
and Late Levantine Mousterian occupations have been studied along the Ma’an Plateau and the Rift Valley. Additionally, Lower and Middle Paleolithic handaxes and Levallois stone tools have been found on the slopes of the Shara Mountains by the Brown University Petra Archaeology Project survey team. Occupation of the Petra Region continued during the Epipaleolithic (18,000-12,000 BP) by the Geometric Kebaran people. Joel Janetski has found evidence of these early visitors to Petra in Wadi Mataha. In his excavations on the northwest bench of a wadi overlooking Wadi Mataha, he and a team of archaeologists from Brigham Young University discovered what they identified as a seasonal occupational camp with an unusually elaborate burial. The excavators found the body of a human male buried face down with large stone blades and a groundstone bowl. Further excavation by Joel Janetski and his team revealed evidences of human occupation during the early and late Natufian periods (12,500-9,500 BCE). Diane Kirkbride found additional evidence of Natufian occupation in the Petra region during the excavation of the Neolithic village of Beidha during the late 1950’s. Because only limited data is available on the Geometric Kebaran and Natufian occupation of the Petra region, it is not known how much of the geological landscape these earliest known inhabitants of Petra altered or took advantage of in order to survive. Since the evidences noted above suggest that the Geometric Kebaran

5 Ibid, 115.
8 Ibid, 11.
10 Ibid, 15.
and Natufian peoples were in this region seasonally, it is likely that these early inhabitants
did not greatly modify the geologic landscape and to date, the current archaeological
evidence supports that assumption.

Diane Kirkbride’s excavations of Beidha, a site in the Hinterland of the Petra Area, in
the 1960’s revealed that there was a period of time between the Mesolithic and the
Neolithic Eras when Beidha was not occupied.¹² Kirkbride’s excavators found a two-meter
layer of sterile sand between the Natufian levels at Beidha and the later Neolithic periods,
which suggests that the earliest known inhabitants of the Petra region moved out of this
area for a time for unknown reasons.¹³ Flint artifacts were found in Beidha consisting of a
parallel style to the Neolithic Pre-Pottery B (NPPB) occupation levels of Jericho, suggesting
that the next occupants of Beidha and the Petra area inhabited the region during the NPPB
period.¹⁴ The pit-house like structures found at Beidha during this occupation phase were
constructed of small sandstone slabs and blocks first in the round, then in rectangular
shapes (See Figure 2.1).¹⁵ The buildings have floors of burnished plaster similar to the
plastered floors found in NPPB Jericho.¹⁶ As previously mentioned, there were two styles
of early architecture in Beidha, the first forms were round houses, which may be the earlier
structures. The second building types are rectangular buildings. Both styles of houses
were created by the use of dry masonry and would have been susceptible to the
earthquakes that occasionally affected the region. However, no evidence of destruction by
earthquakes was noted at the Beidha archaeological site. Several burials were found at

¹² Ibid., 143.
¹³ Ibid., 143.
¹⁴ Ibid., 136.
¹⁵ Ibid., 138.
¹⁶ Ibid., 140.
Beidha, including those of four infants and one adult. Following excavations at Beidha, Kirkbride determined that the PPNB civilization that existed at Beidha was probably the same civilization as the one previously documented at Jericho during the same time period, despite possible regional variations and differences in burial practices. A second PPNB settlement, Ba’aja II or el Hamda, has been identified by the Naturhistorische Gesellschaft Nürnberg (NHG) survey team near a cone shaped mountain known as Ba’ja between Siq Umm el-Hiran and Siq Umm el ‘Alda in the region North of Petra. Possible evidence for Neolithic occupation at Petra has recently been found by AMPP on the Ad-Deir Plateau in the form of several stone tools and the presence of a dolman on the Eastern cliffs above the Ad-Deir Monument. As the dolman is inaccessible at this time due to damage to the ancient staircase and trail to the top of the Eastern Cliffs, it is unknown whether it is Neolithic or Bronze Age in origin. Unfortunately, the stone tools were found in erosion fill context during excavations on the Ad-Deir Plateau, and, thus, were not found in a datable context.

There is evidence of an Early Bronze Age occupation at Umm Saysaban, a site located North of the Ad-Deir Plateau on the trail from the Ad-Deir Monument to the Neolithic settlement of Beidha and Nabataean settlement of Little Petra. Two structures

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17 Ibid., 140.
18 Ibid., 143.
20 Personal communication with C. Finlayson, Director of the BYU Ad-Deir Monument and Plateau Project, January 2014.
on this site were excavated by German teams led by Manfred Lindner between 1998 and 1999.\textsuperscript{22} Charcoal from a rectangular stove like fireplace inside Structure I yielded a Carbon-14 date of 805-405 BCE.\textsuperscript{23} A number of storage jars were recovered from excavations of this site including one broken storage jar found in situ in Structure I and ten damaged but mostly complete storage jars from Structure II.\textsuperscript{24}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{image.png}
\caption{The stone walls of Beidha Neolithic village. These buildings were made of sandstone blocks, and slabs that are stacked on top of each other and covered in plaster. The floors of these round or rectangular buildings are also made of layers of plaster. This particular building is one of the rectangular shaped buildings. (Author photograph, May 2013)}
\end{figure}

Later inhabitants of the Petra region included the Edomites (1200 BCE-400 BCE). The Edomites appear in Biblical accounts as descendants of Abraham’s grandson Esau, who

\textsuperscript{22} Ibid., 287.
\textsuperscript{23} Ibid., 293-296.
\textsuperscript{24} Ibid., 294-296.
eventually became a centralized political power in Southern Jordan and the military rival to the Kingdom of Israel to the North and Northwest. The people of Edom not only settled in Petra, but also most of southern Jordan. By the 7th Century BCE, the Arabian trade in luxury goods including spices such as frankincense was already well established, and the Edomites may have taken advantage of the trade routes in choosing to settle in Petra given its geological characteristics which gave it strategic as well as economic advantages. These geological characteristics include the mountains that surround the city and grant it protection from invading armies. Edom was known to pay tribute to the Assyrian Empire starting in 796 BCE. Assyrian records state that Ayarammu, a king of Edom, brought gifts to Sennacherib (r. 781-705 BCE), a king of Assyria following his 701 BCE campaign against Jerusalem. Sennacherib’s successor Esarhaddon (681-669 BCE) also called on a number of kings from smaller kingdoms including Qausgabri of Edom to assist him in his Syro-Palestinian campaigns. Records such as these attest to Edom’s involvement in the international military and trade systems of the seventh century BCE.

Several Edomite settlements are known in southern Jordan outside of Petra, including a large Edomite fortress built of blocks of limestone and chert near the town of Rajif to the south of Petra (See Figure 2.2). Edomite artifacts have been found during the Crystal Bennett excavations of Umm al-Biyara, a significant plateau in the Petra region with a massive cistern complex, including a royal seal impression with an inscription that states

“belonging to Qos-Gabr(i), king of Edom.” In addition to the artifacts recovered from Umm al-Biyara, some possible Edomite pottery including a decorated jar handle have been found on the Ad-Deir Plateau during the Spring 2018 field season.

Figure 2.2: Carved chert and limestone blocks used to build the Edomite fortress at Rajif, which is located south of Petra in Jordan. Extant Edomite pottery also revealed that this was an Edomite settlement. This site has not been excavated or studied. (Photograph looking roughly south, photo taken by author, May 2016.)

Edomite buildings in the Petra region were generally constructed of dry stone masonry rather than the typical mud-brick architecture of the late Bronze and Iron Age urban settlements in the Near East. There is evidence that the walls and floors were

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30 Personal communication with Dr. Cynthia Finlayson, Director of the BYU Ad-Deir Monument and Plateau Project, May 2018. It is possible that the decorated jar handle could also come from the Islamic period. If more possible Edomite pottery is retrieved in future excavations, a more precise date may be ascertained.
plastered.\textsuperscript{32} Excavations at Tawilan and Ghrara have shown that some Edomite houses had support pillars for the roof, but these pillars were fairly unstable, meaning that the roof couldn’t have been very heavy.\textsuperscript{33} The buildings at Umm al-Biyara in Petra, were unusual in that they were large rectangular buildings with long corridor type rooms.\textsuperscript{34} The site at Umm al-Biyara, which was one of the several Edomite mountain top fortresses, hosted plain pottery rather than the usual painted pottery found at several other Edomite archaeological sites outside of the Petra region.\textsuperscript{35} At Umm al-Biyara the Edomites carved a number of bottle cisterns to collect water for the use of the settlement and as storage for possible sieges.\textsuperscript{36} The evidence from the cisterns indicates that the Edomites did modify the landscape of Petra, however, due to the fact that many of the Edomite levels at Petra have not been extensively excavated or studied, it continues to be unclear how much the Edomites did or did not take advantage of the geology of the region in their construction of their settlements, especially at Petra.

By the time that the Nabataean people settled in Petra (sometime before 300 BCE), scholars are uncertain as to or whether or not Edomites were still living in the region when the Nabataeans arrived.\textsuperscript{37} There are a number of theories as to where the Nabataeans came from, including possible origins in Southern Arabia, the Mediterranean area of the Levant, and even Mesopotamia.\textsuperscript{38} After a study of the various theories and the evidences

\textsuperscript{32} Ibid., 136.
\textsuperscript{33} Ibid., 136.
\textsuperscript{34} Ibid., 138.
\textsuperscript{35} Ibid., 137.
\textsuperscript{36} Op. Cit., Oleson, 709.
\textsuperscript{38} Ibid., D. Graf, 59.
that have been presented from the various arguments, David Graf came to the conclusion that the Nabataeans had Southern Arabian origins.\textsuperscript{39}

Stephen Schmid further suggested that the Nabataeans and other local groups such as the Maccabees and the Hasmoneans took advantage of weaknesses in the Seleucid Empire between 221-195 BCE to establish independent kingdoms.\textsuperscript{40} During this period, the Ptolemies and the Seleucids were battling over control of the Levant.\textsuperscript{41} Other Nabataean scholars such as David Johnson and Cynthia Finlayson believe the Nabataeans moved into the Petra region from Southern Arabia and Yemen around 500 BCE when the Persian Achaemenid Empire conquered Egypt, utilizing their knowledge of the important spice trade routes from the Levant to Southern Arabia to eventually settle in Petra as their strategic capital.\textsuperscript{42}

Excavations in the city center of Petra show that there were early settlements in the Colonnaded Street of Petra, Jordan as well as under the Nabataean temple of Qasr el-Bint from the Achaemenid (550-330 BCE) and during the Hellenistic Era (generally considered to be between 323 BCE and 31 BCE) eras.\textsuperscript{43} Test trenches dug by Stephan Schmid, Leigh-Ann Bedal, and David Graf along the Colonnaded Street revealed several occupational levels with artifacts that included Hellenistic black-glazed pottery fragments both over and below a clay floor and pieces of burned wood.\textsuperscript{44} The wood fragments were radiocarbon dated to

\textsuperscript{39} Ibid., 65.
\textsuperscript{40} Op. Cit., S. Schmid, 353..
\textsuperscript{41} Ibid., 353.
\textsuperscript{42} Personal Communication with C. Finlayson, January 2018.
\textsuperscript{44} Ibid., 30.
between 780-520 BCE supporting an age for this settlement in the Achaemenid Period.\textsuperscript{45} Excavations by the same team along another stretch of the Colon naded Street revealed sherds from both the Persian and Hellenistic Period.\textsuperscript{46} Analysis of the sherds showed that 42\% of the sherds were from the early Hellenistic Era and 15\% were from the late Hellenistic Period.\textsuperscript{47} Additionally, a North Arabian imitation of an Athenian tetradrachm dating to the late 4th or early 3rd century BCE was found in the trench.\textsuperscript{48} These finds along with the similar finds of Hellenistic pottery from the excavations at Qasr el-Bint support the idea of the development of a settlement in Petra initially during the Achaemenid Persian Era and continuing into the early Hellenistic Period. Several newly discovered texts add historical documentation to the archaeological record concerning the arrival of the Nabataeans in Petra. The Milan Papyrus contains information written by Posidippus of Pella, a Hellenistic poet in the Ptolemaic court from ca. 272-252 BCE.\textsuperscript{49} Posidippus specifically refers to the Nabataean king and his cavalry, showing that there was a monarch ruling the Nabataean kingdom during the Ptolemaic era.\textsuperscript{50} Another Aramaic inscription recently published by Milik mentions an early unnamed Nabataean king.\textsuperscript{51}

\textsuperscript{45} Ibid., 30.  
\textsuperscript{46} Ibid., 32.  
\textsuperscript{47} Ibid., 32.  
\textsuperscript{48} Ibid., 32.  
\textsuperscript{50} Op. Cit., Graf, 2006, 57. The text of the epigram AB 10 (II 7-16) is highly fragmented, but lines 15-16 read “…Nabataean…king of Arabian horsemen.” Graf suggests that ‘hippomachos,’ the reconstructed Greek word for horsemen would be better translated as fighting horsemen (Graf, 2006, 59). Graf also states that the word ‘basileus,’ the Greek work for king used in Posidippus’ text should be considered to refer to an actual king rather than a sheik or tribal leader (Graf, 2006, 61).  
The Nabataeans eventually developed their own writing system derived from Aramaic, the lingua franca of the Syro-Palestinian region under the Persian Achaemenid Empire, but any records they left about their historic traditions have either not survived or have not yet been located by modern archaeologists. Most of what is written about the Nabataeans derives from Greco-Roman, sources including Strabo (64 BCE-CE 21), Diodorus Siculus (60-30 BCE), and Josephus (37-100 CE). Diodorus Siculus wrote that by 312 BCE the Nabataeans lived in the region between Egypt and Syria and successfully defeated Antigonus the One-Eyed (one of the generals of Alexander the Great who became one of his successors) in his campaign against them. Diodorus related that the Nabataeans were herdsmen and traders who occasionally resorted to raiding other inhabitants of the region. Additionally, Diodorus reported that the Nabataeans were skilled in the construction of underground cisterns, a skill that led the Nabataeans to gain control over the desert trade routes. Strabo, a Roman geographer writing in the first century BC, stated that Petra was the metropolis of the Nabataean kingdom. He described the city as “having springs in abundance, both for domestic purposes and for watering gardens.” By the 1st Century BCE, Dio Cassius reported that the Nabataean king Malichus I was fined by the Romans for supplying the Parthian commander Pacorus during an invasion of Roman territory. Dio Cassius further states that Marc Antony gifted part of the Nabataean

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53 Ibid., 2:48.
54 Ibid., 19:93.
56 Ibid., 16:4:24.
kingdom to his lover, Cleopatra of Egypt. This was echoed in the writings of Plutarch who stated that Antony gifted Cleopatra parts of “Phoenicia, Coele Syria, Cyprus, and a large part of Judaea, and all that part of Arabia Nabataea which slopes towards the outer sea.” The Nabataeans, however, eventually wreaked revenge on Antony and Cleopatra by burning the Egyptian fleet during the war between Antony, Cleopatra, and Octavias/Caesar Augustus, thus cutting off Cleopatra’s escape route at the Red Sea and contributing to her suicide. The many late Hellenistic and Roman era battles over the Nabataean kingdom were due in part to the fact that Petra was situated in the center of the major trade routes that connected the ports of the Mediterranean Coast with the markets of the Levant and Mesopotamia as well as the spice trade though Southern Arabia, allowing the Nabataeans to become a wealthy people through their control of caravan ventures. This wealth, in combination with the Nabataean mastery of water collected and controlled in desert environments, allowed for Petra to grow by the 1st Century CE into a magnificent city with a large population. The city of Petra covered over 12 square miles with at least three suburbs, the majority of these regions have not yet been excavated. By the second century CE, the city had a Roman style bath structure, a massive civic building (the so-called Great Temple excavated by Martha Joukowski [See Figure 2.3]) along a colonnaded street with a hypogeum (public fountain) and an elaborate pool and garden complex. There were also


60 Ibid., 69: 2-3.
several free-standing (not rock-cut) temple structures including the Temple of the Winged Lions and Qasr-al-Bint Faroun. Most of the city center has yet to be excavated and it is unknown what buildings may have been damaged, destroyed, and buried by either the numerous earthquakes or the passage of time.

Figure 2.3: The so-called "Great Temple" in the city center of Petra. This building was initially thought to be a temple structure, but it may also be a civic center. In front of the Great Temple are the remnants of the paved Colonnaded Street. (Photograph taken looking south by author, December 2017.)

Not much is known about the religious or funerary traditions and beliefs of the Nabataeans. They left few inscriptions carved into stone, and few of their other records have been discovered. The Roman Emperor Trajan annexed Petra in CE 106, and the city was given the honorable title of ‘Metropolis’ by Trajan in CE 114.62 Although, there is no conclusive evidence that Hadrian (r. 117-138 CE), the successor to Trajan, personally

visited Petra, he did name Petra after himself in c. 130 CE.\textsuperscript{63} Under Roman rule, Petra retained the name Petra Hadriana into the Byzantine Period. The rise of Christianity in the Roman Empire and its spread through the ancient Near East resulted in the construction of several new Byzantine churches within the city of Petra and the conversion of several tombs, such as the Urn Tomb, into Christian places of worship.\textsuperscript{64} The Urn Tomb features a dedicatory inscription stating that the Holy Bishop Jason on the 5th of Loos, CE 341, dedicated it as a church (See Figure 2.4).\textsuperscript{65}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{urn_tomb}
\caption{The Urn Tomb and the Greek inscription dedicating the Urn Tomb as a Christian Church. (Photos taken looking east by author. The inscription is on the east wall of the Urn Monument’s main chamber. May 2013.)}
\end{figure}

\begin{flushright}
\textsuperscript{65} J. McKenzie, \textit{The Architecture of Petra} (Oxford University Press, 1990), 38.
\end{flushright}
After a major earthquake in CE 363, many of the freestanding buildings in the city were destroyed. A Syriac letter written by Cyril, Bishop of Jerusalem, gave the exact date of the earthquake as the 19th of May, CE 363. Bishop Cyril described the destruction in several cities, including the city known as RQM (Reqem, the Nabataean name for Petra), which he listed as being more than half destroyed.

Following the earthquake, parts of the city were rebuilt while other regions were abandoned. The as-Siq aqueduct and pipeline system is a good example of the repairs done after the CE 363 earthquake. The repair was done rapidly, and following the repair, the formerly covered water channels were left uncovered. In addition to the repairs on the water systems of Petra, several churches were built, showing that the Christian presence in the region continued for centuries after the earthquake. The Church of St. Mary (also known as the Petra Church) was built in the late fifth century CE. The floor of this church was covered in elaborate mosaics. Additionally, this church had an papyrus scroll archive that was mostly made up of financial and land records. This archive was preserved because the church was largely destroyed by a fire, carbonizing the scrolls. The Ridge Church was built in the 6th Century. It was probably destroyed in the earthquake of CE

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67 Ibid., Hammond, 66.
73 Ibid., 213.
The third currently known church in Petra was the Blue Chapel, built in the late 5th or early 6th century. There may be other churches in Petra that have not yet been excavated.

The city of Petra is mentioned in the information written by a number of Bishops and visitors to Petra during the Byzantine Period. John Moschos (surnamed Euocrates) mentioned Petra several times in his book *The Spiritual Meadow*. One story that Moschos recounts is the exile of Archbishop Elias of Jerusalem and Flavian, the Archbishop of Antioch by Emperor Anastasios. Flavian was banished for being a follower of Nestorianism, a variation of early Christianity, which was not approved of by Jerusalem. John Moschos also included the words of Abba John of Petra and Amma Damiana, the solitary (the mother of Abba Athenogenes, Bishop of Petra) in his record. By mentioning these names, John Moschos shows that there were Christians living in Petra during his lifetime. John Malalas, another early Christian writer, wrote about a man by the name of John Isthmeos from Amida. John Isthmeos was a con man who seemed to have used antiquities to convince a lot of people to give him money. Eventually, he made his way to Constantinople where he was caught and banished to Petra. These records suggest that for at least part of its history, Petra was used as a place of banishment for wrongdoers, and for those who were non-conformists to the centralized religious authorities in the

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74 Ibid., 213.
76 Ibid., 25.
80 Ibid., 224.
Byzantine Empire. Although an important Byzantine City in the East, Petra was abandoned and fell into decay and ruin after the Islamic conquest of the region around CE 663. Not much research has been done on the early Islamic occupation of Petra. It is also not entirely clear when Petra was abandoned or how much it was used after the Islamic conquest. There are at least two Crusader era castles overlooking Petra which have not been thoroughly studied, excavated, or restored. These Crusader Era castles include al-Weirah and al-Hubis (See Figure 2.5 for a photo of al-Weirah). There desperately needs to be more study on the later occupations of Petra in all Islamic Eras as well as the Crusader Period.

Figure 2.5: The ruins of al-Weirah crusader castle which overlooks Petra on the road between Wadi-Musa and Umm Sayhoun. This castle has never been entirely excavated or restored. (Photograph by Author, December 2015.)
The Western world rediscovered Petra on the 22nd of August 1812 when the Swiss explorer John L. Burckhardt, disguised as a Muslim traveler by the name of Ibrahim ibn Abdallah, travelled through Petra on pilgrimage to the Tomb of the Prophet Aaron near Petra at Jebel Nabi Haroun. Subsequently in 1904, Rudolf Ernst Brünnow and Alfred Domaszewski published the first survey of the tombs of Petra. They cataloged 619 rock cut tombs, carved rooms, cultic niches, and other sites in the Petra region. Following the survey of Brünnow and Domaszewski, many other archaeological studies and excavations have been done in the region. The most commonly cited of these studies include Judith McKenzie’s book, *The Architecture of Petra*, and Lucy Wadeson’s study on the tombs of Petra. This thesis will suggest numerous corrections and additional perspectives to the studies noted above.

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81 I. Browning, *Petra* (New Jersey, Noyes Press, 1973) 64.
82 R. E. Brünnow and A. Domaszewski, *Die Provincia Arabia* (Strassburg, 1904).
Chapter 3. The Geological Landscapes of the Petra Region and the Impact of Tectonics

As mentioned in Chapter 2, the Petra region has a long history of human occupation. The geological history of the region is equally important to understand in order to test if the Nabataeans potentially used and understood the geological landscape around them particularly in the construction of rock-cut façades and interior structures. In this chapter, I will discuss the geological history of the region and also define the terminology necessary to explain the geological observations made in this study. These observations provide a way to test for correlations between the building practices of the Nabataean peoples and geological features.

The ancient Nabataean capital city of Petra is located in the southern part of Jordan near the massive Wadi Araba, which marks the location of the Dead Sea Rift Valley (See Map 3.1). The geological stratigraphy of Petra is composed of three major rock deposition units, the PreCambrian basement, which is unconformably overlain by the Umm Ishrin and Disi Sandstone formations. The PreCambrian basement is 550 million years old and mostly consists of igneous granite intruding metamorphic gneiss and schist. These rocks are highly deformed and metamorphosed due to the pan-African mountain building event and ongoing tectonic activity in the region (See Figure 3.1).

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Map 3.1: A map of the Dead Sea area. Modern country boundaries are outlined by dotted lines. The Wadi Araba (Dead Sea Fault) which runs from the Gulf of Aqaba to the Dead Sea is likely the cause of many of the earthquakes that have affected the Petra region. (Modified from E. al Tarazi, et al.87)

Figure 3.1: Precambrian basement rocks (massive dark brown and greenish rocks) looking west from the top of the Bergburg Monument on the Ad-Deir Plateau. Layered sandstone unconformably overlies the metamorphic rocks. (Photo by Author, May 2013.)

Unconformably overlying these metamorphic and igneous rocks is Cambrian Umm Ishrin Sandstone (550-530 million years old) that is commonly reddish in color.\textsuperscript{88} The Umm Ishrin Sandstone is predominantly formed of medium to fine subrounded to subangular grains of multicolored sand with interbedded limestone, siltstone and shale bands (See Figure 3.2).\textsuperscript{89}

Figure 3.2: The multicolored layers of sandstone that form the Umm Ishrin Sandstone. (BD 731, the Carmine Façade). The photograph was taking looking to the Southeast. (Author photograph, May 2016.)

There are three members (or stratigraphic units) that are a part of the overall Umm Ishrin Sandstone Formation. The lowest of the members is called the Lower Sandstone or ‘smooth sandstone, which shows no unique weathering patterns’ (See Figure 3.3).\textsuperscript{90} This unit is overlain by Middle Sandstone or the ‘tear sandstone,’ which gets its name because it

\textsuperscript{88} Ibid., 7.
\textsuperscript{90} Ibid., 34. Jaser and Barjous have suggested that the Lower Sandstone was used as a building stone and decorative stone by the Nabataeans and the Romans.
looks like it melts as it erodes forming patterns resembling organ pipes, melted ice cream, or tears (See Figure 3.4).\textsuperscript{91}

Figure 3.3: BD 110, a tomb carved in the Lower Member of the Umm Ishrin Sandstone (the “smooth sandstone”). Note crossbeds slightly inclined to the right. (Photo by Author, May 2017)

Figure 3.4: Façade located at 30.331156 35.436422 (Type VIIa:CF.02- described in Chapter 4 of this document), south of the main city center of Petra. This tomb is carved in the Middle Member of the Umm Ishrin Sandstone (the “tear sandstone”). The carvings on this tomb have weathered in the typical ‘melting pattern’ that is the source of the nickname of the Middle Member. (Author photograph, May 2017.)

\textsuperscript{91} Ibid., 29. Jaser and Barjous suggested that the Nabataeans may have mixed a protective coating of lime and water to plaster the friable sandstone and protect the carved tomb facades.
The final member of the Umm Ishrin Sandstone is the Upper Sandstone or ‘honeycomb sandstone,’ so named for its weathering pattern (See Figure 3.5).  

Figure 3.5: Façade Type I: NQF.01 (authors typology, BD 807) is carved in sandstone with a ‘honeycomb’ weathering pattern which is typical of the upper member of the Umm Ishrin sandstone. (Author Photo, May 2016.)

A sedimentalogical study of the sandstone composition revealed that it is composed of 70-77% quartz. Additional studies by Thomas R. Paradise on the sandstone reveal that sandstone units with iron concentrations close to or above 4% are more resistant to

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92 Ibid., 29.
weathering than those with concentrations closer to 2%\textsuperscript{94}. Thus, layers of the Umm Ishrin sandstone that are more iron-rich are more resistant to weathering, causing them to stand out from the outcrop. Paradise further stated that the ferric (iron rich) beds of blacker, denser stone show very little signs of erosion\textsuperscript{95}. In several cases, such as in the Lion Triclinium, located along the trail to the Ad-Deir Monument, the iron rich sandstone layer forms the floor of the carved triclinium, indicating that the ancient Nabataeans may have utilized the relative hardness of this geological feature as a floor medium or chose to retain this geological layer, possibly because it was far more difficult to carve through than the less iron-rich layers above it.

Nicholas Steno (CE 1638-1686), an early geologist described several geological laws that are used to explain the formation of sedimentary rocks such as sandstone\textsuperscript{96}. One of these laws is the Law of Original Horizontality, which states that sedimentary rock layers are originally deposited flat\textsuperscript{97}. Since sedimentary rocks start out as loose sediment such as sand, this law is applicable to archaeological stratigraphy as well as the geology of sedimentary rocks. Over time, the loose sediment is consolidated into rock through a number of processes including cementation (the gaps between grains of sand or other sediments are filled in with minerals such as calcite mud or cement), or compaction (the

\textsuperscript{95} Ibid., 216.
\textsuperscript{96} J. Hansen, “On the Origin of Natural History: Steno’s Modern but Forgotten Philosophy of Science,” in G. Rosenberg, \textit{The Revolution in Geology from the Renaissance to the Enlightenment} (Geological Society of America Memoir 203, Boulder Colorado, 2009) 175. In this article, Hansen lists several of Steno’s principle for interpreting the geological record including the ‘Law of Original Horizontality’ and the ‘Law of Superpositioning,’ which means that younger layers of strata are deposited over older layers.
\textsuperscript{97} Ibid., 175.
weight of the overlying sediment crushes the lower loose sediments into stone).

Generally, the rock layers start out in horizontal beds, but in tectonically active areas, the bedding planes can be folded, tilted, or moved into different positions. Geometric analysis of layers that are not horizontal (or layers that have been tilted, folded, or otherwise deformed) provide a way to reconstruct how they were deformed. (See Figure 3.6)

![Image](image_url)

**Figure 3.6**: Looking south (GPS coordinates 31.56746 35.62428) at asymmetrical folded bedding planes formed due to tectonic convergence. These folds are found at Machaerus, one of the fortresses built by Herod the Great overlooking the Dead Sea in Jordan. (Photograph by author, June 2016.)

Measurements of how much a stratigraphic bed is tilted are made using a clinometer. These readings are called dip readings and are generally between 0 and 90 degrees. At 0 degrees, the bedding plane is considered to be flat, at 90 degrees, the bed is vertical. The sandstone beds in Petra are generally found in horizontal stratigraphic layers with a dip reading of approximately 0, showing that there is little to no tilt to the bedding planes. However, in some layers of the sandstone, there are cross-beds, or geological features that form on a sloping surface, such as ripple marks on lake beds, river beds, or oceanic floors, or formed due to the migration of sand dunes. Cross-beds are generally

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98 Information on the dip of the bedding comes from a survey of various regions in Petra in which strike and dip for 179 fractures and faults were measured by the author.
deposited on sloped surfaces due to strong wind or water currents. In Petra, cross-bedding is usually associated with the remnants of ancient wind deposits, which formed petrified sand dunes.

The majority of the monumental tombs of Petra are carved into the dramatic red Umm Ishrin sandstone, which has given the ancient city the description of the “red rose city half as old as time.” This sandstone tends to form cliffs due to the high amount of quartz grains forming both the matrix and the cement of the stone. The Umm Ishrin sandstone is also known for beautiful colorful banding in the stone known as Liesegang Banding (See Figure 3.7). These bands are commonly misinterpreted as bedding planes that have been tilted, but they form after the sand layers are already laid down. The cause of the coloration in the stone is thought to be associated with cementation processes and mineral variation in the stone.

Figure 3.7: Brilliantly colored Liesegang bands. On the left side of the photograph, a fault offsets the colored bands with the right-side moving up relative to the left. (Photo taken by Author, May 2014.)

It is possible that the Nabataean carvers chose to carve their tombs predominantly in the Umm Ishrin formation due to the beauty of the colored bands, but evidence suggests that in

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99 Op. Cit., Paradise, 7. The name of Petra as the “red rose city half as old as time,” comes from John William Burgon’s poem “Petra,” which won the Burgon Oxford University’s Nedigate Prize for Poetry in 1845.
some tombs, the interior walls were covered with molded or painted plaster. For example, an extant Hellenistic style painting on a plastered ceiling from Little Petra has imagery associated in the Hellenized Near East with Dionysiac iconography, (primarily grapevines, birds, and putti). In Nabataean funerary contexts these symbols may be associated with Dushares-Dionysus and rejuvenation (See Figure 3.8).

![Figure 3.8: The painted ceiling in the Painted House in Little Petra near Beidha. This ceiling features images of putti (Eros type figures) picking grapes and chasing birds away from the grapes that are in the process of being harvested. There are a few other figures in this painting including one poorly preserved face that some authors have associated with Isis. The symbolism in this particular motif is likely associated with rejuvenation and fertility and may be associated with either Isis or Dionysus. (Author photographs, May 2014.)](image)

Above the colorful Umm Ishrin Sandstone is the Disi Sandstone deposited during the Ordovician period (530-470 million years ago). The Disi Sandstone is a whitish to grey or yellow-grey and coarse-grained. Nabataean Monuments between the main entrance of Petra in Wadi Musa and the start of the Siq are often carved in the Disi Sandstone. These monuments include the Obelisk Tomb, Djinn Blocks, and the Aslah Tomb Complex (see Figure 3.9). Additional façades in the Disi Sandstone include the rock-cut monuments at

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101 Ibid., 7. Additionally, this sandstone is described in Op. Cit., Jaser and Barjous, 29.
Beidha and in the Snake Monument area. The Disi Sandstone has large-scale trough cross-bedding, which suggests that this particular sandstone formation represents the remnants of terrestrial or sub-aqueous sand-dunes in the Ordovician period. Most other rock layers that were deposited over these two formations in the Petra region have eroded away through time, exposing the Cambrian and Ordovician rocks. Because the composition, and therefore the mechanical properties, of the metamorphic basement and the two sandstone layers varies, they each respond differently to deformation caused by tectonic plate motion along the Dead Sea Rift Valley. It is thus important to understand Petra’s geology with relation to the Dead Sea Rift Valley itself.

Figure 3.9: Tomb complexes such as the Aslah Tomb Complex are carved in the Disi Sandstone. Photo taken facing the Southwest. (Photo by author, January 2016.)

The Dead Sea Rift is an extensional transform fault (trans-tensional fault) similar to parts of the San Andreas Fault in California. It is oriented roughly North-South and

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103 A fault is defined in M. Allaby, “Fault,” Oxford Dictionary of Geology and Earth Sciences (Oxford University Press, 2013) as "the approximate plane surface of a fracture in a rock body, caused by brittle failure and along which observable relative displacement has
extends from Turkey to the southern edge of the Gulf of Aqaba (See Figure 2.1). Like other faults including the Wasatch Fault in Utah, the Dead Sea Rift is broken up into smaller segments. The motions of tectonic plates causes pressure to build up along each individual section of the fault. Eventually, the accumulated pressure overcomes the frictional resistance of the fault causing a violent slip event. The slip creates seismic waves that reverberate away from the source. The release of pressure along one segment of a fault can increase the pressure along other sections, occasionally setting off earthquakes in an earthquake swarm or series. The Dead Sea Fault has had several damage-causing earthquakes through time, including those in the years 31 BCE, CE 363, 551, 749, 1033, 1212, and 1837.

The sandstone units at Petra respond to the tectonic stresses by fracturing. Fractures are commonly formed when the mounting stress on the strata caused by tectonic motion overcomes the brittle and ductile strength of the rock, forcing the rock to break. There are numerous examples of such breaks throughout the geological landscape of Petra, including the cliffs that form parts of fault zones in the Umm Ishrin Sandstone.

There are also several planar features in Petra that display classic deformational features that form due to fault slip, which include zones of pulverized rock known as breccia, finely pulverized rock producing polished surfaces known as slicken-sides (such as occurred between adjacent blocks.” In other words, a fault is a fracture in rocks caused by the buildup of pressure due to the motion of tectonic plates along which displacement (or motion) has occurred. A transtensional fault has both the characteristics of a normal fault in which the displacement is vertical and a strike slip fault in which the motion of the fault is side to side.

106 Fractures, according to Op. Cit., M. Allaby, are general breaks in rock or minerals not attributed to other sources such as mineral properties or metamorphism of the rocks.
the ones shown in Figure 1.2), grooves parallel to the slip direction scored into the slickensides and displacement of features in the rock, such as bedding planes and color bands (See Figure 2.7). Slip along faults commonly have both horizontal and vertical components. Detecting the slip history on faults relies heavily on observing displacements of pre-faulting features. Horizontal displacement is manifest in map view and vertical displacement in cross-sectional view. Vertical displacement, for example, can be seen along a fault near the Lion Triclinium. (See Figure 3.10).

In addition to faults, fractures can also form by opening without any slip. These tension fractures are known as joints. Analysis of the orientations, slip and opening directions of these fractures provide a way to determine if they are related to one or several different stress regimes. One such type of fracture is an en echelon array. En echelon arrays are generally found as a series of parallel or semi-parallel joints. The size of the arrays vary from microfractures (See Figure 3.12) to regional structures. An en echelon array is seen on at least one tomb in Petra (See Figure 3.11).
Figure 3.11: Photo looking west at BD 102 (author’s typology VIb:DEF.08 located at GPS 30.323493 35.448273), a tomb near the theater in Petra. Parallel, stepping joints are visible on the façade of the tomb (left bottom corner of the tomb, step to the right by the door of the tomb, then again step to the right on the next tomb over). This en echelon array shows that the maximum direction of the stress is parallel to the fractures. The sense of shear (or relative motions of the upper and lower blocks of rock) is top block down to the left, which is an extensional or normal fault associated with regional extension.¹⁰⁷ (Photo taken by author, May 2016.)

Figure 3.12: Photo looking down with North at the top of the images of a small-scale en echelon array on the trail to the Ad-Deir monument. The small right-stepping fractures are filled in with white calcite. The fractures are oriented at 336°. (Photo by Author, June 2014)

¹⁰⁷ Personal communication with Dr. Ron Harris, Department of Geology, BYU, 14 March 2018.
Another type of fracture pattern associated with fault zones is known conjugate or paired fractures. These shear fractures form an “x” shape where two fractures come together in an “x” (See Figures 3.13 and 3.14). The maximum stress direction bisects the acute angle of the “x”, and the minimum stress direction bisects the obtuse angle.

Figure 3.13: Relationship between maximum and minimum stresses (heavy arrows) and fault types. R and R’ are reidel shears that form in fault zones. (Drawing by author.)

Figure 3.14: Photo looking southeast at conjugate fracture on the Nabataean stairs near the Lion Triclinium on the path to the Ad-Deir Monument. (Photograph by author, June 2014.)

By documenting fracture patterns for this study, a better overall understanding of the structural geology of Petra may be created. The fractures mostly cut through whatever rock types are found in Petra with some variation between layers. The geological structure
of Petra and original features in the rocks, such as color banding created differing rock
canvases that Nabataean architects may have used for placing and decorating
anthropogenic structures. The Nabataean façade monuments present a unique geological
and anthropological setting to conduct a study examining the interactions between the
Nabataeans and the landscape.
Chapter 4. Methods and Theory

Previous Research:

Many previous research studies have focused on the Nabataean façade monuments in an attempt to create a tomb chronology. These studies have mostly been an examination of the iconography and styles of the tombs. Unfortunately, these studies have provided very little useful information about when the rock-cut monuments were created and have resulted in few verifiable conclusions. The question that I would like to answer about the Nabataean tomb building strategy relates to the Nabataean stone masons’ knowledge of the geology of their surroundings. Did the Nabataeans use the fracture and layer patterns in various locations to determine boundaries of their tombs and other façade monuments? Did they have a preferential tomb orientation based on solar alignment as has been suggested by Thomas Paradise or was tomb orientation based on pre-existing geological formations? Or, did the geology have no bearing at all on the Nabataean choice of tomb locations? In order to adequately address these queries, we must first

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108 J. McKenzie, 1990 wrote the main study on tomb iconography. She attempted to assert a tomb chronology from the stylistic comparison of various tombs, comparing the inscribed Nabataean tombs from ancient Hegra (in Saudi Arabia), Alexandrian architectural styles, and Pompeian wall paintings. Other studies that have continued this line of work include Wadeson, 2011. These studies are all based on the initial tomb surveys of Petra done by Brünnow and Domaszewski, 1904.

understand what previous scholars have written concerning the facades of the tombs themselves over time.

The first study of the tombs of Petra was a survey completed by the German-American archaeologist Rudolf Ernst Brünnow and the Austrian classical scholar Alfred von Domaszewski in 1904. During this survey, they visited many of the visible tombs in Petra, mapping them topographically, as well as drawing, and photographing clusters of tombs. They assigned numbers to the tombs, known as BD numbers. These designations are still used in identifying or describing the tombs today. During the course of their survey, Brünnow and Domaszewski also sorted the rock-cut monuments into a few labeled categories such as the ‘Hegr’ tombs and ‘Proto-Hegr; tomb types. The categories that they created are also still used to describe these façade monuments with a few of the categories being modified by later authors such as Judith McKenzie. Although the Brünnow and Domaszewski maps are still the best reference sources for locating the tombs in many areas of Petra, the survey is outdated and additional carved Nabataean monuments have since been uncovered by either erosion or by excavation. During the course of my survey, I also found that some of the maps, such as the Brünnow-Domeszewski (BD) map for the trail to Ad-Deir is inaccurate and only shows a few of the many rock-cut monuments that were carved in this location in Petra. The BD map for the Ad-Deir Plateau is also incomplete, lacking several of the façades and monuments that were located by the BYU Ad-Deir Monument and Plateau Project crew during their 2013 survey.

111 Ibid.,
Although there have been later mapping surveys of Petra, none of them have been or are available for inspection.

Judith McKenzie attempted to date the Nabataean tombs of Petra by comparing them stylistically to the tombs of ancient Hegra, a Nabataean city located in modern Saudi Arabia as well as with the monumental architecture of Alexandria.\textsuperscript{113} Thirty-six of the eighty monumental façade structures in Hegra have Nabataean inscriptions on them.\textsuperscript{114} Of the façades with inscriptions, only twenty-eight can be clearly dated. MacKenzie compared motifs and styles found on the dated tombs at Hegra with tombs and monuments from Petra in an attempt to establish a chronology for the buildings at Petra.\textsuperscript{115} She looked at specific tombs in Petra such as the Khazneh, the Tomb of Sextius Florintinus, and the so-called “royal tombs.”\textsuperscript{116} She also looked at some other well-known tombs and a few of the other monumental structures in Petra in an attempt to create a chronology.\textsuperscript{117} Unfortunately, she only looked at a 26 of the more than 600 façade tombs of Petra, focusing

\textsuperscript{113} Ibid., 4.
\textsuperscript{115} Op. Cit., McKenzie, 1904, 5
\textsuperscript{116} Ibid., 33 (analysis of the Tomb of Sextius Florentinus), 40 (analysis and information on El Khazneh), 41 (the Urn Tomb, one of the ‘Royal Tombs’), 44 (the Corinthian Tomb, another of the ‘Royal Tombs’).
\textsuperscript{117} Ibid., 34-38 (In these pages, McKenzie discusses the monuments in Petra that have been dated. Some like the Tomb of Sextius Florentinus have been dated by inscriptions. The tomb of Sextius Florentinus was dated according to the Latin inscription that suggests that the tomb patron and occupant was Sextius Florentinus, the governor of Arabia who died in CE 129. It is unknown if the tomb was commissioned by Florentinus, or if his family reutilized a tomb that had been carved for an earlier Nabataean family. The Aslah triclinium has also been dated to the first year of the reign of Obodos, son of Aretas (around 96-92 BCE). She also looked at other dated monuments which include the Temenos Gate, the Nabataean water systems, and the Urn Tomb, which was converted to a church in CE 446.)
only on tombs that met her criterion.\textsuperscript{118} This limited study of the Petra tombs excludes many of the unique tombs that I have been able to visit during my tomb survey which included a data set of over 300 tombs from many of the regions of the city and its environs.

Lucy Wadeson has also worked on addressing the problem of the tomb chronology by studying the façades and funerary architecture associated with the tombs.\textsuperscript{119} Wadeson's early studies focused on looking at the façade tomb interiors and came to the conclusion that the façade tombs became simplified over time with the more complex façades being carved first and the simpler tombs being carved later chronologically.\textsuperscript{120} Wadeson also looked at the façade tombs and their relationships to the types of sandstone the Nabataeans were choosing for the carving of their tombs.\textsuperscript{121} Her study of the geological and geographical landscapes of the façade tombs excluded all references to the structural landscape in the area (namely the faults and fractures) and its impact on the tombs.\textsuperscript{122} Her geological study mostly looked at the number of tombs that were found in each of four sandstones variations (Disi Sandstone and the upper, middle, and lower members of the Umm Ishrin Sandstone) to see if there was a Nabataean preference for a particular sandstone type.\textsuperscript{123} She also studied the funerary architecture of the more major tomb

\textsuperscript{118} Ibid., 40-53. (The number 26 came from counting the number of tombs mentioned in her publication.)
\textsuperscript{120} Ibid., 48-49.
\textsuperscript{122} Ibid., 105.
\textsuperscript{123} Ibid., 105.
complexes, which included the archaeological structures on the exterior of the tomb.\textsuperscript{124} This architecture often included a triclinium, exterior benches, cisterns, and additional chambers.\textsuperscript{125} Wadeson has done several studies on tombs in Petra and has worked on projects such as the Funerary Topography of Petra Project (FTPP) and the Petra Hinterland Tomb Project (PHTP). This has allowed her to study a number of tomb types including some non-traditional Nabataean tombs. Significantly, her published articles, only focused on a few of the Petra tombs rather than a larger data set, and she does not factor in geological activity or other events as manifested in the Petra landscapes as factors possibly influencing Nabataean tomb architects.

The biggest problem with the studies done by Wadeson and McKenzie derive from their use of a tomb typology based on stylistic analysis in an attempt to create chronology. There are a number of tombs that fit into none of the façade types established by Brünnow and Domaszewski and modified by McKenzie. This problem will be elaborated on further in Chapter 4. None of the studies done by Wadeson and MacKenzie have focused on all of the tombs in Petra. MacKenzie focused on the major named tombs in her study, and Wadeson focused on many of the larger tombs in the city center. Both studies neglected many of the rock-cut monuments in the outlying regions of Petra. Although both of these studies are valuable benchmarks, I do not believe that they adequately or accurately address the problem of chronology for the Nabataean tombs within Petra. Neither study looked at the extreme variations in the tombs of Petra given their limited data sets. Additionally, datable artifacts from excavations within Nabataean tomb contexts were not

\textsuperscript{124} Ibid., 107.
\textsuperscript{125} Ibid., 107.
considered by either MacKenzie or Wadeson in their efforts to create a façade chronology. Only a comprehensive study of the façade architecture, excavation data, and epigraphical studies can yield a conclusive chronology.

Several archaeologists have also started to look at the possible relationships of the Nabataean tombs and monuments with solar phenomenon such as equinoxes and solstices. Thomas Paradise has written a number of articles about his study of the Nabataeans and astronomy.\textsuperscript{126} He found that a “significant number of [tomb] facades, interior niches, and wall glyphs were found to be related to solstitial and equinoctial paths.”\textsuperscript{127} Paradise wrote that the purpose of his research was to “better understand how the Nabataeans of Petra integrated the Sun’s pathways and its related illumination onto facades and into chambers to their individual structures and monuments, but also to the larger urban morphology of the city.”\textsuperscript{128} Paradise found that some of the major tombs such as the Urn Tomb, the Armor Tomb, the Corinthian Tomb, the Lion Triclinium, and the Obelisk Tomb were “oriented, and/or designed, and/or modified to create an association between the structure and the Sun’s paths, on the seasonal marker days.”\textsuperscript{129} Several prominent Nabataean structures such as the Temple of the Winged Lions had no recognizable solar alignments.\textsuperscript{130} Paradise used

\begin{footnotes}
\textsuperscript{128} Ibid., 1.
\textsuperscript{129} Ibid., 2.
\textsuperscript{130} Ibid., 3.
\end{footnotes}
both the modern positions of the sun during equinoxes and solstices and the calculated ancient positions of the sun in order to determine the solar alignments of various Nabataean structures. His study also looked at monuments that were aligned with significant sacred features in the landscape such as Jebel Nabi Haroun, a nearby prominent mountain that had a Nabataean temple built near the top.\textsuperscript{131} Although he studied many of the landscape features that may have influenced the Nabataean placement and orientation of their tombs, Paradise did not look at the geology of the area to see how the pre-existing landscape might have influenced the Nabataean builders.

Juan Antonio Belmonte, A. Cesar Gonzales-Garcia, and Andrea Polcaro studied the astronomical effects of solar phenomena (solstices and equinoxes) at Nabataean religious sites that they believed were temples and sacred buildings.\textsuperscript{132} Their study included monuments such as El Khazneh, the Urn Tomb, and the Ad-Deir Monument.\textsuperscript{133} Although some of their findings have been supported by similar studies done by Thomas Paradise, there are a few problems with the Belmonte, Gonzales-Garcia, and Polcaro study. At the Ad-Deir Monument for instance, the authors proposed that a human modified rock formation was carved in the shape of a lion’s head.\textsuperscript{134} They associated this so-called lion with the goddess Al-Uzza and suggested that during the winter solstice the sun would appear to set twice behind different parts of this formation and that this was part of a sacred landscape.\textsuperscript{135} However, this study didn’t actually account for the presence of a

\begin{itemize}
  \item \textsuperscript{131} Ibid., 3
  \item \textsuperscript{133} Ibid., 2.
  \item \textsuperscript{134} Ibid., 4.
  \item \textsuperscript{135} Ibid., 4.
\end{itemize}
Nabataean structure that was built around this modified rock formation which would have changed the play of light across the ‘lion’s head.’ In a survey done by the BYU AMPP team in 2013, the presence of the walls forming the base of the Nabataean structure around this rock formation were mapped. Interestingly enough, the Belmonte, et al study did not refer to the earlier work done on the solar orientations by Thomas Paradise. As just demonstrated, many previous research studies have focused on particular aspects of the Nabataean tombs including stylistic analysis and examination of tomb orientation with regards to solar alignments. Unfortunately, these studies have provided very little verifiable information about the Nabataean tombs or the people who carved them. The question that I would like to address about the Nabataean tomb building strategy goes beyond these earlier attempts and tests possible relationships between geological structures and Nabataean stone mason building practices. Did the pre-existing geologic structure influence the design and construction of Nabataean structures? Do the tombs have a preferred orientation? Did they sculpt the tomb orientation based on solar alignment as has been suggested by Thomas Paradise, or was tomb placement influenced also or more importantly by the existing geological factors? Or, are there other factors that have not been considered?

**Tomb Surveys**

In order to address these questions, tomb surveys were conducted by this author during the BYU AMPP spring excavation seasons between 2015-2017. There are a number of different tomb types in Petra. *Loculi*, or cists, are the smallest types of burials

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that are found in the Petra region. They are generally graves for small numbers of people, usually one or two per loculi. They are found both as simple surface burials or as part of the funerary architecture carved into the floor or walls of monumental tombs such as the façade monuments in Wadi Mataha. Many of the surface burial loculi in Petra have been robbed, but a few have been excavated including cists in Wadi Mataha and one found on the Ad-Deir Plateau. The loculi that are exposed do not yield much information about the Nabataean use of the geology as they are carved into the bedrock both inside of façade tombs and out in the open within exposed bedrock outcroppings. Loculi yield comparatively little information about the placement of tombs in the local geology but possibly more about family clan and tribal land ownership distribution within Petra. Another fairly common tomb type utilized by the Nabataeans are shaft tombs, many of which are still undiscovered and unexcavated. This type of tomb has a carved shaft that leads down into a subterranean chamber, often with several loculi inside. Several of these have been excavated by the North Ridge Tomb Project and Manfred Lindner. As most of them are buried under ground and are thus inaccessible, they are not included in this survey.

The majority of the rest of the known tombs in the Petra region are the façade tombs. The areas of focus for this author's survey of the façade monuments were places such as the city center where a high number of façade tombs are concentrated as well as


Nabataean rock-cut chambers in the outlying regions and wadis in greater Petra. The city center contains many of the most well-known tombs, the placement of which may reflect some of the worldviews of the Nabataeans. Outlying façade monuments were also investigated in order to ascertain if geographical location as well as the geological landscape in which they were placed leads to variation in the tomb placement, orientation, or style. The monuments studied in the outlying regions included those around the Snake Monument near the ancient southern caravan routes into Petra, Wadi Turkmanyia placed near the northern axis to Petra, and monumental tombs on and around the Ad-Deir Plateau. Additionally, carved structures around Wadi Farasa (to the SW) and Wadi Mataha (to the NE), two fairly well documented sites where several tombs have been excavated, are included in this survey.¹³⁹

My investigation includes data from over 300 of the 600 total façade tombs. The tombs are spread out over several miles of rough terrain and previous maps by other authors showing the locations of many of them are inaccurate. This makes it difficult to find and study the façade monuments with the limited amounts of time that I had in the field. Also, other rock-cut chambers are potentially buried under erosion debris and have yet to be discovered, as was the case with the tombs found under El-Khazneh.140 There may also be additional tombs that have not been discovered by any of the existing mapping projects. Unfortunately, time constraints prevented the survey of tombs and façade monuments around the base of Umm al-Biyara, many of the rock-cut chambers at the base of the Ad-Deir trail, and the monuments in the region of El Madras. These should be future areas of study.

At each façade monument, the orientation of the doorway of the rock-cut chamber was collected for my study using a surveyor’s compass. This information can help to determine if Nabataean monument patrons had a preference in the orientation of the doorway of these structures. Façade orientation was plotted in geometric space using rose diagrams, which provide a way to investigate directional patterns. These rose diagrams will be compared to rose diagrams created from strikes collected with a surveyor’s compass of the structural orientations of geological faults and fractures as part of a geology survey in 2014. From this comparison, any patterns between the orientation of the cliffs and the orientations of the tombs will be established. This may lead to a better understanding of whether the placement of Nabataean façades was influenced by the

availability of cliffs, solar phenomena such as solstices, or potentially both. The cliffs surrounding the façades were also examined to ascertain if the Nabataeans had carved back the cliffs when they were creating their tombs in order to change the orientation of the tomb itself and/or take advantage of pre-existent geological phenomena.

In addition to collecting readings on the tomb orientations, any faults and fractures impacting the façade of the tomb were noted. For the purpose of this study, the geological characteristics of the interior of the tomb are not considered as such a vastly more comprehensive study is beyond the scope of this project but may be included in a later research phase. Since many of the rock-cut chambers associated with the carved monumental façades are currently filled in with erosion fill and debris and the majority of the Nabataean funerary monuments remain unexcavated by scholars, a survey of the interiors would provide incomplete results. The absence of geological fractures in and around Nabataean façade monuments was also noted as it is also significant. Looking at the presence or absence of faults or fractures may reveal whether or not the Nabataeans were concerned about or aware of the advantage of using faults and fractures when they chose tomb locations. Unfortunately, at this point, it is difficult to ascertain whether or not fractures and faults were present before the carving of the façade monuments, or if they were caused by later tectonic activity. Façades were also photographed for later identification of the individual structural characteristics and to allow this study to continue when the author was no longer in the field. Originally, the plan for this study was to use the numbers assigned to the tombs by Brünnow and Domaszewski (BD numbers) when applicable as these are the established labels for each tomb in Petra. These numbers were assigned in the initial mapping and survey of Petra in 1904. However, in some instances,
the BD numbers are unclear or are missing as tombs have been discovered through excavation or additional survey. Additionally, in some cases, the available BD maps were inaccurate, and I was unable to determine which tomb belonged to each number. In those cases, GPS readings for the location of the tomb were collected in order to have a way of identifying the tomb and its position within the Petra Archaeological Park. Regrettably, GPS readings were not collected for all of the visited façade monuments, which is a goal for my ongoing research and study.

Originally, the stylistic typology of the tombs established by Judith MacKenzie was to be used to determine if certain styles of tombs had preferred orientations or demonstrated a different usage of the geology than another style of tombs. However, as will be mentioned in a later chapter of this thesis, many of the façade monuments didn’t fit into the current prescribed categories as established by McKenzie, which were found to be inadequate. Due to this situation, the standard tomb style identifications could not be used for many of the tombs. Thus, the McKenzie tomb typology will not be used for this study, but I will propose a more comprehensive typology, noting where appropriate how the new typology differs from McKenzies’ earlier work. (For more on the problems with the McKenzie tomb typology and my proposed tomb typology, see chapter 4).

Most importantly, this study will for the first time analyze data collected on the tombs and their positioning relative to their geological landscape to see if there are any significant patterns of placement. There are a couple of options for what patterns may be discovered. There may be no geological pattern whatsoever and the Nabataeans could have placed the tombs wherever they wanted with no concern for faults and fractures. That finding will provide some information about the Nabataeans’ geological knowledge in
that either they were unaware of the implications of the faults and fractures, or that there were other factors utilized and prioritized by the Nabataeans for tomb placement. These factors may include tomb visibility, solar orientations, family or clan land distributions, or even the wealth of the tomb patron. The data may also show that there is a pattern of geological features relative to tomb placement and the Nabataean stone carvers used the faults and fractures as pre-existing weaknesses in the stone, as naturally occurring boundaries between the tombs, or deliberately chose to avoid places where the cliffs were highly fractured. A third option is that the Nabataeans used the geology to their advantage some of the time and at other times, deliberately chose to ignore geological factors. In this case, there are likely many variables such as the ones mentioned above that are not being considering in this study, in part because there are still a lot of unknowns about the Nabataean burial belief systems and cultural norms related to treatment of the deceased.

Theoretical Approach

In order to better understand the Nabataeans and their knowledge of the landscape surrounding their home, I have decided to focus on the theory of place. What is place? At its simplest, a “place” is a central area for behaviors, materials, and memories. Edward Casey defines “places” as the constituent units of every landscape. Miriam Kahn suggests


\[142\] E. Casey, Representing Place: Landscape Painting and Maps, (University of Minnesota Press, Mineapolis, 2002), xv.
“places are complex constructions of social histories, personal and interpersonal experiences, and selective memory.”  

Omur Harmansah adds:

“Places are small, culturally significant locales that exist within a landscape. They are meaningful to specific cultural groups through an everyday experience and shared stories associated with them. Places therefore gather a vast range of things in their microcosm: both animate and inanimate entities, residues, materials, knowledge, and stories.”

Human activities shape the environment through perception, cognition, and behavior. Places exist in spaces, but places are specifically a region in space where humans are able to shape their worldview. Places become a center of meaning where intention and purpose can be focused. Place is different from a site in that humans don’t necessarily have to modify a place, whereas a site is a location that contains evidence of human behavior and material culture. The ways in which people perceive “place” are learned and transmitted through culture and language. Place is also defined by the life experiences of people, especially their experiences in a particular location.

146 E. Relph, Place and Placelessness, (1976, Pion Limited, London), 22
149 T. Buffel, et al., “Place Attachment Among Older Adults Living in Four Communities in Flanders, Belgium,” Housing Studies, Vol. 29, No.6 (2014) 802.
Because place is tied to the perception of the residents in an area, place can be viewed differently by people living in the same neighborhood. E. Relph explains that a tourist visiting a city such as Boston may want to visit important historical sites in the city. A resident in the same city may never visit these sites, instead focusing his attention on his home or work. Every individual may identify with a place in a unique manner, but the collective identities about a location create a common identity for that place. Relph adds, “It is not just the identity of a place that is important, but also the identity that a person or group has with that place, in particular, whether they are experiencing it as an insider or as an outsider.” In that way, the identity of the individual becomes almost as important as the identity of the place itself. The personal meaning or symbolism of a place comes from the individual and their life experiences. The public identity of the place is “that which is common to the various communities of knowledge in a particular society.” A third form of identity associated with place is mass identity. “Mass identities are assigned by ‘opinion-makers’, provided ready-made for the people, disseminated through the mass-media, and especially by advertising.” Relph feels that the identities of these places can often be superficial. However, the aspects that establish ‘place’ in antiquity seem to have been more long-lasting and transcendent possibly due to the fact that long distance transportation options were more limited in comparison to our modern age of mass globalization. In the ancient world, the identification and the importance of place was tied

150 Op Cit., Relph, 28.
151 Ibid, 45.
152 Ibid, 45.
153 Ibid, 58.
154 Ibid, 58.
155 Ibid, 58.
to the identity of a people and transmitted through myths, stories, and songs. One example of this is the works of Homer regarding the geographical locations listed and described in the Trojan Cycle. Another example would be the Biblical stories associated with the Holy Land and their association with Jewish, Christian, and Muslim identity.

Place attachment is defined as how strongly linked people feel to places in which they reside or visit. According to Livingston, “Attachment can take two forms: functional (or practical) attachment and emotional attachment.”156 Other studies of place attachment suggest there is a tripartite system of dimensions linking people to the spaces around them. The first dimension examines the actor and both the personal connection of the actor to a location and the symbolic meanings held collectively by the group to which the actor belongs. The second dimension looks at the psychological interactions that occur between the actor and the environment. This dimension includes the development of memory, emotional attachments, and also actions performed in places. The third-dimension studies the place itself, attempting to understand why it is important.157

The Nabataean view of place is still mysterious. There are a few inscriptions throughout Petra, but most of the inscriptions are genealogical in nature and do not explain the reasons why tombs were placed in specific locations and not in others. For example, there are no tombs in the Siq, the long narrow canyon leading to the heart of Petra. There are numerous carved cultic niches, water channels, and inscriptions in the Siq, but no tombs. Visitors to Petra entering the park through the Wadi Musa entrance pass a number

of tombs in the Disi sandstone before the entrance to the Siq. The first tombs in the Umm Ishrin sandstone of Petra only exist under the façade of El Khazneh at the far western end of the Siq.\textsuperscript{158} It is possible that the Nabataeans chose not to carve their tombs in the Siq itself due to the high walls, which may block significant astronomical features or block the view of sites such as Jebel Nabi Haroun, which may have been sacred to the Nabataeans. Another possibility is that the Nabataeans knew that frequent flashfloods down the canyon would damage the tombs and thus chose to carve their tombs in a geologically more secure location in order to preserve these monumental facades for future generations.

The Nabataean view of place may also be reflected in the location of some of their most impressive tombs. The so-called Royal Tombs are located on the Eastern Cliffs in the city center of Petra. While surveying these tombs for this thesis, it was observed that the cliff faces where these tombs are carved are highly fractured. The Palace Tomb, for example, has a higher density of fractures running through the façade than seen in most other parts of Petra (See Figure 4.1). This may be due to the Palace Tomb’s proximity to one of the major faults bounding the Petra depression (See Figure 4.2). It is erosion along this fault that forms the prominent cliffs. There are other cliffs in Petra where the sandstone would have been far less fractured that may have been a more stable place to carve these tombs. However, the Nabataean builders chose this cliff to put this tomb and other prominent tombs. The question then becomes why did the ancient Nabataean architects select this particular cliff face for the massive tombs such as the Palace Tomb?

Figure 4.1: Façade BD 765, the Palace Tomb. This monument is carved on the Eastern Cliff that overlooks the City Center of Petra, which is along a fault zone. The proximity to the fault causes a high fracture density in the sandstone. (Photo by the author, May 2016)

Map 4-1: A map of the two major faults creating the Petra Graben, the valley of the city center of Petra. (Map by author)

One of the reasons for the placement of the Palace Tomb on this particular cliff may relate to the Nabataean sense of place and their worldview. The Palace Tomb faces West towards Jebel Nabi Haroun, a sacred mountain where a Nabataean temple was located in ancient times. This façade may have been deliberately carved to face mountains such as Jebel Nabi Haroun, Jebel Shara, or Umm al Biyara that were religiously important to the Nabataeans. Additionally, this tomb’s location is one of the most prominent locations in all
of Petra. This monument is visible from the modern village of Umm Sayhoun (or the northern approach to Petra), can be seen on the descent from the Ad-Deir Monument, and would have been visible to caravans approaching Petra from the South. Although this cliff may not have been geologically ideal for the carving of this monumental structure, the location itself may have been significant to the Nabataeans for both its visibility and its orientation. It presents a good example of the fact that geological features may not have been the only reason for the selection of the placement of Nabataean funerary monuments even though the orientation of the cliff face is geologically controlled.

In looking at the façade monuments of Petra, it is hoped that this research will provide a start for future studies involving the Nabataean worldview and the geological landscape around them. By looking at the Nabataean tombs with a focus on the archaeological theory of place and the geological landscape, I hope to better understand why the Nabataeans placed their tombs in the locations they did and whether or not Nabataean knowledge of geology has been overlooked by previous scholarship with relation to tomb placement.
Chapter 5. Towards a New Typology

There is only really one typology that has been used to classify the façade style monuments in Petra, which is associated with the BD system mentioned previously that was proposed by Brünnow and Domaszewski in 1904. Although several authors, including Judith McKenzie, Lucy Wadeson, and Iain Browning, have modified this typology over time, the Brünnow and Domaszewski typology is still the accepted typology that has been used in all previous studies of the Nabataean façade tombs of Petra, despite having inherent weaknesses and mapping inaccuracies created by the scope of the project and the lack of modern GPS technology.

The initial architectural and archaeological survey of Petra was undertaken by Brünnow and Domaszewski in 1897-1898. The results of their study were published in Die Provincia Arabia (1904), a three volume set that included information on their pedestrian survey in Petra as well as their visits to other ancient locations throughout Greater Arabia. The walking survey undertaken by Brünnow and Domaszewski resulted in the first comprehensive maps of the visible surface structures seen in the Nabataean capital. Brünnow and Domaszewski assigned numbers (known as BD numbers) to important features that they found throughout the Petra region. Although many of these numbers correspond to Nabataean tomb façades, other numbers were assigned to other types of

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159 Op Cit., Brünnow and Domaszewski. Judith McKenzie also summarizes the work done by Domaszewski in creating the “almost universally accepted” typology of the tombs (J. McKenzie, 1990, 2).
notable structures such as the Greco-Roman style Petra Theater (BD 161), the Nabataean temple of Qasr al Bint (BD 403), the “Citadel” or ruins near the High Place of Sacrifice (BD 85), the High Place of Sacrifice (BD 86 and 87) and statuary found along the main cardo in Petra (BD 412, a statue of a female figure with her left hand resting on a cuirass). As previously noted, each of these structures was shown on a series of maps published in *Die Provincia Arabia* in 1904. Unfortunately, these maps were made without the advantage of modern technology including GPS systems. This has resulted in the maps being inaccurate at times. The BD numbering system is still used for identifying many of the structures in Petra, including the façade tombs, and I have noted these numbers where they exist, throughout my thesis.

Since 1904, there have been a number of further discoveries and changes in the understanding of Nabataean architecture that make it difficult to use the BD numbering system to identify structures and buildings including the façades for which Petra is well known. For example, during the clearance of the Siq entrance into Petra and the excavations in front of the iconic El-Khazneh Monument in 2003, several new and very important discoveries were made including a camel relief carving and a number of betyls (including the well-known eye betyl) within the Siq canyon itself, and additional tombs beneath El-Khazneh that had previously been buried and thus were unavailable for the Brünnow and Domaszewski survey of Petra in 1904. Given the fact that none of these

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162 *Ibid.*, see *Die Provincia Arabia* for maps showing the various BD numbered structures and buildings. Also, vrc.princeton.edu contains Brünnow and Domaswewski photo archives from their work in Arabia and includes photos of two statues that were given BD numbers. The current whereabouts of the statues are unknown.

important archaeological discoveries were visible during the visit of Brünnow and Domaszewski and their pedestrian survey of the area in 1897 and 1898, none of these items have BD numbers. Although the recent publications on the excavations around El-Khazneh do give the new tombs official identifying designations (such as letters and descriptive nicknames), they do not include locations or photos that can be used in the easy identification or study of these tombs.\textsuperscript{164} Other tombs have been found in later surveys that were never previously noted by Brünnow and Domaszewski such as Element 1.3, a mono-column façade from the BYU Ad-Deir Monument and Plateau Project GPS survey (GPS survey begun in 2013 and concluded in Spring of 2018) (See Figure 4.7 for photo and sketch of this façade). The statuary that was given BD numbers by Brünnow and Domaszewski such as BD 412, referred to above, and BD 422 (a relief carving of a winged lion and a putti or Eros) are no longer \textit{in situ}, and the whereabouts of BD 412 are unknown.

Because objects had also been given BD numbers by Brünnow and Domaszewski, it makes knowing what a particular BD might refer to challenging when visiting locations marked with a BD number i.e., whether a BD number refers to a tomb façade, statue, or other types of archaeological elements like groups of carved \textit{betyls}. Additionally, many of the Brünnow and Domaszewski maps are distorted, so they do not accurately map sections of the Petra Archaeology Park. The final problem with the Brünnow and Domaszewski maps is that contemporary explorers such as Gustav Dalman (in 1908 and 1912), Alois Musil, and

\textsuperscript{164} \textit{Ibid}, Farajat and Nawafleh discuss the tombs that they excavated in 2003. The tombs were given numbers 62A-62E as well as nicknames such as the Window Tomb (Tomb 62D) and the Obelisk Tomb (Tomb 62B), but there is no map showing which tomb is which in the publication. The lack of exterior tomb shots that show defining features for tombs A-C also makes it difficult to identify these tombs for either stylistic and typological analysis. Op. cit., Khairy, 2011, does have an image that shows the placement of tombs 62D and 62E in relation to the Khazneh.
George Horsfield used their own systems of labeling the tombs that have not been reconciled, meaning the same numbers are assigned to different elements depending on which map is in use.

Upon surveying more than 350 façade monuments in Petra, I came to the conclusion that the Nabataean architects and their patrons did not create rock-cut chambers that neatly fit into the proposed tomb typology used by the previously mentioned authors. Instead, many of the tombs have elements that belong to multiple categories, or do not match the criteria to be placed into any designated group. Thus, it is difficult to identify which BD or even the later McKenzie category a particular tomb might belong to (see below).

Additionally, there are a number of façades that do not fit into any category in the Brünnow and Domaszewski typology. Also, the commonly accepted façade typology used by Judith McKenzie in her 1990 publication is severely flawed due to the fact that McKenzie chose to focus her attention on distinct architectural traditions of the Petra tombs that fit within the Brünnow and Domaszewski typology rather than recognizing its limitations or developing a broad-based data set of tombs from the Petra region through a comprehensive survey. McKenzie had hoped that by examining the tombs from Petra and comparing them to monumental façades from the Nabataean city of Hegra (Mada’in Saleh) in northern Saudi Arabia as well as the architecture of Alexandria, Egypt, she would be able to create an **accurate** chronology of the Nabataean façade tombs.\(^{165}\) Consequently, given

\(^{165}\) *Op. cit.*, McKenzie. Several chapters in *The Architecture of Petra* compare the tombs of Petra and ancient Hegra (modern Mada’in Saleh in Saudi Arabia). Since many of the tombs in Hegra usually have Nabataean inscriptions carved on the façade which often include the dates they were built, who commissioned the tomb, and other information, McKenzie
the hundreds of tombs that exist, McKenzie's study is extremely flawed in its methodological approach. Unfortunately, she only discussed about twenty-nine of the most iconic tombs in the Petra City Center to create her data set.\textsuperscript{166} This means that only a small percentage of the tombs of Petra were considered in the 1990 McKenzie study and only a few of these tombs had evidence associated with them that could be used in dating the façades. McKenzie attempted to base her chronology on tombs with similar styles from both the Nabataean capitol city of Petra, and Mada'in Saleh (anciently known as Hegra). Thus, she did not acknowledge or mention the Nabataean façade tombs that have been identified at sites such as al-Bad and Maghayir Shu’aib, two sites in modern Saudi Arabia with Nabataean rock-cut façades.\textsuperscript{167} Unfortunately, she also did not account for the differences in cultural development and tribal beliefs that would have potentially influenced a city in the provinces of the Nabataean kingdom as opposed to similar developments that may have occurred separately in the capital city. Additionally, as previously noted, McKenzie used an extremely small sample size, which would have an impact on the attempt to analyze the tombs and to create a workable chronology. Although McKenzie's work is valuable, it is important to take a closer look at the tombs in Nabataean Petra, using a larger sample size of facades from all over the Petra Archaeological site, to firmly establish a firm typology. In order to accomplish the previous objectives of my study, a new typology of Nabataean façade monuments that corrects and possibly supersedes the above outdated and flawed typology systems had to be developed.

\textsuperscript{166} Ibid. McKenzie, 1990.
This investigation now proposes a new tomb typology that will allow for the categorization of more of the Nabataean rock-cut façades in Petra based on a much broader data set of over 300 structures representing a broader number of regions. Due to the difficulty in determining which BD numbers refer to which Nabataean archaeological remains, each of the tombs visited was given a new designation that relates to the new proposed chronology. Appendix B, included with this thesis, contains a list of the previous BD designations of tombs where possible, as well as photos of all of the tombs visited and their new catalog designations, GPS locations (for many but not all of the façades studied), and overall descriptions.\footnote{GPS locations were not collected for some of the locations due to the belief that the BD numbering system and maps were accurate for identifying the tombs. After it was discovered that the Brünnow and Domaszewski maps were not accurate and did not have all the locations of all of the façade type structures on them, there was not enough time for the author to continue to survey as many tombs as possible to get a good sample size and go get GPS locations on all tombs previously surveyed. The author did hope to collect more GPS locations for the façades in the summer of 2020, but due to travel restrictions imposed due to the global Covid-19 pandemic, this goal was not realized. Subsequently, there is still much more data that could be gathered during PhD graduate work.} In the rest of this chapter, the new tomb categories in this typology will be presented along with examples of carved Nabataean edifices that meet the criterion for each tomb type. This new typology works for both the simplest of Nabataean rock-cut façades as well as the most complex. Because this survey includes a number of different regions in Petra, a map with the various areas surveyed highlighted in different colors is included (See Map 5.1). Some of the more major tombs have been identified on this map to assist the reader with general locations, but as there are several hundred rock-cut façades façades in Petra, not all of them are noted within one single visual representation. As explained previously, not all of the regions of Petra were visited by the author due to time constraints. These unsurveyed areas, including the base of Umm al-
Biyara, the base of the trail to the Ad-Deir Monument, and the El Madras area, will hopefully be surveyed in the future to add to the database of the façade monuments.

Map 5-1: An overall map of the main city center of Petra with the major areas included in my survey highlighted in various colors. This includes the Ad-Deir Plateau, Wadi Turkmaniya Area, Wadi Mataha, the Royal Tombs on Jebel Khubtha, the Siq, the Snake Monument Area, and Wadi Farasa. (Map drawn by author.)

Map 5-2: A general distribution map of the façade monuments surveyed by the author. The majority of the rock cut chambers are found in the Petra Archaeological Park, but façades were also studied in Beidha. (Map by author)
In my study, I sorted the rock-cut façades into categories and assigned a type loosely based on complexity with the exception of the more miscellaneous façade types, which appear at the end of the typology and are seemingly difficult to characterize into a single façade type. Each rock-cut monument has been given a number beginning with Type and a number stating which category the façade fits into. A short series of letters follows the type number to help the reader know to which category the façade has been assigned. The final number in the sequence distinguishes one monument in the category from the others. Appendix 1, in the back of this book includes a labelled sketch of each of the façade types and an explanation of the qualifications for a monument to be included in that category. Appendix 2 is a list of the façades visited for this study with their new number, previous numbers if assigned or if known, compass orientation of the door, images of the façade and interior of each structure when available, and information on the fractures observed. Each of the photographs that appear in the Appendices were taken by the author.

**Type I: Nabataean Quarry Façades (NQF)**

The rooms and carved façades included in this category have not been considered by any previous typology, but they are still significant with regard to understanding the ingenuity of the ancient Nabataean stone masons. Nabataean quarry façades (NQF) are the simplest of the surveyed rock-cut structures (See Appendix 1.1 for a depiction of monuments in this category and Appendix 2.1 for a listing of façades that fit within this category). They are commonly situated in a Nabataean quarry and may also be called quarry rooms. Nabataean quarries are situated all around Petra and are distinguished from the surrounding cliffs by carved shelves and a herringbone chisel pattern on the exposed stone faces, which is not as distinct and finely carved as Nabataean cross dressing.
found within the finished Nabataean tombs (See Figure 5.1 and Appendix 1.1. For a map of the locations of the surveyed Type I:NEQ façades, see Map 5.3). Nabataean quarries are often found in the Umm Ishrin Sandstone units, which are resistant to erosion, and therefore naturally form large cliffs (See Chapter 2 for information on the two sandstone types found within Petra, Jordan). In several places around Petra, these types of monument are carved into the remains of a Nabataean quarry. Usually, these buildings have very little in the way of ornamentation other than a simple unornamented doorway that distinguishes them as a carved structure. Only occasionally, these façades have been carved with a more elaborate door.

![Map 5-3: The Nabataean Quarry Façade Locations. This map shows the general location of the Nabataean Quarry Façades that were surveyed by the author.](image)

A prime example of the Nabataean quarry façade type of monument is Type I:NQF.01 (See Figure 5.1). This rock-cut room (also known by the BD number 807) is located among the so-called ‘Royal Tombs’ along the base of Jebel Khubthha, a mountain that towers above the NE side of the ancient city. The façade Type I:NQF.01 stands out from the
other Royal Tombs in that it has a very simplistic façade, defined only by quarry marks and the extremely tall off-center doorway (See again Figure 5.1). The height of the doorway of this façade (which is easily two to three times the height of an average person) as well as its off-center placement to the side of the entrance to the interior chamber may have had significance to the Nabataean owner of the cliff space or commissioner of the monument. No studies have been done on Nabataean façade structures with anomalously tall doorways in Petra, and further studies may be needed to better understand any potential significance to the height of the doorway as well as its strange long, thin rectangular shape.

Figure 5.1: Photo looking east at Type I:NQF.01 (BD 807), a tall doorway, quarried rock-cut room found at the base of Jebel Khubtha along with the 'Royal Tombs'. The door is off center in the dressed façade. (Photo by author, May 2017.)

Type I:NQF.02 (which was designated Room BD 768 by Brünnnow and Domaszewski) is also located at the base of Jebel Khubtha and, like Type I:NQF.01, is carved near the Royal Tombs (See Figure 5.2 and Appendix 2.1). The façade for this rock cut room is extremely simple, a nearly unadorned quarry cliff. The main difference between this room and Type I:NQF.01 is the more elaborate doorway somewhat centered at the base of the quarried wall. As with the other façades in this category, the sequence of events that resulted in this façade’s creation are impossible to reconstruct. It is likely that this was a quarry before a Nabataean patron commissioned the creation of the interior room with an
elaborate niche carved on the back wall of the chamber. Unlike some of the other quarried façades, the doorway to Type I:NQF.02 has two carved pillars which are placed off-center around the more elaborate doorway. The doorway style is a type of post-and-lintel door, but it is unusual for Nabataean façades in Petra. Interestingly, the top of the doorway coincides with a prominent bedding plane in the sandstone (which can be seen in Figure 5.2 as a change in color in the sediment over the doorway and a line on the accompanying sketch. The interior of the room is fairly simple, except for the barrel arch cultic niche on the back wall of the chamber. The interior’s possible cultic niche has an arch that is very similar to the exterior ornamentation of some of the Arch Tombs seen in Petra (See Façade Type V:AR façades).

Figure 5.2: Photo looking east at Type I:NQF.02, another quarry façade with an oddly shaped doorway. Top: the doorway is off-centered and has two columns that appear as the supports of what may have been intended to be a post-and-lintel style decoration. The top of the doorway coincides with a prominent bedding plane in the sandstone. The photo on the lower left is the interior of the room with a large arched niche in the back of the
chamber. To the right of each photo is a sketch of the tomb. (Photo and sketches by author, May 2016.)

Type I:NQF.03 (formerly designated as BD 256) is one of two tombs in the al-Najr Wadi that would also fit into the typology of quarry tomb façades (See Figure 5.3 and Figure 5.4). Type I:NQF.03 has a very simple façade with a very subtle post-and-lintel carved doorway. The face of the cliff of this structure has been quarried back slightly from the regular edge of the cliff creating a very slight overhang. Along the upper portions of the tomb, the quarried areas are clearly visible. The cliff face was essentially quarried smooth with fine Nabataean crossdressing with the outline of the design around the doorway carved in relief. The monument has a simple doorway decorated with a post-and-lintel motif. Above the doorway was a deep recessed opening that was likely used as a loculi, or burial niche which may have originally been sealed with a funerary portrait of the deceased. The exterior of the façade, other than the doorway, is extremely simple with only a small cultic niche and a water feature visible directly to the left of the quarried door area. The interior of this tomb contains five deep niches which may have hosted statues of deities or may have served as loculi. Three of the rock-cut chambers are on the back wall of the chamber, and one of these niches or loculi is found on each of the side walls of the chamber near the back of the room. One of the upper niches has stones in situ that either may be part of a statue, or seal stones for a loculus. There is no way to determine the original purpose of these chambers without further investigation or excavation. Unfortunately, these chambers likely were cleaned out in antiquity or by modern era Bedouin, and there may not be any archaeological remains to find. Thus, these small carved rooms found in Type I:NQF.03 and several other façade structures in Petra will only be identified as rock-cut chambers. The chamber also has a triclinium bench as well,
suggesting that it may have been used as a feasting hall for the dead in addition to a burial site. The doorway of the façade faces northeast.

Figure 5.3: Photo looking southwest at the exterior of Type I:NQF.03, located near the al-Najr Façade in Wadi Farasa. This is one of the simple façade or quarry tombs as well as a triclinium, a combination that is fairly unusual in Petra’s stone-cut structures where these two functions usually occur in two separate buildings. The sketch on the right shows the exterior of the carved monument with important features labelled. (Photo and sketch by author, May 2017.)

Figure 5.4: A photograph and sketch of the interior of rock-cut chamber Type I:NQF.03. This possible tomb, as mentioned above has an unusual interior in that it has a triclinium as well as five rock-cut chambers located near the ceiling of the tomb’s interior chamber, three along the back wall of the triclinium, and one on each of the north and the south walls of the room. (Photo taken looking southwest at the interior of the rock-cut chamber. Photo and drawing by author, May 2017.)

Although most of the façades in this category are located in areas that were previously used as stone quarries, there are monuments in the Petra area where the
Nabataean builders quarried back the stone to the rock face where the rock-cut chamber would be placed. One such façade is Type I:NQF.04 (See Figure 5.5). This façade (also called BD 2) is located at the entrance of the Petra Archaeological Park in the Disi Sandstone region (See Map 5.3). This monument’s height was likely constrained by the size and shape of the rock in which it was carved. Other than the height of the façade, this rock-cut chamber was not directly impacted by the geology of the region because the stone masons created the cliff in which the façade and associated rock-cut chamber were associated. The Nabataean stonemasons that created this structure carved a long entranceway to the doorway, which also allowed them to quarry back the sandstone to achieve the desired height for the façade. This is a common occurrence in the Disi Sandstone and can also be seen occasionally in some façades carved in the Umm Ishrin Sandstone. Type I:NQF.04 had a simple carved indentation over the top of the façade and a series of notches over the doorway, which may suggest a built structure at the front of this façade, or some form of decoration that was associated with the exterior entranceway.

Also associated with the façade was a small niche to the right of the doorway and an obelisk shaped nefesh carved to the left to the door. The word nefesh literally translates to “breath,” “soul,” or “spirit of the departed.”\(^{169}\) This carved structure, Type I:NQF.04, has a very simple façade, and has been included in this particular category because of the quarrying that took place to create the façade of the rock-cut chamber itself.

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Figure 5.5: Photo facing west looking at Type I:NQF.04, a façade created through the carving or quarrying of a long entranceway that continued until the stone mason carvers had been able to carve the façade back far enough in the Disi sandstone to create the desired height for the façade. To the right is a sketch of the façade with the features labelled. (Photo and sketch by author, June 2019.)

**Type II: Mono-Column Façades (MCF)**

Mono-Column Façades are somewhat similar to the Quarry Façades in that they are among the simplest of the Nabataean façade structures. These previously undescribed façades may or may not fit into the category of quarried façades. A number of the façade tombs that fit into this category were not actually carved to have a dressed face around the door of the structure, which means that they do not fit in the quarry façade category. What distinguishes these façades from others is the appearance of a single column or pillar to the left of the doorway. Typically, Nabataean façades have paired columns, and it is possible that the second column in each of these pairings has eroded away. However, there is no evidence a second column was ever carved on several of the façades in this category, suggesting that either the destruction of a single column was complete, or that there never was a second column. The single carved engaged columns associated with Nabataean carved rooms or tombs observed in this study were always found on the right of the tomb doorway, as seen when standing in the doorway of the tomb looking outwards. In the
ancient Near East, the right was symbolic and often had great religious significance. Unfortunately, not enough is known about the religious traditions of the Nabataean people to know if the single column had a symbolic meaning for the tomb’s patrons, or if the single column was simply an artistic choice. However, the presence of five of these façades in at least three different locations in the Petra Archaeological Park suggest that this style of tomb may have had symbolic meaning to the Nabataeans.

Map 5-4: A map of the locations of the surveyed Type II:MCF locations in the Petra Archaeological Park. (Map by author.)

Type II:MCF.01 (formerly designated as BD 257), which is directly to the right of Type I:NQF.03, is one of the quarried Mono-Column Façades with an extremely simple façade (See Figure 5.6). The area directly around the doorway of the tomb was quarried and dressed with fine Nabataean cross-dressing, but there is no other ornamentation around the doorway. To the left of the door to this tomb is a strangely shaped pillar or column. It is likely that this more elaborately carved pillar had some significance to the Nabataeans. The interior of this tomb had a layer of rubble on the floor as well as several deeply carved niches or rock-cut chambers. These rock-cut chambers carved high on the
walls have stacks of stones, possibly still in situ that may have been either meant to contain statues of deities or aniconic betyls, or were possibly even loculi for the burial of the dead. The stones still in situ in these carved openings may be the remains of now lost sculpture or funerary portraits of the deceased. Since none of the Al-Najr monuments have been excavated, it is unknown if further investigation of these chambers may provide insights into the usage of the room. Interestingly enough, both Type I:NQF.03 and Type II:MCF.01 have these carved rock-cut chambers near the ceiling of the interior chamber. Without excavation, it is unknown if Type II:MCF.01 is a simple room, or if there are additional carved features such as a triclinium buried under this room’s debris and erosion fill.

Figure 5.6: Type II:MCF.01 exterior and interior. The photo on the upper left looking west-northwest shows the quarried exterior of the rock-cut chamber with the strange pillar and the bench that runs between Type I:NQF.03 and Type II:MCF.01 (formally known as BD 257). The photo on the lower left is the interior chamber with upper niches or possibly loculi. The walls are interesting in that the interior quarrying does not seem to be finished, yet there are deep rock-cut cavities or niches near the ceiling. (Photos and sketches by author, May 2017).
A second Mono-Column Façade, Type II:MCF.02, is found on the Ad-Deir Plateau to the right of the so-called ‘Monastery’ or the Ad-Deir Monument itself (as seen when facing the Ad-Deir Monument from the nearby B’dul shop) (See Figure 5.7). The doorway associated with façade Type II:MCF.02 is now almost completely buried by the more than 2 meters of erosion fill that has built up in the Temenos (or sacred courtyard) in front of the Ad-Deir Monument. Since this area of the Ad-Deir Temenos courtyard has yet to be excavated, it is unknown if this particular structure is a cistern or a tomb. However, it has a round engaged column to the left of the façade, something that is a defining feature of this particular tomb category and as demonstrated previously, exists in other regions of Petra as a tomb or tomb/triclinium type. Unfortunately, not much else is known about this particular façade and little can be discussed about what this carved structure may have been used for until the Ad-Deir Temenos Courtyard is excavated in the future. This particular façade may be either a carved entrance to a room, a cistern, a tomb, or a tomb/triclinium, but further excavation will be required to learn more about this structure, and possibly more about the Nabataean belief systems associated in the representation of a single carved column on the façade.

Figure 5.7: II:MCF.02, a Mono-Column Façade carved on the south side of the courtyard of the Ad-Deir Monument. This column is rounded in shape. The purpose of this structure is unknown and it would require excavation in order to determine if this is a tomb, cistern, or room used in religious feasting, i.e. a triclinium or tomb/triclinium combination. (Photo looking east by author, May 2019. Sketch also by author.)
Three additional Mono-Column façades can be seen around Jebel Hubis (See Map 5.3). Two of these façades are found on the base of the mountain with the third façade located near the modern trail to the Crusader fortress at the top of the upper plateau. The lower two façades are situated next to each other. The first of these, Type II:MCF.03, has been quarried around the entrance, but seems to have no ornamentation (Figure 5.8). A line of carved stone extending outward from the door suggests that there may have been a structure of some sort built around the doorway. To the right of the doorway is the mono-columnar feature as seen when standing in the entrance, looking out. The column is shorter than some of the other pillars seen alongside tombs in this category and does not appear to have been modified. There were no visible loculi in this building, which makes it difficult to theorize what the structure may have been used for, and excavation would be necessary to determine if this rock-cut structure is a simple room for habitation, a triclinium, or if it has loculi and could be described as a tomb or even a combined tomb/triclinium facility. Type II:MCF.04 is located to the right of Type II:MCF.03, as seen when facing the tombs (See Figure 5.8). This rock-cut room has a larger column on the right of the very simple doorway (to a viewer standing on the exterior of the tomb, the column would be on the left of the façade). The façade of this room is extremely simple and the lack of Nabataean quarry or tool marks suggests that it might not have been modified except for the carving of the door. The interior of Type II:MCF.04 has a few visible cultic niches in the walls, but no visible loculi. Again, archaeological excavation of the interior would be required to ascertain the room’s original function.
Figure 5.8: The two Mono-Column tombs of Type II:MCF.03 and Type II:MCF.04. Type II:MCF.03 is the rock carved room pictured on the top looking northeast. Type II:MCF.04 is the façade shown on the lower left also looking northeast. Neither of these façades have visible signs of exterior modification (usually suggested by quarry marks) other than the single column carved on the exterior of each of the façades and the doorway into the rock cut rooms. (Photo and drawings by author, May 2019.)

The final Mono-Column Façade that was identified and examined in this survey is Type II:MCF.05 (See Figure 5.9). It is located on the trail to the ruins of the Roman or Crusader fortress on the top of Jebel Hubis (See Map 5.3). Part of the façade of this room has collapsed, but what is visible suggests that the façade was initially carved. To the left of the carved entrance (if one is outside the chamber looking inward, or on the right side of the entrance if one inside the carved room looking outward) is the most elaborate of the carved columns surveyed thus far. Several north-south fractures run through the remainder of the cliff where the monument was placed, suggesting that the cliff face is likely associated with a fault zone. These structural instabilities within the rock face
contributed to the collapse of the façade on the right side of the room. The façade itself is fairly simple, although it may have had an incised triangular pediment above the doorway, only part of which is still extant near the single column on the left of the carved room. The column itself is interesting in that it had square shaped indentations etched out of it in a deliberate pattern (Shown on the sketch in Figure 5.9. The column is highlighted in tan in order to help it stand out on the drawing.) Like the rest of the mono-column façades, this one has not been mentioned in any previous scholarly publication or tomb façade typology. The interior of this chamber was filled with debris and with garbage. It hasn’t been excavated, which means it is impossible to determine the original usage for this chamber. However, part of the walls of the interior chamber are covered in plaster. There seemed to be two layers of plaster on the walls, covering the natural Liesegang Banding of the sandstone. The lower layer of the plaster appears to have been white while the outer layer of the plaster is darker in color and may have been painted.

Figure 5.9: Type II:MCF.05, a Mono-Column Façade located on the trail to the ruined Crusader fortress on the top of Jebel Hubis as viewed looking north. The carved façade to the right of a fracture running vertically down the front of the façade has broken away and is missing, but the remains of the façade to the left of the fracture appears to be mostly intact. There is a single column (highlighted in tan) with square niches etched in the modified pillar. The lower image is of the plaster in the corner of the room, just inside the door, on the left side when one is standing in the doorway facing into the room. (Photos and sketch by author, June 2019.)
Type III: Recessed Doorway Façades (RDF)

Recessed doorway façades (Type III.RDF) are the last of the simple tomb designs. The façade itself is usually only carved around the doorway. The design is fairly simple with several centimeters of stone removed from the surrounding cliff face creating a recessed area. The majority of the design on the façade is limited to the area around the doorway. Several of these tombs have T-shaped designs in the doorway, while others have incised designs around the door. (See Map 5.5 for locations of this façade type).

Map 5-5: A Map of the locations of the Type III: RDF monuments. These monuments are found in both Beidha and Petra. (Map by author).

One façade that is an example of this rock-cut chamber type is Type III:RDF.01, a tomb located near the Hermitage on the trail to Ad-Deir (See Figure 5.10). This tomb was not given a BD number as it was not included in the Brünnow and Domaszewski survey of
Petra, but it was numbered as Dalman 442 lb.\textsuperscript{170} Because Dalman had already assigned numbers to the features in the area, he was not able to give Dalman 442 lb a normal number, thus the tomb was assigned the rather odd looking number of 442 lb.\textsuperscript{171} The tomb is carved into a naturally sheltered wadi beneath a large overhang. At the time that I visited this structure, there were architectural remains exposed by looting pits on the exterior of the tomb suggesting that funerary structures had been constructed by the Nabataean builders around the exterior of the façade. Additionally, to the left of the tomb was an unexcavated cistern with a staircase entrance. This cistern had also been surveyed by Dalman, and it was suggested by Herbert Donner and Ellen Sieg in their survey that this structure may have been a triclinium.\textsuperscript{172} However, looting activity that had occurred between October 1997 and December of 2018 had exposed the staircase leading down into the cistern, confirming that this was a water installation, probably associated with the tomb located directly to the north of the cistern. The doorway of façade Type III.RDF.01 itself is ornamented with large incised squares, something seen on only a few other Nabataean façades (See Figure 5.10). The monument has suffered heavy damage due to erosion as well as looting, but there is a strange indentation on the top of the right side of the door. Due to the amount of erosional damage on the left side of the doorway, it is

\textsuperscript{170} This area was originally described as by Dalman as part of the area he called “Klausensclucht.” (G. Dalman, \textit{Palastinische Forschungen zur Archäologie und Topographie} I (Leipzig, 1908) 23. Dalman also discussed two inscriptions inside this tomb in his 1912 publication (\textit{Neue Petra und der Heilige Felsen von Jerusalem: Palastinische Forschungen zur Archäologie und Topographie} II (Leipzig, 1912)). Further discussion of this tomb can be found in H. Donner and E. Sieg, “Observations and Investigations in the Upper Valley of the Hermitage near Ad-Dayr, Petra,” \textit{Annual of the Department of Antiquities of Jordan}, 47, (1998) beginning on page 279.

\textsuperscript{171} \textit{Ibid.}, H. Donner and E. Sieg, 285.

\textsuperscript{172} \textit{Op Cit.}, Dalman, 1908, \textit{Op Cit.}, H. Donner and E. Sieg, 285.
impossible to tell whether or not this doorway was originally T-shaped or if it was a regular rectangular shaped door. On the interior of the tomb are four wall loculi that had been looted, three along the back wall and one along the wall to the right (as seen when standing in the doorway facing the back wall of the tomb). Some of the skeletal remains were still visible in the loculi below the broken capstones at the time of my survey. There are also a few looting pits in the erosion debris covering the interior of the tomb, but they do not extend deep enough to expose the bedrock floor of the carved stone room. Without excavation, there is not any way to tell if this room had additional floor loculi, was a triclinium, or was a simple room with the loculi on the back and side walls. There are also several other tombs that also fit into the recessed door façade category that will be discussed below.

Figure 5.10: Façade of Type II: RDF.01 looking west. The large incised rectangles are visible around the edge of the doorway and there were possibly two “windows” at the top of the tomb that would have made the doorway into a ‘t-shaped’ doorway, but erosion makes it impossible to tell what the left side of the doorway was like originally. (Photo and sketches by author, December 2017.)
Type III: RDF.02 is similar to Type III: RDF.01 in that it is located in a sheltered side-wadi in the Wadi Turkmanyia area (See Figure 5.11 and Map 5.4). The area around the doorway of the tomb is completely uncarved (See Figure 5.12). There are two small bench-like features on the exterior of the doorway of the rock-cut chamber. There are also two high windows in the recessed carved area around the doorway. Although a number of Nabataean façades have been found with windows carved in the architecture, no one has looked into why these openings were included. However, this phenomenon may have been related to the Nabataean beliefs concerning the dead and their religious traditions regarding the afterlife with regard to the travel needs of the soul out of the tomb. The interior of this tomb had not been excavated, but it has several deep looting pits suggesting that there may be loculi in the floor. As with the many of the façade monuments in Petra, Jordan, there is no way to stylistically date this carved structure. The only way to provide an approximate date for this site is through excavation. The location of this façade was interesting as the cliff above the rock-cut chamber channels water to cascade down over the front of the façade during rainstorms. This may have been done purposefully in order to provide waters for the soul of the deceased—a belief long held in Egyptian funerary contexts and possibly also adopted by the Nabataeans given the many water features associated with the Nabatean tombs and the extensive trade that the Nabataeans had with Egypt itself as well as the Phoenician Coast.\footnote{For more on the ritual use of water by the Nabataean people, see J. MacDonald, “The Ritual Use of Water by the Nabataeans at Petra,” Master’s Thesis, Brigham Young University, 2006.}
Figure 5:11: A view of the side wadi with Type III:RDF.02 marked. This is a fairly narrow side wadi with high cliffs that allow for the channeling of water over the façade. (Photo by author, Spring 2017.)

Feature 5.12: Type III: RDF.02, a tomb located in a side wadi in the Wadi Turkmanyia area of Petra. This north-northeast facing façade has two windows located high in the façade, one on either side of the doorway. It also has two benches on either side of the doorway. (Photo and sketch by author, Spring 2017.)

Another unique funerary complex on the Ad-Deir Plateau has two recessed doorways leading into separate rooms (See Figure 5.13). This structure was not given a BD number in the initial Brünnow and Domaszewski survey of Petra. In my proposed typology, this façade is given the designation of Type III: RDF.03. The two interior
chambers of this structure are connected by a small interior opening, but it is unknown if
the connecting hole in the wall is modern or ancient. Both rooms do appear to be part of
the same structure, which may have been part of an elaborate funerary complex with
additional chambers located below the rooms of Type III:RDF.03, a hidden cistern nearby,
and a staircase that led to upper platforms and an outdoor loculi. The first chamber on the
north of the complex has an eroded doorway area, but it appears to initially have been a T-
shaped doorway. One high upper window is located to the right of the remains of the
original doorway. If there was a matching window on the left side of the tomb, erosion has
removed all evidence of it. Modern graffiti on the interior and exterior of the doorway on
the right side include the names of several notable visitors such as that of German
archaeologist Manfred Lindner. On the interior of the first chamber is a large cultic niche
with several holes in the back of the niche that may possibly be related to the placement of
a statue or betyl. The second doorway is smaller than the first, but similar in style. It also
has a modern metal door frame and a corrugated metal door. Like many of the carved
chambers in Petra, this one has been reused in modern times by the local B’dul Bedouin
and is currently serves as a modern stable for goats. The funerary structure associated
with this double set of rooms is elaborate but has not been included in previous studies of
funerary architecture associated with burial chambers.
Figure 5.13: Façade Type III: RDF.03, two rooms that are part of a large funerary complex found on the Ad-Deir Plateau. Photo taken looking east. This funerary complex has been neglected in previous studies and publications but is an interesting complex with two recessed doorways leading into two linked chambers at the top of a staircase. (Photos and sketches by author, June 2019.)

Type III: RDF.04 is found on South side of Wadi Sadd Khurayrid ‘lyal ‘Adwa, the deep gorge near the end of the modern tourist trail to the Ad-Deir Monument (See Figure 5.12 and Map 5.4). This multi-roomed and possibly multi-story structure was previously numbered as M3 on the Brünnow and Domaszewski maps. It is located in the area called the “Valley of the Hermitage” (Klausensclucht) by Gustav Dalman in his 1908 survey due to the Christian symbols carved in the rooms of a nearby carved and built structure on the top of

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a rock outcrop.\textsuperscript{176} There are a number of Christian crosses carved in and around several rock-cut rooms in the area, which supported the nomenclature of ‘Hermitage’ used to describe this area of the trail to the Ad-Deir Monument. Four crosses are specifically associated with the survey of Type III: RDF.04. One of these crosses is carved onto the exterior wall of the façade (See Figure 5.13 for placement of the cross). This cross is identified as a Patriarchal Cross, a style of cross typical of the Byzantine Near East.\textsuperscript{177} These crosses have two cross bars located on the upper portion of the vertical arm. The highest cross-bar is shorter than the one below it. On the interior of the side room of the chamber are three additional crosses (see Figure 5.17) that are identified as a crusader type cross that is either called the Cross Pattée or the Greek Cross.\textsuperscript{178} This style of cross has equal length horizontal and vertical arms with flared ends.\textsuperscript{179} Dr. Robin Jensen of the department of Theology, University of Notre Dame, dated these crosses toward the end of the Crusader Period (13-14\textsuperscript{th} century CE).\textsuperscript{180}

This façade is likely part of a two-story building. The first piece of evidence that supports the theory that this was originally a two-story carved structure is that there are two doorways to the main room, one carved directly above the other (See Figure 5.14). The main upper doorway is carved as a T-shaped entrance. The lower doorway is almost completely buried by fill and erosion debris but is still visible in Figure 5.14. Additionally, on the interior, there are a series of post-holes in the wall that possibly supported the floor

\textsuperscript{176} Ibid., Dalman, 1908, 215.
\textsuperscript{177} Personal Communication, Dr. Robin Jensen (Department of Theology, University of Notre Dame) 27 Jan 2020.
\textsuperscript{178} Ibid.
\textsuperscript{179} Ibid.
\textsuperscript{180} Ibid.
that separated the upper and lower levels of the building. The entire second floor has collapsed over time, and other than the carved holes in the wall, there is not any other clear evidence for the second story in the interior room. The ceiling of the upper room is far more elaborately carved than most of the other tombs seen in this survey, with a finely carved checkerboard pattern of Nabataean cross-dressing (See Figure 5.15). Additionally, there are several carved niches in the lower walls that may have been either storage shelves or cultic niches (See Figure 5.16). This structure has never been excavated formally, and it does not seem to have been reused in modern times. However, in the side chamber, there are a number of Christian crosses carved on the walls near the doorway and the opening that looks into the main room of the chamber (See also Figure 5.17). It has been postulated that this Nabataean tomb complex was re-utilized in the Byzantine Christian Period as monk cells.\textsuperscript{181} Thus, the nickname of the 'Hermitage' was popularized throughout Petra after its re-discovery by Western explorers and archaeologists. It is actually one of two similarly re-utilized sites in Petra that are located close to the Ad-Deir Plateau.

\textsuperscript{181} Ibid., Dalman, 1908, 215.
Map 5-6: A rough map of the area with Type III:RDF.01, Type III:RDF.03, and Type III:RDF.04. Both of the High Places that may be associated with Type III:RDF.04 have also been identified on the map as has the Ad-Deir Monument. The Ad-Deir trail follows a prominent NW-SE fault. (Map drawn by author.)

Figure 5.14: Type III:RDF.04, looking southwest, an elaborate recessed doorway façade that is part of a larger complex located near two Nabataean High Places and the ancient Grand Processional Way leading to the Ad-Deir Plateau. This building has been described as a ‘Hermitage’ due to the presence of Christian crosses carved on the interior of one of the side rooms. (Photos by author, May 2013)
Figure 5.15: The photo on the left shows the ceiling of Type III:RDF.04 and the image to the right is the enhanced photo of the ceiling, showing the squares with the Nabataean cross-dressing creating different patterns. (Photos by author, May 2013.)

Figure 5.16: The shelves or niches inside of the main chamber of Type III:RDF.04. (Photo and sketch by author.)

Figure 5.17: One of several Christian Cross Pattée (or Greek Cross) from the late Crusader Period carved within the side room of Type III:RDF.04. (Photo and sketch by author.)

Type III:RDF.04 is unique in a number of additional ways. There are carved decorations on the exterior of the recessed doorways that include a potential fountain to the right of the main upper doorway. The finely dressed ceiling is not seen in many of the
rock-cut rooms utilized by the Nabataeans which is further evidence for the unique decoration of this edifice. This carved multistoried building is located near the ancient Grand Processional Way to the Ad-Deir Monument that accessed the Ad-Deir Plateau via a now collapsed bridge just south of the Ad-Deir Monument. This rock-cut structure is also positioned near two Nabataean High Places. This may indicate that the usage of Type III: RDF.04 was more intensely linked to a religious function and may not have been used as a burial location. More archaeological studies would be needed to confirm if this rock-cut complex was used in association with the High Places located so near to its position (See Map 5.4).

Type IV Djinn Blocks (DB)

Map 5-7: A map of the locations of the surveyed Djinn Blocks in the Petra region. (Map by author).
The Djinn Block structures have not been included in previous typologies, such as the ones proposed by either McKenzie or Wadeson.\textsuperscript{182} For example, in previous scholarly studies, Michel Mouton and Francois Renel (2011), noted six of the many façades in Petra as Djinn Blocks.\textsuperscript{183} I propose that five additional façades should be included in this category, bringing the total to at least eleven. There may be additional tombs that can be identified as Djinn Blocks that have not yet been surveyed. Djinn Blocks are defined as being blocks of stone carved on four sides. I believe that a few of the additional tombs should be called Djinn Blocks, despite only being completely free standing on three sides or not completely carved away from the surrounding cliff on the fourth side. All Djinn Blocks are generally shaped as towers, with all carved sides being nearly equal in length and size. The sides of the Djinn Blocks commonly align with pre-existing perpendicular sets of fractures instead of being quarried by stone masons. In this way, the geological structure contributed to the shape bias of ancient monuments. For example, if the fracture pattern was not orthogonal, it would produce abundant triangular versus square pre-carved monuments.

In recent years, Mouton has proposed that the Djinn Blocks of Petra are similar to the tower tombs found in Mleiha in the United Arab Emirates and Qaryat al-Faw in central Arabia.\textsuperscript{184} However, the tower tombs in Qaryat al-Faw consist mainly of underground tomb chambers that can be associated with weathered monuments made from mud-

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\textsuperscript{184} Ibid., Mouton, 159; B. Overlaet and E. Haerinck, “Monumental Tombs along the Arabian Caravan Routes,” \textit{Akkadica Supplementum} (2014) 206.
\end{flushright}
brick. These tombs have not been firmly dated, due to the looting of the burial sites, but material from the 2\textsuperscript{nd} to 1\textsuperscript{st} centuries BCE has been recovered in excavations. In Mleiha, early burials that have been excavated were designed with a burial pit dug into the limestone, with a tower-shaped monument constructed over the pit. These tower monuments were often capped with crowstep motifs and date to the 3\textsuperscript{rd} and 2\textsuperscript{nd} centuries BCE. The dates of the tower tombs in Southern Arabia and the UAE suggest that this style of tomb has been in existence for a long time. Tower tombs that stood up to 20 meters high also exist in Palmyra, Syria. The 180 Palmyrene tower tombs are believed to have been constructed between the 1\textsuperscript{st} century BCE and the 3\textsuperscript{rd} century CE. The Djinn Blocks in Petra may be the Nabataean equivalent of the tower tombs that are seen in other Arab cultures from around the Nabataean Era. Several archaeologists have identified the Djinn Blocks as being the earliest of the tombs in Petra, dating them to the 2\textsuperscript{nd} Century BCE. Significantly, such structures may reflect a commonly utilized tower house found anciently throughout the Mediterranean world as seen in Minoan miniature frescoes from Thera dated to the Bronze Age and as late as the early Islamic Period as seen in the mosaics in the Umayyad Mosque in Damascus. In Jordan, there is also an example of

\begin{footnotes}
\item[185]\textit{Ibid.}, 206.
\item[186]\textit{Ibid.}, 206.
\item[187]\textit{Ibid.}, 207.
\item[188]\textit{Ibid.}, 207.
\item[190]\textit{Ibid.}, 160-164.
\item[191]\textit{Op. Cit.}, Mouton and Renel (2003), 140.
\item[192]For information on the tower houses, see S. Morris, “A Tale of Two Cities: The Miniature Frescoes from Thera and the Origins of Greek Poetry,” \textit{American Journal of Archaeology}, 93 (1989) 511-535. For information on the Umayyad Mosque in Damascus, see Z. Friedman,
\end{footnotes}
tower houses in the mosaics in the Church of St. Stephan at Umm al-Rasas, Jordan (See Figure 5.18). The mosaics in the Church of St. Stephan have been dated to 756-785 CE using dates found in dedicatory inscriptions in the church.\textsuperscript{193} The mosaic designs around the “ship mosaic” are representations of various cities in the Jordan region, some which have been identified, and others that have not. One mosaic shows multi-storied buildings from Alexandria that may represent tower houses still being used at this time. Thus, these buildings in funerary contexts were creating a literal house for the dead that reflected the rectangular-type of prestige house style familiar to the deceased while alive. Such structures may have served in the mind of their ancient builders as a place to secure the domestic tranquility of the deceased’s soul, but also as focal points of family, clan, or a tribal identity via veneration of ancestors and the celebration of family and clan history of genealogy through symposia.

Symposia in Petra are well-attested. Early authors such as the Greek geographer, philosopher, and historian Strabo (c. 63 BCE - CE 24) and the Roman senator and historian Publius Cornelius Tacitus (56-120 CE) both wrote about Nabataean symposia.\textsuperscript{194} Strabo reported that the Nabataean king served his guests.\textsuperscript{195} Tacitus wrote about the gifts that Aretas IV gave to guests at a symposium.\textsuperscript{196} Epigraphical evidence from the Turkmaniya Tomb inscription and the Aslah Triclinium inscription mention rooms that were associated with the tomb that were dedicated for ritual religious meals or feasts to honor the dead.

\textsuperscript{195} Ibid., Strabo (VII:16:4:24).
final epigraphical evidence is the graffito inscription on the Ad-Deir Plateau that refers to a symposium dedicated to “Obodat the God.” Modern analysis of archaeological evidence from Petra further supports the use of symposia for veneration of either deity or family or clan history. Isabelle Sachet, discussed her study of the various triclinia in Petra and proposed that larger triclinia were used for more public events while the smaller triclinia were used by select groups or families. Megan Perry suggests that Nabataean tombs were often used for the burials of family members as shown by tomb inscriptions from Petra and Meda'in Saleh. Burials in shaft tombs excavated by Dr. Perry as part of the Petra North Ridge Project show many of the deceased were buried together communally, supporting the importance of kin and familial relationships to the Nabataean people. Dr. Perry goes on to state that part of the rituals associated with the Nabataean mortuary practices likely included feasts to honor and remember the dead. Thus, tombs and other façade monuments may have taken on the literal role of ‘houses for the dead’ in the Nabataean mortuary view.

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Figure 5.18: The representation of Alexandria in the mosaic on the floor of the Church of St. Stephen in Umm al-Rasas. These mosaic floors date to 756-785 CE. This mosaic shows several multistoried buildings that appear to be tower houses. (Photo by author, June 2019.)

Four of the previously documented Djinn Blocks were carved in the Disi Sandstone between the modern entrance of the Petra Archaeological Park and the Siq (See Map 5.5). Type IV:DB.01 (labeled by Brünnow and Domaszewski as BD 9) is one of the iconic Djinn Blocks seen by most of the visitors entering Petra (See Figure 5.19. For a list of all identified Djinn Blocks, see Appendix 2). As with several of the Djinn Blocks leading up to the Siq, the area around and under Type IV:DB.01 was excavated by Fawzi Zayadine. Zayadine reported finding a rectangular pit located on the top of the block, but no human remains were located within the pit or around the Djinn Block. This tower-like edifice is entirely freestanding with an indented level on the top of the stone, three small steps on the base of the structure, and a side entrance leading into the carved chamber portion of the structure.

Figure 5.19: Type IV:DB.01 (BD 9), photo looking at the southeast side of one of the four Djinn Blocks found between the Wadi Musa entrance to the Petra Archaeological Park and the Siq. This Djinn block was carved into the Disi sandstone parallel to pre-existing orthogonal fracture sets. (Photo and sketch by author, May 2016.)

A second Djinn Block, Type IV:DB.02 (formerly known as BD 8 according to the Brünnow and Domaszewski numbering system) from along the main tourist route into Petra from the Wadi Musa Entrance on the way to the Siq is very different from the previously shown example (See Figure 5.20). This Djinn Block has columns carved around the lower portion of the façade and an indented torus around the upper portion of the façade with several intact flat slabs that extend outwards from the torus. There is a ramp carved in the sandstone near the Djinn Block (visible in the background of the photograph, Figure 5.20) that may have been used to access the grave at the top of the rock outcropping to the North, or even potentially may have been used to gain access to the top of the Djinn Block. Excavations did not reveal an access to an underground chamber that could have been used for burial purposes.

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205 Ibid., 192, 194.
206 Ibid., 194.
Figure 5.20: Type IV:DB.02 (BD 8), photo looking northwest at a second of the Djinn Blocks found along the main trail from the Wadi Musa entrance to the Petra Archaeological Park and the Siq. The sides of the block are parallel to NW-SE and ME-SW fracture sets. (Photo and sketch by author, May 2016.)

Type IV:DB.03 (BD 70) is one of the monumental structures that has not been previously identified as a Djinn Block, but that seems to fit into this category (See Figure 5:21). This façade is completely free-standing on two sides but is only partially carved away from the Umm Ishrin sandstone cliff on the other two sides and does not have an opening into an interior chamber that is visible. Instead, there are two carved ‘false doors’ on the exterior of the monumental façade (See Figure 5.21). Several large fractures run through the façade, parallel to the fractures that created the wadi in front of the façade itself. The façade is topped with a unique band of freestanding crowsteps. Although the crowstep motif does appear on several Djinn Blocks, this is the only one with freestanding decorations. The freestanding crowsteps are not the only unique features found on this façade. In place of a traditional entrance into an interior chamber, this façade had two ‘false doorways,’ one on the east side of Type IV:DB.03, and the other on the north side of the monument. The triangular pediment ‘false doorway’ on the east side of the façade is adorned by several major geologic fractures. There is one urn still intact on the east side of the façade. Each corner of the façade has a square or conferred column carved in relief,
possibly originally capped by a Nabataean horned capital, although the top of the columns are heavily eroded.

Figure 5.21: Type IV:DB.03 (BD 70), photo looking southwest at a proposed addition to the Djinn Block tomb category. It is free standing on two sides and partially free-standing on the remaining two sides. The crow-steps on the top of the façade are free-standing, something that is unique among the tombs of Petra, Jordan. The sides align with the two main fracture sets in Petra. (Photo and sketch by author, May 2017.)

On the north side of the façade, the pedimented ‘false doorway’ is carved with more detail (See Figure 5.22). There is a carved square or conferred column on the left side of the façade with a Nabataean horned capital on the top. The carved conferred column on the right has been almost completely worn away by erosion. The ‘false doorway’ on the north side of the monument is created by two columns capped with Nabataean horned capitals below a triangular pediment. On the left side of the triangular pediment is an urn which is very worn. Any urns potentially carved in antiquity on the right side of the pediment have been eroded away. The central carved figure resting on the apex of the triangular pediment seems to be a human figure, but it is very worn and possibly defaced.
by either Christian or Muslim iconoclasts in similar destructive actions that have damaged the figures on El-Khazneh. The potential carved figure on the north side of Type IV:DB.03 is still visible and seems to belong to a female dressed in draped ropes similar to those associated with the Isis figure on El-Khazneh, or a figure placed over a loculus on the Urn Tomb’s facade. Although many of the sculptures in Petra have been mentioned in other publications, this probable statue has not appeared in any of the previous scholarly literature.

Figure 5.22: A more detailed shot of the ‘false door’ on the north side of Type IV:DB.03. This side of the façade has a distinctive false door with two urns on the triangular pediment above the ‘door’ and a possible carved figure on the center of the triangular pediment. (Photos and sketch by author, May 2019.)

Type IV:DB.04 is another rock-cut façade that should be considered to be a Djinn Block (See Figure 5.23). It is found in Wadi Farasa (See map 5.5). It is free-standing on three sides and partially free-standing on the final wall face. This monument has two doorway entrances, one on the front and one on the side of the carved structure. Both doorways are unornamented. The top of the façade has a single band of crowsteps running around the top of the structure, similar to the single crowstep entablature facades
discussed below. The exterior of the chamber is fairly simple, with little in the way of ornamentation. However, the inside is more interesting. There are six potential interior loculi, several carved nefesh, and a few inscriptions (See Figure 5.24). One of the inscriptions is carved on the wall between possible loculi. The other is located near the triangular shaped nefesh on the wall between the two sets of three potential loculi (See Figure 5.24).

Figure 5.23: Type IV:DB.04 (BD 276), a tomb that is free-standing on three sides with the fourth side partially freestanding. It is highly likely that the 3 free standing sides were already that way due to parallel systematic fractures and a cross-joint. The Djinn Block has two doorways into the main body of the tomb. There is a second cave structure near the first. (Photo and sketch by author, May 2018.)
Figure 5.24: The interior of the main chamber of Type IV:DB.04. There are two sets of three loculi, one along the left wall, one along the back wall of the tomb. In between the two sets of loculi is a Nabataean inscription and an isosceles triangular shaped nefesh. The inscription states "Weep for (D/R)qba Sl(ayn) (the last word in the phrase may possibly be interpreted to mean ‘Sela’ or ‘coin.’ This word could also be read as SLM or “Peace”). (Photos by author, May 2017.)

**Type V: Arch Facades (AR)**

The arch facades are generally among the smallest of the façade tombs found at Petra. Judith McKenzie described the arch tombs as having the decoration of a rounded arch supported by pillars with either a plain entrance or an entrance with an entablature supported by pillars. At Petra, during this tomb survey, I visited 18 arch tombs, and have assigned this façade type the designation of Type V:AR. The arch facades have the smallest representation among the façade styles in Petra, Jordan, but the rounded arch elements often appear in other iconography, such as cultic niches as discussed below.

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Map 5-8: A map of the location of the Type V:AR façades within the Petra Area. A majority of the Arch façade monuments are found in the Wadi Turkmaniya area with the remaining four surveyed by the author located near the Petra Theater and in the Wadi Farasa area. (Map by author).

The three arch façades found near the Petra Theater are the first of the arch decoration monuments that will be discussed in this section. The first of these rock-cut façades is Type V:AR.01 (previously known as BD 124) (See Figure 5.25). It is located in the cluster of tombs near the tourist trail that leads to the High Place (See Map 5.6). This tomb has two levels of carved arching lines, one inside of the other forming a double arch. In the center of the inner arch, the Nabataean builders carved a circular shape that could possibly be a *patera*. A *patera* is a type of vessel with a raised center that was used in ancient Classical Era pagan religious ceremonies to pour out liquid offerings to the gods.\(^{208}\)

The barrel-vaulted inner arch of the double arch set is supported by columns capped by Nabataean horned capitals. The outer arch is also carved over columns finished with Nabataean horned capitals. Interestingly, there also appears to have been windows in the façade. These windows would have been separated from the door by the columns that form the edge of the doorway. The interior of this rock-cut chamber is mostly filled in with soil and erosion debris, but several loculi are visible, which suggests that this was intended as a tomb. There are no visible fractures associated with the façade of this monument, although there is a north-south fracture running in front of the façade itself, creating the cliff within which the rock-cut monument was carved.

Figure 5.25: Type V:AR.01 with simple circular motif in the center of two carved arches and Nabataean horned capitols over engaged columns. This motif may have been representative of a patera. This façade also has a pair of windows, one on each side of the doorway. Some of the original façade design has been destroyed by erosion, and the interior chamber is filled in with soil debris. The top of the original door coincides with the base of a prominent red layer in the sandstone. It is possible that this dramatic color shift occurs over a thin naturally occurring iron deposit. (Photo looking west at the façade. Photo and sketch by author, May 2017.)

Another façade located near the theater is Type V:AR.02 (also called BD 141 under the Brünnow and Domaszewski numbering system) (See Figure 5.26). It is found near the third of the arch façades near the theater, Type V:AR.03 (BD 154), but is on a lower terrace.
This monument is simpler than the other two carved arch structures near the theater (the previously mentioned Type V:AR.01 and Type V:AR.03, another façade discussed below). Type V:25.02 has a barrel-vaulted arch over a simple circular medallion or rondel circling a possible human figure (See Figure 4.26). There is a post-and-lintel design around the doorway and two outer columns that support the arch itself. There is also a fracture running through the right side of the carved monument, creating a clear boundary between this façade and the next rock-cut chamber. A second fracture extends onto the façade itself (See Figure 4.26)

![Image of Type V:AR.02 (BD 141) with a rondel or circular medallion with possible human figure and fractures.](image)

Figure 5.26: Type V:AR.02 (BD 141) is the arch façade in this image. The design in the center of the arch is a rondel with the possible remains of a carved figure. (Photo and sketch by author, May 2016.)

The last of this type of façade located near the Petra Theater is Type V:AR.03, the most ornate of the arch monuments visited during the course of this study (See Figure 5.27). This rock-cut chamber has two columns on the outer edge of the façade, which is
something common on all of the arch façades I have surveyed thus far. Additionally, there is a column on either side of the door, which is also a unique feature not usually seen in arch façade monuments. Above the door are several indented architraves. There does not appear to be any sort of design in the central part of the arch in the façade. This may be because the center of the arch has been eroded, but there is no way to tell if the Nabataean patrons or architect intended this area to serve for ornamentation. There is also a fracture immediately to the left of the façade, but it does not continue to the base of the decorative exterior, and it does not impact the carving of the façade itself. The ornateness of this particular rock-cut chamber makes it a variation within the category of the arch façades.

Figure 5.27: V:AR.03, one of the largest and most ornate of the arch façade monuments visited during a survey of Petra. Photo taken looking southwest. This rock-cut arch monument was located near the Petra Theater. (Photo and sketch by author, May 2016.)

In addition to the arch façades found near the theater, I visited several rock-cut monuments in the southern area of Petra which included the area of Wadi Farasa and (See Map 5.6). The two Wadi Farasa façades, one identified as Type V:AR.04 (BD 264), and Type
V:AD.05 (which had no identifiable BD number and was located at the GPS coordinates of 30.322315 35.436453), have crowstep motifs in the center of the arch rather than the circular motifs that appear on some of the arch monuments located close to the Petra Theater. Thus far, I have not been able to find any publications that mention or discuss the existence of crowsteps in the center of a barrel-vaulted arch. V:AR.04 was the first façade that was documented with the crowstep found in the center of the arch (See Figure 5.28). Two columns were carved under the arch, but there are no columns next to the doorway. There is a lintel over the door, but no ornamentation around the entrance. The interior of the tomb has a large rectangular opening in the ceiling, which could have functioned as a skylight or an opening for water to enter the rock-cut interior chamber (See Figure 5.29). This feature could also be a pre-existing loculi that was disturbed by the carving of the lower façade, or even a way to lower a body into the interior chamber when the door was sealed, but without further study, it is impossible to tell what the purpose of this ‘skylight’ was or how it may have been dealt with architecturally in antiquity with relation to water entering the rock-cut chamber itself. Because the façade had been reused in modern times, the interior may have been modified, but there is no sign that this ‘skylight’ feature was carved by anyone other than the Nabataeans. A short Nabataean graffiti inscription was also found on the exterior of the chamber.
Figure 5.28: Type V:AR.04, An arch tomb with a crowstep motif in the central portion of the arch rather than the traditional circular motif or blank space. (Photo taken looking northeast). Given the central location of the crowstep within façade ornamentation, this is a good indication of their similar meanings, i.e. possible associations with deities of rejuvenation. The photo on the far left shows the entire carved façade while the one in the far right shows the crowstep detail. The sketch in the center shows the complete façade with the fractures and crowsteps labelled. (Photos and sketch by author, June 2018.)

Figure 5.29: The ‘Skylight’ feature in the ceiling of Type V:AR.04 with a metal cover added by the Bedouin in modern times. (Photo by author, June 2018.)

The second tomb with the crowstep in the center of the arch was found at the GPS coordinates 30.322315 35.436453 and will be referred to as Type V:AR.05 (See Figure 5.30). It is likely that this tomb was originally assigned a number by Brünnow and Domaszewski, but due to the inaccuracies and difficulties in interpreting their maps, I was unable to determine what their original survey number for this monument may have been. This tomb was extremely worn due to 2000 years of water and wind erosion. The presence of arch tombs with the crowstep symbol reflects the importance of the merlyn or crowstep
to the Nabataeans. It might also reflect the presence of a symposium, or religious group in the area south of Petra associated with particular male deities of rejuvenation in the Wadi Farasa area, since the only arch tombs with the crowstep motif that I have seen were in Wadi Farasa.\textsuperscript{209} The tombs around the theater tended to have a circular motif, and the tombs around Wadi Turkmaniya usually did not have any motifs in the center of the arch. In the few cases where the Wadi Turkmaniya tombs did have a decoration in the arch, they tended to have a rosette symbol. As with the crowstep arch tombs, the different designs of the arch tombs could reflect the presence of particular symposia and/or religious groups associated with specific burial regions outside the center of the ancient city as well as specific deities associated with the tomb and its various roles in Nabataean religious societies.

Figure 5.30: Type V:AR.05, the second arch façade with a crow-step in the center of the arch. The top of the door coincides with a color-banded layer of stone. Unfortunately, the lighting was not ideal for photographing this façade and a new photograph will be taken in the Spring of 2021 (if travel is permitted). (Photo and sketch by author, May 2017.)

Given my survey, I discovered that there exists significant variation in the arch façades in Petra, Jordan. These variations include the differences in the iconography found in the central arches as well as the shape of the barrel-vaulted portions of the arch monuments throughout Petra. These types of carved barrel vault features are also commonly seen in the smaller rock-cut cultic niches as well as aspects of other types of tomb facades (See Figures 5.31-5.33). For example, the Tomb of Sextius Florintinus has elements of an arch tomb incorporated into its façade (See Figure 5.28. For more information on the Sextius Florintinius façade, see its description under Triangular Pediment Facades.). Unfortunately, due to a lack of writings from Nabataean authors to describe their beliefs, we have no way of knowing what the arch-shaped motif as a decorative element and carved decorative shape meant to the Nabataean people. However, the commonality of the arch motif may be significant to the Nabataeans as an indicator of a sacred or spiritually important space that is separated from the secular world by this architectural design and iconographic associations.

Figure 5.31: A cultic niche at the base of the Burgberg Monument on the Ad-Deir Plateau with three rectangular betyls under the arch. The arch itself is very eroded, but it is still visible. (Photo by author, May 2013.)
Figure 5.32: An arched niche in the water channel that runs from just before the entrance of the Siq to Wadi Mataha. This arch is well carved and more elaborate than the Arch Façade in Figure 4.25. (Photo by author, May 2017.)

Figure 5.33: The Tomb of Sextius Florintinius (Type VIII:TPF.04) which has elements of an Arch Façade. The central figure in the arch is the head of a Gorgon, which is not a typical motif seen in the arch tombs of Petra. This is one of the few tombs in Petra that has an extant inscription on the exterior that suggests the tomb was either created on behalf of, or reused for the interment of the Roman Governor Sextius Florintinius (who was in office in Petra from 127-129 CE). For more on this tomb, See Type VIII:TPF (Triangle Pediment Façades). (Photograph by author, May 2016.)
Type VIa: Single Entablature Facades

The tombs in this category have been discussed in other publications under the name of Pylon Facades. This name was first proposed by Brünnow and Domaszewski in 1904 and has been used by subsequent authors in scholarly publications. Some authors such as Brünnow and Domaszewski combine the single pylon façades and the double pylon façades into a single category, which they call the “pylon façades.” Other authors such as Lucy Wadeson separate the single pylon and double pylon façades into two categories. The architectural term ‘pylon’ refers to the gateway leading to a sacred space, usually the entrance into a temple in ancient Egyptian contexts (See Figure 5.34). Richard Wilkinson explains that the two pylons or towers at the entrance of an Egyptian temple symbolized the rising of the sun between two mountains, thus forming the hieroglyph for ‘horizon.’ Additionally, each of the two towers refer to the Egyptian goddesses Isis and Nephthys as shown by an inscription on the temple of Horus as Edfu. The inscription states that the pylons are called “Isis and Nephthys who raise up the sun god who shines on the horizon.” Lurker suggested that all pylons were thus linked to Isis and Nephthys who were imagined as guardians of the god resting in his sanctuary. In Egyptian contexts, pylons are always composed of two towers forming a gateway. However, the so-called ‘pylon tombs’ at Petra as described by McKenzie and Wadeson are not paired façades

215 Ibid., 37.
connected to form a gateway. Instead, they are lone edifices with a single or double row of
crowstep motifs. Because of this, I am suggesting that the Pylon Facade categories should
be replaced with the category of Entablature Façades. Additionally, I am proposing that the
Entablature Façades be considered one category with three subtypes, including the Single
Entablature Facades (Type VIa: SEF), the Double Entablature Facades (Type VIb: DEF), and
the Non-Crowstep Entablature Facades (Type VIc: NEF).

Figure 5.34: The Pylon Gateway to the Temple of Horus, Edfu, Egypt. This monumental
gateway has two towering structures connected over the entrance, forming the hieroglyph
for ‘horizon.’ These gateways symbolize a separation of the sacred temple space from the
outer world. (Photo by Dr. Cynthia Finlayson, December 2019. Used with permission.)

The Single Entablature Facades (SEF) are easily identifiable with a single row of
merlyns or crowsteps across the front of the façade, usually with a torus directly beneath
them (See Map 5.7) for locations of these façades. Appendix 2 contains a list of façades in
this category).217 This crowstep band is usually at the top of the façade, but not always. A
number of the Single Entablature Façades in Petra have either an indented groove above
the door, but the majority of those carved structures had no evidence that suggests that

there was a decorative cornice as was proposed by Judith McKenzie. In fact, several of the Single Entablature Façades have bars carved in relief sticking out over the door rather than an indented groove. Other Entablature Monuments had multiple grooves above the doorway of the rock-cut monument. Type Vla:SEF.01 is an example of a Single Entablature Façade with a row of carved crowsteps across the top of the façade (See Figure 5.35). Each of the crowstep ornaments has four steps and there is a lintel bar extending out over the doorway.

Map 5-9: A map of the location of Vla:SEF façades surveyed during this study. (Map by author).

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218 Ibid., McKenzie, 2.
Figure 5.35: Type VIa:SEF.01, (BD 153) a Single Entablature façade near the theater in Petra with a single row of crowsteps across the top of the façade. There is also a architrave carved in relief over the door of this façade. This rock-cut monument is fairly simple in style and decoration. (Photo taken looking west-northwest). Photo and sketch by author, May 2017.

Figure 5.36: Type VIa:SEF.02 (BD 99) is an unusual Single Entablature Façade. The crowsteps on the top of this rock-cut monument have the typical four steps. There appears to be a bar above the door, but part of the façade appears to have eroded away or have collapsed around the north-south fracture running through the front of the monument and the interior. It is possible that the door was carved to be extremely wide by the Nabataean carvers, but it is impossible to tell without further research and study. (Photo taken looking west. Photo and sketch by author, May 2016.)

Type VIa:SEF.02 (which had the Brünnow and Domaszewski assigned number of BD 99) is an unusual variation on the Single Entablature Façade types (See Figure 5.36). It has many features that are typical of the Single Entablature Facades, however, the doorway is far wider than the usual Nabataean door. This doorway could have been modified in more modern times, but it does appear that there is Nabataean cross-dressing on both sides of
the current opening thus indicating the ancient date of the entrance. This unique façade was carved in an area where the cliff had been naturally fractured to create a flat surface in which the Nabataeans carved this structure. Another naturally occurring geological fracture runs down the right edge of the upper part of the rock-cut monument and through the central part of the interior chamber. This pre-existing fracture may be a contributing factor to the unusual width of the door, but as it is currently impossible to determine. If the fracture was present when the Nabataean builders started working on the monumental façade, this may have forced them to make the door extra wide to compensate for the fracture. This door is also off-center, which may be an indication that the aesthetic placement of doorways in Nabataean contexts may represent a different artistic paradigm than the Classical Greco-Roman mind set.

Figure 5.37: Type VIa:SEF.03 is a variation of a Single Entablature Façade located at 30.321903, 35.43585. (Photo and sketch by author, May 2017)

Type VIa:SEF.03 is a Single Entablature Façade found at the GPS coordinates of 30.321903, 35.43585 that has a single band of crowsteps on the upper façade of the structure (See Figure 5.37). However, the crowstep band has been carved lower than the usual decorative entablature typically found on the top of a Single Entablature Façade. The
lower than normal placement of the crowsteps on this particular monument seems to be a factor of the geological contexts into which the Nabataean carvers placed the rock-cut chamber, as the upper portion of the cliff of the façade is rounded due to erosion and would not have supported a full band of crowsteps. Although there may have been a second layer of crowsteps carved above the first that has eroded away over time, there does not appear to be any visual evidence to support a second layer of crowsteps carved in antiquity. There are actually a number of Single Entablature façades in Nabataean Petra that have the crowstep band carved midway down the face of the decorative architectural motifs, in part due to the constraints of the geology at the top of the rock outcrops that the monuments have been placed in. When the outcrop is rounded at the top, the Nabataean builders, or the commissioners of the façade, had a choice concerning where they wanted to put the row of crowsteps. On some of the rock-cut monuments, this band was placed at the very top of the façade. In some of those carved structures, the crowsteps may be incomplete due to the geology. Alternatively, the band of crowsteps may have been placed lower in order to create a complete set of these decorative motifs on the entablature indicating the importance of the crow-step motif in Nabataean tomb contexts.

Additional variations in this façade Type VIa:SEF.03 include a rock-cut chamber opening midway down the façade (See Figure 5.37). It is unknown what the function of this rock-cut chamber may have been. Most likely, it either held a cultic statue or an image of the patron or commissioner of the monument, but without archaeological remains, it is impossible to tell what it was utilized for. Next to the façade of this rock-cut chamber were cultic niches and possible water features such as a waterfall, all common attributes of Nabataean rock-cut monument. The interior of Type VIa:SEF.03 is also unique (See Figure
4.38). It has both a lower floor area that may have been a *loculus* or contained several *loculi*, as well as high *loculi*-shaped shelves carved into the upper back wall, as well as the two interior side walls. Some of these upper units have shelves *in situ*. This structure is currently being reused as a stable for goats by local Bedouin. This tomb has never been officially excavated. However, similar wall *loculi* have been observed by this author in a Nabataean hypogeum located along the King’s Highway just South of the modern village of Rajef along the Wadi Arabah escarpment South of Petra.

Figure 5.38: Interior view of Type VIa:SEF.03 with strange interior *loculi* wall shelves. This tomb has been reused in modern times as a stable for goats. (Photo and sketch by author, May 2017.)

Type VIa:SEF.04 (BD 118) is another strange variation on a Single Entablature Façade (See Figure 5.39). This rock-cut monument has the normal single row of crowsteps on the top of the façade, and an indented architrave above the door. A second lower indented bar forms the lintel of the post-and-lintel style doorway. There is either a window or a small cultic niche to the right of the doorway on the front of the façade as seen if one is viewing the monument facing the exterior façade. The most unique part of this carved structure is the second doorway or entrance to the right of the main entrance to the façade structure. The second doorway shows some signs of erosion but doesn’t appear to be created by natural geological processes. The second entrance is rounded on the top and is
asymmetrical. It is not like any of the other façade entrances seen in this survey, and it is possible that it was not an intentional part of the original façade design.

Figure 5.39: Type VIa:SEF.04, a variation on a Single Entablature Façade with two doorways. (Photo taken looking west-southwest. Photo and sketch by author, May 2016.)

Figure 5.40: Type VIa:SEF.05, photo looking west-southwest, a variation on the Single Entablature Façade with a strange ‘tower’ over the door next to a flat platform. This asymmetrical tomb façade is located to the left of Type VIa:SEF.04. (Photo and sketch by author, May 2016.)

Type VIa:SEF.05 (BD 119), which is found directly to the left of Type VIa:SEF.04 is also a variation on the Single Entablature Façade type (See Figure 5.40). This monument has an upper ‘tower’ that has an entablature with only two and a half of the crowstep motif designs extant across the very top of the ‘tower.’ Each of the crowsteps on the top of the
façade has the traditional four stairs common in Nabataean carved decorations. The ‘tower’ feature on this carved structure is off-center and located above the doorway of this façade. Next to the ‘tower’ is a flat lower platform that begins over the left corner of the doorway. There is an indented architrave above the door. This façade is significantly different from the standard “Pylon tomb” that has been described by Judith McKenzie in that it has a tower structure and is not symmetrical.\textsuperscript{219} This façade thus presents more evidence for the variation in the rock-cut monuments of Petra that may reflect the various beliefs and personal preferences of the tomb builders and commissioners.

Type VIa:SEF.06 (BD 800) is one of the only tombs that is comparable in style to the façade of VIa:SEF.05 that I have seen in Petra. (See Figure 5.41) Type VIa:SEF.06 also has a tower feature, but this tower is not positioned over the doorway of the façade structure. There is a row of crowsteps across the central portion of the tower, again two and a half crowstep motifs wide. There is an architrave extending outwards above the door and a platform with an opening that leads to a cistern feature to the tomb entrance’s left. As the interior of the structure is mostly filled with erosion debris, it is difficult to tell if this was a cistern or a tomb structure, but the ornamentation over the doorway would suggest that this was a tomb. The crowsteps that distinguish this tomb as a Single Entablature Façade are larger than the motifs usually seen in Nabataean contexts and there is a significant portion of the ‘tower’ above the single row of crowsteps that is unadorned except for the naturally occurring bright swirls and lines of color known in geological contexts as Leisegang Bands. Like Type VIa:SEF.05 (see Figure 5.40), there does not seem to be any evidence to suggest that the Nabataean stonemasons may have intended to have a second

\textsuperscript{219} \textit{Ibid.}, 2.
row of crowsteps above the first. The size and height of this tower on Type VIa:SEF.06 suggest that the Nabataean masons were creating the façade and sides of a tower house as suggested in the section of this chapter on the Djinn Block tombs. Thus, a literal ‘house for the dead’ is suggested by this particular tower façade type. This could mean that carved façades of Type VIa:SEF.05 and Type VIa:SEF.06 are a combination of iconographic concepts that may indicate that the Nabataean patrons selected what symbols they wanted on their ‘houses for the dead’ to represent their belief systems. Perhaps there even existed a pattern book of potential iconography that patrons could use to select the designs that they wished to incorporate into the tombs that they commissioned. It is also possible that members of a family group or tribe may have hired stone-masons from the same school who chose to incorporate specific design elements into their work.

Figure 5.41: Type VIa:SEF.06, photo looking northeast at a Single Entablature Façade which is comparable to VIa:SEF.05. These two unique façades share some decorative features with the Djinn Block tombs in that they have tower features that resemble the tower houses referred to earlier in this chapter. (Photo and sketch by Author, May 2017.)

Type VIb: Double Entablature Facades

The Single Entablature Façades are only the first subclass of rock-carved structures that fit within the broader category of Entablature Façades. The second subclass of façades
that fits within this category are the Double Entablature Facades. Like the Single Entablature Facades, the Double Entablature Façades have entablatures decorated with rows of crowsteps. The biggest difference between the two types is that the Double Entablature Façades have two levels of entablatures with crowstep ornamentations. This category was originally called “double pylon tombs” by MacKenzie but as explained earlier in this chapter, pylons usually are monumental gates in the ancient Near East and particularly Egypt with differing characteristics.\(^{220}\) A double pylon tomb would imply that there was a pair of tombs found together and linked in some way. As these tombs are not found in pairs forming a gateway, it is inaccurate to call them double pylons. As such, I am proposing that they be identified as Double Entablature Facades. The placement of the upper entablature is similar to the location of the carved decorations on the Single Entablature Façades. The lower decorative layer is usually midway down the façade. The doorways are still usually simple in nature. Judith McKenzie described these façades as having a “Hellenistic door frame with either a groove for an inset molding along the top of it, or a carved molding along the top.”\(^{221}\) Type VIb:DEF.01 (BD 270) is a beautifully carved example of a Double Entablature Façade (See Figure 5.42). It has been reoccupied in modern times and had a door cemented into the original Nabataean entryway to the building. This monument also has stair-like benches on the exterior of the rock-cut structure on either side of the door. The upper row of crowstep decorative motifs on the top of the façade has been impacted by the height of the available rock that the stonemasons had to work with in order to create this façade, but unlike the pattern seen with

\(^{220}\) Ibid., McKenzie, 2 for information on the Double Pylon Façade category. See pages 107-109 in this text for information on Egyptian pylons.

several of the Single Pylon Façades, the Nabataean architects chose not to lower the upper row of crowsteps, and instead simply allowed the geology to constrain the upper band of crowsteps.

Map 5-10: A map showing the locations of the surveyed Type VIb:DEF façades. (Map by author)

Figure 5.42: Type VIb:DEF.01 photo looking South, a Double Entablature Façade located in the Wadi Farasa area in Petra. This category is distinguished by two rows of crowsteps. This rock-cut chamber has been reused in modern times, evidenced by the metal door. (Photo and sketch by author, May 2017.)
Type VIb:DEF.02 (previously published by Brünnow and Domaszewski as BD 68) is a unique Double Entablature Façade located near El-Khazneh (See Figure 5.43. The upper portion of the tomb has the distinctive decoration of a Double Entablature Façade, but the carved structure has no visible door. It is possible that the doorway is buried, if there was a doorway, but it appears that the base of the façade has been exposed today, which suggests that there was no entrance or interior chamber. The lack of even a false door or a cultic niche at the base of a façade is extremely unusual in Petra. Across the bottom of the façade, there is a row of nefesh, or obelisk-shaped carvings in Phoenician style that usually represent the souls of the deceased.\footnote{222 Op. Cit., Finlayson, 2013.} This is not the only façade in Petra that I have surveyed that potentially has no door (as noted with Type IV:DB.03, see Figure 5.17), but another similar façade of note has more of an Egyptian style false door indicated by relief carving (See Figure 5.44).

Figure 5.43: Photo looking southwest at Type VIb:DEF.02, is a façade near El-Khazneh that seems to have been carved without a door. Across the base of this façade are a series of nefesh or Phoenician style obelisk shaped motifs that usually represent the soul of a deceased individual. (Photo by author, May 2016.)
Figure 5.44: Façade type XIII:MF.01 (Miscellaneous Façade 1 in the author’s typology): Photo looking northeast at an uncommon façade located along the trail to the Ad-Deir Monument. This quarried façade (located near Brünnnow and Domaszewski 455) resembles an Egyptian false door motif with a rolled-up reed screen door at the top of the false door relief. Alternatively, the top of the door lintel of Type XII:MF.01 may simply have been left unfinished. (Photo and sketch by author, May 2013.)

The tomb located at 30.322477, 35.436478 is another variation on the Double Entablature Façade, which is designated as Type VIb:DEF.03 (See Figure 5.45). This monument has a very narrow façade with two fairly eroded bands of crowsteps. There are two carved channels, one on either side of the rock-cut chamber, which probably served as water channels. There are geologic fractures to the right of the monument, which may have played a role in the decision to place the rock-cut monument in this particular location. The height of the outcrop seems to have more of an impact on this façade than the fracture. This façade also lacks the typical squared off top of a number of Nabataean façades (of all styles) and instead is capped with an arch-like or barrel-vault-like structure. There does not seem to be any decoration or ornamentation around the doorway. The combination of a Double Entablature Façade with an arched top is unique, but like the Tomb of Sextius Florintinus (Type VIII:TPR.04), this may indicate that Nabataean patrons chose which
iconography they wanted to include in the façades they commissioned. It is possible that
the upper portion of Type VIb:DEF.03 was rounded naturally rather than carved by the
Nabataeans, but to determine that, a more detailed study of this façade, likely utilizing rock
climbing gear, and the upper portion of this monument would be required.

Figure 5.45: Type VIb:DEF.03, a façade located at 30.322477, 35.436478. This is an
interesting monument in that it has an arch-shaped top to the façade. More study would be
required to determine if the curve of the top of the façade was naturally occurring or if it
was carved by the Nabataean stone-carvers. (Photo and sketch by author, May 2017.
Façade orientation and photo orientation were not collected by the author).

Figure 5.46: Type VIb:DEF.04 (BD 133) a large Double Entablature Façade variation with
strange stair steps in front of the monument. (Photo taken looking southwest. Photo and
sketch by author, May 2016).
Type VI:DEF.04 (BD 133) is a Double Entablature Façade with a large platform in front of the façade (See Figure 5.46). The doorway features a triangular pediment over an ornately carved entryway with two columns that McKenzie may have referred to as a “Hellenistic” door. One of the more unique features that distinguishes this monument as a variation on the Double Entablature design is that on either side of the door are carved benches with stair steps, which is unusual in other Nabataean tombs types. These benches or water features were carved so that the high point of the carving is at the same height as the vertical center of the doorway, which is fairly unique in Petra. Usually, stone-carved benches are much lower on the façade and are not stepped as in Type VIb:DEF.04. There are several geologic fractures running through the façade, one on the left side of the façade, and one running through the center of the structure.

Figure 5.47: Type VIb:DEF.05 (previously known by its Brünnow and Domaszewski number as BD 826) is another variation on a Double Entablature Façade. This monument is located near the Petra Theater. One very unusual variation with this façade is the remains of a Nabataean water pipeline running across the upper façade, just below the lower entablature. There are also two windows in the lower portion of the façade. The regular spacing of these façades is controlled by the spacing of fractures. (Photo taken looking east north-east. Photo and sketch by author, May 2018.)

As previously noted, Type VIb:DEF.05 (BD 826) is one of the tombs located near the Petra Theater (See Figure 5.47). It is unusual in that it hosts the remains of a Nabataean water pipeline that consisted of a terracotta pipe held in place with Nabataean plaster on the upper portion of the façade. The water pipeline, (as can be seen in Figure 4.47 highlighted in orange to distinguish it from the rest of the façade) is located below the lower entablature on the façade. On some of the tombs on either side of Type VIb:DEF.05 that support this pipeline, the terracotta pipe and the plaster that covers it are still extant, showing how this pipeline may have once been partly disguised by the Nabataeans. This pipeline extends from the Siq to the city center of Petra. Judith McKenzie suggested that the pipeline can be used in part to date the façade of this tomb. McKenzie believed that façades BD 824, 825, and 826 (Type VIb:DEF.05) were carved before 50 CE when a new road was being constructed through the Siq entrance to the city of Petra. She argued that the ceramic water pipeline was constructed as part of the water systems associated with the construction within the Siq in 50 CE to bring water to the city, presumably from cisterns or springs. She also noted that there was evidence of repairs and changes being made to the tomb facades that were affected by the addition of these Nabataean water pipelines. While studying Type VIb:DEF.05, it was observed that there are two ‘windows,’ one on either side of the door to the structure. They may have been created by erosion as they are found beneath a naturally occurring geologic fracture between two

\[224\] Ibid., 38.
\[225\] Ibid., 38.
\[226\] Ibid., 38.
\[227\] Ibid., 38.
stratigraphic layers in the sandstone that forms the cliff from which these monuments are carved.

Type VIb:DEF.06 (also identified as BD 797-799) is another variation on the Double Entablature Façade type (See Figures 5.48 and 5.50). This façade is the central unit in a grouping of three monuments carved out of the same outcrop of sandstone. The rock-cut monument on the far right of the group of three (See Figures 5.48 and 5.50) of these façades is similar to the tower monuments in that it has a tower-like feature with a flat lower platform, however, Type VIb:DEF.06a has no visible crowstep motif. To the right of Type VIb:DEF.06a is an outdoor semicircular biclinium, making this a very interesting monumental complex (See Figure 5.49).

Figure 5.48: Façades of Type VIb:DEF.06a, b, and c with the facades labelled in the sketch to the right. The middle façade, Type VIbDEF.06b has two layers of etched crowsteps in the style of a Double Entablature Façade. Type VIb:DEF.06a resembles the Single Entablature tower tombs that were mentioned previously. Type VIb:DEF.06c is undecorated. (Photo taken looking west. Photo and sketch by author, May 2017.)
Figure 5.49: The outdoor semicircular biclinium to the right (north) of Type VIb:DEF.06a. Note the prominent fracture along which the biclinium was constructed. (Photo looking north. Photo by author, May 2017.)

The central façade of the three structures, (Type VIb:DEF.06b), is a Double Entablature Façade (See Figures 5.48 and 5.50). The difference between this monument and the traditional Double Entablature Façades is that VIb:DEF.06b has the double layer of crowsteps etched into the surface rather than carved in relief. This is a rare example of crowsteps on a façade in Petra where the crowstep motif has not been carved in relief. The third façade in the grouping, Type VIb:DEF.06c has a single row of etched crowsteps, making it a Single Entablature Façade. This trio of monuments is very unique, and because of its uniqueness, all three façades are being treating as a single entity. There were no plaster remains visible that may suggest that the crowstep designs had once been made of molded plaster or any other substance that may have been put over the etched design. Having the design etched into the façade makes the crowsteps less visible than on tombs where the crowsteps are carved in relief. Why the stonemasons who carved these façades, the architects, or the Nabataean patron chose to have the crowsteps etched into this monument is unknown. It is also highly possible that these façades were left unfinished and the etched crowsteps exist to indicate where the stone masons were to carve the crowstep reliefs.
Figure 5.50: Photo looking west at Type VIb:DEF.06b (BD 798), and the two surrounding façades. The central façade is the Double Entablature Façade. Type VIb:DEF.06c has a single row of crowsteps etched into the façade, making it a Single Entablature Façade. These two façades, Type VIb:DEF.06b and Type VIb:DEF.06b, are unique examples of façades in Petra that have an etched design rather than the traditional relief crowstep design. (Photo and sketch by author, May 2017.)

**Type VIc:NEF (Non-Crowstep Entablature Facades)**

The Single and Double Entablature Façades have appeared in many publications, but there is a third type of Entablature Façade that has not appeared in the previous literature. These façades are similar in design and structure to the rest of the monuments in the Entablature Category, but they lack crowsteps entirely, thus earning the name Non-Crowstep Entablature Facades (NEF). Five rock-cut chambers without crowsteps were identified during the course of this study that were located near the Petra Theater, which may suggest that the commissioners of the façades were originally linked either through kinship or religious beliefs, or the Nabataean patrons utilized the same artist workshop for these façades. It is also possible that there are no connections between the façade owners, and this was a stylistic decoration decision by each patron.
Type VIc:NEF.01 (BD 72) is the first of the Entablature Façades identified in this survey as a Non-Entablature Façade. Initially, it was identified as a Single Entablature Façade, but upon closer examination, it was noted that there were no crowsteps carved between the two tori near the top of the façade (See Figure 5.51). Arguably, the crowsteps could have destroyed by erosion. However, the tombs surrounding Type VIc:NEF.01 have not been impacted by the amount of erosion that would be needed to destroy the crowsteps, nor have the other carved features such as the tori on Type VIc:NEF.01 been impacted by erosion to the extent that would suggest that erosion is a valid hypothesis for why there are no crowsteps on this tomb façade. Based on these observations, I believe that the crowsteps were never carved. Type VIc:NEF.01 also has no ornamentation around the door of the façade. The doorway is off-center, and there may have been windows.
carved to either side of the door. There is also a small rectangular niche above the doorway.

Type VIc:NEF.02 (BD 146) is another Entablature Façade without crowsteps (See Figure 5.52). This tomb has a single torus near the top of the tomb. There is an indented lintel over the door, but that is the only decoration near the doorway. The Nabataean stone-masons chose to carve this bedrock outcrop back several meters in order to get the tomb façade to be the desired height. There is no fracture running either through the façade nor in front of the façade, so this monument is an example of a rock-cut chamber where faults and fractures had no bearing on the decision of where to place this structure. However, geology still constrained the construction of the façade as the stone-carvers had to cut away existing bedrock in order to create a large enough area in which to place this small façade. The impact of the geology on Nabataean façade monuments will be further considered in the analysis portion of this study.

Type VIc:NEF.03 (BD 828) is the third façade that is carved in a similar style to the monuments in category Type VIa:SEF, but like the other rock-cut chambers in the Non-
Crowstep Entablature Façade subcategory, there are no crowsteps carved on the façade (See Figure 5.53). This façade is also carved in the area between the end of the Siq and the Petra Theater. Each of the *tori* that have been carved on the façade are extremely distinct and show that erosion could not have erased any of the crowsteps that were carved on the façade. The band where the crowsteps would have been carved is not at the top of the tomb but is about a meter lower than the highest portion of the façade. There are a number of stones placed on top of the tomb, which suggests that the façade itself was capped with a built structure, something that has been suggested by the presence of carved stones on the top of other Nabataean tomb façades. However, if there was an original built portion of the façade of this tomb, it has been destroyed by erosion or by human activities. Any doorway for this façade is not visible and there is no exposed ornamentation that suggests where the doorway is located. I suspect that the doorway is buried under several meters of erosion debris, but no excavations have been undertaken up to this point to confirm or deny that hypothesis.

Figure 5.53: Photo looking west at Type VIc:NEF.03 (BD 828), a façade located near the Petra Theater that is a Non-Crowstep Entablature Façade. (Photo and sketch by author, May 2018.)
There are three more examples of Non-Crowstep façades that I visited during my survey of the façade tombs which are similar in style and design to the three already described in this paper. I propose that these six tombs, and possibly others that I have not yet examined be considered a subclass of the Entablature Façades. They deserve being considered for further study as they are unique and have not been previously mentioned in the existing literature.

**Type VII: Crowstep Tombs (CF)**

In addition to the Arch Façades and the Entablature Façade, there is another class of monuments published in the scholarly literature that deserves additional consideration. These are the Crowstep Façades. Previously in studies by Brünnow and Domaszewski, Judith McKenzie, and Lucy Wadeson, tombs in this category have been considered to be three separate classes of tombs, Step Tombs, Hegr Tombs, and Proto-Hegr Tombs respectively. In studying these tombs, I believe that they should be considered as subclasses within a single category. Because these rock-cut structures are so similar, field identification of these monuments can be difficult, but because they do have certain unique characteristics that can be used to differentiate between the façade types, I believe that these monuments should be considered subclasses within the Crowstep Façade Category. For simplicity’s sake, these rock-cut chambers will be called Type VIIa (Crowstep Façades, formerly known as ‘Step Tombs’), Type VIIb:CF (previously called the Proto-Hegra type façades), and Type VIIc:CF (formerly published as the Hegra type façades) and will be sorted by design complexity.

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**Type VIIa:CF (Crowstep Façades)**

The first façade within the Crowstep Façade Category is Type VIIa:CF (See Figure 5.54). The top of this monument type has two sets of four to five stair motifs facing each other over several other decorations including a *torus* and a *cavetto cornice.* The Type VIIa:CF facades lack carved columns on the exterior edges of the façades, but usually have some form of ornamentation over the door of the monument, most often a simple bar. Type VIIa:CF.01 (known as BD 160 within the Brünnow and Domaszewski numbering system) is a good example of a Nabataean Crowstep Façade (See Figure 5.54). It was carved in the area directly above the Petra Theater. Most of the other monuments near Type VIIa:CF.01 had their original façades removed in the later Roman-Era construction of the Petra Theater, so it is impossible to determine what the carved exteriors of these rock-cut chambers were like originally at their first inception. However, based on size, it is possible that these destroyed facades would have been similar to Type VIIa:CF.01.

*Map 5-11: A map showing the distribution of the discussed Type VIIb:CF façades. Due to the inability of the author to get a GPS reading at or near Type VIIb:CF.01, it is not included on this map. However, it is near Type VIIb:CF.03. (Map by author).*

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The façade located at the GPS coordinates of 30.331156 35.436422 is another Crowstep Façade, which has been designated Type VIIa:CF.02 (See Figure 5.55). This monument was carved in the middle member of the Umm Ishrin formation or in the ‘tear’ sandstone. This sandstone appears to melt when it erodes, which makes analysis of façades carved in this sandstone more difficult. There are five steps on the crowstep on the right and presumably on the crowstep on the left, but erosion makes this more difficult to determine. The only ornamentation around the door is a bar or lintel carved in relief. There are steps leading up to the door. This monument is greater in height than the previously mentioned Crowstep Façade (Type VIIa:CF.01), but that is more likely due to the availability of a higher cliff that supports a larger rock-cut façade. It is impossible to know if there was additional ornamentation on the façade of the rock-cut chamber due to the way the sandstone has eroded.
Figure 5.55: Type VIIa:CF.02, a Crowstep Façade Monument located at the GPS coordinates 30.331156, 35.436422. This façade was carved in the Middle Member of the Umm Ishrin Formation. (Photo and sketch by author, May 2018.)

Figure 5.56: Photo looking west south-west at Type VIIa:CF.03 (BD 120). This façade is a Crowstep Façade with a simple design. There is no visible ornamentation around the buried doorway. (Photo and sketch by author, May 2017.)
Type VIIa:CF.03 (BD 120) is another example of a Crowstep Façade (See Figure 5.56). It has the characteristic set of crowsteps with four steps. Any doorway for this façade is buried and there is no visible ornamentation to indicate where the door may be. Because the doorway is buried, it is currently impossible to determine if this was a tomb, biclinia, or cistern. This particular carved façade was located near the Petra Theater. Most of the Crowstep Façades do not have a lot of variation, and any additional ornamentation would move them into one of the other subclasses within this category.

Type VIIb:CF (Crowstep Façades)

The second subclass of tombs within the Crowstep Façade category are more ornate than the facades described under category Type VIIa:CF. The façades that are placed in Type VIIb:CF type were previously identified as the Proto-Hegr façades by Brünnow and Domaszewski as well as subsequent authors.\(^{230}\) Although the term Hegr has no meaning in German or Arabic, Fawzi Zayadine interpreted the Hegr type edifices as the Hegra type façades.\(^{231}\) Significantly, Hegra is a Nabataean city in modern Saudi Arabia also known for monumental rock-cut façade tombs, and the Hegra type façades in Petra described by Brünnow and Domaszewski, McKenzie, Wadeson, and Zayadine are similar to the style of façades in Hegra. Thus, the Hegra and Proto-Hegra types refer to a specific type of tomb in Mada’in Saleh (anciently known as Hegra). It is unknown where the Crowstep Façades were first carved within the Nabataean Kingdom. Therefore, it is just as likely that the ‘Hegra’ and ‘Proto-Hegra’ façades elements were originally constructed in Petra and then spread to the city of Hegra. Because the Hegr and Proto-Hegr façades are not unique to

Hegra or Petra, they will be reclassified as Type VIIb:CF for the Proto-Hegr Façade type, and Type VIIc:CF for the examples previously designated as the Hegr style tombs. The façades in subcategory Type VIIb:CF have two crowstep motifs on the top of the façade, which is the same as the façades within the Type VIIa:CF decoration types. These motifs generally have four or five steps, but there are also several Type VIIb:CF façades that have six stairs on either side of the crowstep motif. There are generally two columns, one on either side of the façade. These columns are often capped either with Nabataean horned capitals or with implied Nabataean horned capitals. Judith McKenzie described these tombs as being defined by Domaszewski as being the same as those used in the Type VIIa:CF subcategory except for the addition of pilasters which support the cavetto cornice.\textsuperscript{232}

\begin{center}
\textbf{Map 5-12}: A distribution map of the Type VIIb:CF façade monuments in Petra, Jordan. (Map by author)
\end{center}

\textsuperscript{232} \textit{Op. Cit.}, McKenzie, 2.
An example of the Type VIIb:CF type façade is Type VIIb:CF.01 (BD 12) (See Figure 4.57). Type VIIb:CF.01 was carved in the Disi Sandstone formation before the entrance to the Siq (see Figure 5.57). This monument is capped with crowsteps with five steps on either side of the façade. There are two columns, one on either side of the façade and a carved post-and-lintel decoration over the doorway. The two ‘windows’ in the façade were likely created by erosion and were not originally or deliberately included by the builders, but there are cases where there are ‘windows’ in the façades of similar rock-cut edifices that may have been purposely carved. As with many of the Nabataean monuments surveyed in Petra, the bedrock was carved back in order to create a cliff high enough for the façade. Unlike many of the rock-cut chambers in Petra, this façade had two side chambers, one on either side of the monument. These two simple chambers face each other in a similar manner to the side chambers of the more famous El-Khazneh. There is also a small temenos in front of the monument façade. There are no visible fractures through or around this façade. This is probably because the Disi Sandstone’s composition differs enough from the Umm Ishrin Sandstone that they react differently to geological stresses in the region.

Figure 5.57: Photo taken looking west at Type VIIb:CF.01 (BD 12): a Crowstep Façade with two side chambers that face each other. (Photo and sketch by author, May 2017.)
Figure 5.58: Photo looking southwest at Type VIIb:CF.02 (BD 67) or the “Thieves Tomb.” This façade has two levels with an upper chamber located between the upper crow-steps. There is also a window or loculi near the doorway with a row of nefresh along the base of the façade. There is also a major fracture running northwest-southeast in front of the façade. (Photo and sketch by author, May 2014.)

Type VIIc:CF.02 (BD 67) is a variation on a Crowstep Type façade (See Figure 5.58). This façade is known as the “Thieves Tomb” in local lore. According to tradition, a thief from the Bani Ala (Subh) tribe would hide by day in the upper chamber of this monument and rob the supplies of the Bedouin by night. Each of the crowsteps on the top of this rock-cut chamber has five steps. In between the crowsteps is a small façade and chamber, which is fairly uncommon in Petra. This upper chamber has a triangular pediment supported by two columns. There are two lintels over the door and ashlar blocks forming a small wall at the edge of the upper level. There may also be a cultic niche near this upper ‘façade.’ This possible niche was carved into the lowest step of the crowstep on the right.

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There is also an opening in the right side of the façade, near the base of the monument, which seems to be a loculi chamber. Originally, it may have been covered by a funerary portrait or statue, but no trace of a covering remains extant. The doorway is capped with another triangle pediment resting on two columns. There is also a post-and-lintel design carved over the door itself. Finally, there is a row of nefesh motifs across the base of this monument. A fairly significant fracture runs in front of this façades and would have created the cliff that this rock-cut chamber was carved into. There are also several fractures running through the façade.

Type VIIb:CF.02. is a very interesting façade as there are only a few multistoried façades in Petra, and there are a line of nefesh images carved in relief on the front of the tomb. The interior of this tomb has been cleared out and the loculi are empty however, there are no formal excavation reports to explain if these loculi and the interior chamber were excavated or if they were cleared out throughout the centuries by the later inhabitants of Petra or by modern-era looters.

Figure 5.59: Photo looking northeast at Type VIIb:CF.03 (BD 128), has indented lintels above the post-and-lintel style doorway. (Photo by author, May 2016).
VIIb:CF.03 (BD 128) is another façade within the Type VIIb:CF subclass (See Figure 5.59). It is not nearly as elaborate as Type VIIb:CF.02. Each of the crowsteps on Type VIIb:CF.03 have five steps. The stairs on the right are far more eroded and worn than the steps on the left. There are two columns, one on either side of the façade. These columns are capped with Nabataean horned capitols. There are three indented lintels over the door and the interior of the façade was filled in with erosional debris. There are fractures to the right and left of the carved exterior of the monument, with one fracture running through left side upper crowsteps.

Figure 5.60: Photo looking west at Type VIIb:CF.04 (BD 105), one of the more unique façades near the Petra Theater. This carved façade appears to have multiple types of façades incorporated into a single structure. There are two levels to this strange façade and two lower entrances. The shape of the upper chamber is similar to several natural occurring alcoves throughout Petra. (Photo and sketch by author, May 2016.)

Another unusual façade near the Petra Theater is Type VIIb:CF.04 (BD 105). This monument has elements of multiple façades carved onto the exterior and seems to have three chambers (See Figure 5.60). Although many of the façade monuments in Petra are somewhat symmetrical, this tomb is completely asymmetrical. The façade on the right appears to be a Type VIIb:CF style design. One column is still visible on the far-right side of the façade. One crowstep with five stairs is fairly eroded, but still visible on the right side
of the carved façade. There are two indented lintels over where the door may have originally been located. It is possible that portions of the exterior have collapsed. Directly to the left of this more elaborate crowstep façade is a very eroded area that almost looks as though it was carved as an arch façade. The left side of the tomb has a second chamber with a lintel over the doorway. Above the two (or possibly three) façades is a second chamber. Based on the lack of divisions between the chambers of this tomb and the very distinctive carved borders between Type VIIb:CF.04 and the façade on either side of this monument, it is likely that this multichambered façade is all part of one structure.

**Type VIIc:CF** (Crowstep Façades)

![Map of Type VIIc:CF façades in Petra Archaeological Park](image)

*Map 5-13: A map showing the distribution of the Type VIIc:CF façades in the Petra Archaeological Park. (Map created by author.)*

The final subcategory that fits into the Crowstep Façade Category are the Type VIIc:CF façades. Judith McKenzie describes these tombs as looking the same as my Type VIIb:CF façades (Brünnow and Domaszewski’s Proto-Hegr Façades) with the addition
below the *cavatto* cornice of an attic above a classical entablature supported by pilasters.\textsuperscript{234}

As suggested by this description, the façade subcategories within the Crowstep Façade Category are nearly identical with only a few features distinguishing the façades from each other. McKenzie also stated that the doorways of the façades within the subcategory of my Type VIIc:CF can be plain with only a simple bar over the door, or complex with a pediment supported by pilasters, sometimes containing an additional entablature and pillars.\textsuperscript{235}

![Figure 5.61](image)

**Figure 5.61:** Photo looking east at Type VIIc:CF.01 (BD 825), a tomb located near the Petra Theater. This tomb has one column with a Nabataean horned capital, a triangular pediment over the lintel of the door, and one missing column that may have been a separate piece of stone originally (outlined in purple in the central left image). A water pipeline (outlined in orange in the central left image) was added to that façade after it had been carved. The right central image is a sketch of the interior chamber of the tomb and the far right photo shows the interior with a niche in the back wall of the chamber and loculi in the floor. (Photo and sketches by author, May 2017).

Type VIIc:CF.01 (BD 825) is a good example of a Type VIIc:CF type tomb (See Figure 5.61).\textsuperscript{236} Located near the Nabataean theater, this tomb has crowsteps decorated with five steps on each side. Since this monument has been published as “The Tomb of the Fourteen Graves”\textsuperscript{237}, several important points can be made about its construction and decoration.

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\textsuperscript{234} *Op. Cit.*, McKenzie, 3.

\textsuperscript{235} *Ibid.*, McKenzie, 3.

\textsuperscript{236} The exterior of this façade including a summary of carving techniques can be found in M. Shaer and Z. Aslan, “Nabataean Building Techniques with Special Reference to the Architecture of Tomb 825 (Tomb of the Fourteen Graves),” *Annual of the Department of Antiquities of Jordan (ADAJ)* 41 (1997) 219-230.
Graves,” it will be referred to as a tomb in this paper. However, there is no scholarly publication on the excavation or clearance of the interior. The entrance to the tomb is fairly elaborate with a post-and-lintel decoration immediately around the doorway with a column on either side of the post-and-lintel motif. Above the lintel of the doorway is a triangular pediment motif. There is one normal column on the right side of the tomb with a Nabataean horned capital. The left side of the tomb has an indented column that suggests that there may have been a carved square column that was put into place with plaster or ancient cement. This column is currently missing, as is the capital that was also probably inserted into the respective groove carved for it. A plaster covered water pipeline cuts across this façade. Only one portion of the water pipe is exposed, the rest is still disguised by the original Nabataean plaster. This pipeline post-dates the carving of the tomb itself.

Figure 5.62: Photo looking east southeast at Type VIIc:CF.02 (BD 6), located in the Disi Sandstone between the modern town of Wadi Musa and the entrance to the Siq. (Photo by author, May 2016.)

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237 Ibid. 219.
Type VIIc:CF.02 (BD 6) is one of the rare tombs carved in the Disi Sandstone between the Wadi Musa entrance to the Petra Archaeological Park and the entrance to the Siq (See Figure 5.62). The façades carved in this sandstone are often smaller than the monuments carved into the Umm Ishrin Sandstone on the other side of the Siq. The Disi Sandstone façades are often more constrained by the geology, which is indicated in the rock-cut chambers by the crowsteps on the left being shorter than the crowsteps on the right. However, both sets of crowsteps have five stairs, which is a typical number for the Crowstep Façades. This rock-cut monument also has a triangular pediment over the door, similar to Type VIIc:CF.01.

Newly Proposed Categories
In previous scholarly publications, there are two other tombs categories that have been used in categorizing the rock-cut façades of Petra. Originally, Brünnow and Domaszewski proposed these categories as “Gable tombs” and “Roman Temple Tombs.”\(^{238}\) Neither the Gable tombs, nor the Roman Temple Tombs were ever clearly defined resulting in the modification of the two categories in later publications. For example, Lucy Wadeson used categories that she called “Simple Classical” and “Complex Classical” for these same types of tombs.\(^{239}\) However, the identification of the categories as “Classical” is confusing as the tombs that fit into these types are usually an amalgamation of Classical elements combined in unique ways. Additionally, there are a number of tombs in Petra that do not fit into any of the previously proposed categories and definitely are not included in either Brünnow and Domaszewski’s “Gable” and “Roman Temple Tombs” categories, or in


Wadeson’s “Simple” and “Complex Classical” façade types. I propose that these two categories should be renamed and redefined in order to make them more clearly identifiable. For the “Simple Classical” Tombs, I propose the new category of Triangular Pediment Façades. I further propose that the “Complex Classical” Tombs be replaced with category of Broken Pediment Façades.

**Type VIII: TPF (Triangular Pediment Façades)**

There are several monumental façades in this category. The façades of these carved structures are defined by the triangular pediment that forms the top of the exterior decoration. The triangular pediment often has a small urn on the peak of the pediment, and sometimes has one urn on either of the other two corners of the architectural decoration of this tomb type. This rock-cut chamber type is also seen in Mada’in Saleh in Saudi Arabia. The exterior decorations on the façades in Mada’in Saleh were examined by Judith McKenzie in her attempt to create a tomb chronology based on exterior decorations.\(^{240}\) The biggest difference in appearance between the Triangular Pediment Façades in Petra and Mada’in Saleh is that the monuments in Mada’in Saleh often have eagles instead of urns over the center of the pediment.\(^ {241}\) At Petra, there is quite a bit of variety seen in these types of rock-cut chambers that fit within this category.

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One of the most iconic of these structures is Type VIII:TPF.01, the so-called Urn Tomb or BD 772 (See Figure 5.63). This monument is topped with a triangular pediment and an urn. Below the pediment is a fascia with four human portraits that are very worn but are still visible. In between the four columns capped by Nabataean horned capitals are three loculi. The central loculus has an extant funerary portrait, suggesting the other two loculi were also filled with funerary portraits. There is a window over the doorway that lets additional light into the major interior chamber. The doorway is decorated by a triangular pediment with a fascia carved with circular metopes and triglyphs. There are two columns with Nabataean horned capitals on either side of the door. The Urn Tomb has two additional side doors, one on either side of the façade that also lead into the main chamber. This chamber has no loculi inside of it, the loculi seem to have been set higher in the exterior portion of the façade and on the side walls of the courtyard. Additional loculi can be found in the carved chambers behind the barrel-vaulted chambers and corridor.
below the main chamber of the tomb. Many of these barrel-vaulted chambers have been restored in modern times. This incredible tomb is one of the Royal Tombs at the base of Jebel Khubtha and it is located in an incredibly visible location in the central region of the ancient city. It has been postulated that it may have been a royal tomb of one of the Nabataean Kings or other prestigious family members.

Figure 5.63: An overall photo looking east at Type VII: TPF.01 (BD 772), one of the Palace Façades located on the base of Jebel Khubtha. This monument is carved over a number of chambers that have been covered by a system of built barrel vaults. Although many of the barrel-vaulted chambers have been restored in modern times, some of the stone-work is original. (Photo by author, May 2016.)

The three upper loculi of the Urn Tomb were investigated in 1959 by the British School of Archaeology.\textsuperscript{242} The loculi on the far right was empty except for dust, sand, and a few fragments of textiles.\textsuperscript{243} The cut chamber on the far left of the upper story of the Urn Tomb was also found to contain remnants of cloth in addition to sand and dust.\textsuperscript{244} The central chamber, which has the remnants of a funerary portrait in front of it, was the

\begin{footnotesize}
\begin{enumerate}
\item \textit{Ibid.}, 6.
\item \textit{Ibid.}, 6.
\end{enumerate}
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largest of the three burial loculi in the façade. Behind the funerary portrait was a “crude structure of dry stone walling, forming a roughly rectangular compartment...partially roofed with stones resting on short pieces of wood.” Parr suggested that the stone walled structure was created later than the recess itself and that this loculi may have served as a storage chamber at some point. The climber who investigated the chamber described the funerary portrait as being the “upper torso of a male figure wearing a toga,” but few other notes about chamber or funerary portrait were reported in the publication. Unfortunately, little other information was provided about the chambers, no analysis was performed on the textiles, the wood inside the central chamber, or any other findings. Regrettably, the lack of information found through excavations along with modifications of the interior of the tomb when it was converted into a Christian church (341 CE, See Chapter 1 for more details on this dedicatory inscription) makes this tomb difficult, if not impossible to date.

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\textsuperscript{245} *Ibid.*, 7. 
\textsuperscript{246} *Ibid.*, 7. 
\textsuperscript{247} *Ibid.*, 7. 
\textsuperscript{248} *Ibid.*, 7. The climber reported that the male figure was wearing a toga, which is normal reserved for male Roman citizens. In the Near East, many figures in portraits were actually dressed in a himation. In B. Goldman’s article “Graeco-Roman Dress in Syro-Mesopotamia,” (in J. Sebesta and L. Bonfante (ed.) \textit{The World of Roman Costume} (University of Wisconsin Press, Madison, 2001) 179), analysis of the sculpture and records from Roman Syro-Mesopotamia suggests that the people of the ancient Near East chose to depict the Greek himation in art rather than the Roman toga. This is also supported in J. Marszal, “An Architectural Function for the Lyons Kore,” \textit{Hesperia: The Journal of the American School of Classical Studies at Athens} 57 (Apr-June 1988) 203-206. It is thus probable that the original and correct garment worn by the figure in the Urn Tomb was misidentified.
Another example of a Triangular Pediment Façade is the Renaissance Tomb, which is Type VIII:TPF.02 in my typology (or BD 229 in the Brünnow and Domaszewski typology) (See Figure 5.65). Like the Urn Tomb (Type VIII:TPF.01), the Renaissance Tomb (Type VIII:TPF.02) has a triangle pediment at the top of the façade design. On the top of the triangular pediment are three additional urns. The central urn, however, is worn and could also be the very eroded base of an eagle. Eagles on tombs commonly appear in Hegra/Mada’in Salah, the Nabataean city in modern-day Saudi Arabia, but are rare on the
tombs in Petra. However, eagles appear on the façade of el-Khazneh in Petra. The Renaissance Tomb has an arched pediment over the doorway rather than the typical triangular pediment decoration seen in other triangular pediment tombs. This archway is decorated with an urn and other Nabataean horned capitals. There is also a post-and-lintel decoration over the door, but beneath the elaborate arched pediment. On either side of the tomb is a column capped with a Nabataean horned capital. Interestingly, the façade of the Renaissance Tomb is warped, but it is impossible to ascertain whether this is from differences in the hardness of the stone or due to errors made by the stone-masons.249 Additionally, the unusual nature of a strange bench or quarry shelf on the right side of the façade as well as unfinished nature of the exterior courtyard in front of the tomb has been suggested to be a result of the tomb being abandoned before all the stonework had been completed.250

The Renaissance Tomb is one of the few façade tombs in Petra that has been fully excavated. The results of this tomb clearing in 2003 yielded some information about the age of the burials within the fourteen graves found in the interior chamber. Out of the fourteen graves, two contained multiple burials, the rest were all recorded as single burials.251 The pottery found under the slabs that covered the burials was dated to the end of the first century CE.252 The most unusual discovery inside the graves were two freestanding gravestones, inscribed in Nabataean. These inscriptions listed the presumed

250 *Ibid.*, 209
occupants of the tomb as Hagyt, daughter of Tahn, and Taymu, son of Wahbi’ Hahy.’ The skeletons found in the tomb were not analyzed in the 2004 article, but the dates revealed by the study of the pottery show that this tomb was in use during the end of the 1st Century CE.\textsuperscript{254}

A façade on the trail to the Ad-Deir Monument that is classified as a Triangular Pediment Facade is the Lion Triclinium (BD 452) or Type VIII:TPF.03 (See Figure 5.66 and Figure 5.67). Tucked back off the main trail in a side wadi, this particular room has a fault running down the left side of the façade. As the name suggests, the interior of this room is a triclinium or a room with benches lining the inside of the three walls in the inner carved space. The façade, like the Tomb of Sextius Florintinius, Type VIII:TPF.04, is decorated

\textsuperscript{253} \textit{Ibid.}, 207.  
\textsuperscript{254} \textit{Ibid.}, 204.
with relief carvings (For Type VIII:TPF.04, the Tomb of Sextius Florintinius, see Figure 5.70). At the very top of the triangular pediment decoration of the Lion Triclinium is a very eroded urn. In the center of the triangular pediment is a carving of what may possibly be the head of the Gorgon Medusa. Although the head itself is very eroded, the snakes that are often depicted anciently as the hair of the Medusa are still visible extending out on either side of the figure’s face. Below the triangular pediment are a line of triglyphs and metopes on the fascia. The metopes are usually in the shape of flowers with no defined petals or wreaths. The triglyphs are usually standard in appearance with three carved linear features, but the last triglyph on either side of the fascia is a post-and-lintel false door, rather than a traditional triglyph. The final metope on each end of the fascia is decorated with one carved human head that Judith McKenzie describes as being the “head of Medusa.” These two heads are portraits with elaborate hairstyles, but both lack the snakes that are commonly associated with Medusa as a part of their hair (See Figure 5.68). One of the faces on the Lion Triclinium has a necklace that Judith McKenzie identified as a knotted snake, a symbol of Medusa. Both figures have their mouths open in what could be described as a grimace, a feature associated with Medusa since the Archaic Era (Eighth Century BCE to 450 BCE) in Ancient Greece. Most images of Medusa appear to have been used as either an apotropaic device or a symbol carved above doorways or windows to signify a transition between two worlds, including the world of the living and the dead.

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256 Ibid., 39.
In the Archaic Era, in Ancient Greece, Medusa was often carved with bulging eyes, distorted or distended cheeks, and a grotesque grimace. However, the iconography of Medusa evolved, and by the Fifth Century BCE, she was later depicted as a beautiful female, distinguishable only from ordinary human women because of her wings. Upon closer examination of the portraits on the Lion Triclinium, although the faces have previously been assumed to be representations of the Greek Gorgons, it is also possible that they were depictions of the triclinium’s patron assuming the image of Medusa, or that the Nabataean stonemasons adapted Greek and Roman iconography to depict deities or beings that appear in their own mythology. Therefore, without inscriptions, it is entirely possible that these images may have had a different symbolic meaning to the Nabataeans. Although the grimacing facial features are generally associated with Medusa, it is possible that the so-called ‘snake’ knotted under the chin of the human figure could also be a torque.

Beneath the fascia with the two female portraits is another torus, and then a lower, mostly eroded fascia. The edges of the tomb are defined with an engaged column capped with a Nabataean horned capital with vegetal motif decorations (See Figure 4.66). The

\[259\text{ Ibid.},\ 91.\]
\[260\text{ Op. Cit.},\ \text{Topper},\ 94.\]

A torque is a symbol commonly associated with the Celtic peoples of Europe, but it was also commonly used in Bronze and Iron Age Egypt. (see H. Tait, 7000 Years of Jewelry (Firefly Books, New York, 2008) 243.). One such Egyptian gold torque, dated to around 1400-1200 BCE, was made of thin gold disc-like beads strung together on a thick cord, giving it the appearance of the scales of a serpent (Ibid., 46). The Celtic torque could be fashioned by twisting bars of metal, usually gold or silver together or by casting molten metal to appear as though it was made of twisted metal (Ibid., 48). This would also give the torque the appearance of the scales of a snake in carving. Besides being found in Egypt, torques were also mentioned by ancient authors as being used in Persia (Ibid., 66). Most torques that have been found archaeologically have come from either Bronze or Iron Age hordes, or are associated with female burials (Ibid., 74, see also D. Mascetti and A. Triossi, The Necklace: From Antiquity to the Present. (Harry J. Abrams, Inc. 1997) 30).
doorway appears to be unusually shaped. It is possible that the door was originally a door with a window up above that has since eroded downward into the doorway. On each side of the door is a single carved lion. The bodies of the lions face the doorway, but each of the lions have turned their heads towards tomb visitors. In the ancient Near East, lions were often symbolic of chaos, but in association with tombs, often functioned as guardians of the dead (See Figure 5.69).²⁶²

Figure 5.66: The Lion Triclinium (Type VIII:TPF.03) on the trail to the Ad-Deir Monument. This is a Triangular Pediment Façade with an urn capping the top of the monument and carvings of human heads, floral motifs, and a possible Medusa head. Note how what looks like the top of the original door coincides with a prominent sandstone layer. (Photo and sketch by the author, May 2013.)

²⁶² Op. Cit., Lurker, 77. Lurker states that in ancient Egypt, most leonine deities, such as Sekhmet and Mehit, were female. Additionally, lions were often given apotropaic significance as they were widely feared in the ancient Near East and male lions often appeared in the role of a guardian. It is possible that the two male lions guarding the doorway of the Lion Triclinium were a form of an apotropaic device to protect the dead honored by this structure. Lion guardians were also utilized in the entrances of tombs in Palmyra, Syria, either as statues, but also as tomb door knockers.
Figure 5.67: The upper decorations on the Lion Triclinium which include a triangular pediment capped by urns. In the center of the triangular pediment is a head identified by McKenzie as that of the Gorgon Medusa. Below the triangular pediment is the *fascia* with alternating *tryglyphs* and *metopes*. On either end of the *fascia* are the heads also identified by McKenzie as Medusas. However, these heads may be that of women wearing torque necklaces or even dramatic masks. Under the fascia are Nabataean horned capitols with vegetal motif decorations. (Photo by author, May 2014.)

Figure 5.68: A close-up of both of the Hellenistic style portraits on the side of the Lion Triclinium that had been mistakenly identified as the heads of Medusa by Judith McKenzie. However, the heads on the sides of the *fascia* may be either portraits or Nabataean mythological characters rather than the heads of Gorgons. Unfortunately the head on the right side of the façade has been damaged and is far more difficult to see. (Photo by author, May 2014.)
Type VIII: TPF.04 is also known as the Tomb of Sextius Florentinius (See Figure 5.70). It gained its name from the Latin inscription found on the exterior of the tomb. A full translation of the Latin inscription is not found in scholarly publications, however, Judith McKenzie published a brief summary of the declaration carved onto the façade. The inscription dedicates the tomb to T. Aninius Sextius Florentinus, a Roman governor of Arabia (r. 127-129 CE). From an architectural standpoint, this façade is an amalgamation of styles. The top of the façade is capped with a triangular pediment. However, the triangular pediment has a fault running through it with visible displacement that suggests that the downward shifting of the right side of the upper portion of the façade may have happened after the façade was carved (See sketch in Figure 5.70 to see the difference between the sides of the triangular pediment at the top of the façade.) A large portion of the façade just beneath the triangular pediment has been fractured and only three Nabataean horned capitols are still extant. They are placed at intervals across the

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264 Ibid., 33.
central portion of the façade between the triangular pediment and the arch motif. Visible on the façade of the tomb is a large arch with a human head carved in the middle of a relief of either snakes or vines. The design is fairly eroded and has experienced some damage by either Christian or Muslim iconoclasts. The figure in this decorative motif is also wearing a necklace identified by Judith McKenzie as the knotted snakes associated with Medusa. Right below the arched pediment is a *torus* with a lengthy Latin inscription.

![Image of the Tomb of Sextius Florentinius (Type VIII: TPF.04)](image)

Figure 5.70: The Tomb of Sextius Florentinius (Type VIII: TPF.04) is one of the more unique tombs that fits into the category of Triangular Pediment Façades. It is capped with a triangular pediment bisected by a fault that shows displacement in the ornamentation. There is also an arch design as part of the façade with the carving of a face identified by McKenzie as a Medusa head. (Photo and sketch by author, May 2016.)

Type VIII: TPF.05 (BD 258) or the al-Najr Façade is located in the Wadi Farasa (See Figure 5.71 and 5.72. See also Map 5.12 for the location of Wadi Farasa). This monument is part of a massive complex with multiple carved rooms, quarried cliffs, and a large cistern behind a built dam. Remains of walls indicate that there are unexcavated architectural

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265 *Op. Cit.,* McKenzie (1998), 39. McKenzie identified the figure carved on this façade as a Medusa head based on the necklace that she believed was knotted snakes, as well as a possible wing in the image's hair on the right side of the head.
features filling this *wadi*. Interestingly, the East wall of this wadi was quarried, but no funerary architecture, rooms, tombs, or cultic niches were carved along that wall. All the façade structures were carved on the south and west walls of this wadi. Type VIII:TPF.05 has a triangular pediment with an additional *fascia* over the top of it. It also has four columns across the front of the façade and a doorway capped with a triangle pediment and a lintel with *triglyphs* and *metopes* decorated with circular motifs. There are possible *loculi* carved high on either side of the façade. As shown in Figure 5.72, the al-Najr Façade is part of a larger building complex that includes three other monuments, including one which is also a Triangular Pediment Façade. (See Figure 5.73).

Figure 5.71: Photo looking west southwest at Type VIII:TPF.05 (BD 258) or the Al-Najr Façade. This is one of the Triangular Pediment Façade Monuments located in the Wadi Farasa area. (Photo and sketch by author, May 2017.)

Figure 5.72: The west side of the wadi with the Al-Najr Façade (Type VIII:TPF.05) and the associated complex which is in the Wadi Farasa region of Petra. (Photo and sketch by author, May 2017.)
Type VIII:TPF.06 (BD 253) is the second Triangular Pediment tomb in the al-Najr Façade complex (See Figure 5.73). It is much simpler in design than the al-Najr Façade itself (Type VIII:TPF.05). Type VIII:TPF.06 has a triangular pediment forming the upper part of the façade. Beneath the upper pediment is a frieze of metopes with circular motifs and triglyphs. There is a Nabataean horned capital on an engaged column on either side of the door. It appears that the Nabataean stone masons carved a small rectangular window on the exterior on each side of the design (See sketch in Figure 5.73 for visual location). The window on the right has eroded through the column and merged with the opening to the doorway. The chamber inside of the façade contains several potential loculi, thus suggesting that this was a tomb in antiquity, however, no bone material was visible during the field survey, and without excavation, it is not possible to definitely prove that chamber was utilized as a tomb.
The oddest façade that fits into the category of Type VIII:TPF is Type VIII:TPF.07 (BD 259) (See Figure 5.74). It is located near Wadi Farasa and near Type VIII:TPF.05. This tomb has a pseudo-triangular pediment top, but the top is far flatter than is seen in other Triangular Pediment Façades. There are at least two *tori* below the pediment and symbolic urns on the edges of the triangular pediment as well as in the center of the pediment itself. The lower part of the tomb is divided from the upper part of the tomb by a strange bench like shelf. The lower part of the tomb also has stair-like steps going down the entire façade. There is a fracture running to the right side of the tomb. I have only seen one tomb that is comparable to this particular façade, i.e., Type XIII:MF.02 (BD 273) (See Figure 4.75).

Figure 5.74: Photo looking south southeast at Type VIII:TPF.07 (BD 259), a façade just south of Wadi Farasa. This was the oddest of the Triangular Pediment Façades surveyed in this study. Note how the occurrence of a large fracture to the right of the monument constrained the development of the façade. (Photo by author, May 2017.)
Figure 5.75: Photo looking southeast at Type XIII:MF.02 (BD 273), the only façade I have seen in Petra that is similar in appearance to Type VIII:TPF.07. This façade almost has a strange stairstep motif on the right side of the façade. Unlike Type VIII:TPF.07, this façade does not have a triangular pediment. (Photo and sketch by author, May 2017.)

Type: IX:BPF (Broken Pediment Façades)

Map 5-15: The distributions of the locations of the Broken Pediment Façades in the Petra Archaeological Park area. (Map by author.)

The Broken Pediment Façades are comparable to the Triangular Pediment Façades previously described in that they are generally also capped with an architectural feature known as a Broken Syrian Pediment. These tombs are often more complex than the Triangular Pediment Façades and represent some of the most iconic structures in Petra.
The façades that fit into this category include the Tomb of the Broken Pediment, El-Khazneh, Ad-Deir, the Bab al-Siq Triclinium, and the Corinthian Tomb.

![Figure 5.76: Photo looking southeast at Type IX:BPF.01, the Tomb of the Broken Pediment, a façade north of the Wadi Farasa Region of Petra. This is one of the iconic façades in this category. (Photo and sketch by author, May 2018.)](image)

The Tomb of the Broken Pediment (Type IX:BPF.01) is located on the path between the city center of Petra and Wadi Farasa (See Figure 5.76 and see Map 5.13 for location details. Appendix 2 has a list of all the façades in this category). A series of carved stairs lead the way to the Broken Pediment Tomb, which has four columns across the lower part of the façade. The engaged columns are capped by Nabataean horned capitals. There are windows between the columns with a doorway in-between the two central columns. The upper portion of the façade has the iconic Broken Syrian Pediment with a carved recess in between the pediment sections. The interior chamber was potentially a tomb, but modern modifications have made it difficult to determine the intended usage of this façade structure. A smaller chamber to the right of the façade may have been associated with the Tomb of the Broken Pediment, but a modern door and fence has blocked off access to this chamber. There is a window over the doorway to this second rock-cut chamber. Again, with no access to this room, the intended function of the rock-cut chamber is unknown.
The Ad-Deir Monument (or the ‘Monastery’) (Type IX:BPF.02) is the largest of all of the façade tombs in Petra, Jordan (See Figure 5.77). It is located on the Ad-Deir Plateau, above the city of Petra itself (See Map 5.13 for location). The Ad-Deir Monument was carved in one of the largest sections of unfractured sandstone on the plateau, if not the largest. There is a normal fault with about 6 cm of slip to the west of the monument. The further evidence provided by slicken lines on the surface of the wall show that the Nabataeans exploited an already present fracture to remove stone while carving the monument. It can be confirmed that the faulting and slipping happened prior to the Nabataean presence as the Nabataeans chiseled over the slicken lines to create their typical cross-dressing on the wall. There are oblique strike-slip faults bounding all four sides of the Ad-Deir Monument. In other parts of the plateau bounded by four strike slip faults, the blocks are often shattered, but the block containing the Ad-Deir Monument is intact, creating the perfect spot for the ancient builders to carve their monument.

The interior of the monument contains a large cultic niche which may have held a statue of a deity or other personage after it was constructed by the Nabataeans. Sometime before the Roman annexation of Petra in 106 CE, the Nabataean presence on the Ad-Deir Plateau appears to have declined. Eventually, Christian crosses were painted on the back wall in red paint, which may be the reason that the Ad-Deir Monument was later given the name ‘the Monastery.’ The interior room also functioned as a biclinium, which may have been used as a feast hall. The chamber inside the Ad-Deir Monument was excavated by Fawzi Zayadine and Suleiman Farajat in March 1991, although very few artifacts were
In many publications, the Ad-Deir Monument has been associated with a symposium honoring Obodas I, the deified Nabataean King. This particular theory comes from an inscription found on the Ad-Deir Plateau near a cistern along the Eastern Cliffs (See Figure 5.78). This inscription, published by Cantinaeu in 1930 has been translated as, “Peace to the memory of Obaidu, the son of Waqihel, and his companions of the symposium of Obodas the God.” Due to the distance between the Ad-Deir Monument and this inscription as well as finds from the excavation of Eastern Cistern B (the cistern located beneath this inscription) the BYU Ad-Deir Monument and Plateau (AMPP) crew has theorized that the inscription may refer to a symposium that met in the now collapsed room built and carved over Eastern Cistern B. Thus, this inscription may not refer to the usage of the Ad-Deir Monument or its possible association with the deified Nabataean king Obodas I, but may, in fact, suggest that there was a symposium dedicated to Obodas I that met in another area of the Ad-Deir Plateau, most likely in the now collapsed room above Eastern Cistern B. Excavations of this cistern by the BYU Ad-Deir Monument and Plateau project from 2015-2019 have resulted in the recovery of tens of thousands of sherds of Nabataean pottery as well as more than 150 complete or mostly complete vessels. Intriguingly, the complete vessels recovered include Nabataean fineware plates, water jars,

267 Op. Cit., 7. In looking at the inscription, it appears that there may have originally been another line of text below the currently translated text, but I was unable to get a good enough photo of the inscription to see what the additional letters may have said given its height and currently inaccessible location.
268 Information on the amount of pottery recovered comes from the authors personal experience in both participating in the AMPP excavations and in the reconstruction of the vessels both in the field and in the lab.
jugs, juglets, cups, and painted fineware plates and cups. Additionally, faunal bones recovered from Eastern Cistern B included a long bone from a medium to large size mammal with evidence of butchering.\textsuperscript{269} From the ongoing analysis of the pottery as well as the presence of faunal remains in the cistern, the team has come to the conclusion that Eastern Cistern B was located below a symposium room.\textsuperscript{270} After a ritual feast, it is likely that the unbroken dishes and possibly even the food remains from the feast were deposited in the cistern.\textsuperscript{271} This evidence of a symposium room being located over the cistern is compelling evidence that possibly disproves the theory that the inscription carved onto the sandstone cliff directly over Eastern Cistern B is related to the Ad-Deir Monument, but rather the rock-cut symposium room itself.

Excavations underway by the AMPP crew since 2014 have been uncovering evidence that the construction of some of the surviving ancient buildings on the Ad-Deir Plateau were commissioned by Aretas IV (r. 9 BCE-CE 40).\textsuperscript{272} However, AMPP excavations during the Spring of 2019 suggest that some of the buildings on the Ad-Deir Plateau may predate the reign of Aretas IV and may even date to the reign of Obodas I (r. 95-85 BCE).\textsuperscript{273}

\textsuperscript{269} The long bone with the butcher marks was recovered during the Spring 2019 excavations by the BYU Ad-Deir Monument and Plateau Project crew. The bone was examined in the BYU Museum of Peoples and Cultures lab by myself and the museum faunal expert who identified the cut marks to the bones.

\textsuperscript{270} Dr. Cynthia Finlayson, personal communication, June 2019.

\textsuperscript{271} Dr. Cynthia Finlayson, personal communication, June 2019. Several of the dishes recovered in the Spring 2019 excavations of the cistern appeared to have food residue on them, suggesting that they were not washed, but were instead dumped into the cistern upon completion of a meal.

\textsuperscript{272} The majority of the coins recovered by the Ad-Deir Monument excavations date from the reign of Aretas IV. Dr. Cynthia Finlayson, personal Communication, November 2017.

\textsuperscript{273} Pottery recovered from Element 139 seems to date from 50 BCE to CE 20. Excavations on a large circular pool on the Ad-Deir Plateau known as the Great Circle even suggest that the Nabataean construction on the Plateau may have begun under the reign of Obodas I. (C.
The evidence for the earlier usage and construction on the Ad-Deir Plateau includes the building of a rubble wall around the innermost ring wall of the circular water containment pool known as the Great Circle. An earthquake, likely the 31 BCE earthquake mentioned by Josephus, created fractures running through the inner pool walls which are carved directly into the bedrock and destroyed earlier buildings on the plateau such as Element 139.\textsuperscript{274}

The rubble wall surrounding the carved Great Circle pool, part of which was excavated in 2018, was built over several centimeters of erosional soil. At the base of the rubble wall, two coins dated to the reign of Aretas IV were found during the Spring 2018 excavations, suggesting that the construction of the rubble wall occurred during the reign of Aretas IV (r. 9 BCE to CE 40).\textsuperscript{275}

The exterior of the Ad-Deir Monument has eight engaged columns across the lower portion of the front, capped with Nabataean horned columns. In-between these columns are two decorative niches that may have held cultic statues. Each of these cultic niches has a carved arch over it. The doorway of the tomb is several meters above the unexcavated

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\textsuperscript{274} Josephus, \textit{Complete Works} (Kregel Publications, Michigan, 1960) 5:3. Excavations on Element 139 were started by the author under the direction of Dr. Cynthia Finlayson in the Spring of 2019. This building appears to have been constructed sometime between 50 BCE and 31 BCE when it appears to have been destroyed during a seismic event. There seems to have been some effort to start rebuilding the structure, probably during the reign of Aretas IV, but the reconstruction efforts appear to have been abandoned shortly after they began.

\textsuperscript{275} The first of the coins was excavated by the author’s crew in 2018 and was cleaned and identified by the author after consulting with the AMPP project director, Dr. Cynthia Finlayson. The second coin was excavated by Dr. Finlayson’s crew in the neighboring 5x5 grid square. The earthquake information came from excavations completed between 2014 and 2018 and were confirmed to be earthquake fractures by the author after consulting with Dr. Ron Harris, a structural geologist in the Brigham Young University (BYU) geology department.
floor of the temenos courtyard and was potentially accessed by a ramp in antiquity, thus the entrance to the building was much higher in antiquity than it appears today. A Nabataean column was carved on either side of the doorway and a triangular pediment rests over the top of the doorway. The second story of the tomb features a Broken Syrian Pediment with a *tholos* in the center. Eight engaged columns run across the upper story of the building, six of which border cultic niches or aediculae that may have contained statues. All columns are capped with Nabataean horned capitals. The upper story of the building was cleared by the BYU AMPP team working in conjunction with a crew of geologists from Charles University in Prague, the Czech Republic and geologists from BYU during the 2015-2016 field seasons. Findings from the clearing of the façade included Nabataean pottery sherds, a few metal fragments, a small fragment of marble, and a large quartz crystal. Although not as elaborately carved as the famous El-Khazneh Tomb, this monument is still one of the most iconic in Petra. Ongoing archaeological excavations around the Ad-Deir Monument will hopefully shed more light on the usage of this massive stone-cut monument.

![Figure 5.77: Photo looking east at Type IX:BPF.02, the Ad-Deir Monument, the largest of the Broken Pediment Façade structures in Petra, standing 45 meters tall and 50 meters wide. A fault zone bounds the north side of the Monument. (Photo and sketch by author, May 2017.)](image)
Another Broken Pediment Façade in Petra is the Corinthian Tomb (Type IX:BPF.03), which is considered by many scholars to be one of the Royal Tombs (See Figure 5.79). It is carved into highly fractured bedrock at the base of Jebel Khubtha and is very similar to the Ad-Deir Monument, although it is not as large. The lower story of the Corinthian Tomb has four separate chambers, two on the left of the main room, and the fourth on the right of the main room. Windows have been carved into two additional chambers, suggesting that the tomb owners had plans for additional chambers to be carved at the base of the tomb. Each of the doorways was decorated differently. The chamber on the far left has a triangular pediment carved over the doorway. The chamber on the middle left was topped with an arched pediment. The central doorway has been eroded, so any ornamentation on the doorway has been lost. The chamber to the right of the main chamber has no
ornamentation. Eight columns run across the lower portion of the façade, and the lower façade appears to be capped with an eroded broken pediment. Above the highly eroded and partially collapsed lower broken pediment is a second level with a Syrian broken pediment on either side of a *tholos*. The engaged columns are capped by ornate Corinthian style capitals with elaborate vegetal motifs (See Figure 5.80). The location of this particular tomb is of note because the façade is not carved into an ideal cliff face and a number of major fractures run through the façade. Although it is impossible at this point to tell when the fractures developed, they have severely impacted the façade. Several of the fractures form an *en eschelon* (stepping) array with a series of parallel fractures that each step out and away from the neighboring fracture. (See Chapter 2 for more details on *en eschelon* arrays and how to interpret other fracture patterns). Where these fractures have formed, parts of the façade are eroded away. There is no collapse debris at the base of the tomb, but any collapse debris may have been cleared away, either in modern times or anciently. It is possible that these fractures were caused after the carving of the façade as a number of major earthquakes have been recorded in historical records as affecting the Petra area.

Figure 5.79: Type IX:BPF.03 (BD 766, The Corinthian Tomb). This façade is considered to be one of the Nabataean Royal Tombs and is located along the base of Jebel Khubtha. A series of fractures run through this façade. It is unclear if these fractures were in place before the carving of this façade or if they were caused by a later earthquake. (Photo and sketch by author, May 2016.)
Another Broken Pediment Façade is Type IX:BPF.04, the Bab-as-Siq Triclinium (See Figure 5.81). This structure is located near the entrance to the Siq near the modern city of Wadi Musa (See Map 5:13). The Bab-as-Siq Triclinium was carved next to the Obelisk Tomb as well as a large shaft tomb. An inscription across the wadi from the Bab-al-Siq Triclinium and the Obelisk Tomb has been associated with the tomb by McKenzie.276 This Nabataean inscription has been translated as saying:

“This is the place of the sepulcher which ‘Abdmank, son of ‘Akays, son of Shullay, son of ‘Utaih has chosen…to construct a tomb, for himself, for his posterity and the posterity of his [posterity], for the eternity of the centuries: [he has made it] in his lifetime, in year...of Malichus.”277

The Malichus mentioned in this inscription is either the Nabataean king Malichus I (r. 59/62-30 BCE) or the Nabataean king Malichus II (r. 39/40-69/70 CE).278 However, the

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277 Ibid., 34.
278 Ibid., 34.
above-mentioned inscription is not particularly close to the monument and may not actually be associated with it. The Bab-al-Siq Triclinium is similar to the Tomb of the Broken Pediment in that it has a recessed area between the broken pediment structures. However, it also has carved wings on either side of the upper side of the façade. There is an arch at the base of the recess between the broken pediment and there are six miniature columns across the base of the upper part of the façade. The lower half of the façade has six engaged columns with Nabataean horned capitals. The doorway itself is eroded, making any ornamentation above the door difficult to study. This triclinium and tomb are positioned on a stone platform with two side chambers. There are loculi in each of the side chambers. As the name of the façade suggests, the Bab-as-Siq Triclinium has a triclinium in the main chamber, but it also has at least three loculi in the back wall of that chamber, suggesting that the room served both for burials and for feasts to honor the dead. Additional loculi can be found in a nearby shaft tomb as well as the Obelisk Tomb carved in the outcrop above the Bab-al-Siq Triclinium. The Obelisk Tomb will be one of the tombs in the Miscellaneous Tomb category (Type XIII) discussed at the end of this chapter.

Figure 5.81: Type IX:BPF.04 (BD 34), the Bab-al-Siq Triclinium. Photo is looking southeast at the façade. The chamber to the left of the façade is visible, but the chamber to the right of the façade is not visible in this photograph. Note the prominent east dipping fracture on the right side of the doorway. (Photo and sketch by Author, May 2014.)
The most iconic of the Broken Pediment Façades is El-Khazneh (Type IX:BPF.05), or 'the Treasury' (See Figure 5.82). This iconic monument is located at the far end of the Siq where the narrow slot canyon that follows N-S systematic fractures intersects with a cluster of closely spaced E-W fractures. Increased fracture density at the intersection has significantly weakened the sandstone allowing it to preferentially erode with more ease, thus forming the significant opening at the end of the Siq (See Map 5-16). The erosion of one large E-W fracture creates the cliff that was carved back to create the Khazneh façade. The remains of the eroded away southern block of the fracture can be seen to the right of the façade.

Map 5-16: The Siq leading to El Khazneh (Map courtesy of Google maps, modified by the author).

The Khazneh is arguably the most recognizable of the rock cut façades of Petra (See Map). At the very top of the façade are two Phoenician style obelisks. The broken pediment has four eagles, one on the highest point of each of the sides of the pediment, another at the lowest edge of the pediment. In between the two halves of the Broken Syrian Pediment is a
tholos capped by an urn. The urn has been heavily damaged by bullets as Bedouin tradition has long suggested that the pharaoh of Egypt stored gold in the solid stone urn and Bedouin muskets were fired at the urn in attempts to retrieve its fabled wealth.\textsuperscript{279} The upper story of the Khazneh has six engaged columns across the front, with several additional engaged columns on the back wall of the recessed niches. These capitals are a combination of Nabataean capitals and Corinthian capitals. In the recessed niches across the front of el-Khazneh are a number of carved figures including two winged Nike, two female Amazon warriors with raised weapons, and a figure holding a cornucopia that has been identified as Isis.\textsuperscript{280} A fascia divides this second story from the lower story of the ‘Treasury.’ There is a triangular pediment centered over the door on the lower story. This pediment has a central relief carving of a possible Medusa surrounded by vegetal motifs. Beneath the pediment is a fascia with relief carvings of griffins facing vases. The griffins are separated by vegetal designs. There are six freestanding columns on the base of the structure with two relief carvings of the Dioscuri (the mortal and immortal twin sons of Zeus, namely Castor and Pollux) mounted on horses. In between the relief carvings of the Dioscuri is a recessed chamber with three doorways. One door leads to the central chamber, the other two lead to side chambers.

The position of El-Khazneh in geologic space is interesting for a number of reasons. Due to the narrow winding slot canyon (the Siq) leading from the Wadi Musa entrance to the Petra Archaeological Park, the monument is not visible from the Northern area until the


viewer arrives at the South end of the Siq. Then, at first, El-Khazneh is only visible through a gap between the walls of the Siq. This spectacular view may have been one of the reasons for the positioning of El-Khazneh directly opposite to the end of the slot canyon. This was also potentially a major reception area for caravans. However, that is only one of several entrances to Petra. From the other three entrances and the majority of the city center, El-Khazneh is not visible. Geologically, the cliff this ornate edifice was carved into has very few fractures running north-south, making this an idea place to carve a monument. An east-west running fracture directly in front of the monument created the cliff that hosts this monumental carving.

The location of El-Khazneh is also unique in that there are two façade tombs carved below the larger more elaborate monument. A team from Jordanian Department of Antiquities and the Petra Archaeological Park cleared two tombs found carved in the stone under El-Khazneh during the 2003 field season. These two tombs, labelled 62D ("the Window Tomb") and 62E ("the Staircase Tomb") were believed to predate the carving of El-Khazneh. Both tomb 62D and 62E contained human remains confirming that they were used as burial chambers. Tomb 62E appeared to be unfinished due to an incomplete doorway between 62D and 62E, a groove in the back of the western wall of the interior chamber possibly meant to be a loculus, and a rock-cut platform next to a white gypsum ring potentially used by the stone-masons in the carving of the monument. Farajat and Nawafleh suggested that tomb 62D was carved first out of the two façades.

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282 Ibid., 373.
283 Ibid., 377, 379.
284 Ibid., 378-379.
under El-Khazneh with 62E started next.\textsuperscript{285} The carving of El-Khazneh was deemed to post-date the construction of the lower two monuments due to the evidence that the capitals on pilasters on either edge of the façade were removed as was a large portion of a triangular pediment in order for ‘the Treasury’ to be carved.\textsuperscript{286}

The dating of El-Khazneh itself is controversial. Several scholars have dated El-Khazneh to after the Roman annexation, although this date is generally disregarded by more recent scholars.\textsuperscript{287} Other scholars favor a Late Hellenistic of Early Roman date for the famous monument.\textsuperscript{288} With the clearing of the courtyard in front of El-Khazneh and the

\textsuperscript{285} \textit{Ibid.}, 378.

\textsuperscript{286} \textit{Ibid.}, 377.


discovery of Tombs 62D and 62E, Nabil Khairy suggested that El-Khazneh had to be carved after the mid to late 1st Century BCE and further states that he believes that this edifice has to date to the reign of Aretas IV. As evidenced by the number of scholars who had tried to date this monument, there is no firm date for the creation of El-Khazneh. As stated earlier, this is also true for the majority of the façade monuments in Petra.

Figure 5.82: The top image and sketch is El-Khazneh (Type IX:BPF.05) or ‘the ‘Treasury,’ which is the most iconic tomb in Petra. It is located at the end of the Siq where a fracture-controlled slot canyon abuts into an E-W cluster of fractures that have eroded to open up a natural plaza and two side wadis. The largest of these wadis on the northwest hosts the main road into the ancient city center. Thus El-Kahzneh was situated in one of the most important caravan reception regions of the city itself. The lower two images and sketches are of the two façades below El-Khazneh with Tomb 62D on the left and Tomb 62E on the right. Tomb 62D has evidence that the upper portion of the façade was damaged or removed due to the carving and creation of El-Khazneh. (Photos and sketches by author, May 2013.)


Type X:ADF, Simple Façades with Associated Decorations

There are several façades in Petra that are unremarkable in their own right, but that are associated with nearby decorations that are usually fairly elaborate. These façades are usually either extremely simple with an undecorated or uncarved exterior. However, the structures that fit within this category have a carving right next to the façade, or in some cases a series of carvings near the façade that set these façades apart from other undecorated doorways to rock-cut rooms. There are at least seven monuments that fit within this category in Petra. Many of these structures have not been discussed in any previous scholarly literature. It is possible that the Nabataean patrons who commissioned these rock cut chamber opted for a simple monument and chose to have decorative carvings near the rock-cut room instead.

One example of this is the Camel Relief Tomb (Type X:ADF.01) on the Ad-Deir Plateau (See Figure 5.83). This structure has an uncarved façade with a very simple

Map 5-17: A map showing the geographical locations of the Type X:ADF monuments.
doorway as well as a fairly simple unexcavated interior. Directly to the right of the rock cut chamber, however, is a carving of two camels facing each other with two camel drivers and what was once an elaborate cultic niche in between them (See Figure 5.84). The camels in this relief are extremely worn due to millennia of erosion. The torso and head of the camel driver on the left have been completely destroyed due to erosion, leaving only the legs and feet of the driver intact. The second camel driver is less eroded, allowing some of the details of the figure to be studied (See Figure 5.85). He is wearing Persian riding pants and a portion of his torso is still visible. The head of the driver is eroded. The camel on the right is in the best shape out of the two dromedaries. It is either wearing a saddle or is a Bactrian or double-humped camel. Bactrian camels, although not native to the Near East, were often used on the caravan routes as pack animals.\(^{290}\) However, since dromedary camels are native to the ancient Near East, and are the animals that appear in other camel reliefs in Petra, such as the camel relief groups in the Siq, I would suggest that these camels are dromedaries wearing saddles or carrying packs for the transport of goods along the trade routes. The base of the niche has the only carved portion of the relief which remains completely intact. The Camel Relief Façade is located in a wadi that is filled with water control features, water control channels, and springers for a potential aqueduct that would have connected two water channels, all delivering water resources to the most culturally concentrated area on the Ad-Deir Plateau just to the Northwest of the Ad-Deir Monument.

Figure 5.83: The Camel Relief Façade (Type X:ADF.01). The wadi containing this relief is located to the north of the Ad-Deir Monument. The doorway of this façade is fairly simple. To the right of the rock-cut room is the camel relief. (Photo and sketch by author, May 2017.)

Figure 5.84: The fairly eroded camel relief on the Ad-Deir Plateau (Type X:ADF.01). This relief originally had two camels and two camel drivers facing each other on either side of a cultic niche. However, the camel and driver on the left have been damaged and mostly erased by water erosion. (Photo and sketch by author, May 2017.)

Figure 5.85: The camel driver and the camel on the right side of the relief. This camel is far more intact than the one on the left. This camel appears to be wearing a saddle or pack, possibly for the transport of goods along the trade routes to and from Petra. Note how the carving is positioned in a relatively homogeneous sandstone layer bounded above layers that are less so. (Photo by author, May 2017.)
Another monument that fits into the Façade Type X:ADF category is the rock cut room located in Wadi Qattar Ad-Deir and has been designated as X:ADF.02 in my study (See Figure 5.86) (See Map 5.14). This possible tomb is located in a beautiful wadi with a natural spring emerging from a contact between sandstone and limestone layers. In antiquity, the spring produced a considerable amount of water, as shown by the cisterns carved into the rock to control the seasonal flow of water. The output of the spring has slowed considerably, but water still emerges from the aquifer. The tomb at Qattar ad-Deir has a very simple exterior carving (See Figure 4.87). The interior is also fairly simple with a triclinium and a niche in the back that seems to be over a sealed grave that appears to still be intact. There also appears to be two additional graves in the walls that have been sealed with slabs of stone and have not been disturbed. These possible grave areas are also covered with the naturally occurring mineral deposits from the spring water. Due to the spring, the potential loculi located on the back wall of the triclinium have also been sealed with a naturally forming calcite cement, which may have prevented the looting of the tomb. The doorway of this tomb is simple, but there is a considerable amount of carving on the cliff wall to the right of this particular tomb including water control features and water collection pools carved to take advantage of the water emerging from the spring (See Figure 5.88). There are a number of carved cultic niches including a possible carving of a betyl and a figure possibly representing Isis (See Figure 5.89). Dr. Finlayson, Personal communication, June 2016.
inscribed with a Patriarchal Christian Cross. Additionally, the entire wall is covered with Nabataean inscriptions. Many of these inscriptions have not been translated.

Figure 5.86: The triclinium and façade at Qattar Ad-Deir (X:ADF.02). This rock-cut room has a simple exterior that is mostly uncarved and unmodified, however, the wadi that hosts this rock cut monument also contains numerous cultic niches and a relief sculpture potentially associated with Isis. Note the evidence for spring water pouring from bedding plane fractures (parallel to the stratigraphic layering. (Photo by author, May 2016.)

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292 Dr. Robin Jensen, Personal Communication, (Department of Theology, University of Notre Dame) 27 Jan 2020.
Figure 5.87: The interior of the triclinium tomb at Qattar Ad-Deir. There is at least one probable unopened loculi on the back wall of the triclinium. (Photo by author, May 2014.)

Figure 5.88: Photo looking north at the cliff spring and carved water catchment system at Qattar Ad-Deir. The entire cliff behind the water catchment system is covered with inscriptions and cultic niches. Layer-parallel fractures provide highly permeable areas for water to escape, which forms the springs. Also note that the layers are offset by a fault in the upper right corner of the image. (Photo by author, May 2014.)
Figure 5.89: Some of the many niches and inscriptions on the cliffs below the spring at Qattar Ad-Deir and to the right of Type X:ADF.02. The beytl on the far left may be a representation of the Egyptian goddess Isis. The central image is of a Betyl inscribed with a Patriarchal Christian Cross. On the right is an image showing several of the niches and inscriptions. (Photos by author, May 2014 and May 2016.)

Figure 5.90: Photo looking south southeast at the exterior of façade Type X:ADF.03. The rock to the left of the entrance to the interior chamber (as seen when the viewer is standing in front of the façade facing the entrance) has been carved with a number of niches. (Photo and sketch by author, May 2018.)

Another façade in this category is located above the Petra Theater and is given the number of Type X:ADF.03 (See Figure 5.90 and Figure 5.94). This façade appears in two publications that I have found thus far. The rock-cut chamber of the monument as well as the associated carved façades and additional chambers were published by Dalman in 1912.
as relief D 207E. A second publication that mentions the relief carvings inside of Type X:ADF.03 was written by Robert Wenning in 2014. This article focuses on a serpent motif, niches, and a pedestal with a potential female figure carved on the pedestal. None of the associated chambers have been excavated by scholars and thus the façade cannot be dated at this time. The doorway of one of the multiple chambers of this tomb was simple, but as discussed by Wenning, the interior is incredibly complex (See Figure 5.91). Along the back wall is a relief carving of a serpent, a symbol sometimes associated with the Egyptian god Amun or his Hellenistic Greek-Egyptian amalgum Zeus-Amun. The serpent motifs cultic associations in Nabataean contexts require further investigation. The serpent rests on a festoon painted over a carved pedestal (See Figure 5.92). There is a potential carved female figure on the pedestal, as identified by Wenning. There are several cultic niches on the back wall of the room including a large central niche. At the bottom of the left wall of the central arch, there is a miniature arched niche which was carved to resemble an Arch Façade (see Figure 4.93). This niche stands about ten centimeters high and it very well articulated.

The carved area around the doorway of the façade is simple and unornamented. However, to the left of the entrance to the elaborate interior chamber (as seen when the viewer is standing in front of the façade facing the entrance), there is a large structure that

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294 Op. Cit., Dalman 1912. The descriptions of this monument and associated architecture can be found under Reliefs D207-D219. (The D is the designator for Dalman survey numbers).
296 Ibid., 242.
299 Ibid., 242.
appears to have been modified by Nabataean carvings. There are a number of niches, at least one possible column or Phoenician obelisk, and two seats or benches that have been carved out of the otherwise unmodified rock structure. Interestingly enough, although it appears that much of the rock face in this exterior decoration was not fully modified, there is evidence that the surrounding rock face was quarried to set this decorative element apart from the remainder of the cliff (see Figure 5.94). The area to the left of the ‘façade’ has been quarried. To the right of the tomb is an additional chamber which may have had a partially carve façade and possibly even additional carved rooms or chambers above it, but the doorway has collapsed (see Figure 5.95). This suggests that the ‘Serpent Room’ may have been part of an elaborate complex. This theory can be supported by the well-carved stairway to the north of the façade that leads up the stone hill to the ‘serpent room.’

Figure 5.91: The back wall of the “Serpent Room,” the interior of Type X:ADF.03, a building above the Petra Theater. This room has a carved serpent to the right of the central niche, and a miniature arched niche in the bottom left side of the central niche. On the platform or pedestal below the serpent is a female figure. (Photo and sketch by author, May 2018.)
Figure 5.92: The carved serpent on the back wall of the Serpent Room. The serpent rests on an interesting pedestal and has two niches over it. (Photo and sketch by author, May 2018.)

Figure 5.93: The miniature arch niche located on the bottom of the left wall of the central niche. This niche stands about ten centimeters high. (Photo and sketch by author, May 2018.)

Figure 5.94: The carved “façade” of X:ADF.03 outside the Serpent Room above the Petra Theater. The doorway of the structure (appearing on the right edge of the photo) is simple and mostly uncarved. (Photo by author, May 2018.)
Figure 5.95: The partially collapsed room and façade to the right of the ‘Serpent Room.’
This is probably part of the same complex as the ‘Serpent Room.’ (Photo by author, May 2018).

Another façade of this type, Type X:ADF.04 (BD 729-730), is located in Wadi Mataha along the base of Jebel Khubtha (See Figure 5.96) (See Map 5:14 for location of the façade.) It has a simple façade but is surrounded by cultic niches. The façade does not appear to have been quarried, but the square opening to the room has been carved deliberately. The room is a *triclinium*. The number of niches both inside the *triclinium* and to the right of the room suggest that this may have been a site of cultic significance. The niches themselves are also interesting (See Figure 5.97). A few of the niches have betyls carved in them, some of which are the typical square or rectangular betyls. Others have more unique shapes including the one pictured in Figure 5.98. This carving may be that of a deity with the head eroded away, or that of an eagle, but it is difficult to tell due to the amount of surface erosion that has taken place overtime.
Figure 5.96: Photo looking southeast at Type X:ADF.04 (BD 729). The photo on the left is of the niches that are found to the right of the room with half of the exterior of the triclinium visible in the picture. The photo on the right is the interior of the triclinium, which has additional niches carved on the inside of the room. The photo on the bottom is additional niches in the area of Type X:ADF.04. (Photo by author, May 2017.)

Figure 5.97: A view of the series of cultic niches on the exterior of Type X:ADF.04. (Photo by author, May 2017.)

Figure 5.98: A close up of one of the carvings located to the right of Type X:ADF.04. This particular carving could be a number of things, including an eagle or a representation of a deity. (Photo by author, May 2017.)
Figure 5.99: Photo looking southwest at Type X:ADF.05, a façade located on the base of El-Hubis. This tomb has a fairly simple façade with very little ornamentation. To the left of the room is a carved decoration. (Photo and sketch by author, May 2017.)

Lastly, Type X:ADF.05 is an interesting structure in that it has a fairly simple façade, however, it also has a strange carved shelf similar to the tower monuments mentioned in the Type VIa:SEF section of this paper (See Figure 5.99). The interior of this room does not reveal any clues as to its usage by the ancient Nabataeans. Although the façade is fairly simple, the space to the left of the rock-cut chamber itself has a niche and a carved bar. This indentation next to the façade is not as dramatic as some of previously discussed carvings, but it is interesting, which causes this monument to be inserted into this particular category (See Figure 4.100). This façade, along with all the other monuments classified in this category have not been studied, but should be looked at further by archaeologists.
Another façade type that has not been covered in the previous scholarly literature is the Hypostyle Hall Façade (HHF). These façades often have either engaged columns bordering a tall doorway, or they have a combination of free-standing columns and engaged columns. The upper portion of the façade is flat, lacking the triangular pediment and ornamentation of the Triangular or Broken Pediment Façades. There are a few of these types found in both Petra and Little Petra close to the Neolithic village of Beidha.
The best example of this proposed façade style is the so-called Garden Room (Type XI:HHF.01) in Wadi Farasa (see Figure 5.101) (See Map 5.18). This façade type has a flat *torus* forming the top of the façade rather than the traditional crowstep design commonly seen in Petra, or the triangular or broken pediments described earlier in this chapter. In the Hypostyle Hall Facades, a simple often undecorated *fascia* usually is below the upper *torus*. Often, but not always, there are several columns beneath the *fascia*. The doorway is always unusually large compared to the other styles of rock-cut monuments in Jordan and nearly extends to the top of the façade. The Garden Room has at least one engaged column with a Nabataean horned capital. There are two other freestanding round columns with Nabataean horned capitals. It is entirely possible that there was an additional engaged column on the right side of the façade, but if so, it has been mostly eroded away. Interestingly, on the left side of the façade, there is a molded plaster design that resembles
ashlar masonry. This decoration also appears on the Painted House Façade in Beidha. It is possible that the exterior plastered surface for this tomb was painted, but the paint has either faded or being eroded away.

Figure 5.101: The Garden Room (XI:HHF.01) located in Wadi Farasa near the base of the trail to the High Place (See Map). It does not appear to have any loculi inside of it or any triclinium benches. There are two internal rooms inside the structure including the main room and a smaller room with a window in the side wall. Note multiple fractures bounding the right side of the façade. A small cistern exists in the floor of the narrow front porch entrance to the façade and a very large cistern is situated above the façade to the right which was created by carving into the natural bedrock of the upper cliffs to the NE. (Photo and sketch by author, May 2014.)

Figure 5.102: A detail from the Garden Room (Type XI:HHF.01) in Wadi Farasa. This is a detail of the far-left upper corner of the façade, showing the molded plaster creating an ‘ashlar masonry’ effect. (Photo by author, May 2014.)
Figure 5.103: Type XI:HHF.02, a Hypostyle Hall Type Façade located in Little Petra (See Map 5.18). This tomb has an engaged column on either side of the entrance with a simple lintel over the doorway. The doorway is taller than the usual entrances in the tombs, triclinia, or even cisterns in Petra. This room is a triclinium and has a fountain or basin outside the façade on the right. (Photo by author, May 2014.)

There are three façades in Little Petra, located near the Neolithic village of Beidha that fit into this category (See Map 5.18). The first of these rooms (Type XI:HHF.02) is located near Siq Barid, the ‘White Siq’ or the slot canyon that leads into Little Petra. This room has a simple façade with two engaged columns, one on either side of the doorway (See Figure 5.103). The doorway is a simple post-and-lintel style door, but the door is much higher than any of the other façades that were surveyed in Petra proper. This façade has a fountain or basin outside, directly to the right of the façade. This basin may have been used for ceremonial washings before feasts to honor the dead or religious symposia, or to offer water to nourish the thirsty dead, a custom long practiced in nearby Egypt as well as the Levant.

The second façade in Little Petra that will be discussed in this category is Type XI:HHF.03, previously labelled as BD 847 by Brünnow and Domaszewski (See Figure 5.104). This room has no easy access, thus, the intended purpose of the room remains unknown. There are two rectangular engaged columns with Nabataean horned capitals
and two rounded free-standing columns with Nabataean horned capitals across the front of the façade. The *fascia* and *torus* are undecorated. To the right of the façade is a room with an opening in the ceiling. This square opening may have allowed water to enter the room, but since a closer inspection was not possible, it is unconfirmed that a receptacle for water exists in the floor. Beneath Type XI:HHF.03 are a series of cisterns or rooms that have been unexcavated. Very few of the façade monuments in Little Petra have been studied or described in scholarly publications.

![Image](image1.png)

Figure 5.104: Type XI:HHF.03 (BD 847) in Little Petra. This is one of the rooms that fits in the Temple Tomb category. (Photo and sketch by author, May 2013.)

![Image](image2.png)

Figure 5.105: Photo looking west at the Unfinished Tomb (Type XI:HHF.04). This is one of the façade monuments in Petra that has demonstrated to archaeologists that Nabataean façade monuments were carved from the top down. The uppermost *fascia* and *torus* for this partially carved façade as well as the Nabataean horned capitals have been carved, but the rest of the rock-cut chamber was left unfinished. (Photo by author, May 2014.)

The Unfinished Tomb (Type XI:HHF.04) is the final Hyposytle Hall Façade that will be discussed in this category (See Figure 5.105). As its name suggests, this monumental
rock-cut chamber was never completed. The uppermost *torus* and *facia* for the façade were completely carved as were the start of the Nabataean horned capitals that would have capped the columns. The rest of the monument was never finished. Since the upper part of the façade appears to be complete, it can be assumed that this particular façade would have been similar to the Type XI:HHF.01 and Type XI:HHF.03 when complete, which is why it is included in this category. The reason that this façade monument was never completed is unknown, however, this is an important structure to include in this study because it is unfinished. Type XI:HHF.04 and other unfinished façade monuments in Petra show that the Nabataean builders constructed their rock-cut chambers from the top down, possibly allowing them to quarry stone away from the carved portion of the monument as they worked. The removed stone could have potentially been used as ashlar blocks that could have been used in the construction of free-standing buildings and other monuments in Petra.

**Type XII:LCF (Large Chamber Façades)**

![Map of the distribution of Type XII:LCF façades in Petra](image)

**Map 5-19:** A map of the distribution of the identified façades of Type XII:LCF in Petra, Jordan. These structures mainly appear clustered around the Jebel Hubis region, however, some of these façade monuments also are found among the Jebel Khubtha façades and the monuments between the Petra Theater and Wadi Farasa. (Map by author).
Another grouping of façades that have not appeared in previous scholarly publications are the Large Chamber Façade monuments. These rooms are unique due to their massive size. A prime example of this type of façade is Type XII:LCF.01 (Brünnnow and Domaszewski number 184). This rock-cut monument is located between the Petra Theater and Wadi Farasa. The doorway of Type XII:LCF.01 is unornamented and is wide enough for a truck to be driven into the main chamber (as evidenced by Figure 5.106). There are two partially buried additional openings, one on either side of the doorway that could be either windows or doors. Unfortunately, without excavation, the purpose of these additional openings are unknown. A fourth, large opening was carved over the main doorway entrance to the rock-cut chamber. This massive window is also unadorned and connects to the main chamber. As with other façades in this category, the façade of this monument is simple, similar to the façades of Type I:NQF. The interior chamber has a number of niches including some that appear to be springer niches and may have supported a second floor (as suggested by the square holes that are carved into the walls all around the lower half of the interior chamber. There is a major fault or fracture to the right of the façade (indicated on the sketch in Figure 4.106). It is possible that this fracture in the Umm Ishrin sandstone created a zone of weakness the Nabataean stonemason’s took advantage of when they carved the interior chamber of the carved monument.
A second façade in the Large Chamber Façade category is Type XII:LCF.02, the room carved to the right (east) of X:ADF.03 (See Figure 5.108). A portion of the doorway and ceiling of this façade has collapsed into the main chamber. A detailed examination of the interior chamber was not conducted due to the potential instability of the remaining ceiling of the structure. However, photos were taken from the doorway to allow for a safe visual examination of the interior rock-cut chamber. Like Type XII:LCF.01, Type XII:LCF.02 had a large doorway entrance, potentially with a window over the door that would have opened
into the large chamber. A second window still exists to the west of the collapsed section of the façade over the massive doorway that leads into the interior chamber associated with the exterior façade. There is no noticeable decoration on the exterior of the façade other than the remaining window to the upper left (west) of the doorway. There is a fracture running east-west just behind the façade to the massive chamber.

Figure 5.108: Photo looking south at Type XII:LCF.02. This massive façade is located near X:ADF.03 in the region over the Petra Theater. The partially collapsed façade likely had a massive door with a window carved over the door. A second window was carved to the upper left (west) of the main doorway area. There is a major fracture to the right (east) of the façade that runs behind the carved exterior. (Photo and sketch by author, May 2018).

Figure 5.109: Photo looking north into the interior chamber of Type XII:LCF.02. Several fractures run north-south through the interior chamber. An additional fracture runs east west between the façade and the main portion of the chamber (see Figure 4.110). (Photo and sketch by author, May 2018).
There are at least nine façades that have been assigned to the Type XII:LCF category. As mentioned before, the majority of them are found in the Jebel Hubis region. None of these rock-cut chambers have been excavated, so their purpose is unknown. It is interesting that a number of these chambers were carved around the base of Jebel Hubis. Looking at the clustering of several styles of facades in specific regions of Petra suggests that there may be familial or tribal ties between the commissioners of monuments such as the Type XII:LCF monuments, the Type XI:HHF's and the Type V:AR façades. As mentioned earlier, the various designs in the center of the arches of the Type V:AR façades appears to be region specific. The Type V:AR façade monuments in Wadi Farasa have crowstep motifs in the center of the arch while the Wadi Turkmaniya arch facades have a rosette or patera design in the central portion of the arch. In looking at these examples, it is evident that more study is needed to understand if there are further clusters of façade styles and motifs that might be tied to familial or tribal values and beliefs.
Type XII:MF (Miscellaneous Tombs)

Map 5-20: A map showing the distribution of some of the Type XIII:MF in Petra Archaeological Park region of Jordan. (Map by author).

This section is for façade structures that do not fit into any of the earlier mentioned categories. Many of these façades are completely unique. Two of these facades have already been mentioned earlier in this paper as examples of similar features (such as a false door) found in other carved monuments in the Petra region. The two previously mentioned façades include the Rolled Papyrus False Door Façade on the trail to Ad-Deir (Type XIII:MF.01) and a strange stepped façade (Type XIII:MF.02).

The Obelisk Tomb (Type XIII:MF.03) is one of the façades in this category (See Figure 5.111). It is one of the most unique tombs in Petra. Four Phoenician style obelisks are carved on the upper portion of this tomb. In between the central two obelisks is a

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300 Op. Cit., Finlayson, 2013 discusses the types of obelisks found in Petra and their possible significance in the Nabataean belief system.
niche with a carved human figure, possibly either a god or the patron of the tomb (See Figure 5.112). Wadeson notes that the central figure is wearing a himation and suggests that the figure may have been intended to reflect the identity of the owner of the tomb.\textsuperscript{301}

![Figure 5.111: The Obelisk Tomb (XIII:MF.03), which sits above the Bab-as-Siq Triclinium just before the start of the Siq. This tomb has four Phoenician style obelisks carved across the top. There are no other tombs like this in Petra although single and paired obelisks exist in association with other tombs and religious structures in Petra. Note the prominent bedding parallel fractures (fractures that run parallel to the sandstone beds) that may have influenced the design of this façade. (Photo and sketch by author, May 2014.)](image)

![Figure 5.112: A close-up image of the carved figure in between the central two obelisks on the façade of Type XIII:MF.03. The figure is located in a niche bounded by two engaged columns with a *fascia* decorated with round *metopes* and *triglyphs*. The head of the figure is missing, but the figure seems to be dressed in a Greek style himation. (Photo by author, May 2014.)](image)

The Columbarium (XIII:MF.04) is another carved structure that does not fit in any of the façade categories (See Figure 5.113). This structure is carved into the base of Jebel Hubis near the unfinished tomb (XI:HHF.04), which was mentioned above. The cliff was carved back to create a recess where this odd façade has been created in stone. Three larger niches are carved on the exterior of the façade with a number of fractures running through the façade’s face. On the far right of the façade is the doorway. It has been set back a little further than the rest of the façade. The entire exterior and interior of the Columbarium is covered in little shelved niches. Columbaria in the ancient world were often partially to completely underground structures, hosting rock-cut or constructed niches large enough to contain pottery urns with the cremated remains of individuals.302 Generally, columbaria contained the remains from a number of individuals not necessarily related in any familial way.303 Columbaria style tombs were used in the Hellenistic world, appearing in Alexandria (Hypogeum B1, necropolis of Gabbari, Egypt), Rhodian necropoli, and in Augustan Rome.304 Some scholars have suggested that the Roman precedent for the columbarium tombs may have come from Etruscan rock-cut structures, but Borbonus suggests that the Etruscan structures were actually dove-cotes due to the size of the niches and the lack of cinerary urn fragments found in archaeological excavations.305 Roman Columbaria were used for a short period of time beginning in the reign of Augustus and disappearing shortly thereafter.306 The Columbarium in Petra does have small niches

303 Ibid., 53.
304 Ibid., 56-57.
305 Ibid., 56.
306 Ibid., 1.
similar to the ones that appear in Roman *Columbaria* tombs, however, these niches appear to be very shallow, suggesting that they may not have actually be carved to hold the cremated remains of individuals. Instead, they may have held betyl idols or even been used as a dovecote. As with many of the structures in Petra, only excavation of this structure may reveal more of its purpose and intended use.

![Figure 5.13: Photo looking west at the Columbarium (XIII:MF.04), one of the edifices in the miscellaneous category. This carved structure is covered in both large and small niches similar to those found in Roman *Columbaria* and is unique to Petra. (Photo by author, May 2017.)](image)

One of the most complicated tombs in the miscellaneous façade category is Type XIII:MF.05 or the ‘Palace Tomb’ (See Figure 5.114). Located at the base of Jebel Khubtha, this is one of the most visible tombs in Petra and was originally given the Brünnow and Domaszewski number of BD 765. It can be seen from the Bedouin village of Umm Sayhoun, from the Southern approach into Petra, and on the trail down from the Ad-Deir Monument. The positioning of this tomb so that it could clearly be seen from so many angles suggests that it was commissioned by an important figure in ancient Nabataea. This may have contributed to the name of the façade, ‘The Palace Tomb.’ Architecturally, this façade is complex with many different styles all incorporated into the design of one structure. The topmost level of the tomb has a combination of carved and built architecture. The cliff itself did not extend high enough vertically for the full edifice to be carved, so potentially, the
artisans or architects chose to extend the height of the tomb by constructing the uppermost portion of the façade with ashlar blocks. The second level of the façade has a row of columns with Nabataean horned capitals. There are several potential *loculi* in this portion of the façade, one of which has been completely carved, one has been partially carved, and an additional three that have been outlined. A *torus* and *fasia* separate the second level from the much more ornate lowest level of the tomb.

There are four doorways in the lowest part of the tomb, each with their own carved entranceway. The two doorways on the edges of the façade have arched style façades around a post-and-lintel door. The two inner doorways have a triangular pediment entranceway. These entrances are divided by columns capped with Nabataean horned capitals. More on this iconic tomb and its relationship with the geology will be covered in Chapter 5 of this paper. Each of the rooms contain *loculi* niches, supporting the assumption this was a massive tomb, but without skeletal data, the designation of tomb cannot be confirmed.

Figure 5.114: Type XIII:MF.05 (BD 765), the Palace Tomb. This is one of the so-called ‘royal tombs’ carved at the base of Jebel Khubtha. (Photo by author, May 2016.)
Figure 5.115: XIII:MF.06, a façade complex located at 30.325768 35.446208. There is a three roomed façade that appears to be the main structure in the complex. The façade itself has a triangular pediment over the doorway, but not many other ornamentations. There is a second lower door and another room. (Photo by author, May 2018.)

The façade complex found at the GPS coordinates of 30.325768 35.446208 is another interesting complex that has not been studied (See Figure 5.115). It has been given the designation of XIII:MF.06 in my study. The complex seems to have several structures including one main three-roomed façade and two smaller loculi found in the sandstone walls of the area. The main doorway only has a triangular pediment visible. Any other carved structures associated with this room may have been eroded away. To the left of the main decorated doorway are two additional chambers, one over the top of the other. The upper chamber seems to be a simple room, but because of its location, it is fairly inaccessible, so I have not looked at the interior. The lower chamber may be a cistern. This complex and the nearby Snake Room (Type X:ADF.03) may be worth further study.

Another odd structure that fits into the miscellaneous category is façade Type XIII:MF.07 found at the GPS coordinates of 30.334974 35.44156 (See Figure 5.116). This façade located in Wadi Turkmaniya is one of the stranger tombs that I came across during my survey. The door has a unique raised platform to either side of it with the column
drums appearing at the midpoint of the door rather than at the base of the façade, which is more traditional. There are four round engaged columns that run from the midpoint of the door to the top of the outcrop. The top of the façade ends at this point. There may have once been capitals or a built structure on top of the outcrop, but there is no evidence to show what, if anything, was there in antiquity. Like many of the miscellaneous tombs that have been surveyed in Petra, there are not any similar tombs that can be used as a comparison for this particular structure. There appeared to be loculi on the interior of the room, supporting the theory that this was used as a tomb, but without excavation, there is no way to know the intended purpose of this unique monument. The interior chamber is filled with dirt, stone, and other debris, but looting pits do show the edges of several loculi.

Figure 5.16: A unique façade in Wadi Turkmaniya located at the GPS coordinates of 30.334974 35.44156 and given the number XIII:MF.07 in my study. This tomb has four columns with no capitals on the top of the façade. These columns start halfway up the doorway. (Photo and sketch by author, May 2018.)

XIII:MF.08 or the Beidha Painted House (Brünnow and Domaszewski number 849) is one of the most elaborate façades found in ‘Little Petra’ (See Figure 4.117) (See Map 4.16). This structure hosts a series of rooms and cisterns connected by both modern and ancient stairs. The modern stairs serve to stabilize the original Nabataean access and to make the path safer for tourists who come to see the painted interior of this rock-cut
structure. This is one of a small number of known Nabataean caves or carved rooms to have extant wall and ceiling paintings from within the Petra Park Region. The ancient use of the Painted House has been debated with some scholars suggesting that it was a temple dedicated to various deities. Many of the reasons for these theories concerning the use of this structure come from the analysis of the paintings found on the upper ceiling of the back triclinium room. Some of the paintings have been damaged since their creation by smoke from Bedouin campfires and also from the attempt to restore and clean the surviving paintings. What remains are vegetal motifs of vines, grapes, wild raspberry, and field bindweed flowers. Additionally, several species of birds, including storks, lapwings or pewits, and woodcocks, are shown eating the various fruits. Putti (winged Eros figures), harvest the grapes or attempt to chase the birds away. Early publications on the Beidha Painted House list some of the painted figures as being those of Eros and Pan.

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307 Various theories as to whom the Painted House may have been dedicated to if it was indeed a sanctuary have been suggested. Nelson Glueck (N. Glueck, “A Nabataean Painting” Bulletin of the American Schools of Oriental Research, No. 141 (Feb. 1956) 13-23) suggested that various deities including Pan, Eros, and possibly representations of Psyche in the form of a butterfly were represented in the painting. S. Tawaissi, F. Abudanh, and Q. Tawaissi (S. Tawaissi, F. Abudanh, and Q Tawaissi, “The Identity of the Nabataean ‘Painted House’ Complex at Baidha, North-West Petra,” Palestine Exploration Quarterly, 142 (2010), 31-42) suggested that the Painted House was a sanctuary to Isis. Aysar Akrawi and Lisa Shekede (A. Akrawi and L. Shekede, “A Unique Nabataean Wall Painting in Petra: Conservation in Situ,” Studies in Conservation, 55 Sup. 2 (2010) 214-219) suggest that the Painted House was dedicated to Dionysus due to the grape vines, the ‘vine-scroll’ motif featuring the grapevine, ivy, and bindweed intertwined throughout the ceiling, and the presence of a flute-player.

308 Op. Cit., Akrawi and Shekede discusses the damage to the ceiling paintings due to Bedouin habitation fires through time.


The purpose of the Nabataean Painted House in Beidha is still unknown and still hotly debated.

The exterior structure of the Painted House is interesting and unique. The lowest room, near the base of the original stairs is a cistern for the storage of water. There are two additional rooms along the staircase that lead to the upper most room. Near the top of the staircase is a fountain. Water channels up above the rock-cut chamber directed water to cascade over cultic niches and pubic triangles that were possibly used as religious symbols that blessed the water that filled the fountain. The façade of the Painted House is extremely simple, a quarried façade with two upper windows. In the base of the doorway to the main room are traces of the locking mechanism for the door that would have been used to close the chamber. There is a biclinium (two benches) inside the upper most room of the Painted House. Although there is not a distinct façade in the style of the Khazneh in front of the Painted House, the complex as a whole is an interesting addition to the miscellaneous tomb category.

Figure 5.17: Type XIII:MF.08 or the Painted House in Little Petra (Beidha). This structure has a number of rooms and water features that make it one of the more complicated façades in Petra. (Photos and sketch by author, May 2014.)

Summary

The monumental façades at Petra, Jordan are complex, and many of them have not been thoroughly documented or excavated. This study has demonstrated that many of the façades catalogued for this new typology are not seen in the existing tomb typologies.
proposed by Brünnow and Domaszewski, Browning, McKenzie, and Wadeson. Thus, the façade typologies proposed by these authors are incorrect due to their lack of a comprehensive database. Because of the number of façades that do not seem to fit into these preexisting categories, I have proposed a new and more comprehensive typological system for Nabataean rock-cut structures in order to also better organize them to assess their geological relationships with the Nabataean landscape and attempt to discern if Nabataean engineers and/or masons knowingly utilized geological features in the construction of rock-cut façades. With further study of the tombs in Petra, additional categories may be needed. However, the current 13 categories of monumental façade monuments proposed in this paper cover the majority of the nearly 400 tombs visited by this author.
Chapter 6. The Nabataean Façade Monuments in the Landscape of Petra.

The ancient Nabataean stonemasons of Petra, Jordan carved more than 700 monumental façade tombs in the sandstone cliffs surrounding the city. These facades were used for a number of purposes, including burial sites or triclinia for possible religious feasts. As mentioned previously, scholarly studies on the tombs in the past have included the attempt to chronologically date the façades by style. As demonstrated by previous chapters, these early scholarly studies were incomplete and based on questionable methodological approaches, including the utilization of stylistic analysis on an extremely limited sample size. Additionally, there have been limited studies on the interactions of Nabataean stonemasons with the geological environment in which they carved their tombs.\textsuperscript{312}

The majority of the landscape studies of the façade monuments have focused on solar alignments and the cardinal orientation of the rock-cut chambers. As mentioned in Chapter Three of this paper, Thomas Paradise studied the interactions of the sun and the doorways of certain iconic monuments such as the Urn Facade and the Ad-Deir Monument with the niches in the back walls of these tombs during yearly Solstices and Equinoxes.\textsuperscript{313}

Juan Antonio Belmonte, A. Cesar Gonzales-Garcia, and Andrea Polcaro were involved in a study of solar alignments at places that they believed were religious in nature.\textsuperscript{314} Their studies included El-Khazneh, the Ad-Deir Monument, and the Urn Tomb.\textsuperscript{315} Whether or not these particular facades were designed by the Nabataean builders as religious structures can be debated, but that is beyond the scope of this study. None of the studies done by

\textsuperscript{315} Ibid., 2.
Paradise or Belmonte et al. looked at the stratigraphic or structural geology that may have impacted the placement of rock-cut chambers within the geological landscape of Petra. Thus, it was important to complete a geological study of Petra in relation to its rock-cut structures to see how the Nabataeans were utilizing the natural features in their landscape, and how they were manipulating the geological environment around them. Additionally, as previously noted, in order to do this adequately, I discovered that I must first develop a more comprehensive and adequate typological system to catalogue and database these structures especially those that had not been documented in previously existing extant scholarship. This chapter will now summarize how my new typology was utilized to more thoroughly understand how the Nabataeans adapted to their natural geological setting in creating places to both honor and entomb their deceased loved ones. The very number and variety of these edifices reveals much to modern archaeological scholarship concerning how the Nabataeans viewed their geological environment as a venue for creating a paradigm of the afterlife.

**Cliff Orientation verses Tomb Orientation**

The structural geology of Nabataean Petra had a much more profound impact on the orientation of the creation of façade structures carved into the bedrock cliffs than previously recognized in scholarly publications. As explained in Chapter Two, tectonic activity from the Dead Sea Fault in the Wadi Araba has shaped the landscape of the region through the development of faults and fractures caused by the opening of shear mode fractures. These faults and fractures have created zones of weakness that channel water, which causes more rapid erosion in the narrow bedrock fissures. Water from rainstorms funnel into these planar fractures causing enhanced weathering and erosion of the
sandstone cement. Sand grains are liberated from the sandstone walls for the fractures and act as tools to enhance breakdown and transport of material, thus widening the fracture zone. The process of fracture widening eventually causes the formation of narrow slot canyons called *siqs*. The process of cliff retreat, which is the result of preferential undercutting at the base of the cliffs by stream erosion, widens the narrow slot canyons into valleys (*wadis*) and eventually into the dramatic cliffs that the Nabataeans exploited for the constructing of their monumental façades. As a part of my study, I took measurements of the cardinal orientation of the faults and fracture planes in the Petra region using a compass. Because the majority of the planes are near vertical, the direction of a horizontal line along the plane (the strike line) is used to characterize differences in orientation. These measurements are plotted on a circular distribution diagram or rose diagram. The plots can be read like the face of a compass. 325 strike readings were measured throughout Petra in June of 2014 to get a sample size that would be significant enough to represent the geology of the landscape. The majority of these orientations were collected by myself and Dr. Ron Harris while on a walking survey of multiple regions within Petra. Many additional measurements are also taken from satellite images of the Petra region.

Figure 6.1: A rose diagram showing the cardinal orientation of 325 faults and fractures in the Petra region. The strikes represent the directions of most cliff faces in Petra, which are dominantly NW-SE. (Figure by author.)
In looking at the rose diagram created from the strike measurements taken from the cliffs, faults, and fractures, it is evident that the majority of the sandstone cliffs within Petra run nearly Northwest-Southeast (See Figure 6.1). A smaller number of the cliffs measured run East and West. The cliffs themselves are less than 15° away from running straight North-South or East-West. This means that the cliffs around Petra are almost naturally oriented cardinally. I compared the readings I got from the cliffs with compass orientations collected from the doorways of the facades in Petra. These readings were taken on a walking survey of the tombs of Petra, while standing in the center of the façade doorways with my back to the interior of the room. I took readings from 192 of the tombs that I visited between December 2015 and June of 2017 and plotted them on a rose diagram (See Figure 6.1). The results were almost exactly opposite of the readings that I got for the cliffs. This means that when the cliffs ran North-South, tombs or rooms carved into those cliffs would be naturally oriented in an East or West direction (See Figure 6.3). Likewise, a cliff
running from East to West would produce rooms that face either North or South. Because the majority of the cliffs are running from North to South, it is logical that the doorways of rooms carved into these cliffs would be facing either East or West. Thus, although many of the façades in Petra, Jordan are cardinally aligned, their alignment does not seem to be a deliberate choice on the part of the stonemason. Rather, the stone masons took advantage of the naturally occurring cliffs in order to carve their facades. Any religious association attributed to the direction of the Nabataean tombs is thus questionable. Rather, Nabataean tomb and triclinia stone masons were just working with the given geological characteristics of the Petra region.

Figure 6.3: The rose diagram of the cardinal orientation of the facades of Petra, Jordan. The trends in this graph of the 192 readings taken between December 2015 and June 2017 show that the majority of the tombs face East or West, with fewer tombs lined up to the North or the South. (Diagram created by author)
Figure 6.4: A side-by-side comparison of the rose diagrams of the fracture orientations (left) compared to the orientations of the doorways of the façade monuments. The orientations of the doors of the rock-cut chambers were taken standing in the center of the doorway and facing outward away from the interior chamber. (Rose diagrams by author).

Map 6-1: A map of Petra taken from Google Earth with the rose diagrams over the areas where the strike planes were measured for faults and fractures. Next to each rose diagram is the name of the region where the compass orientations of the fracture planes were measured and the number of measurements collected for each area (n=number of measurements collected.). (Map and rose diagrams created by author).
The natural geology of the region would have made it easy for the Nabataean builders to orient the façades in such a way that during certain times of the year, such as the equinoxes or solstices, the doorways would line up with the sun. Interestingly, there are cases where the rock face curves so any tomb carved in that area would not be cardinally oriented. In these cases, if the orientation of the rock-cut chamber for solar events was important to the Nabataeans, it would be logical for the stone masons to quarry back the cliff to create a more favorable alignment. Some of the tombs, such as the quarry tombs mentioned in Chapter Four are carved in areas where the rock face had been deliberately quarried before the façade doorway is carved. After surveying nearly 400 of the façades in Petra, I did not see any evidence that the stone carvers would alter the cliff in order to change the orientation of the monument in order to create a cardinal alignment for the façade. Instead, in cases where the rock was carved back by the builders, there is no relation to the directionality of the doorway of the façade.

**Erosion and the Façade Tombs**

The Disi Sandstone does not naturally form cliffs the same way as the Umm Ishrin Sandstone. This erosional variation is caused by the different compositions of the two types of sandstone. While the Umm Ishrin Sandstone forms large cliffs, the Disi Sandstone tends to form rounded stone hills. The variation in the erosion between the Umm Ishrin and Disi Sandstones created unique surfaces for Nabataean tomb architects and stonemasons to construct monumental edifices. For example, Type VIIa:CF.04 (known as BD 36 under the Brünnow and Domazewski numbering system), a façade carved out of the Disi Sandstone on the trail from Wadi Musa to the entrance of the Siq, was carved on a rounded hill of stone (See Figure 6.5). The geology of this particular outcrop placed a
number of constraints on the builders, including limiting the height of the façade itself. In order for the stonemasons to achieve the desired height of this façade, approximately a meter of stone had to be removed from the North side of the hill. On the left side of the tomb, the original shape of the outcrop is still visible, as is the quarry face that shows how much rock was removed to create the façade. Even with the alterations to the cliff, the outcrop was still not high enough for the complete architectural design. The crowstep on the right side of the tomb has five full stairs, while the crowstep on the left has three full steps and one partial stair. In Figure 6.4, the crowsteps have been highlighted in orange to make them easier to see. This was the first tomb I analyzed in my geological study of the Nabataean monumental façade tombs in Petra; the rock had to be carved back to create a work surface for the monument’s architects.

Figure 6.5: Type VIIa:CF.04 (BD 36), a façade carved in the Disi sandstone. This tomb was created through the carving back of the cliff to allow for the tomb to be the correct height. The crowsteps have been highlighted in orange so that their uneven nature is easier to see. The crowsteps motif on the left is missing the top two stairs while the one on the right has the traditional number of crowsteps. (Photo and sketch by author, May 2014.)

The unequal number of crowsteps on each side of the façade seemed to be unusual when I first examined this tomb. There are several theories for why there are fewer crowsteps on the left side of the tomb rather than an equal number of crowsteps on each
side of the façade. The first theory is that erosion may have damaged the left side of the façade, essentially eliminating a complete and partial crowstep. There is evidence on this façade that erosion has smoothed the edges of the carved crowsteps, rounding the stair edges. However, based on how well most façades, including the crowsteps on this façade, are preserved it is highly unlikely that nearly a meter of solid rock was removed by erosion in this one place in less than 2000 years. The erosion pattern on the façade shows that wind and water erosion has affected all portions of this façade nearly the same. If a natural or Nabataean created water route directed water over the façade, there would be an area with greater erosion confined to the particular area of impact below the path of the water. This can be seen dramatically with the Ad-Deir Monument (See Figure 6.6). In the below images of the Ad-Deir façade, the lower portion of the façade directly over and to the right of the entrance to the interior chamber showcases an example of a Nabataean façade with areas both damaged and undamaged by water. In some places, water has run over the carved design of the façade, causing edges to become rounded and eliminating details from the initial design (highlighted by an orange box on the image to the right in Figure 6.6). The areas next to the orange box on the same image show far more detail in the surviving carving, especially in the triangular pediment over the entrance to the interior chamber.
In looking at façade Type VIIa:CF.04, if water erosion had eliminated the missing crowstep, it should have also eroded away the carved torus directly below the missing crowstep. This portion of the torus was not destroyed by erosion, which suggests that erosion was not the cause of the missing crowstep (See Figure 6.7). Another piece of evidence that disproves the theory that the difference in the number of crowsteps was caused by erosion is that there is no evidence that the upper crowsteps were ever carved. The area above the uppermost crowstep on the left side of the façade appears to be finished with Nabataean cross-dressing, suggesting that the upper portion of the façade was finished, including the crowsteps found on both sides of the façade. This façade is only the first example of several façades with this unique decorative trait surveyed in Petra. Further examples will be discussed below.
Figure 6.7: Type VIIa:CF.04 (BD 36), a façade carved in the Disi Sandstone. The missing crowstep on the left side of the façade can be seen in both the photo and the associated sketch. The torus does not show erosion damage from water being channeled over the left side of the façade. This suggests that water erosion is not responsible for the missing crowstep. The finished edge on the upper portion of the crowsteps on both sides of the façade supports the author’s theory that the top two crowsteps were never carved. (Photo and sketch by author, May 2014.)

A second façade that showcases the Nabataean ingenuity in working with the geology is Type I:QF.04 (or BD 2 under the Brünnow and Domaszewski tomb numbering system). This façade was carved in the Disi Sandstone near the modern tourist shops at the entrance to the Petra Archaeological Park. The sandstone outcrop is significantly sloped, as can be seen in Figure 6.8. In order to carve this particular façade, the architects carved an entrance ramp that runs north-south before it turns to run west to a portion of the outcrop that is high enough for the façade. The doorway of this façade faces east-northeast with a compass orientation of 76°, which means that it was carved to be perpendicular to the average orientation of the Umm Ishrin Sandstone cliffs (For a more thorough explanation on this façade, see Chapter 4, Façade Type I:QF.)
Figure 6.8: Façade Type I:NQF.04, a Quarry Façade carved into the Disi Sandstone. In order to carve a façade in this location, first the stone-masons had to carve an entrance ramp, which runs north-south before turning to the west. (Photo and sketch by author, May 2019.)

Entrance ramps also appear associated with façades carved in the Umm Ishrin Sandstone. One such façade, Type VIIb:CF.05, a tomb located at the GPS coordinates of 30.321259 35.435543, was carved in a sandstone outcrop that would have been too short without the modifications initiated by from the stone-masons (See Figure 6.9). To increase the height of the outcrop, the Nabataean architects were required to quarry an entrance ramp for the façade. As with Façade Type VIIa:CF.04, Type VIIb:CF.05 has an uneven number of stairs in the crowstep motif at the top of the decoration. The crowsteps on the right have five stairs, while the ones on the left have four steps. The lower part of this façade likely collapsed in antiquity, but in modern times, the interior chamber was reoccupied by Bedouin, who constructed a wall to enclose the rock-cut room. I was unable to look into this interior chamber to ascertain the original intended function of the room.
The trend of Nabataean façades with incomplete crowstep motifs on the left side of the tomb is not confined to just two façades. I have found that there are a number of edifices that have more crowsteps on the right side of the monument than the left. In all the façades that I have surveyed with uneven crowsteps as part of the decoration, the missing stairs are always on the left. When façades with an uneven number of crowsteps were first noted during survey, it was thought that this was due to erosion. However, during subsequent examination of the façades, it was determined that the consistent lack of a step on the left side of the façade was not due to the façade being left unfinished or caused by water erosion. Type VIIc:CF.03, a rock-cut monument in the Wadi Turkmanyia area of Petra is a good example of a façade that can be used to disprove the theories mentioned regarding the missing crowstep on the left (See Figure 6.10). The top of the rock outcrop slopes to the left, meaning that the top of the tomb on the left is shorter than it is on the right side of the façade. Also, as tomb façades were carved from the top down, it is unlikely that the tomb façade is unfinished. The detailed carving on the remainder of the façade supports the belief that this monument had a finished edifice. Erosion, a naturally
occurring process, does not predominantly affect one side of the façade more than the other. That means that if erosion was eliminating portions of the façade (such as a crowstep on the left side of the monument), the erosion damage should be visible on other parts of the façade. In some cases, the erosion will be seen across the entire façade. In other cases, such as in places where the Nabataean stonemason's have deliberately channeled water over portions of the façade, water erosion will create an area of damage that will extend downwards, removing other decorative elements. There is no evidence for erosion disproportionately affecting any one area of the façade in the above noted example. Ultimately, this façade and others noted during my survey with a missing crowstep indicate no evidence that water erosion was involved in the elimination of a crowstep. Type VIIc:CF.03 has four uneroded crowsteps on the left side of the decoration, and five crowsteps on the left, equally unaffected by erosional processes as shown by the lack of damage to the façade. There are multiple other facades that showcase the same trend of a missing crowstep on the left side of the façade.

Figure 6.10: VIIc:CF.03, a façade in Wadi Turkmanyia has an uneven number of crowsteps. There are five stairs on the right, and four steps on the left side of the upper design of the façade. There are also two geological fractures found on the left side of the rock-cut monument. The fractures do not show evidence of displacement. (Photo and sketch by author, May 2018.)
Another example of a façade crowsteps on the right and not the left side of the carved section of the edifice is Type VIIc.CF.04 (BD 64) (See Figure 6.11). This tomb was carved opposite of El-Khazneh and was mostly buried by erosional debris. Fawzi Zayadine reported that the entrance to this façade was uncovered during the clearance of the Petra Siq and the funerary chamber was excavated between September 1979 to March 1980 by a team lead by Nabil Qadi.316 This chamber contained eight wall loculi and three sunken graves.317 The excavation report concerning this chamber only reported one complete human skeleton although other skeletal remains were discovered during the course of the excavation.318 Interestingly, there was a pyramidal stele found in front of loculus six and a sandstone slab with four lines of Nabataean text, which Zayadine suggested was originally hung inside the tomb over the entrance.319 The text of this inscription was not included in the published article on the excavation, but Zayadine mentioned that it was the “epitaph of a lady.”320 Although, much of the information on this tomb comes from the brief description in the excavation report, the exterior of this façade shows a unique interaction between the Nabataean stonemasons and the geology of this façade (See Figure 6.11).

317 Ibid., 352.
318 Ibid., 352.
319 Ibid., 352.
320 Ibid., 352.
Figure 6.11: Façade VIIc.CF.04 (Brünnow and Domaszewski 64), a tomb located in the Wadi opposite of El-Khazneh ("Treasury") with a triangular pediment over the doorway, one engaged column to either side of the carved façade, and a single carved crowstep motif on the right side of the façade with six carved stairs. (Photo and sketch by author, May 2014.)

Type VIIc.CF.04 has only one crowstep motif carved on the upper part of the façade. This iconic crowstep motif has six carved stairs and is located on the right side of the façade, comparable to the other façades within the Type VIIc.CF category. However, there is not a crowstep motif on the left side of the tomb because the outcrop does not extend over the full width of the façade. A visual examination of the top of the outcrop was performed to determine if the upper portion of the façade was broken off due to seismic activity. There was no evidence that the SE face of the upper crowstep block was dressed by the Nabataean stonemasons. The presence of deeply eroded tafoni (or circular holes that erode into certain types of sandstone) on the SE rock face near the carved crowsteps that does not appear anywhere else on the dressed façade and suggests that this particular rock face had been exposed to the elements far longer than the carved portions of the façade itself (See Figure 6.12). In other words, this particular rock face had not broken
away after the Nabataeans had carved this façade. The presence of desert varnish (a naturally forming dark coating that forms on sandstones) on the cliff directly behind the façade is further evidence that the crowsteps on the left side of the façade were never carved because there was no stone upon which to carve them. A small area of carved ashlar blocks in the area of the missing crowsteps suggests that anciently, there may have been a built structure in place of the carved crowsteps.

Figure 6.12: A close-up of the upper portion of VIIc.CF.04. The sketch to the right has the desert varnish and tafoni evidence labelled. (Photo and sketch by author, May 2014).

There is a precedence for Nabataean facades to be partially carved and partially constructed. For example, the Palace Tomb (Type XIII:MF.06, formerly known as BD 765), one of the Royal Tombs carved at the base of Jebel Khubtha (for a description of this façade, see Chapter 4). The majority of this façade was carved in antiquity by the Nabataean stonemasons, but the remainder of the façade was constructed from ashlar blocks, showing that the Nabataeans would occasionally build portions of the façade when the geology did not allow for the carving of the façade as designed. In Figure 6.13, the built section of the Palace Tomb is highlighted, as is the natural height of the bedrock within which this tomb was carved.
Figure 6.13: XIII:MF.06, the Palace Façade. This photo has the built section of the façade outlined and the natural height of the stone cliffs around this particular carved edifice. (Photo by author, May 2014.)

**Structural Geology and the Façade Tombs**

In addition to limits imposed on Nabataean stonemasons caused by water and wind erosion or the natural shape of the cliffs and rock outcrops in Petra, geological faults and fractures also have provided additional constraints on the tombs in Petra. The fractures initially form when stresses overcome the brittle strength of the stone. Fracture-parallel cliffs are caused by the block on one side of the fracture eroding faster than the one on the other side of the fracture. This means that most of the façades carved into the polychromatic red Umm Ishrin sandstone are associated with at least one fault or fracture (such as the one shown in Figure 6.14, a fracture that runs in front of El-Khazneh). Faults demonstrate signs of slip, or tectonic motion. Sudden slip along a fault causes earthquake
activity. Opening mode fractures (known as joints) do not slip, but pull apart from one another. The presence of fractures around monumental façade rooms in Petra is common. In fact, such geologic features may have influenced the design of the façades if the carvers wished to avoid discontinuities and pre-existing weaknesses in the face of the façade. In some cases, fractures were exploited due to the ease of excavation.

![Figure 6.14: The fracture that cuts in front of El-Khazneh (Type IX:BPF.05) and a similar, parallel fracture in front of the Thieves’ Tomb (Type VIb:DEF.07). These two facades were carved into the same cliff face with the same fracture running in front of them. (Photos and sketch by author, December 2015.)](image)

One of the central questions of the study is if there is a correlation between the fracture and façade orientation. If a correlation exists, it may indicate that Nabataean façade architects were well aware of the geological features and considered how they would influence the structural integrity and cosmetics of the monuments. In some cases, the Nabataean stonemasons carved monuments between two fractures, in other cases, fractures run directly through the façades. The following are some examples of Nabataean façade structures and their associated faults.
Figure 6.15: VIIc:CF.05 (or Brünnow and Domazewski 138), a façade near the Petra Theater with fractures on either side of the carved structure and forming the cliff face the façade was carved within. The fracture on the left of the façade is clearly visible as the rock has split away from the rest of the outcrop. (Photo and sketch by author, May 2017.)

Type VIIc:CF.05 (BD 138) is one of the tombs near the Nabataean Petra Theater (see Figure 6.15). This Crowstep Façade was carved between two fractures. The fracture on the viewer's right is clearly visible in the above picture as the rock along the fracture has separated from the rest of the connecting cliff. The fracture on the left is harder to see, but it runs along the edge of the façade. The doorway on this façade is off-center, showing once again that all of the façades are not perfectly symmetrical and that symmetry was seemingly not as important as a cultural visual paradigm for ancient Nabataeans as it was in ancient Greece and Rome. This tomb is one of the façades that is bounded by fractures (surrounded on both the left and right side of the tomb). Type VIIb:DEF.07 (BD 71) is a second façade that is bounded by fractures (See Figure 6.16). There are two fractures running to the right of the façade, one on either side of what appears to be a water feature.
There is another fracture running through the edge of the façade on the left side of the façade. There is no displacement in the carved design on the left side of the façade, suggesting that this crack in the rock is a fracture and not a fault.

Figure 6.16: Type VIb:DEF.07 (BD 71), a façade that is bounded by fractures. There are two fractures on the right of the carved monument, one on either side of a potential water feature. There is an additional fracture running through the façade on the left. (Photo and sketch by author, May 2016.)

Figure 6.17: Type VIIb:CF.06 (a façade located at the GPS coordinates of 30.321283 35.435211) with fractures running along the left side of the façade. The fractures are marked on the sketch to the right of the above photo. There is a possibility that the fractures beside this façade contributed to damage visible on the right side of the carved edifice. (Photo and sketch by author, May 2017.)
Although some of the Nabataean façades have fractures running on both sides of the monumental edifices, others only have fractures on one side of the carved areas. An example of this façade is Type VIIb:CF.06 (See Figure 6.17). This façade has a large fracture running to the right of the façade. The right side of the façade has suffered damage, likely caused by seismic activity. It is possible that the fracture to the right of the façade created zones of weakness in the carved section of the monument, which collapsed during a later seismic event. Fractures found on the sides of façades can appear on either the right or the left of the rock-cut creation. However, the fractures are not always to the side of the façade. Instead, often, these faults and fractures run through the actual façade itself. For example, there is a large fracture that runs through Type VIa:SEF.02 (BD 99), possibly impacting the unusual size of the door of the tomb (See Figure 6.18). The fracture that runs through the right edge of the façade continued through the interior chamber of this tomb (See Figure 6.19). There are three internal loculi that show that this Single Entablature Façade near the Petra Theater may have functioned as a tomb in antiquity.

Figure 6.18: Façade Type VIa:SEF.02, a Single Entablature Façade located near the Petra Theater. This façade has a major fracture running through the right side of the façade. It is possible that the façade originally ended at the fracture, but was later modified to create an unusually large doorway. Another possibility is that the fracture contributed to a decision by the stonemasons to carve an extremely wide doorway. The fracture extends through the interior of the façade. (Photo and sketch by author, May 2016.)
From this study of the monumental facades of Petra, Jordan, it became apparent that the Nabataean architects, stonemasons, or patrons responsible for choosing the location for their monumental rock-cut façades did not always choose the most geologically ideal locations. This observation demonstrates that despite the relative homogeneity of the sandstone layers, the prevalence of fractures were sometimes too difficult to avoid in the carving of the façades. Furthermore, such evidence points to the fact that tomb construction with relation to location was more intensely impacted by access to land ownership than the geological characteristics of a rock cliff face. Landowners were thus constrained by the geology of their land plot and thus had to deal with both the known and unknown geologic features of a façade site. This constraint suggests that tribe and family ownership of land was limited to specific regions in Petra. Tribes and families may have utilized specific elements or designs in their tombs that were related to their belief systems. Large cliff faces in areas that were highly visible appear to have been claimed by the political and economic elite. Thus, the location of the façade monuments appears to have been more important than the geological ‘flaws’ in the cliff-face. This may be in part
due to the visual prominence of the cliff, its proximity to a certain position of importance, or what could be observed from the doorway of the monument. For example, the lack of façades in the Siq itself may have something to do with the inability of the façade to be viewed from other important locations within the city. The limitations imposed by the geological faults and fractures faced by the Nabataean stonemasons and tomb commissioners has resulted in some of the façades collapsing over time and others being damaged by new fractures. Unfortunately, at this time, science does not allow for the absolute dating of when a fracture on a face of rock formed. Thus, some of the fractures on and around the façade tombs could have been formed after the carving of the façade. However, the fractures that formed the cliffs the tombs were carved in were in existence before the carving of the façade. With the majority of the other fractures, the time of formation can not be identified. For example, this is true of the fractures that cut across the Corinthian Façade, (Type IX:BPF.03) (See Figure 6.20). The façade of this elaborate edifice has several diagonal fractures cutting across the façade. In places, sections of the façade appear to have been sheared away by the fractures. It is unclear whether or not these fractures were present during the carving of the façade itself.

Figure 6.20: The Corinthian Tomb (Type IX:BPF.05) which has several fractures that have destroyed parts of the façade. (Photo by author, May 2016)
Type VIIb:CF.07 (BD 805) is another tomb with fractures running through the façade (See Figure 6.21). This monument, located at the base of Jebel Khubtha, is in the same area as the so-called ‘Royal Tombs.’ There are several fractures that have disrupted the design of the façade. The most dramatic of the fractures runs down the center of the façade, beginning to the right of the partially carved crowsteps on the left of the tomb. The crowsteps on the left side of the tomb are unique in that they have only two distinct stairs, rather than the four that can be seen on the right of the façade. The carved crowsteps on the left seem to either be heavily eroded, or only partially carved. The decoration of the façade itself appears to stop when it hits the fracture in the center of the façade, suggesting that the fracture predates the tomb. There is none of the usual evidence suggesting that erosion would have destroyed any design on the left side of the façade. Likewise, there is also no evidence that suggests that a carved section of the design could have broken away. Eliminating erosion and fracture related damage to the left side of the façade leaves the theory that the left side of the façade was not carved, possibly due to the fracturing on this side of the outcrop that existed at the time of the façade's creation.

Figure 6.21: Façade Type VIIb:CF.07: A Proto-Hegra crowstep façade with a fully carved crowstep on the right side of the façade and a partially carved crowstep on the left. The left side of the façade is not decorated, unlike the right side of the façade, possibly due to the presence of fracturing. (Photo by author, May 2016.)
Although there are a number of Nabataean tombs and facades that are impacted by fractures and faults, such as the ones mentioned above, there are also many rock cut rooms and façades, that do not have faults and fractures near them or in between them. It is likely that these sites were the most sought after by the stone masons. This study demonstrates a clear correlation between the orientation of the fracture planes and facades. In some cases Nabataean stone masons had to quarry their own stone faces to carve, but in most cases nature provided the perfect canvas for the carvings. Other examples of awareness of geological features include the preferential use of polychromatic layers of the Ishrin Sandstone to naturally decorate the façades, the facing direction and spacing of rock-cut monuments was controlled by the orientation and spacing of the fractures, and exploitation of zones with high fracture densities to carve features such as the pathway leading to the Monastery.

Conclusions

During my study, I learned that there is much more to explore with regards to the Nabataean use of the geology than previous studies have suggested. Previous scholars have focused on the impact erosion has had on the tombs over the last two millennia since these facades were carved. However, in looking at a larger data set of the façades, I noticed that erosion had shaped the outcrops and cliffs before the Nabataean people even arrived in the Petra area, impacting the types and size of façades that could be carved. In order to deal with the naturally occurring shape of the rocky outcrops in the Umm Ishrin and Disi Sandstones, the Nabataean architects occasionally modified the shape of the cliffs. This modification involved carving back the stone to create a flat surface where a façade could be carved into the sedimentary rock. The location chosen for these monuments may have
been dependent on family and tribal land ownership rather than the geological structure of the cliff. The stonemasons would alter the outcrops as discussed above by carving back the stone to a point where the height of the rock was adequate for the commissioned façade. In some cases, the Nabataean stonemasons would carve ramps to increase the height of the rock-face, at other times, the stone masons would modify the design to fit the available cliff. This is shown by the incomplete nature of the crowstep motif on some of the Crowstep Façades that I visited. The right side of the tomb (as seen by the viewer facing the tomb) always has four to six stairs in the crowstep design, with the majority of the façades having five stairs incorporated in the design.\(^{321}\) Although a majority of the façade tombs have an identical number of stairs on the left side of the design, some are missing the top one to two stairs. This makes the tomb asymmetrical, but as discussed above, a number of Nabataean façade monuments are not fully symmetrical. This indicates that façade designs were tied to the religious beliefs of the Nabataean population as well as the personal aesthetics of the monument owner and commissioners. Additionally, this phenomenon also demonstrates the potency of the crowstep motif as a commonly understood religious symbol associated with the wished for comfort of the deceased.

\(^{321}\) Op. Cit., Finlayson, 2013. According to studies by C. Finlayson, this may be due to the influence of the four to five stepped crowsteps associated with the Egyptian symbolism for Osiris and the adaption and population of the Osiris and Isis cults throughout the Mediterranean world in the Hellenistic and Early Roman Eras. It is unknown whether the Nabataeans through trade with Ptolemaic Egypt actually worshipped Osiris or melded this deity's characteristics with one of their own gods, for example Dushares. The possible existances of statues of Isis at Petra point to the probably absorption of the Osiris/Isis cults into the Nabataean pantheon especially in association with beliefs about the resurrection of the soul and an Afterlife. This was a common phenomenon of the time.
Although it has been theorized that the façades were deliberately carved so that they faced east or west, strike measurements taken from the cliffs in various locations around Petra disprove this theory. These measurements show that the cliffs in Petra strike essentially north-south and east-west with some variation due to the different types of fractures that form to accommodate movement along the Dead Sea fault. The east-west striking fractures are not as common as those in the north-south direction, which is why the east-west running cliffs host fewer façades. Many of the façades carved into the north-south running cliffs are placed in the sandstone cliffs that bound the sides of the Petra graben. Because of the north-south dominance of the cliff strike direction, especially close to the city, façade doorways are most often aligned to face east and west. Nabataean religious associations with the cardinal orientation of the façades does not seem likely given the evidence collected during this study. The faults and fractures affect the façades in other ways as well. Fractures form natural divisions between some of the monumental rock-cut edifices in some places, while in other places, façades were constructed in fractured rock regardless. Yet, the majority of the façades were carved in unfractured screens between orthogonal sets, including many of the Djinn Blocks. It is likely not a coincidence that the shapes and styles of the towers and monuments in Petra mimic to a large extent the shapes and styles of natural rock features.
Chapter 7. Analysis and Conclusions

The Nabataeans of Petra, Jordan, were renowned for their mastery of water and for the monumental architecture that they quarried out of the living stone cliffs. These iconic rock-cut structures included tombs, triclinia, and rooms that may have been used for a variety of things from symposia to housing. Many of the more than 700 façade edifices in Petra have not been studied from a scholarly standpoint. The majority of them have not been archaeologically excavated, and many of them were either looted in antiquity, or have been looted in modern times. Although several scholars have discussed either the erosion of the façades or the architectural decorations of the façade, the complex relationship between the Nabataean architects and the geologic landscape within which the façades were placed has not been examined previous to my study.

This Master’s Thesis sought to answer several questions with regard to the Nabataean awareness of their geological environment and the placement of rock-cut structures as well as their decoration. In order to do that, I visited approximately 400 of the more than 700 known façade monuments through a walking survey. In the field, I examined these monuments and their positioning in the landscape of the Petra region. During the survey, I noted that many of the facades did not fit into the pre-existing tomb typologies suggested first by Brunnow and Domaszewski in 1904 and utilized by McKenzie and others in their subsequent studies. In light of my discovery of the inadequacy of the typology first proposed by Brunnow and Domazewski, I have proposed a new typology with 13 categories. Further study and assessment of the remaining facades in Petra may

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result in the creation of additional categories of Nabataean rock-cut monuments. Some of the categories, such as the Arch Tombs (Type V:AR) have retained their original typological names, I have had to alter the previous names of other categories in order to be more descriptively accurate (for example, the previous category of Pylon Tombs has been replaced in my study with the name Entablature Façades. For more information on the reason for this change in nomenclature, see Chapter 4 of this Thesis). Further categories were added to accommodate more façades such as the Nabataean Quarry Façades (Type I:NQF) and the Mono-Column Façades (Type II:MCF) that did not fit into either the Brünnow and Domazewski or McKenzie typologies. These façade types have not been studied in previous scholarly publications, but still add to our knowledge of the Nabataean worldview. Because many of these monumental rock-cut rooms have not been cleared out in modern times, it was sometimes impossible to determine what use the Nabataean patrons intended for the rooms they commissioned. Thus, I have been calling indeterminate rooms façades rather than tombs, triclinia, etc.

The Case Against a Tomb Chronology

Earlier scholarly studies by McKenzie and Wadeson have focused on trying to create a Nabataean façade chronology based on stylistic analysis rather than utilizing evidence collected through excavation to date the tombs. This strategy was due to the modern lack of scientifically excavated tombs within Petra itself, a problem that still exists and is further exacerbated by the current moratorium on new excavations in Petra. Although McKenzie used epigraphical evidence where it exists to try to increase the accuracy of her chronology, there are very few tombs in Petra, Jordan that have inscriptions. One of the more notable texts is found on the Turkmaniya Tomb, which has a lengthy inscription
carved onto the exterior of the façade that lists buildings and structures once associated with this tomb complex, but lacks important information such as the name of the patron of the monument and the date of its construction and dedication. Another, the inscription often associated with the Bab-al Siq Triclinium and Obelisk Tomb is not actually located near these edifices, which suggests that this epigraphical text may not actually be related to them. The remainder of the dated texts are found in Meda’in Selah, a city in modern Saudi Arabia. These tombs may also not be an accurate measure of the evolution of façade monuments in Petra as there is no way to ascertain how the architectural elements were first utilized in the Nabataean Kingdom itself verses outlying provincial regions. If the façade styles originated in Petra, the designs may have changed many times before the they were transferred to the outlying cities of the Nabataean Kingdom such as Hegra. Thus, a chronology based on a comparative analysis between both stylistic and epigraphical Petra and Meda’in Selah may not yield accurate results.

Another problem with the creation of a chronology based on stylistic analysis of the remaining elements of the Nabataean façade structures is that the exterior of many of the façades may have been covered in molded and painted plaster. For example, there is a room near the Columbarium at the base of Jebel Hubis that has the remains of molded plaster shaped to form architectural elements found on Roman and Greek style temples and monuments (See Figure 7.1).
Figure 7.1: A room found near the Columbarium at Jebel Hubis with molded design elements such as columns, dentition, and ashlar masonry created out of plaster. The molded designs would have also been painted, remnants of the original paint is also evident in these images. (Photos by author, June 2017.)

Other façade monuments in Petra also have elements of molded plaster *in situ.* Molded plaster can be seen on the exterior of Type XI:HHF.01, the Garden Room, in Wadi Farasa near the trail to the Nabataean High Place of Sacrifice (See Figure 7.2) and the exterior of Type VIIc:CF.06 (Brünnow and Domaszewski 676) a tomb in Wadi Mataha being excavated by Dr. David Johnson of BYU (See Figure 7.3). With the high probability of the façade monuments being covered in painted and molded plaster that would have changed the appearance of the carved exteriors in antiquity, creating a chronology of the façades based on their current appearance is impractical. In reality, in order to create a chronology of the façade monuments in Petra, a more comprehensive study of these monuments based on careful scientific archaeological excavation as well as comparative analysis of all design elements and façade types would be required. However, this is beyond the scope of this Master’s Thesis and precluded by the current moratorium on new excavations within the Petra Archaeological Park issued by the Jordanian Department of Antiquities in conjunction of UNESCO.
Figure 7.2: A view of the exterior molded plaster still visible on Type XI:HHF.01, the Garden Room. This molded plaster is shaped to look like ashlar stone blocks. (Photo by author, May 2016.)

Figure 7.3: Type VIIc:CF.06 (BD 676) a Nabataean tomb in Wadi Mataha currently being excavated by Dr. David Johnson, BYU. This tomb has remnants of exterior plaster that is evidence for the exterior of multiple Nabataean façades being covered in possible molded and painted plaster to enhance their carved designs. (Photo by author, May 2018.)

**Variation in Façade Designs**

The Nabataean Façade patrons did not use a set style for their tombs. Each of the 400 façades that I surveyed for this Master’s thesis was unique, sharing some elements with other edifices of similar type and structure, but also combining other architectural designs that showcase the personal preference of each façade’s commissioner or the preferences of the contracted mason. These variations include differences in the
decorations around the entrances into the interior chambers, additions of windows or cultic niches, and even the insertion of elements unique to other façade types into the design.

One example of this variation is to look at the entrances to several of the various façade monuments in Petra. Type I:NQF.17 (BD 812) is a Nabataean Quarry Façade with two openings into the interior chamber, one of which is a large window over the main entrance (See Figure 7.4). The entrance is very simple overall, with no additional ornamentation. Type III:RDF.09, a façade carved near the Lion Triclinium, is a little bit more complex with several indented lintels over the doorway, a window to the left and the right of the entrance, and a niche carved to the left of the door (as seen when the viewer stands in front of the façade and faces the doorway). An example of a façade with a more complex doorway is Type VIIc:CF.07 (BD 653). This tomb, found in the Wadi Mataha area of Petra, is unique in a number of ways, including the off-center doorway. There is a window to the left of the decoration around the doorway (as seen when the viewer is standing in front of the tomb facing the doorway) and a window on the right of the doorway. The window on the right of the entrance is actually set back slightly from the main portion of the façade due to the geological slope of the rock. This contributes to the off-center feeling of this façade. Directly around the main entrance are two columns leading up to a post-and-lintel decoration. Two additional columns, one on either side of the entrance, support a triangular entablature design. These are just three examples of the differences in the entrances to the façade edifices.
Figure 7.4: The façade on the left is the Nabataean Quarry Façade Type I:NQF.17 (BD 812). It has a very simple entrance with a large window over the main opening. The central photo is of Type III:RDF.09, a façade with more complexity in the entrance design with several lintels, a window on the left and right of the doorway, and a cultic niche. The façade on the right is Type VIIc:CF.07 (BD 653), which has a far more elaborate design than the other two façades in this comparison. There are several columns on either side of the entrance as well as a post-and-lintel decoration directly over the opening with a triangular pediment motif over the post and lintel design. (Photos by author, May 2018-May 2019.)

The variation in entrance structures and designs is just one way in which the personality and preferences of the patron (or mason) of the monumental rock-carved architecture are demonstrated. Other differences can be seen in a façade complex seen in Wadi Turkmaniya. Here there are two main rock-cut structures that are a part of this complex as well as a dam used to control and potentially to collect water. The first structure in this complex is a simple Non-Entablature Façade, Type VIc:NEF.04 (See Figure 7.5). The façade itself is simple, only ornamented by two engaged columns. The capitals for this complex were inserted into the carved façade. Each of the two capitals is different from the other, another unique design element. The doorway is wider than is standard for a Nabataean façade. A number of potential loculi inside of the main chamber suggests that this was a tomb, but without excavation, the presence of bone material cannot be confirmed. Although this structure is unique in and of itself, the other structure in the complex (Type XII:MF.05) is also strange (See Figure 7.6). This room has two massive
entrances, one overlooking Wadi Turkmaniya, the other facing the other façade in the tomb complex. These two walled chambers seem to be a biclinium, as suggested by the presence of at least one bench visible through the erosional debris that covers the floor of the interior rock-carved room. There is also at least one cultic niche carved into the wall of the interior chamber.

Figure 7.5: The exterior of Type VIc:NEF.04, a Non-Crowstep Entablature Façade with two column capitals inserted into the design of the façade. Each of the capitals differ from each other, making this façade asymmetrical. Additionally, the doorway is wider than the usual doorway width in Nabataean façade tombs. (Photos by author, May 2018.)

Figure 7.6: Type XIII:MF.05, the second structure in the complex with Type VIc:NEF.04 (Photo on the upper left. This large room is carved to have two giant doorways, one facing VIc:NEF.04, the other directly opposite to the first facing out into Wadi Turkmaniya. This room was probably a biclinium, as suggested by the presence of at least one bench along the interior wall of the structure (See upper right photograph. There is at least one cultic niche carved in the interior chamber of this bizarre façade (See lower center photograph). (Photos by author, May 2018.)
These are just two examples of the two façades in a single small complex that showcase some of the extreme variation seen in some of the monumental rock-carved architecture of Nabataean Petra. Previous scholarly studies of Nabataean monumental architecture have failed to acknowledge the impact of the varied personal beliefs and visual preferences of the Nabataean tomb patrons (or masons) on façade construction. Without fully comprehending the religious beliefs and iconography utilized by Nabataean patrons and stonemasons, we may not be able to ascertain why certain design elements were included in funerary architecture. However, the clustering of groups of tombs, such as a high number of Type V:AR Façades found in Wadi Turkmaniya, suggests that certain religious associations or family and/or tribal groups in Petra had certain iconography preferences unique to their beliefs and values. The Arch Façades are an interesting case study in seeing the distribution of certain tomb designs in Petra. For example, two of the Arch Facades have crowstep motifs carved into the interior of the arch decoration over the doorway. These are found in the Wadi Farasa area, suggesting that the importance of this crowstep element in Nabataean funerary beliefs may be important to the people that were living in this region of Petra. Future studies on the distribution of façades, specifically, the distribution of each decorative façade type in the Petra region may yield information on the tribal or religious associations throughout Petra.

Nabataean Façade Monuments and the Geologic Landscape of Petra

In addition to examining four hundred façade rooms in Petra, Jordan to determine their type, I also did a study of the Nabataean use of the geology in constructing these magnificent façades. While I was unable to find a clear pattern linking the geographical
location of the façades to the geological faults or fractures that may have impacted their creation, I did find that many of these monumental edifices were carved into fracture planes that now make up cliff faces. The fractures have a systematic orientation that relates to the pattern of deformation associated with plate movement along the Dead Sea Fault. These dramatic fractures in the stone predominantly strike north-south, resulting in the majority of the Nabataean façade structures carved to face either the east or west. However, this was not always the case. The Nabataean patrons and architects did not seem to be concerned about solar events aligning with the doorways or windows of their tombs. Instead, they used the available cliffs with their natural geological orientation in which to place their monumental façades. Because the cliffs, especially the cliffs in the Umm Ishrin Sandstone, were formed by faulting, the majority of the façades have a fault or fracture running in front of them, perpendicular to the direction the door faces. Many of the façades also have fractures running through or on either side of the carved edifice, but there are also a number of the façades that have no association with fractures or faults. For information on which of the rock-cut monuments are associated with tectonically caused faults or fractures, see Appendix 2.

Additional study of the Nabataean façades in Petra indicated that the geology of the region may have had a larger impact on the tombs than previously thought. The height of the carved edifices are impacted directly in some cases by the thickness of the most homogeneous layers of sandstone, or those layers with the least bedding plane fractures. In cases where the cliffs were not high enough for the intended façade, a ramp was carved to create a taller canvas upon which to work. In some areas, the crowsteps on the left side of the façade (when viewing the front of the building) were incomplete due to the erosion
of the original bedrock before its utilization as a rock-cut façade. This suggests that the Nabataean stonemasons were limited by the existing stone canvas they had to work with, although in some cases Nabataean craftsmen adapted to the geological limitations of a site by constructing the necessary portions of the façade out of ashlar blocks (as can be seen in the Palace Tomb, which is described in Chapter 5 of this Master’s Thesis).

The ongoing geological impact on the façade tombs of Petra, Jordan can especially be seen in a pair of tombs located in Wadi Turkmaniya. The first of the two tombs (Type VIb:DEF.08) is a normal sized Double Entablature Façade (See Figure 7.7). Over the entrance into the interior chamber is an indented lintel and triangular pediment. Based on the normal appearance of this façade, it appears that it was carved before tomb VIb:DEF.08, the tomb found directly to the right of this façade as seen when the viewer faces the façades of these two tombs. Type VIb:DEF.08 is much narrower in width than the other Nabataean tombs in the area. It is also positioned higher than Type VIb:DEF.08. It appears as though the family or tribe that owned this plot of land and the cliff faces may have decided to add another monumental rock-cut façade tomb after the completion of Type VIb:DEF.08. The quarrymen could have removed stone from the sandstone cliffs below and to the right of Type VIIb:CF.08, but they chose to utilize the available cliff, thus, the geology itself constrained the size and shape of the façade. It is possible that the stonemasons chose not to carve away the rock at the base of Type VIb:DEF.08 in order not to damage the interior of VIb:DEF.08. However, there are two holes in the floor of Type VIIb:CF.08 that open directly over loculi in Type VIb:DEF.08. Interestingly, the patron or patrons of the two tombs both emphasized the crow-step or merlon motif on each façade, but in differing ways (See Figure 7.7).
My study of the Nabataean rock-cut façades and their relationship to the geological environment suggests that the Nabataean stonemasons were aware of the limitations imposed on them by the stratigraphic and structural features of Petra. Some of the tombs, such as the Lion Triclinium show that the Nabataean stone carvers utilized the naturally harder iron rich sandstone layers as the floor of the interior chamber. I was unable to study if this is a common occurrence in Nabataean architecture as many of the tombs and triclinia in Petra as filled with several meters of erosion debris and animal dung, thus, the floor of each tomb surveyed was often visually inaccessible. However, there is a strong potential that rather than carve through the iron rich layers, the stone carvers would utilize the already harder layers of stone as the floor of the chambers. This would be something that could be studied further to explore if the Nabataeans chose to take advantage of mineral properties of the stone for the creation of the floors of their monumental architecture.

Further Studies

During the course of this Master's Thesis, I discovered that there is a dearth of studies on the monumental Nabataean façade tombs of Petra, Jordan. Although the exterior
features of several of the tombs have been thoroughly investigated, other monuments have been completely ignored and do not appear in scholarly publications. There have been no studies on the interior of the façade tombs to determine if there is a pattern in room size, shape, and the presence or absence of loculi. Also, no scholarly publications discuss the spacial distribution of the Nabataean façade structures in the Petra region, or the distribution of types of façade designs. This leads to room for further studies.

One such possible study is to take the GPS locations collected during my study of the façade monuments and ascertain the positioning of the different styles of carved decoration in relationship to the other façades of the same type to determine if there is a connection between exterior decoration of the rock-cut chambers and geographic placement within the Petra Region. I have done some preliminary mapping of these tombs by type, but I have not yet visited all of the Nabataean façade tombs. Spacial analysis may also be useful in determining if there is a pattern between the different uses of the façade structures. Some are known to be tombs due to the presence of interior loculi, but others have triclinia or a combination of triclinia and loculi. GIS studies may be able to show if there is a pattern between different tomb designs that may suggest either tribal affiliation between tomb patrons in an area, or the usage of certain regions of Petra as burial sites for members of particular religious symposia.

Another option for further study would be a detailed comparison of the interiors of the different façade structures. Only a few of the tombs have been excavated. Many of the other rooms are still filled with erosion debris and are not accessible for study, but the rooms that have been cleaned out could be analyzed. Each room could be measured in order to compare the sizes of interior chambers. Interior ornamentation and layout of the
façade rooms could also be compared to show the similarities or differences between the various tomb structures. This study could also look at the evidences for the various ancient uses of these structures. Some of the interior rooms do show evidence of reuse or modification during the Byzantine Era (such as the Urn Tomb) while other tombs have been modified in more recent times by the Bedouin who lived in the region.

Along the same lines, a further research project could be to examine what can be seen from the doorway of the façade. In examining the view of the landscape visible from the doorway of the rock-cut chamber as well as any important structures or features in the landscape, additional insights to the locations chosen by the patrons of the monuments may be gained. The visibility of the façade itself from the surrounding area is an extension of that research.

Another project that could be undertaken is a study of the façade decorations in order to analyze the influences that have been introduced to Nabataean Petra through the trade with different nations and peoples. This would focus on the spread of ideas and would look for what ideas may have been shared across the trade routes. Some of these influences may include those from Hellenistic Greece via Asia Minor and the Seleucid Kingdom, Ptolemaic Alexandria in Egypt, coastal Phoenicia, Persia, and other places along the trade routes. Although a more comprehensive chronology of the Petra façade tombs cannot be undertaken until more of the façade tombs have been scientifically studied and excavated, the designs on the exterior and interior of the façades could still be used to glean information about the exchange of ideas. Excavation provides artifacts that can also be used to create a more accurate timeline of the Nabataean monumental tombs. The lack of excavation also creates limits on determining the usages of many of the façade structures
as the loculi and the triclinia benches are often still buried in sediment. Examining the artifacts that have been recovered from excavations of the Petra tombs and discussing them in addition to the exterior and interior designs of the façade tombs from which they came may shed additional insights into the secular and religious lives of the Nabataean people.

Ultimately, I have learned much about the Nabataean people from my survey and study of their existing monumental rock-cut structures, but there is much more that can be learned. Further research on all aspects of Nabataean façade structures is required to establish a more comprehensive understanding of this enigmatic people. This study, however, is an important contribution to Nabataean studies by its establishment of a new façade typology that is based on a much wider data set as well as pointing out the importance of the geologic landscapes as a critical factor impacting the construction of ancient Nabatean rock-cut façades.

During my study of the façade monuments in Petra, it became evident that many of the Nabataean monuments were carved in specific locations that may have had meaning for the patrons or stonemasons who commissioned or created them. The evidence for this is seen in the placement of the so-called Royal Façades. They were carved into the cliffs of Jebel Khubtha, the site of a Nabataean temple, into an area where geological faults and fractures made the stone a less-than-ideal place for monumental façades to be situated. However, because any of the monuments carved into these cliffs are highly visible, it is likely that the location was chosen specifically because of the prestige suggested by the positioning of these edifices. A sense of the importance of place to the Nabataeans is also implied by the clustering of monuments with specific design features such as arch motifs or
six-stair crowsteps that may indicate land ownership by specific tribes, families, or religious groups. The position of El-Khazneh in a location not visible in the rest of Petra suggests that it was placed in a key location that had an important meaning to the commissioner or carver of the monument. Since the construction of these massive and often elaborate rock-cut façades was highly involved, their existence demonstrates that the Nabataean people were highly invested in their creation. Cost, time commitments, and efforts on utilizing the surrounding geology to inter their dead, host religious and memorial symposia, and probable use to reinforce family clan and tribal identity also indicate the importance of place in the Nabataean world view. There is much more to study to better understand the Nabataean’s view of the land around them and their sense of place, however, it is hoped that this will provide a stepping off point for further research.


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Appendix 1.1: Type I: Nabataean Quarry Façades (NQF)

Nabataean Quarry Façades are often (but not always) located in the remains of stone quarries. These façades are usually simple in decoration with few if any design elements on the façade itself or around the entrance.

Example: Type I:NQF.16, a façade from near Beidha Neolithic Village. It has an undecorated façade area with no ornamentation around the entrance. The doorway has been modified.
(Photo and sketch by author, May 2019)
Appendix 1.2: Type II: Mono Column Facades (MCF)

Mono Column Facades are similar in nature to the Nabataean Quarry Facades (Type I:NQF). They have a single column on the left of the façade (as seen when the viewer stands in front of the façade and looks directly at it. Although there may have been a second column on the right of the doorway, the second column has either eroded away, or was never carved. The façade is simple with few if any designs.

Example: Type II:MCF.02, a simple quarry façade located near the Ad-Deir Monument on the Ad-Deir Plateau of Petra, Jordan. The façade itself is simple with no ornamentation. There is a single column to the left of the façade. (Photo and sketch by author, May 2019)
Appendix 1.3: Type III: Recessed Doorway Façades:

Recessed doorway façades are similar to the Nabataean Quarry Façades in that they are usually very simple in design with the only decoration around the door. This usually takes the form of a ‘t’.

Example: Type III: RDF.08: A Recessed Door Façade near Beidha Neolithic Village with a simple quarried area around the ‘t-shaped’ doorway. (Photo and sketch by author, May 2019).
Appendix 1.4: Type IV: DB (Djinn Blocks)

Djinn Blocks are tower-like structures carved on three to four sides. These structures are often simple in ornamentation, but some of them can also be fairly ornate.

Example: Type IV:DB.07, a Djinn Block on the path from the Wadi Musa entrance to the Petra Archaeological Part to the Siq. This Djinn Block is very simple with no ornamentation other than the door. (Photo and sketch by author, May 2014).
Appendix 1.5: Type V:AR (Arch Façade)

Arch Façades are generally among the smallest of the rock-cut chambers in Petra and have a design with two columns at the edge of the façade and an arch decoration over the doorway. Sometimes there is additional decoration around the door, often columns forming a post-and-lintel structure.

Example: Type V:AR. 10: This façade is a good example of an Arch Façade. It has a column on each of the edges of the façade and a post-and-lintel motif around the door. The final
part of the design is the semi-circular arch at the top of the façade. (Photo and sketch by author, May 2016).

Appendix: 1.6: Type: VIa:SEF (Single Entablature Façade)

Type: VIa:SEF are decorated with a single entablature (or decorative element with a bar across the entire façade) beneath a row of four stepped crowstep motifs. These motifs may be representative of Osiris or the absorption of Osirian imagery in the Nabataean burial contexts and religion, i.e. they could be a representation of the Nabataean deity Dushares. There is often a single carved or indented bar over the door.

Example: type VIa:SEF.08. This façade demonstrates the typical single row of four-stepped crowsteps on the top of the façade with an indented architrave over the door. (Photo and sketch by author, May 2016).
Appendix 1.7: Type VIb:DEF

A façade in Type VIb:DEF (Double Entablature Façade) has two entablature decoration with two rows of crowstep motifs. These crowstep motifs usually have four steps, and may be symbolic of Osiris or represent the absorption of Osirian imagery into Nabataean burial contexts. They could also be representation of the Nabataean deity Dushares.

Example: Type VIb:DEF.17. This façade shows the double row of crowsteps that are the distinguishing characteristic of the Double Entablature Façades. Like the Single Entablature Façades, the Double Entablature Façades have simple doorways and often have an architrave over the door. (Photo and sketch by author, May 2016).
Appendix 1.8: Type VIc:NEF: (Non-crowstep Entablature Façade)

Type VIc:NEF or Non-crowstep Entablature Façades are rock-cut monuments with a single entablature decoration on the top of the façade itself. Unlike the other monuments in the Entablature Typology, there are no crowsteps over the entablature. These façades are often simple in ornamentation. The example down below is Type VIc:NEF.01, a good visual of the monuments in this category.

Example: Type VIc:NEF.01. This façade is found between El-Khazneh and the Petra Theater. Non-Crowstep Entablature Façades are similar in style to the Type VIa:SEF and
Type VIb:DEF monuments. The major difference is the lack of crowsteps on the entablature of the façade. (Photo and sketch by author, May 2016.)

Appendix 1.9: Type VIIa:CF (Crowstep Façades, Type a)

Façades of Type VIIa:CF have an entablature below two opposing staircase motifs. These motifs can have 4-5 stairs and the two sets of crowsteps are usually symmetrical, but in some cases, the geology has caused the Nabataean stonemasons to carve fewer steps on the left side of the tomb. These are the simplest of the Crowstep Façades.
Example: Type VIIa:CF.01. This façade is a good example of the monuments in this category. This edifice has the five-stepped crowsteps that are typical of this façade type. Other than an entablature, there are no other ornamentations or decorations on this façade, although for this example, it is difficult to tell how much of the rock-cut front of the monument was altered by the carving of the Petra Theater. (Photo and sketch by author, May 2016).

**Appendix 1.10: Type VIIb:CF (Crowstep Façades type b)**

Crowstep façades in category Type VIIb:CF have two sets of opposing stairs over an entablature. The monuments in this category are distinguished from the façades of type a in that they have a column on the left and right edges of the façade. There is also a post and lintel decoration around the doorway.
Example: Type VIIb:CF.01. This façade is a typical example of the Type VIIb:CF monuments. The top of the monument is capped with the distinctive five-step crowstep motif. Below the crowsteps is an entablature that is sometimes more decorative than those of the Type VIIa:CF edifices. There are columns on either side of the façade and a simple post-and-lintel design over the door. (Photo and sketch by author, May 2016).

Appendix 1.11: Type VIIc:CF (Crowstep Façades, type c)

Façades in this category are distinguished from the monuments of type a and type b in the Crowstep Façade Type by a far more elaborate entablature, often featuring a number of
bars across the façade. These façades are capped with two sets of stairs on the top of the façade with sets of four, five, or even six steps. There is a column on the left and right edge of the façade as well as a far more elaborate decoration around the doorway. This decoration can include a triangular pediment, but the decoration around the door does not have to be elaborate.

Example: Type VIIc:CF.02. As with the other monuments in the Crowstep Façade Type, this monument is capped with a crowstep motif over an entablature. The entablature of Type VIIc:CF is more elaborate than in the other two categories which is shown in this example with the miniature columns between two entablatures. There is a triangular pediment motif over the doorway on this particular example. (Photo and sketch by author, May 2016).
Appendix 1.12: Type VIII:TPF (Triangular Pediment Façades)

Type VIII:TPF are façades capped with a triangular pediment. There are usually columns on either side of the façade. These monuments are often more elaborate than the façades in the previous categories.

Example: Type VIII:TPF.06. This monument located in Wadi Farasa has the distinctive triangular pediment on the upper part of the façade. Although, not all monuments in this category have triglyphs and metope motifs, this particular example does have those decorations on the façade. (Photo and sketch by author, May 2017).
Appendix 1.13: Type IX:BPF (Broken Pediment Facades)

Façades of this type are characterized by a Broken Syrian Pediment, often with a tholos between the two halves of the pediment. These façades are among the most elaborate and the largest of the façades of Petra, Jordan.

Example IX:BPF.05. El-Khazneh is probably the most recognizable and iconic of the façade monuments of Petra. This is an example of the Broken Pediment Façades with the Syrian Broken Pediment at the top of the monument below two obelisks. Although the other façades in this category are far less elaborate, they often have a similar general design. (Photo and sketch by author, December 2015).
Appendix 1.14: Type X:ADF (Associated Decoration Façades)

The façades of Type X:ADF (Associated Decoration Façades) are characterized by having a often fairly simple or unornamented façade and rock-cut entrance to the interior chamber, but they all have an elaborate decoration near the doorway. The designs and decorations near the façade vary widely and may include cultic niches or relief carvings.

Example: Type X:ADF.06 or the Collapsed Façade. This façade unfortunately collapsed before it could be fully documented or studied by scholars, but the drawings of early visitors to Petra, such as this one modified from L. Laborde, suggests that the façade itself was elaborate with an elaborate niche next to the façade. A Greek inscription was also associated with this façade. The photo shows the remains of the decorative niche next to the collapsed façade. (Photo by author. Sketch modified by author from L. Laborde.)

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323 L. Laborde, Journey Through Arabia Petrea, to Mount Sinai, and the Excavated City of Petra, the Edom of the Prophecies, (London, Murray, 1836) 164-165.
324 Ibid., 164-165.
Appendix 1.15: Type XI: HHF (Hypostyle Hall Façades)

Façades of Type XI:HHF (Hypostyle Hall Façades) are characterized by a minimum of two columns to either side of the entrance and a flat entablature forming the top of the design. The majority of these façades are found in Beidha, Jordan, and often have biclinia or triclinia in the rock-cut chamber.

Example: Type XI:HHF.07. This façade is located in Beidha and has the typical columns to either side of the massive doorway. There are also water features associated with this triclinium. (Photo and sketch by author, May 2019).
Appendix 1.16: Type XII:LCF (Large Chamber Façades)

Type XII:LCF (Large Chamber Façades) have an undecorated façade similar to that of the Type I:NQF, but they are differentiated in that they have a massive interior rock-cut chamber. Often, these chambers have windows high in the façade. The windows can be literal windows, or they can be upper chambers.

Example: Type XII:WDF.01. This façade is similar to the Nabataean Quarry Façades (Type I:NQF), however, this monument has three doorways, an upper window, and a massive chamber, that at the time it was surveyed by this author, had a pick-up truck parked inside. (Photo and sketch by author. May 2019).
Appendix 1.17: Type XII:MF (Miscellaneous Façades)

This category is for façades that do not fit within the other categories. Usually, there are only one or two examples of the particular monuments within this category that have been surveyed or discovered thus far in the Petra Archaeological Park.

Example: XIII:MF.03. The Obelisk Façade is a prime example of a façade in the Miscellaneous Façade category because there is no other monument like it in Petra. It has four obelisks on the top of the monument with a niche containing a human figure carved in relief between the two central obelisks. (Sketch and photo by author, May 2014).
## Appendix 2: A Database of the Surveyed Façade Monuments in the Petra Area

<table>
<thead>
<tr>
<th>Façade Number</th>
<th>Photo Exterior</th>
<th>Photo Interior</th>
<th>Previous Number</th>
<th>Geographic Location/GPS Location</th>
<th>Cardinal Orientation taken from the doorway looking to the exterior of the chamber</th>
<th>Fractures (Present/Absent)</th>
<th>Additional Pertinent Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 I:NQF.01</td>
<td>No Photo Available</td>
<td>BD 807</td>
<td></td>
<td>Jebel Khubtha, 30.325172 35.448668</td>
<td>270 (West)</td>
<td>Present, one small fracture on the South side of the façade, cutting through the door, one in the North half of the façade. Umm Ishrin Sandstone</td>
<td>Unusually tall and narrow door, set off-center in the façade.</td>
</tr>
<tr>
<td>2 I:NQF.02</td>
<td></td>
<td>BD 768</td>
<td></td>
<td>Jebel Khubtha, 30.328428 35.449144</td>
<td>256 (West)</td>
<td>Present, fracture on the North side of the façade. Another fracture on the South of the façade runs North to South and cuts in front of the façade. Umm Ishrin Sandstone</td>
<td>Cultic Niche South of the door. Interior chamber has a large barrel vault or arch shaped cultic niche.</td>
</tr>
<tr>
<td>3 I:NQF.03</td>
<td></td>
<td>BD 256</td>
<td></td>
<td>Wadi Farasa, 30.319941 35.444296</td>
<td>60 (Northeast)</td>
<td>Absent, Umm Ishrin Sandstone</td>
<td>Interior chamber has a triclinium and possible rock-cut chambers or loculi.</td>
</tr>
<tr>
<td>4 I:NQF.04</td>
<td>No Photo Available</td>
<td>BD 2</td>
<td></td>
<td>Petra Archaeological Park Entrance, 30.324706</td>
<td>76 (East)</td>
<td>Absent, Disi Sandstone</td>
<td>Nefesh and cultic niche on exterior.</td>
</tr>
<tr>
<td>No.</td>
<td>Code</td>
<td>Description</td>
<td>Area</td>
<td>GPS Coordinates</td>
<td>Orientation</td>
<td>Condition</td>
<td>Notes</td>
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</tr>
<tr>
<td>6</td>
<td>I:NQF.05</td>
<td>No Photo Available</td>
<td>Previously Unpublished?</td>
<td>Petra Theater Area, 30.323781 35.448301</td>
<td>Approximately 70 (East)</td>
<td>Present, one possible fracture on the South side of the façade. Another fracture runs from North to South in front of the façade. Umm Ishrin Sandstone.</td>
<td>There is an opening in the chamber roof. Exterior is unexcavated, but could be a burial chamber or a cistern.</td>
</tr>
<tr>
<td>7</td>
<td>I:NQF.06</td>
<td>Previously Unpublished?</td>
<td>Petra, Theater area, 30.323607 35.448931</td>
<td>330 (North-Northwest)</td>
<td>Present, major fractures concentrated on the West side of the façade. Umm Ishrin Sandstone.</td>
<td>Chamber has been reused in modern times, possible loculi present.</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>I:NQF.07</td>
<td>BD 113</td>
<td>Petra, Theater Area, 30.323962 35.448232</td>
<td>70 (East-Northeast)</td>
<td>Absent, none visible. Umm Ishrin Sandstone.</td>
<td>Small inscription on the exterior of the façade on the South side.</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>I:NQF.08</td>
<td>BD 177</td>
<td>Petra Theater Area, 30.325408 35.446667</td>
<td>80 (East)</td>
<td>Present, Fractures to the North and South of the façade. Umm Ishrin Sandstone.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>I:NQF.09</td>
<td>Photo unavailable</td>
<td>BD 302</td>
<td>Snake Monument Area, NO GPS Collected.</td>
<td>330 (Northwest)</td>
<td>Present, Fractures on Northeast and through center of façade. Umm Ishrin Sandstone.</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>I:NQF.10</td>
<td>BD 769</td>
<td>Jebel Khubtha Area, No GPS Collected.</td>
<td>340 (North-Northwest)</td>
<td>Present, Fractures running diagonally through the façade on the Northeast side. Umm Ishrin Sandstone.</td>
<td>Possible loculi on the interior of the chamber.</td>
<td></td>
</tr>
<tr>
<td>Façade Number</td>
<td>Exterior Photo</td>
<td>Interior Photo</td>
<td>Previous Number</td>
<td>GPS Location</td>
<td>Compass Orientation</td>
<td>Presence/Absence of Fractures and Sandstone Type</td>
<td>Additional Pertinent Information</td>
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<tr>
<td>15 I:NQF.14</td>
<td><img src="15.png" alt="Exterior Photo" /></td>
<td><img src="15.png" alt="Interior Photo" /></td>
<td>Previously Unpublished?</td>
<td>Ad-Deir Plateau</td>
<td>North, compass orientation not collected.</td>
<td>Fractures/Faults present on the East and West side of the outcrop. Umm Ishrin Sandstone.</td>
<td>Strange interior niche that is carved into the stone at an angle in the NW corner of the room.</td>
</tr>
<tr>
<td>16 I:NQF.15</td>
<td><img src="16.png" alt="Exterior Photo" /></td>
<td><img src="16.png" alt="Interior Photo" /></td>
<td>Photo Unavailable</td>
<td>Trail to Ad-Deir Monument, Lion Triclinium Area, No GPS collected.</td>
<td>No compass orientation collected.</td>
<td>Fracture running diagonally through the central portion of the façade. Umm Ishrin Sandstone.</td>
<td></td>
</tr>
<tr>
<td>17 I:NQF.16</td>
<td><img src="17.png" alt="Exterior Photo" /></td>
<td><img src="17.png" alt="Interior Photo" /></td>
<td>Previously Unpublished?</td>
<td>Beidha, 30.374861 35.452632</td>
<td>234 (Southwest)</td>
<td>Absent, Disi Sandstone.</td>
<td></td>
</tr>
<tr>
<td>Façade Number</td>
<td>Photo Exterior</td>
<td>Photo Interior</td>
<td>Previous Number</td>
<td>Geographic Location/GPS Location</td>
<td>Cardinal Orientation</td>
<td>Fractures (Present/Absent), Sandstone Type</td>
<td>Additional Pertinent Information</td>
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<tr>
<td>II:MCF.01</td>
<td></td>
<td></td>
<td>BD 257</td>
<td>Wadi Farasa</td>
<td>60 (East-Northeast)</td>
<td>Present, Fracture on the SE part of the tomb, additional fracture diagonally through the façade. Fracture to the SW side of the façade. Umm Ishrin Sandstone.</td>
<td>Interior chamber is unexcavated. Possible loculi high on the walls of the interior chamber.</td>
</tr>
<tr>
<td>II:MCF.02</td>
<td></td>
<td>Interior filled in</td>
<td>Previously Unpublished?</td>
<td>Ad-Deir Plateau, 30.337879 35.430921</td>
<td>232 (Southwest)</td>
<td>Absent, Umm Ishrin Sandstone.</td>
<td>Interior filled in.</td>
</tr>
<tr>
<td>II:MCF.03</td>
<td></td>
<td></td>
<td>Previously Unpublished?</td>
<td>Jebel Hubis, 30.330266 35.437689</td>
<td>240 (Southwest)</td>
<td>Present on the Northwest and South east sides of the façade. Umm Ishrin Sandstone.</td>
<td></td>
</tr>
<tr>
<td>Façade Number</td>
<td>Photo Exterior</td>
<td>Photo Interior</td>
<td>Previous Number</td>
<td>Geographic Location/GPS Location</td>
<td>Cardinal Orientation</td>
<td>Fractures (Present/Absent)</td>
<td>Additional Pertinent Information</td>
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<tr>
<td>III:RDF.01</td>
<td>Dalman 442b</td>
<td></td>
<td></td>
<td>Ad-Deir Plateau (Hermitage Area)</td>
<td>30.335921 35.432869</td>
<td>79 (East)</td>
<td>Fracture in front of the façade running North and South. Umm Ishrin Sandstone. Loculi (with bone material) in the interior chamber. Looting evidence in the tomb.</td>
</tr>
<tr>
<td>III:RDF.02</td>
<td>Previously Unpublished?</td>
<td></td>
<td></td>
<td>Wadi Turkmanyia, 30.338069 35.441034</td>
<td>22 (North-Northeast)</td>
<td>Fracture in front of the façade running roughly East to West. Umm Ishrin Sandstone. Interior chamber has several looting pits and possible loculi.</td>
<td></td>
</tr>
<tr>
<td>III:RDF.04</td>
<td>Published by Dalman.</td>
<td></td>
<td></td>
<td>Ad-Deir Plateau (Hermitage Area), 30.336641 35.431982</td>
<td>49 (Northeast)</td>
<td>No visible fractures. Umm Ishrin Sandstone. Possible multi-story room, decorated ceiling, Christian crosses carved on interior chamber.</td>
<td></td>
</tr>
<tr>
<td>III:RDF.05</td>
<td>Published by Dalman.</td>
<td></td>
<td></td>
<td>Ad-Deir Plateau (Hermitage Area), 30.33656 35.432001</td>
<td>56 (Northeast)</td>
<td>No visible fractures. Umm Ishrin Sandstone. Decorated ceiling. A checkerboard pattern of Nabataean cross-dressing oriented in different directions covers the ceiling.</td>
<td></td>
</tr>
<tr>
<td>III:RDF.06</td>
<td>Unknown.</td>
<td></td>
<td></td>
<td>Jebel Hubis 30.330481 35.437778</td>
<td>255 (West)</td>
<td>South of the façade. Several on the North and South of the doorway. Umm Ishrin Sandstone. Possible loculi in the internal chamber.</td>
<td></td>
</tr>
<tr>
<td>III: RDF.09</td>
<td>No photo taken</td>
<td>Previously Unpublished?</td>
<td>Lion Triclinium Area, on the AdDeir Trail, 30.335175 35.43856 108 (East).</td>
<td>Fracture to the South of the façade. Umm Ishrin Sandstone.</td>
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<td></td>
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</tr>
<tr>
<td>Façade Number</td>
<td>Photo Exterior</td>
<td>Previous Number</td>
<td>Geographic Location/GPS Location</td>
<td>Cardinal Orientation</td>
<td>Fractures (Present/Absent)</td>
<td>Additional Pertinent Information</td>
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<tr>
<td>IV:DB.01</td>
<td>None</td>
<td>BD 9</td>
<td>Wadi Musa side of Siq, 30.322181 35.463846</td>
<td>242 (Southwest)</td>
<td>Unknown due to the removal of surrounding rock. Disi Sandstone.</td>
<td></td>
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</tr>
<tr>
<td>IV:DB.02</td>
<td>No interior chamber</td>
<td>BD 8</td>
<td>Wadi Musa side of Siq, 30.322284 35.464099</td>
<td>68 (Northeast)</td>
<td>Unknown due to the removal of surrounding rock. Disi Sandstone.</td>
<td>Possible relief carving over false door on the North side of the façade. No interior chamber.</td>
<td></td>
</tr>
<tr>
<td>IV:DB.03</td>
<td>No interior chamber</td>
<td>BD 70</td>
<td>Petra Theater Area, 30.322246 35.464421</td>
<td>94 (East)</td>
<td>Present, Fractures running through the façade in multiple places. Umm Ishrin Sandstone.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV:DB.04</td>
<td>No photos taken</td>
<td>BD 276</td>
<td>Wadi Farasa Area, No GPS Collected.</td>
<td>8 (North)</td>
<td>Unknown, Umm Ishrin Sandstone.</td>
<td>Interior Loculi.</td>
<td></td>
</tr>
<tr>
<td>IV:DB.05</td>
<td>No photos taken</td>
<td>BD 7</td>
<td>Wadi Musa side of Siq, 30.321685 35.464312</td>
<td>68 (Northeast)</td>
<td>Unknown due to the removal of surrounding rock. Disi Sandstone.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV:DB.07</td>
<td>No Photos taken</td>
<td>BD 30</td>
<td>Wadi Musa side of Siq, No Orientation Collected</td>
<td>No Orientation collected</td>
<td>Absent. Disi Sandstone.</td>
<td></td>
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</tr>
<tr>
<td>Code</td>
<td>Description</td>
<td>Photo</td>
<td>Location</td>
<td>Coordinates</td>
<td>Notes</td>
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<tr>
<td>IV:DB.08</td>
<td>BD 173</td>
<td></td>
<td>Petra Theater Area, 30.325504</td>
<td>35.447293 80 (East)</td>
<td>Unknown, Umm Ishrin Sandstone.</td>
<td></td>
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</tr>
<tr>
<td>IV:DB.09</td>
<td>BD 174</td>
<td></td>
<td>Petra Theater Area, 30.325631</td>
<td>35.447255 80 (East)</td>
<td>Present, Fracture running through the façade. Umm Ishrin Sandstone.</td>
<td></td>
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<tr>
<td>IV:DB.010</td>
<td>BD 303</td>
<td></td>
<td>Snake Monument Area, No GPS</td>
<td>Collected 350 (North)</td>
<td>Unknown due to the removal of surrounding stone. Umm Ishrin Sandstone.</td>
<td></td>
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</tr>
<tr>
<td>IV:DB.12</td>
<td>BD 824</td>
<td></td>
<td>Petra Theater Area, 30.324034</td>
<td>35.448764 160 (South-Southeast)</td>
<td>Absent, Umm Ishrin Sandstone.</td>
<td></td>
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</tr>
<tr>
<td>Façade Number</td>
<td>Photo Exterior</td>
<td>Photo Interior</td>
<td>Previous Number</td>
<td>Geographic Location/GPS Location</td>
<td>Cardinal Orientation</td>
<td>Fractures (Present/Absent)</td>
<td>Additional Pertinent Information</td>
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<tr>
<td>V:AR.01</td>
<td></td>
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<td>BD 124</td>
<td>Petra Theater Area, 30.323129</td>
<td>70 (East Northeast)</td>
<td>Fracture running Southeast-Northwest in front of the façade (forming a wadi). Umm Ishrin Sandstone.</td>
<td>Possible patera or medallion in the center of the arch. Possible loculi inside.</td>
</tr>
<tr>
<td>V:AR.02</td>
<td></td>
<td></td>
<td>BD 141</td>
<td>Petra Theater Area, No GPS collected</td>
<td>38 (North Northeast)</td>
<td>Fracture to the right of the façade and through the right side of the façade. Umm Ishrin Sandstone.</td>
<td>Possible rondel or medallion with human figure in center of the arch.</td>
</tr>
<tr>
<td>V:AR.03</td>
<td></td>
<td></td>
<td>BD 154</td>
<td>Petra Theater Area, No GPS collected</td>
<td>50 (Northeast)</td>
<td>Small fracture to the left of the façade. Umm Ishrin Sandstone.</td>
<td></td>
</tr>
<tr>
<td>V:AR.04</td>
<td></td>
<td></td>
<td>BD 264</td>
<td>Wadi Farasa North, 30.321915</td>
<td>230 (Southwest)</td>
<td>Two fractures through the upper part of the façade and one to the right of the façade. Umm Ishrin Sandstone.</td>
<td>Possible biclinium. Skylight above, possibly for lowering bodies into the chamber.</td>
</tr>
<tr>
<td>V:AR.06</td>
<td>No photos taken</td>
<td>BD 180</td>
<td>Petra Theater Area, 30.325857 35.446751</td>
<td>Orientation not collected.</td>
<td>Absent. Umm Ishrin Sandstone.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V:AR.07</td>
<td>No photo taken</td>
<td>BD 193</td>
<td>No GPS available</td>
<td>250 (West)</td>
<td>Fracture to the left of the façade. Small fracture to the right of the façade. Umm Ishrin Sandstone.</td>
<td></td>
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</tr>
<tr>
<td>V:AR.08</td>
<td>No photo available</td>
<td>Unknown</td>
<td>No GPS available</td>
<td>57 (Northeast)</td>
<td>Absent. Umm Ishrin Sandstone.</td>
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</tr>
<tr>
<td>V:AR.09</td>
<td>No photo available</td>
<td>Unknown</td>
<td>Wadi Turkmaniya 30.3364 35.441554</td>
<td>62 (Northeast)</td>
<td>Fracture to the left of the façade. Umm Ishrin Sandstone.</td>
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</tr>
<tr>
<td>V:AR.10</td>
<td>No photo available</td>
<td>Unknown</td>
<td>Wadi Turkmaniya 30.337445 35.44159</td>
<td>40 (Northeast)</td>
<td>Absent. Umm Ishrin Sandstone.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V:AR.12</td>
<td>No interior chamber carved</td>
<td>Unknown</td>
<td>Wadi Turkmaniya 30.336154 35.441693</td>
<td>58 (Northeast)</td>
<td>Absent, Umm Ishrin Sandstone.</td>
<td>Unfinished façade, only the upper part has been carved.</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Image</td>
<td>No photo available</td>
<td>Unknown</td>
<td>Coordinates</td>
<td>Orientation</td>
<td>Description</td>
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<tr>
<td>V:AR.13</td>
<td><img src="" alt="Image" /></td>
<td>Unknown</td>
<td>Wadi Turkmaniya 30.336098 35.441754</td>
<td>73 (East)</td>
<td>Absent. Umm Ishrin Sandstone.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V:AR.14</td>
<td><img src="" alt="Image" /></td>
<td>Unknown</td>
<td>Wadi Turkmaniya 30.335619 35.441805</td>
<td>72 (East-Northeast)</td>
<td>Absent. Umm Ishrin Sandstone.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V:AR.15</td>
<td><img src="" alt="Image" /></td>
<td>Unknown</td>
<td>Wadi Turkmaniya 30.336356 35.442426</td>
<td>220 (South-Southwest)</td>
<td>Fractures run in front of the façade. Umm Ishrin Sandstone.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V:AR.16</td>
<td><img src="" alt="Image" /></td>
<td>Unknown</td>
<td>Wadi Turkmaniya 30.336215 35.442745</td>
<td>280 (West)</td>
<td>Fractures to the left and right of the façade. Umm Ishrin Sandstone.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V:AR.17</td>
<td><img src="" alt="Image" /></td>
<td>Unknown</td>
<td>Wadi Turkmaniya 30.319876 35.442485</td>
<td>284 (West)</td>
<td>Several fractures to the left of the façade. Umm Ishrin Sandstone.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>V:AR.18</td>
<td><img src="" alt="Image" /></td>
<td>Previously unpublished?</td>
<td>Lion Triclinium Area, base of Ad-Deir Trail, 30.334962 35.438856</td>
<td>240 (Southwest)</td>
<td>Fractures to the left of the façade. Umm Ishrin Sandstone. Unexcavated interior, possible looting pits in the back of the rock cut chamber.</td>
<td></td>
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</tr>
<tr>
<td>Façade Number</td>
<td>Photo Exterior</td>
<td>Photo Interior</td>
<td>Previous Number</td>
<td>Geographic Location/GPS Location</td>
<td>Cardinal Orientation</td>
<td>Fractures (Present/Absent)</td>
<td>Additional Pertinent Information</td>
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<tr>
<td>Vla:SEF.01</td>
<td>No Photo Available</td>
<td>BD 153</td>
<td>Petra Theater Area, GPS not available.</td>
<td>62 (East-Northeast)</td>
<td>Absent. Umm Ishrin Sandstone.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vla:SEF.02</td>
<td></td>
<td>BD 99</td>
<td>Petra Theater Area, 30.323439 35.44823</td>
<td>90 (East)</td>
<td>Present, Fracture on the North-Northwest edge of the façade and on the North-Northwest side of the façade running in front of the façade. Umm Ishrin Sandstone.</td>
<td>Possible rock-cut niches or loculi shelf on the West wall (back of the rock cut chamber).</td>
<td></td>
</tr>
<tr>
<td>Vla:SEF.04</td>
<td>No Photo Available</td>
<td>BD 118</td>
<td>30.323693 35.448163</td>
<td>70 (East-Northeast)</td>
<td>Absent. Umm Ishrin Sandstone.</td>
<td></td>
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</tr>
<tr>
<td>Vla:SEF.05</td>
<td>No Photo Available</td>
<td>BD 119</td>
<td>30.323648 35.448152</td>
<td>70 (East-Northeast)</td>
<td>Absent. Umm Ishrin Sandstone.</td>
<td></td>
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</tr>
<tr>
<td>Vla:SEF.06</td>
<td>No Photo Available</td>
<td>BD 800</td>
<td>30.325141 35.448376</td>
<td>236 (Southwest)</td>
<td>Present, Fracture running Northwest-Southeast in front of the façade. Umm Ishrin Sandstone.</td>
<td></td>
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</tr>
<tr>
<td>Vla:SEF.07</td>
<td>No Photo Available</td>
<td>BD 100</td>
<td>Near Petra Theater 30.323386 35.448208</td>
<td>90 (East)</td>
<td>Fracture to the left of the façade. Umm Ishrin Sandstone.</td>
<td></td>
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</tr>
<tr>
<td>Vla:SEF.08</td>
<td>Near Petra Theater 30.323701 35.448226</td>
<td>BD 106</td>
<td></td>
<td>70 (East)</td>
<td>Fractures running in front of the façade and to the left of the façade. Umm Ishrin Sandstone.</td>
<td></td>
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</tr>
<tr>
<td>Vla:SEF.09</td>
<td>Near Petra Theater 30.323936 35.448201</td>
<td>BD 107</td>
<td>No orientation collected</td>
<td></td>
<td>Small fractures, some filled with calcite on the left side of the façade. Umm Ishrin Sandstone.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vla:SEF.10</td>
<td>Near Petra Theater, No GPS</td>
<td>BD 108</td>
<td>No orientation collected</td>
<td></td>
<td>Small fractures, some filled with calcite on the left side of the façade. Umm Ishrin Sandstone.</td>
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<tr>
<td>Vla:SEF.12</td>
<td>BD 130</td>
<td>Near Petra Theater, 30.323178 35.448213</td>
<td>70 (East-Northeast)</td>
<td>Fracture running Northwest-Southeast in front of façade creating the wadi leading to the façade. Umm Ishrin Sandstone. Cultic niche outside of façade to the right. Stairs leading to the door of the façade.</td>
<td></td>
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</tr>
<tr>
<td>Vla:SEF.13</td>
<td>BD 136</td>
<td>Near Petra Theater 30.323588 35.447994</td>
<td>70 (East-Northeast)</td>
<td>Fracture to the right of the façade. Umm Ishrin Sandstone.</td>
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</tr>
<tr>
<td>Vla:SEF.14 and Vla:SEF.15</td>
<td>BD 142 and BD 143</td>
<td>Near Petra Theater, No GPS location collected.</td>
<td>Both tombs are oriented at 38. (North-Northeast)</td>
<td>Fracture cutting through Vla:SEF.15, left side of the façade. Umm Ishrin Sandstone. Bench like structures to either side and in the front of the façade.</td>
<td></td>
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</tr>
<tr>
<td>Vla:SEF.16</td>
<td>BD 152</td>
<td>Near Petra Theater, No GPS location collected.</td>
<td>47 (Northeast)</td>
<td>Fracture on the upper right side of the façade.</td>
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<tr>
<td>Vla:SEF.17</td>
<td>No Photo Available</td>
<td>BD 156</td>
<td>Near Petra Theater, No GPS location collected.</td>
<td>56 (Northeast)</td>
<td>Absent, Umm Ishrin Sandstone.</td>
<td></td>
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<tr>
<td>Vla:SEF.18</td>
<td>No Photo Available</td>
<td>BD 157</td>
<td>Near Petra Theater, No GPS location collected.</td>
<td>52 (Northeast)</td>
<td>Absent, Umm Ishrin Sandstone.</td>
<td></td>
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<tr>
<td>Vla:SEF.19</td>
<td>No Photo Available</td>
<td>BD 159</td>
<td>Near Petra Theater, No GPS location collected.</td>
<td>42 (Northeast)</td>
<td>Absent, Umm Ishrin Sandstone.</td>
<td></td>
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<tr>
<td>Vla:SEF.20</td>
<td>No Photo Available</td>
<td>BD 178</td>
<td>Wadi Farasa Area, 30.325629 35.446881</td>
<td>No GPS Collected</td>
<td>Fractures on the left and central side of the façade. Umm Ishrin Sandstone.</td>
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<tr>
<td>Façade Number</td>
<td>Photo Exterior</td>
<td>Photo Interior</td>
<td>Previous Number</td>
<td>Geographic Location/GPS Location</td>
<td>Cardinal Orientation</td>
<td>Fractures (Present/Absent)</td>
<td>Additional Pertinent Information</td>
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<tr>
<td>VIb:DEF.01</td>
<td>No Photo Available</td>
<td>BD 270</td>
<td>No GPS Location Collected</td>
<td>340 (North)</td>
<td>Fracture to the right of the façade. Umm Ishrin Sandstone.</td>
<td>Structure has a modern door and is being reused.</td>
<td></td>
</tr>
<tr>
<td>VIb:DEF.02</td>
<td>No interior chamber</td>
<td>BD 68</td>
<td>Petra Theater Area. 30.323189 35.449575</td>
<td>30 (Northeast)</td>
<td>Several fractures to the right side of the façade. Umm Ishrin Sandstone.</td>
<td>There is no visible door or entrance associated with this façade.</td>
<td></td>
</tr>
<tr>
<td>VIb:DEF.03</td>
<td>No Photo Available</td>
<td>Previously Unpublished</td>
<td>Petra Theater Area. 30.322477 35.436478</td>
<td>No orientation collected.</td>
<td>Fractures to the left of the façade. Umm Ishrin Sandstone.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VIb:DEF.04</td>
<td>No Photo Available</td>
<td>BD 133</td>
<td>Petra Theater Area. 30.323379 35.448083</td>
<td>60 (Northeast)</td>
<td>Fracture through the center of the façade, fracture on the left side of the façade. Umm Ishrin Sandstone.</td>
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</tr>
<tr>
<td>VIb:DEF.05</td>
<td>No Photo Available</td>
<td>BD 826</td>
<td>Petra Theater Area. 30.324168 35.449277</td>
<td>246 (West-Southwest)</td>
<td>Absent. Umm Ishrin Sandstone.</td>
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<tr>
<td>Site Code</td>
<td>Image</td>
<td>Location</td>
<td>Coordinates</td>
<td>Description</td>
<td></td>
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<tr>
<td>VIb:DEF.06</td>
<td><img src="image1.jpg" alt="Image" /></td>
<td>BD 797-799</td>
<td>30.324806, 35.448482</td>
<td>Fracture running through Vib:DEF.06a. Umm Ishrin Sandstone.</td>
<td></td>
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</tr>
<tr>
<td>VIb:DEF.07</td>
<td>No Photo Available</td>
<td>BD 71</td>
<td>30.323482, 35.449343</td>
<td>Fracture present cutting through the left side of the façade, there are also fractures to the right of the façade. Umm Ishrin Sandstone.</td>
<td></td>
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<tr>
<td>VIb:DEF.08</td>
<td><img src="image2.jpg" alt="Image" /></td>
<td>BD 102</td>
<td>30.323493, 35.448273</td>
<td>Fracture to both the left and right of the façade. En eschelon array across the façade. Umm Ishrin Sandstone.</td>
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<tr>
<td>VIb:DEF.09</td>
<td><img src="image3.jpg" alt="Image" /></td>
<td>BD 103</td>
<td>30.323493, 35.448273</td>
<td>Fracture to the left and to the right of the façade. En eschelon array across the façade. Umm Ishrin Sandstone.</td>
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<tr>
<td>ID</td>
<td>Description</td>
<td>Coordinates</td>
<td>Additional Info</td>
<td>Location</td>
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<tr>
<td>VIb:DEF.10</td>
<td>Fracture to the left of the façade. Umm Ishrin Sandstone.</td>
<td>30.323575 35.448192</td>
<td>BD 104</td>
<td>Petra Theater Area.</td>
<td></td>
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</tr>
<tr>
<td>VIb:DEF.11</td>
<td>Fracture to the right side of the façade. Unknown if there is one on the right. Umm Ishrin Sandstone.</td>
<td>30.323935 35.448273</td>
<td>BD 114</td>
<td>None collected</td>
<td></td>
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</tr>
<tr>
<td>VIb:DEF.12</td>
<td>Fracture to the right side of the façade. Umm Ishrin Sandstone.</td>
<td>30.323908 35.448241</td>
<td>BD 115</td>
<td>None Collected</td>
<td></td>
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</tr>
<tr>
<td>VIb:DEF.13</td>
<td>Fracture in front of the façade, fracture down the center of the façade. Umm Ishrin Sandstone.</td>
<td>30.323765 35.448155</td>
<td>BD 117</td>
<td>70 (North-Northeast)</td>
<td></td>
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<tr>
<td>Image</td>
<td>Description</td>
<td>Coordinates</td>
<td>Fracture Details</td>
<td>Location</td>
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<tr>
<td>[Image 136x452 to 208x539]</td>
<td>No Photo Available</td>
<td>BD 132 30.32333 35.448102</td>
<td>Fracture through the left side of the façade. Umm Ishrin Sandstone.</td>
<td>Northeast</td>
<td></td>
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</tr>
<tr>
<td>[Image 136x379 to 188x448]</td>
<td>No Photo Available</td>
<td>BD 134 30.32345 35.448001</td>
<td>Absent, Umm Ishrin Sandstone.</td>
<td>East</td>
<td></td>
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</tr>
<tr>
<td>[Image 136x287 to 210x376]</td>
<td>No Photo Available</td>
<td>BD 137 30.32354 35.448076</td>
<td>Fracture to the left of the façade. Umm Ishrin Sandstone.</td>
<td>Southeast</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[Image 136x233 to 213x286]</td>
<td>No Photo Available</td>
<td>DB 150 GPS not collected</td>
<td>Fracture to the right of the façade, Fracture through the center of the façade. Umm Ishrin Sandstone.</td>
<td>North-Northeast</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>[Image 136x114 to 213x207]</td>
<td>No Photo Available</td>
<td>DB 194 Wadi Farasa Area 30.323315 35.444754</td>
<td>Fracture to the left of the façade. Umm Ishrin Sandstone.</td>
<td>West</td>
<td></td>
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<tr>
<td>Façade Number</td>
<td>Photo Exterior</td>
<td>Previous Number</td>
<td>Geographic Location/GPS Location</td>
<td>Cardinal Orientation</td>
<td>Fractures (Present/Absent)</td>
<td>Additional Pertinent Information</td>
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<tr>
<td>VIc:NEF.01</td>
<td>No Photo Available</td>
<td>BD 72</td>
<td>Near Petra Theater 30.323544 35.449355</td>
<td>72 (East-Northeast)</td>
<td>Fracture to the left and right of the façade. Fracture running down the center of the façade. Umm Ishrin Sandstone.</td>
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</tr>
<tr>
<td>VIc:NEF.02</td>
<td>No Photo Available</td>
<td>BD 146</td>
<td>Near Petra Theater. No GPS location collected</td>
<td>58 (Northeast)</td>
<td>Calcite filled fracture to the left of the façade and would have run Northwest-Southeast in front of the façade. Possible fracture to the right. Umm Ishrin Sandstone.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VIc:NEF.03</td>
<td></td>
<td>BD 828</td>
<td>Near Petra Theater 30.323942 35.449303</td>
<td>268 (West)</td>
<td>Fracture running through the center of the façade. Umm Ishrin Sandstone.</td>
<td>Door appears to be absent, although it may be buried.</td>
<td></td>
</tr>
<tr>
<td>VIc:NEF.04</td>
<td>Previously unpublished?</td>
<td></td>
<td>Wadi Turkmaniya 30.335786 35.44158</td>
<td>50 (Northeast)</td>
<td>Fracture running in front of façade from Northwest to Southeast. Umm Ishrin Sandstone.</td>
<td>Part of a potential burial complex with additional structures and a temenos courtyard.</td>
<td></td>
</tr>
<tr>
<td>Façade Number</td>
<td>Photo Exterior</td>
<td>Photo Interior</td>
<td>Previous Number</td>
<td>Geographic Location/GPS Location</td>
<td>Cardinal Orientation</td>
<td>Fractures (Present/Absent)</td>
<td>Additional Pertinent Information</td>
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<tr>
<td>VIIa:CF.01</td>
<td>No Photo Available</td>
<td>No Photo Available</td>
<td>BD 160</td>
<td>Petra Theater, No GPS location was collected</td>
<td>48 (Northeast)</td>
<td>Absent, Umm Ishrin Sandstone.</td>
<td>Facades to the right of this one have been removed due to the carving of the Petra Theater.</td>
</tr>
<tr>
<td>VIIa:CF.02</td>
<td>No Photo Available</td>
<td>Previously Unpublished</td>
<td>30.331156, 35.436422</td>
<td>No Orientation collected</td>
<td>Absent, Umm Ishrin Sandstone.</td>
<td>Fractures to the right of the façade. Umm Ishrin Sandstone.</td>
<td></td>
</tr>
<tr>
<td>VIIa:CF.03</td>
<td>No Photo Available</td>
<td>BD 120</td>
<td>30.323613, 35.448109</td>
<td>70 (East-Northeast)</td>
<td>Absent, Umm Ishrin Sandstone.</td>
<td></td>
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</tr>
<tr>
<td>VIIa:CF.05</td>
<td>No Interior Chamber</td>
<td>BD 16</td>
<td>Disi Sandstone, Near Wadi Musa, GPS location not collected</td>
<td>Compass orientation not collected</td>
<td>Absent, Disi Sandstone.</td>
<td></td>
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<tr>
<td>Façade Number</td>
<td>Photo Exterior</td>
<td>Photo Interior</td>
<td>Previous Number</td>
<td>Geographic Location/GPS Location</td>
<td>Cardinal Orientation</td>
<td>Fractures (Present/Absent)</td>
<td>Additional Pertinent Information</td>
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<tr>
<td>VIIb:CF.01</td>
<td></td>
<td></td>
<td>BD 12</td>
<td>30.32246 35.463406 Near Wadi Musa</td>
<td>78 (East)</td>
<td>Absent, Disi Sandstone.</td>
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<tr>
<td>VIIb:CF.02</td>
<td>No Photos</td>
<td>BD 67,</td>
<td></td>
<td>Between El Khazneh and the</td>
<td>30 (North-Northeast)</td>
<td>Large fracture running in front of the tomb. Umm Ishrin Sandstone.</td>
<td></td>
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<tr>
<td></td>
<td>Available</td>
<td>&quot;Thieves Tomb&quot;</td>
<td></td>
<td>Petra Theater 30.323215 35.449607</td>
<td></td>
<td></td>
<td>This structure has a unique second story chamber. Only a few other facades in Petra have this feature.</td>
</tr>
<tr>
<td>VIIb:CF.03</td>
<td>No Photos</td>
<td>BD 128</td>
<td></td>
<td>Near Petra Theater 30.322863 35.448153</td>
<td>244 (Southwest)</td>
<td>Fractures to the left and the right of the façade. Umm Ishrin Sandstone.</td>
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<td></td>
<td>Available</td>
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<tr>
<td>VIIb:CF.04</td>
<td>No Photos</td>
<td>BD 105</td>
<td></td>
<td>Near Petra Theater 30.323627 35.448328</td>
<td>76 (East)</td>
<td>Absent. Umm Ishrin Sandstone.</td>
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<td></td>
<td>Available</td>
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<tr>
<td>VIIb:CF.05</td>
<td>No Photos</td>
<td>Unknown</td>
<td></td>
<td>30.321259 35.435543</td>
<td>Orientation not collected</td>
<td>Absent, Umm Ishrin Sandstone.</td>
<td></td>
</tr>
<tr>
<td>Site</td>
<td>Photos Available</td>
<td>Latitude</td>
<td>Longitude</td>
<td>Orientation</td>
<td>Notes</td>
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<tr>
<td>VIIb:CF.06</td>
<td>No Photos Available</td>
<td>30.321283 35.435211</td>
<td>Unknown</td>
<td>Orientation not collected</td>
<td>Umm Ishrin Sandstone, fractures to the left of the façade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VIIb:CF.07</td>
<td>BD 805</td>
<td>30.325469 35.448717</td>
<td>Jebel Hubis (Northwest)</td>
<td>330</td>
<td>Fractures in the center and at the left side of the façade. Umm Ishrin Sandstone.</td>
<td></td>
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<tr>
<td>Façade Number</td>
<td>Photo Exterior</td>
<td>Photo Interior</td>
<td>Previous Number</td>
<td>Geographic Location/GPS Location</td>
<td>Cardinal Orientation</td>
<td>Fractures (Present/Absent)</td>
<td>Additional Pertinent Information</td>
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<td>VIIc:CF.01</td>
<td></td>
<td></td>
<td>BD 825</td>
<td>Near Petra Theater 30.324064</td>
<td>260 (West)</td>
<td>Absent, Umm Ishrin Sandstone</td>
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<td>35.448568</td>
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<tr>
<td>VIIc:CF.02</td>
<td></td>
<td></td>
<td>BD 6</td>
<td>Near Wadi Musa, 30.322535</td>
<td>241 (West Southwest)</td>
<td>One fracture in front of the façade, running North Northwest to South Southeast. Disi Sandstone.</td>
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<td></td>
<td>35.464198</td>
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<tr>
<td>VIIc:CF.03</td>
<td>No Photo Available</td>
<td>Unknown</td>
<td></td>
<td>Wadi Turkmaniya 30.335519</td>
<td>154 (Southeast)</td>
<td>Fractures to the left of the façade. Umm Ishrin Sandstone.</td>
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<td>35.441355</td>
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<tr>
<td>VIIc:CF.04</td>
<td></td>
<td></td>
<td>BD 64</td>
<td>Near el Khazneh 30.322468</td>
<td>240 (West Southwest)</td>
<td>Absent, Umm Ishrin Sandstone.</td>
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<td>35.451429</td>
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<td>Code</td>
<td>No Photo Available</td>
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<td>Fractures</td>
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<td>VIIc:CF.05</td>
<td>No Photo Available</td>
<td>BD 138</td>
<td>Petra Theater Area 30.323977 35.447952 65 (Northeast)</td>
<td>Fractures on both the left and right side of the façade. Umm Ishrin Sandstone</td>
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<td>VIIc:CF.06</td>
<td>No Photo Available</td>
<td>BD 676</td>
<td>Wadi Mataha 30.335913 35.455975 76 (East Northeast)</td>
<td>Fractures run in front of the façade North northwest to South southeast. Umm Ishrin Sandstone</td>
<td>Excavated by Dr. David Johnson. Human remains recovered from interior loculi.</td>
<td></td>
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<tr>
<td>VIIc:CF.07</td>
<td>No Photo Available</td>
<td>BD 653</td>
<td>Wadi Mataha GPS location not collected 248 (West Southwest)</td>
<td>Fractures run through the entire façade. Umm Ishrin Sandstone</td>
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<tr>
<td>VIIc:CF.08</td>
<td>No Photo Available</td>
<td>BD 624</td>
<td>Wadi Mataha GPS location not collected 162 (South)</td>
<td>Absent, Umm Ishrin Sandstone</td>
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<tr>
<td>Site Code</td>
<td>Location</td>
<td>Coordinates</td>
<td>Orientation</td>
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<tr>
<td>VIIc:CF.09</td>
<td>BD 813, &quot;Uneshu Tomb&quot;</td>
<td>30.32471, 35.448986</td>
<td>260 (West)</td>
<td>Absent, Umm Ishrin Sandstone. Excavated by Manfred Lindner, Human remains and burial goods recovered. Inscription found by Gray Hill linking the tomb to Uneishu.</td>
<td></td>
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<tr>
<td>VIIc:CF.10</td>
<td>BD 226</td>
<td>Wadi Farasa 30.323728, 35.445326</td>
<td>252 (West)</td>
<td>Fracture on the left of the façade. Umm Ishrin Sandstone.</td>
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<th>Façade Number</th>
<th>Photo Exterior</th>
<th>Photo Interior</th>
<th>Previous Number</th>
<th>Geographic Location/GPS Location</th>
<th>Cardinal Orientation</th>
<th>Fractures (Present/Absent)</th>
<th>Additional Pertinent Information</th>
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<tr>
<td>VIII:TPF.01</td>
<td>Urn Tomb, BD 772</td>
<td></td>
<td>No Photo</td>
<td>Jebel Khubtha 30.327546 35.44907</td>
<td>258 (West)</td>
<td>Absent, Umm Ishrin Sandstone.</td>
<td>Converted to a Christian sanctuary, Upper rock cut chambers were excavated.</td>
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<tr>
<td>VIII:TPF.02</td>
<td>No Photo Available</td>
<td>Renaissance Tomb, BD 229</td>
<td>No Photo</td>
<td>Wadi Farasa, No GPS location collected</td>
<td>250 (West)</td>
<td>Absent, Umm Ishrin Sandstone.</td>
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<tr>
<td>VIII:TPF.03</td>
<td>No Photo Available</td>
<td>BD 452 Lion Triclinium</td>
<td>Trail to Ad-Deir Monument 30.335118 35.438725</td>
<td>135 (Southeast)</td>
<td>Faust to the left of the façade. Umm Ishrin Sandstone.</td>
<td></td>
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<tr>
<td>VIII:TPF.04</td>
<td>BD 763 Tomb of Sextius Florintinus</td>
<td>Wadi Mataha, No GPS location collected.</td>
<td>No Compass Orientation Collected.</td>
<td>Faults and fractures running through the fault. There is a fault with offset in the decoration of the façade. Umm Ishrin Sandstone.</td>
<td>This façade has an inscription in Latin dedicating it to the Roman Governor Sextius Florintinus.</td>
<td></td>
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<tr>
<td>VIII:TPF.05</td>
<td>al-Najr Tomb, BD 258</td>
<td>Wadi Farasa, No GPS location collected</td>
<td>064 (East Northeast)</td>
<td>Absent, Umm Ishrin Sandstone.</td>
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<tr>
<td>VIII:TPF.06</td>
<td>BD 253</td>
<td>Wadi Farasa, No GPS location collected</td>
<td>332 (Northwest)</td>
<td>Fractures to the left and right of the façade. Umm Ishrin Sandstone.</td>
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<tr>
<td>VIII:TPF.07</td>
<td>BD 259</td>
<td>Wadi Farasa, No GPS location collected</td>
<td>330 (Northwest)</td>
<td>Fracture to the right of the façade. Disi Sandstone.</td>
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<tr>
<td>VIII:TPF.08</td>
<td>Soldier's Tomb</td>
<td>Wadi Farasa, No GPS location collected</td>
<td>348 (North)</td>
<td>Fracture through the left part of the façade. Interior cleared by George Horsfield, Exterior structures excavated by Stephen Schmid</td>
<td></td>
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<tr>
<td>VIII:TPF.09</td>
<td>BD 76</td>
<td>Petra Theater Area 30.323486, 35.448636</td>
<td>350 (North)</td>
<td>Absent, Umm Ishrin Sandstone.</td>
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<tr>
<td>VIII:TPF.010</td>
<td>BD 148</td>
<td>Petra Theater Area, GPS location not collected</td>
<td>Orientation not collected</td>
<td>Fracture to the right of the façade and one through the center of the edifice. Umm Ishrin Sandstone.</td>
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<tr>
<td>ID</td>
<td>Location</td>
<td>Name</td>
<td>Coordinates</td>
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<tr>
<td>VIII:TPF.11</td>
<td>BD 731</td>
<td>No Interior Chamber.</td>
<td>Jebel Khubtha, GPS location not collected, 298 (Northwest)</td>
<td>Fracture running in front of the façade (Northeast to Southwest). Umm Ishrin Sandstone.</td>
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<tr>
<td>VIII:TPF.12</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Jebel Hubis 30.329543 35.438275, 55 (Northeast)</td>
<td>Fracture through the center of the façade and to the right of the façade. Umm Ishrin Sandstone.</td>
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<tr>
<td>VIII:TPF.13</td>
<td>Unknown</td>
<td>Unknown</td>
<td>Jebel Hubis 30.329448 35.438033, 65 (East Northeast)</td>
<td>Calcite filled fracture through the upper right side of the façade. Umm Ishrin Sandstone.</td>
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<tr>
<td>VIII:TPF.14</td>
<td>BD 846</td>
<td>BD 846</td>
<td>Beidha 30.375128 35.450891, Orientation not collected</td>
<td>Absent, Disi Sandstone</td>
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<tr>
<td>Façade Number</td>
<td>Photo Exterior</td>
<td>Photo Interior</td>
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<td>Geographic Location/GPS Location</td>
<td>Cardinal Orientation</td>
<td>Fractures (Present/Absent)</td>
<td>Additional Pertinent Information</td>
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<tr>
<td>IX:BPF.01</td>
<td></td>
<td></td>
<td>Tomb of the Broken Pediment</td>
<td>Wadi Farasa GPS location not collected</td>
<td>335 (Northwest)</td>
<td>Fracture to the left of the façade and through the lower left portion of the façade. Umm Ishrin Sandstone.</td>
<td>Interiord cleared by Fawzi Zayadine. Additional excavations on the plateau being undertaken by the BYU Ad-Deir Monument and Plateau Project.</td>
</tr>
<tr>
<td>IX:BPF.02</td>
<td></td>
<td></td>
<td>Ad-Deir Monument</td>
<td>Ad Deir Plateau 30.338124 35.430813</td>
<td>238 (Southwest)</td>
<td>Absent, however, Ad-Deir is carved on a block bounded by four fractures/faults. Umm Ishrin Sandstone</td>
<td></td>
</tr>
<tr>
<td>IX:BPF.03</td>
<td>No Photo Available</td>
<td></td>
<td>BD 766 Corinthian Tomb</td>
<td>Jebel Khubtha 30.32839 35.44942</td>
<td>270 (West)</td>
<td>Highly fractured façade. Umm Ishrin Sandstone</td>
<td></td>
</tr>
<tr>
<td>IX:BPF.04</td>
<td>No Photo Available</td>
<td></td>
<td>BD 34 Bab al-Siq Triclinium</td>
<td>Near Wadi Musa 30.32121 35.46333</td>
<td>330 (Northwest)</td>
<td>Absent, Disi sandstone.</td>
<td></td>
</tr>
<tr>
<td>IX:BPF.05</td>
<td>No Photo Available</td>
<td></td>
<td>BD 62 El Khazneh</td>
<td>30.3223 35.451737</td>
<td>64 (Northeast)</td>
<td>Major fracture running Northwest Southeast across the façade. Umm Ishrin Sandstone.</td>
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<tr>
<td>Facade Number</td>
<td>Photo Exterior</td>
<td>Photo Interior</td>
<td>Previous Number</td>
<td>Geographic Location/GPS Location</td>
<td>Cardinal Orientation</td>
<td>Fractures (Present/Absent)</td>
<td>Additional Pertinent Information</td>
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<tr>
<td>X:ADF.01</td>
<td></td>
<td></td>
<td>BD 466</td>
<td>Ad-Deir Plateau 30.340237 35.43021</td>
<td>260 (West)</td>
<td>Fracture to the right of the camel relief. Another fracture to the right of the door.</td>
<td>Camel relief carved to the right (South) of the façade.</td>
</tr>
<tr>
<td>X:ADF.02</td>
<td></td>
<td></td>
<td>Qattar Ad-Deir</td>
<td>Ad-Deir Plateau 30.336111 35.436944</td>
<td>No Compass Orientation.</td>
<td>Fault in front of the façade creates the wadi the façade was carved into. Umm Ishrin Sandstone</td>
<td>Many carved niches and inscriptions to the right of this rock-cut chamber. The room is next to a spring and architecture for water collection.</td>
</tr>
<tr>
<td>X:ADF.03</td>
<td></td>
<td></td>
<td>Previously Unpublished?</td>
<td>Petra Theater Area 30.324444 35.446123</td>
<td>336 (North northwest)</td>
<td>Fracture over the door of the chamber. Umm Ishrin Sandstone</td>
<td>Serpent carved on the interior chamber wall (direction)</td>
</tr>
<tr>
<td>X:ADF.04</td>
<td>BD 729</td>
<td>Jebel Khubtha GPS Location not collected.</td>
<td>328 (Northwest)</td>
<td>Absent, Umm Ishrin Sandstone</td>
<td>Triclinium</td>
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<tr>
<td>X:ADF.05</td>
<td>Unknown</td>
<td>Jebel Hubis 30.328959 35.438135</td>
<td>60 (Northeast)</td>
<td>Fracture in front of façade running Southeast to Northwest. Umm Ishrin Sandstone</td>
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<tr>
<td>Façade Number</td>
<td>Photo Exterior</td>
<td>Photo Interior</td>
<td>Previous Number</td>
<td>Geographic Location/GPS Location</td>
<td>Cardinal Orientation</td>
<td>Fractures (Present/Absent)</td>
<td>Additional Pertinent Information</td>
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<tr>
<td>XI:HHF.01</td>
<td></td>
<td></td>
<td>Garden Room</td>
<td>Wadi Farasa 30.320422. 35.445492</td>
<td>Cardinal Orientation not collected.</td>
<td>Fracture to the right of the façade. Umm Ishrin Sandstone.</td>
<td>Molded plaster on the left side of the façade. Area around the façade shows signs of quarrying.</td>
</tr>
<tr>
<td>XI:HHF.02</td>
<td></td>
<td></td>
<td>Unknown</td>
<td>Beidha 30.374292 35.448342</td>
<td>358 (North)</td>
<td>Fracture to the left of the façade. Umm Ishrin Sandstone.</td>
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<tr>
<td>XI:HHF.03</td>
<td></td>
<td>Interior of main rock-cut room inaccessible</td>
<td>BD 847</td>
<td>Beidha 30.374576 35.449545</td>
<td>340 (North)</td>
<td>Fracture to the left of the façade. Umm Ishrin Sandstone.</td>
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<tr>
<td>XI:HHF.04</td>
<td></td>
<td>Interior never finished, inaccessible</td>
<td>BD 396</td>
<td>GPS location not collected</td>
<td>85 (East)</td>
<td>Fractures to the left and right of the façade. Umm Ishrin Sandstone.</td>
<td>Unfinished façade.</td>
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<tr>
<td>Code</td>
<td>Unknown</td>
<td>Location</td>
<td>Absent, Umm Ishrin Sandstone</td>
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<tr>
<td>XI:HHF.05</td>
<td>Unknown</td>
<td>Beidha, 30.374044 35.448575</td>
<td>162 (South)</td>
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<tr>
<td>XI:HHF.06</td>
<td>Unknown</td>
<td>Beidha, 30.374089 35.448587</td>
<td>162 (South)</td>
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<tr>
<td>XI:HHF.07</td>
<td>Unknown</td>
<td>Beidha, 30.374064 35.448492</td>
<td>162 (South)</td>
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<tr>
<td>Façade Number</td>
<td>Photo Exterior</td>
<td>Photo Interior</td>
<td>Previous Number</td>
<td>Geographic Location/GPS Location</td>
<td>Cardinal Orientation</td>
<td>Fractures (Present/Absent)</td>
<td>Additional Pertinent Information</td>
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<td>XII:LCF.01</td>
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<td>BD 184</td>
<td>Between Petra Theater and Wadi Farasa 30.326234 35.446397</td>
<td>328 (Northwest)</td>
<td>Fracture to the right of the façade. Umm Ishrin Sandstone.</td>
<td>The window at the top of the façade opens into the same chamber as the door.</td>
</tr>
<tr>
<td>XII:LCF.02</td>
<td></td>
<td></td>
<td>Unknown</td>
<td>Above Petra Theater 30.324446 35.445988</td>
<td>345 (North)</td>
<td>Fracture to the right of the façade, possibly running East-West behind the façade itself. Umm Ishrin Sandstone.</td>
<td>The Ceiling and façade of the room are partially collapsed.</td>
</tr>
<tr>
<td>XII:LCF.03</td>
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<td>BD 758</td>
<td>Wadi Mataha No GPS location collected</td>
<td>264 (West)</td>
<td>Absent, Umm Ishrin Sandstone.</td>
<td>Triclinium.</td>
</tr>
<tr>
<td>XII:LCF.04</td>
<td>No Photo Available</td>
<td></td>
<td>BD 757</td>
<td>Wadi Mataha No GPS location collected</td>
<td>274 (West)</td>
<td>Absent, Umm Ishrin Sandstone.</td>
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<td>XII:LCF.05</td>
<td>Unknown</td>
<td>Jebel Hubis 30.328599 35.438542</td>
<td>250 (West Southwest)</td>
<td>Absent, Umm Ishrin Sandstone.</td>
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<tr>
<td>XII:LCF.06</td>
<td>Unknown</td>
<td>Jebel Hubis 30.328623 35.438262</td>
<td>250 (West Southwest)</td>
<td>Fracture to upper part of doorway. Potential fracture to the right of the façade. Umm Ishrin Sandstone.</td>
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<tr>
<td>XII:LCF.07</td>
<td>Unknown</td>
<td>Jebel Hubis 30.328802 35.438339</td>
<td>235 (Southwest)</td>
<td>Absent, Umm Ishrin Sandstone.</td>
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<tr>
<td>XII:LCF.08</td>
<td>Unknown</td>
<td>Jebel Hubis 30.328546 35.438499</td>
<td>240 (Southwest)</td>
<td>Fractures on the right side of the façade. Umm Ishrin Sandstone</td>
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<tr>
<td>XII:LCF.09</td>
<td>BD 804</td>
<td>Jebel Khubtha 30.325532 35.448687</td>
<td>256 (West)</td>
<td>Absent, Umm Ishrin Sandstone. The upper most window is a separate room</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>Walls and ceilings were plastered in antiquity. The plaster is damaged by smoke, but may have once been painted.</td>
</tr>
<tr>
<td>Façade Number</td>
<td>Photo Exterior</td>
<td>Photo Interior</td>
<td>Previous Number</td>
<td>Geographic Location/GPS Location</td>
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<tr>
<td>XIII:MF.01</td>
<td></td>
<td>No interior carved</td>
<td>Previously unpublished</td>
<td>GPS Location not Collected</td>
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<tr>
<td>XIII:MF.02</td>
<td>No Photo Available</td>
<td>BD 273</td>
<td>GPS Location not Collected</td>
<td>330 (Northwest)</td>
</tr>
<tr>
<td>XIII:MF.03</td>
<td>No Photo Available</td>
<td>Obelisk Tomb</td>
<td>Near Wadi Musa 30.32121 35.46333</td>
<td>330 (Northwest)</td>
</tr>
<tr>
<td>XIII:MF.04</td>
<td>Colombarium</td>
<td>GPS Location not Collected</td>
<td>90 (East)</td>
<td>Several fractures run through this façade. Umm Ishrin Sandstone.</td>
</tr>
<tr>
<td>Site Code</td>
<td>Location</td>
<td>Façade Description</td>
<td>Orientation Details</td>
<td>Stone Details</td>
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<tr>
<td>XIII:MF.05</td>
<td>BD 765 Palace Tomb</td>
<td>Several fractures in this façade, especially on the right side. Umm Ishrin Sandstone</td>
<td>308 (West Northwest)</td>
<td>This façade is partially carved and partially constructed.</td>
</tr>
<tr>
<td>XIII:MF.06</td>
<td>No Photo Available</td>
<td>Fracture on the right side of the façade. Umm Ishrin Sandstone</td>
<td>80 (East)</td>
<td>Part of a funerary complex</td>
</tr>
<tr>
<td>XIII:MF.07</td>
<td>Unknown</td>
<td>Fracture on the left side of the block of stone this façade was carved in. Umm Ishrin Sandstone</td>
<td>160 (Southeast)</td>
<td></td>
</tr>
<tr>
<td>XIII:MF.08</td>
<td>Unknown</td>
<td>Buried structure. There is an entrance ramp leading down to this carved structure.</td>
<td>Cardinal Orientation not collected.</td>
<td>Absent, Umm Ishrin Sandstone</td>
</tr>
</tbody>
</table>