

## EXTRAORDINARY REVELATIONS FROM THE 2008 BROWN UNIVERSITY PETRA GREAT TEMPLE EXCAVATIONS

*Martha Sharp Joukowsky*

In 2008, Brown University Petra Great Temple archaeologists excavated several trenches focusing on the West Perimeter Wall, which included investigation of the Roman-Byzantine Bath Complex to the west of the Great Temple. Not only was astonishing architecture recovered, but noteworthy sculpture as well.

Brown University archaeologists included director Martha Sharp Joukowsky and photographer Artemis A.W. Joukowsky; trench supervisor Eleanor A. Power served as a most valued staff member, assisted by Süreya M. Köprülü. The author prepared the catalogue, and Rune Frederiksen spent the season researching the theater-in-the-temple, assisted by Elizabeth Gebhard. Marshall C. Agnew provided surveying expertise, and Susan A. Alcock and Ian Straughen, Christopher A. Tuttle and Donald Keller volunteered their services. The excavations took place between June 14 and July 3 2008. Our excellent Jordanian Department of Antiquities representative was Samia Falahat, and Suleiman Farajat and Mohammad Abdel Aziz al-Marahleh were also most attentive to our needs.

Built by the Nabataeans and situated in the very center of the spectacular landscape of Petra, the Great Temple is the religious and administrative focal point of the Nabataean capital. The Great Temple consists of a network of buildings organized on a series of terraces with the temple situated on the highest terrace; the middle terrace serves as the Lower Temenos which extends down to the Propylaeum, with a further drop down to the Roman Road. To the east are landscaped gardens, the Nabataean Garden Pool Complex, and to the west and beyond the temple precinct is the Small Temple, a Roman Imperial Cult Building, constructed post-annexation in

the second century AD.

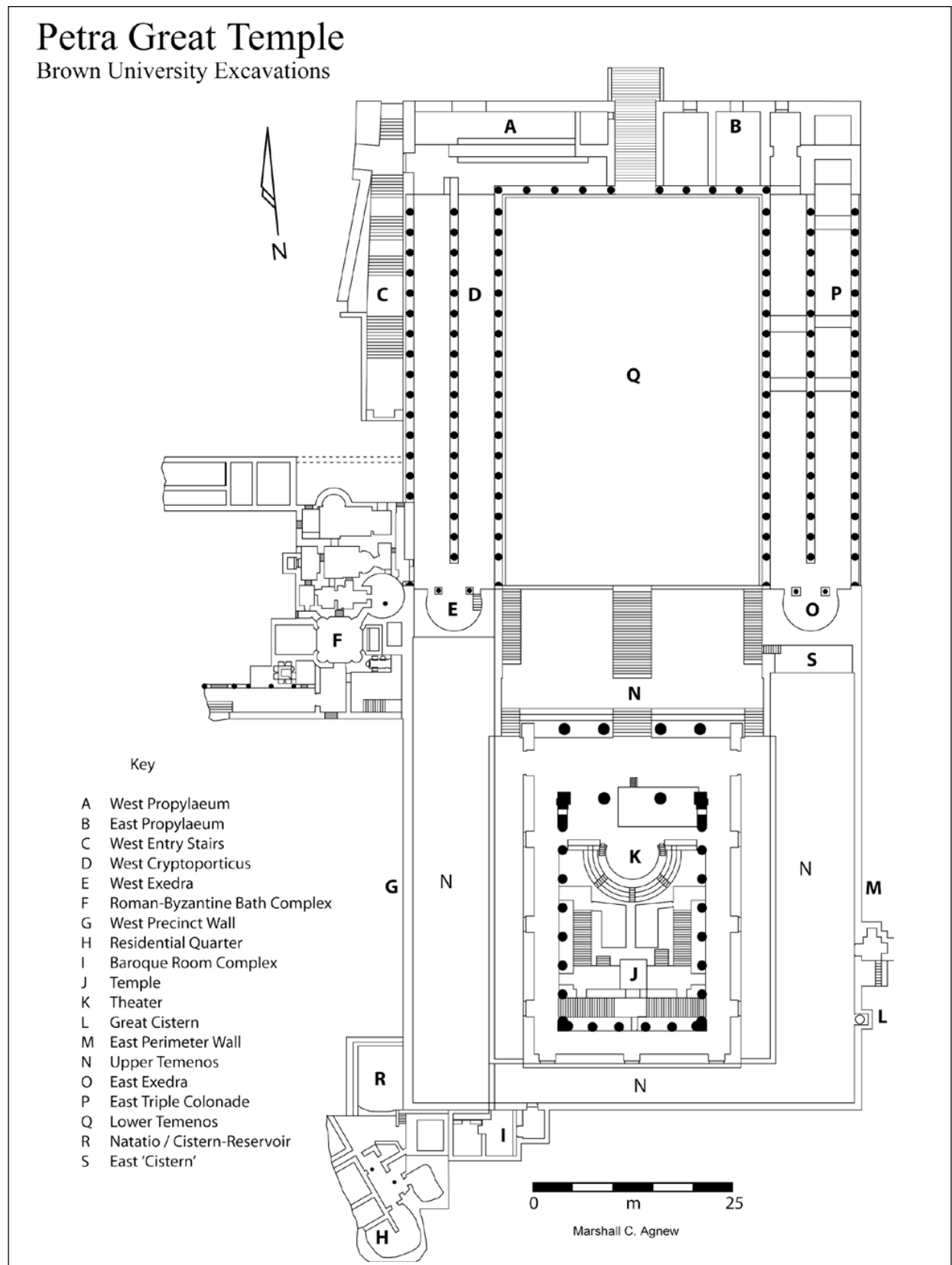
The Great Temple Roman-Byzantine Baths are sited between the Great Temple area and the West Perimeter Wall. The massive West Perimeter Wall serves as the west perimeter of the Great Temple precinct. This monumental construction remained unexcavated until the 2008 Brown University field season. Additional significant features of the Roman-Byzantine Bath Complex had been a priority from previous excavations -- we wanted to ascertain their relationship to the structures we had already uncovered as well as to the Baths-Palatial Complex excavated in the 1960s by the Department of Antiquities. **Fig. 1** is a 2006 plan of the site with major areas referred to in this report, and **Fig. 2** is a provisional 2008 plan showing the trenches excavated.

In 2008 we initiated excavations which partially uncovered the West Perimeter Wall, which physically separates the Great Temple precinct from the Small Temple lying below. Previous excavations at the Roman-Byzantine Bath Complex, covering 908.80m<sup>2</sup> had hinted at more standing architecture associated with it. The results provided important information, including a clearer plan of the baths and their spatial development, as well as a better understanding of the Petra urban layout.

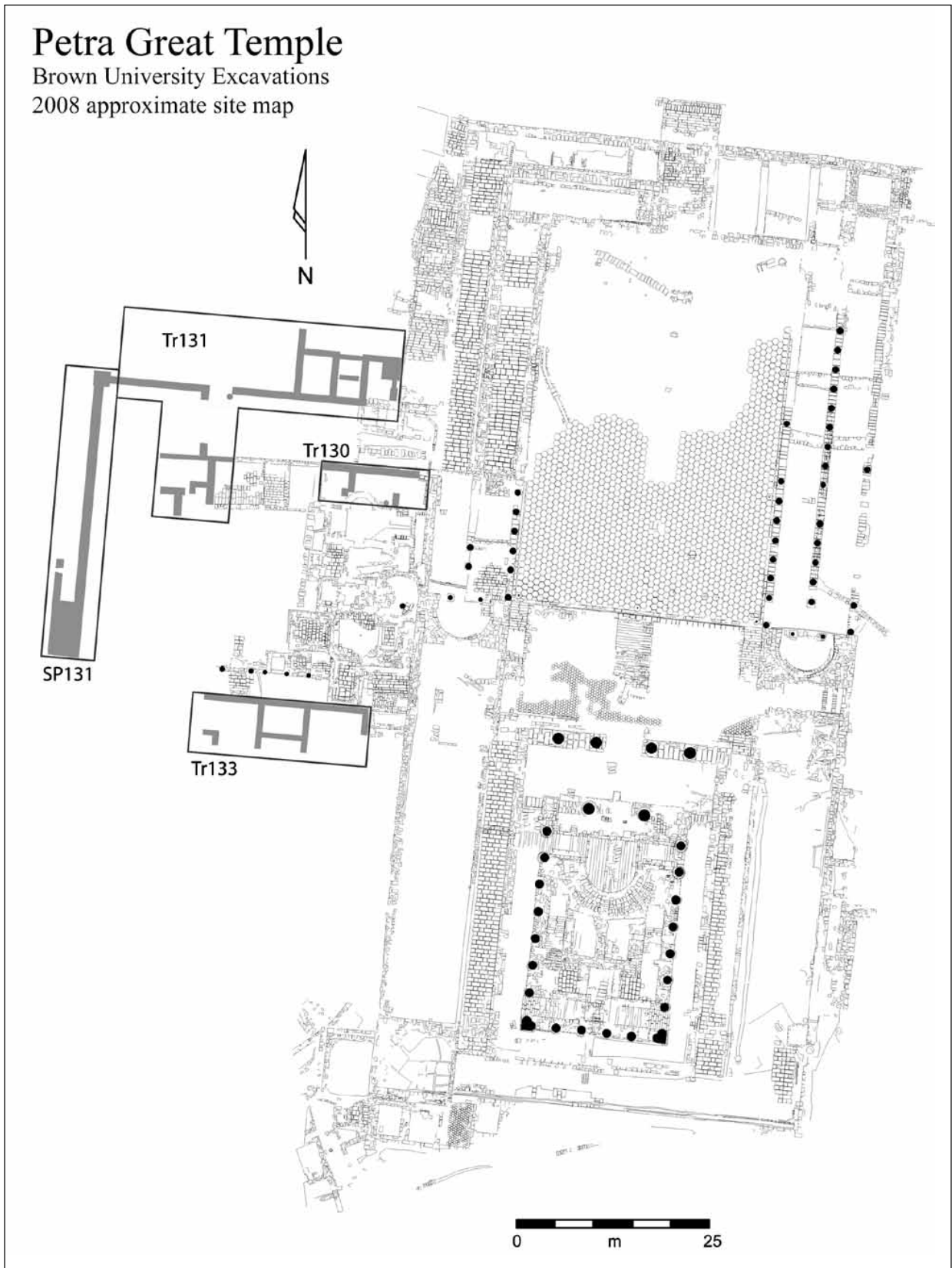
The following discussion deals first with the West Perimeter Wall excavations and the sculpture recovered, moves on to a discussion of the Roman-Byzantine Bath Complex and concludes with a summary of our inter-season activities.

### **2008 Sponsors**

This campaign would not have been possible without the generous assistance of the Jordanian Department of Antiquities, its Director Dr Fawwaz al-Kraysheh, director of the Petra National



1. Plan of the Great Temple with major features indicated (Marshall C. Agnew).



2. Site Map of the Great Temple with 2008 trenches indicated (Marshall C. Agnew).

Park Suleiman Farajat, and Samia Falahat, our Department of Antiquities representative. The American Center of Oriental Research, especially director Barbara A. Porter, was also most helpful with logistics. We would also like to express our gratitude to Brown University and for the generous assistance of the Luther I. Replogle Foundation for making this season possible. We would also like to thank our Foreman, Dakhilallah Qublan, and his intrepid son, Mohammad, for their constant help in the field and direction of 20 workmen.

### West Perimeter Wall

The site topography is irregular with the underlying bedrock falling away to the west. The Nabataean creation of a level building surface for the temple was achieved by cutting away 12m of bedrock on the south-east of the temple, and constructing support walls on the west where bedrock was lacking. For the Lower Temenos, the situation was complicated, for massive amounts of fill had to be brought in to create a level platform. This necessity explains the build-up of the temple's west precinct and the need for a West Perimeter Wall to serve as a retaining wall for the Lower and Upper Temene fill.

Special Project 131 was excavated by the author. The West Perimeter Wall, shown in **Fig. 3**, is oriented north-south and appears as a massive element in the west flank of the temple precinct, separating it from the remaining elements of the west city. It is parallel to the longitudinal axis of the Great Temple site, and its foundations rest at the same elevation as the Small Temple, or approximately 3m below the Great Temple Lower Temenos. This Special Project measured approximately 34m north-south x 3.10m east-west, and approximately 100m<sup>3</sup> were excavated.

The top of the extant West Perimeter Wall

rests at the same elevation as the platform of the Roman-Byzantine Bath Complex. At the outset of excavation four to five courses of the great wall were exposed on its west, as well as to the north. The anatomy of the wall shows that just above its foot, it is composed of enormous Nabataean sandstone mega-ashlars, laid over a much larger width of wall. Although we have not reached the foundation of the wall we suspect that it will result in at least two or three more massive ashlar courses -- a substantial foundation for the 34m length we have already excavated.

The wall is constructed with a substantial rounded buttress at its north end. As excavated, it stands eight courses in height or 2.55m below its elevation as originally found; its length is 33.90m north-south. Its width is difficult to ascertain because its east face rests against the earth embankment fill of the Roman-Byzantine Baths. At its north end, where it is freestanding, it is approximately 2.60m in width; 10m from the north it is approximately 1.80m in width.

It is comprised of two courses of regularly laid, large hewn sandstone ashlar set as stretchers with some snecking stones. The upper wall courses are carefully laid ashlar of intermixed stretchers and headers. The typical ashlar of the lower courses excavated measures 1.20m length x 0.60m wide x 0.30m high. As a casemate construction, it is two rows in width, with a wide center core of once wet rubble fill that appears to surround a hollowed out core, which might possibly have served for the passage of water. Water could have flowed through this passage from the as yet unexcavated south portion of the wall, exiting to the north (and may have supplied the west Baths-Palatial Complex). There has been constant, erosive attrition to the upper wall courses, and its structural integrity has been compromised; the upper ashlar have been



3. West Perimeter Wall to the east, Special Project 130 (Artemis W. Joukowsky).

badly battered over time, there is slippage of some blocks, and others have broken or fallen away from the wall fabric. The wall's construction also degrades in the middle with ashlar and rubble fill that have slumped out of place. It appears to have been dry-laid, but there are some indications that a mortar was employed for bonding specific areas. Now lacking its original support, this wall is slumping to the west and its condition is fragile.

Thus, the West Perimeter Wall, dating to the mid-first century BC or Great Temple Site Phase II (Stage 1), is situated west of the temple, separating the temple Roman-Byzantine Baths precinct from the Small Temple-Roman Imperial Cult Building (located further west, outside and beyond the Great Temple precinct). The lower courses of this wall are characteristic of the earliest Nabataean walls at the Great Temple, particularly the Portico Wall of the Propylaeum and the two east west walls of the Roman-Byzantine Baths. The wall's earliest phase, Site Phase II or mid-first century BC, is interrelated with the original design plan of the precinct when the position and building of a massive wall served to retain the fill that was deposited to build up and level the area.

Stage 2 of this wall's history took us by surprise, as courses of alternating blocks and voussoirs were added into the matrix of the West Perimeter Wall in Site Phase IV (first century BC to first century AD). These voussoirs spring to the west, and those that are prominent number eight along the west face of the wall; others at the north end of the wall have either eroded away, fallen in earthquake tremors, or may indicate that the vaults did not exist at all at the north end of the wall, but were inserted some 10.40m from the north. This new structure absorbed the earlier wall, and produced a vaulted cryptoporticus.

The east face of the West Perimeter Wall of Site Phase II (mid-first century BC) was then reformatted in the Grand Design of Site Phase IV (Stage 2), or first century BC-first century AD.

#### *West Cryptoporticus Wall*

To the west and parallel to the West Precinct Wall lies the west cryptoporticus wall, serving as the west wall of the cryptoporticus, which postdates the earlier Stage 1 West Perimeter

Wall. During excavation it was evident that the north portion of this wall had collapsed in antiquity, for along a 26.80m length starting at the north end of the West Perimeter Wall, only one single sandstone ashlar course was recovered. This was probably due to the collapse of the West Perimeter Wall, which fell to the west, carrying the upper portions of this wall with it. Excavated to seven courses in height, this case-mate wall is two ashlar rows in thickness with a central core of rubble; it measures 12.20m in north-south length and 1m in width. Its preserved height in the north is 1.08m, but with the vaults its excavated height is 2.55m. The well-hewn ashlars average 0.72 m in length x 0.37m in width x 0.37m in thickness, and are set with snecking stones. On the west are five apertures, three of which are square, opening to the west. These openings served for ventilation and as a light source for the semi-subterranean cryptoporticus.

**Fig. 4** illustrates the vault between the West Perimeter Wall and the west cryptoporticus wall, which has an east-west interior width of 1.60m. Its length is unknown, but is assumed to extend a further 7.00m or more to the south. Its preserved excavated height is 2.55m. This vault is composed of four hewn sandstone ashlars set as headers from the east (West Perimeter Wall) and springing to a middle keystone with four additional ashlars springing from the west cryptoporticus wall. Together there are nine ashlar courses that comprise the vault, which bonds the West Perimeter Wall to the west cryptoporticus wall. The lowest course is set as headers, with a number of header courses behind, and the upper courses are set back from and overlapping the lower courses. An unidentified number of courses are placed behind each other, and their configuration is not clearly delineated.

The vaults appear to be solidly constructed, and were put in place at the same time as the other Site Phase IV upper wall elements of the West Perimeter Wall system. Additionally, they provide support for the superstructure of an upper passage walkway / passageway level with a presumed colonnaded portico. Thus, in Site Phase IV, as part of the building boom of the "Grand Design", the West Perimeter Wall was enlarged with the addition of a cryptoporticus (which also are found in the Lower Temenos and



4. West Perimeter Wall, vault to south (Artemis W. Joukowsky).

the Propylaeum of the Great Temple site), which supports a porticoed walkway that marked the west perimeter of the Great Temple.

#### **Colonnaded Walkway / Passageway**

Above the cryptoporticus are the remnants of a limestone-paved walkway extending the length of the wall south, which was initiated at the same time as the construction of the vaults. Hypothetically, this upper walkway includes what appears to be a columned portico. This portico may have measured 5m in length and, judging from the width of the walkway, probably about 3m in width.

#### **Colonnade**

The colonnade accentuates the vertical dimension of the temple precinct. The evidence suggests that there may have been an open gallery above the high substructure bordering the longitudinal axis of the baths. Perhaps this was an open portico with columns on its inner face, overlooking the palaestra that may have served for official functions, e.g. award ceremonies that could have taken place in front of the people gathered below. Those standing in the portico could view the whole bath complex as well as the temple beyond.

Judging from the column drums found in the collapse, their diameters average 0.57m, so the projected height of the portico must have been approximately  $> 10 = 5.70\text{m}$ ,  $> 9 = 5.13\text{m}$ , or

$> 8 = 4.56\text{m}$ , plus the architrave. The columns are embellished with Nabataean type Corinthian capitals, which are smaller and less deeply chiseled than those of the Great Temple. The volutes are flattened, and instead of being deeply incised and elaborately carved, as are those from the Great Temple, their overall appearance is not as elaborately decorated with fruits and vines, and their features are not as deeply chiseled as the temple capitals.

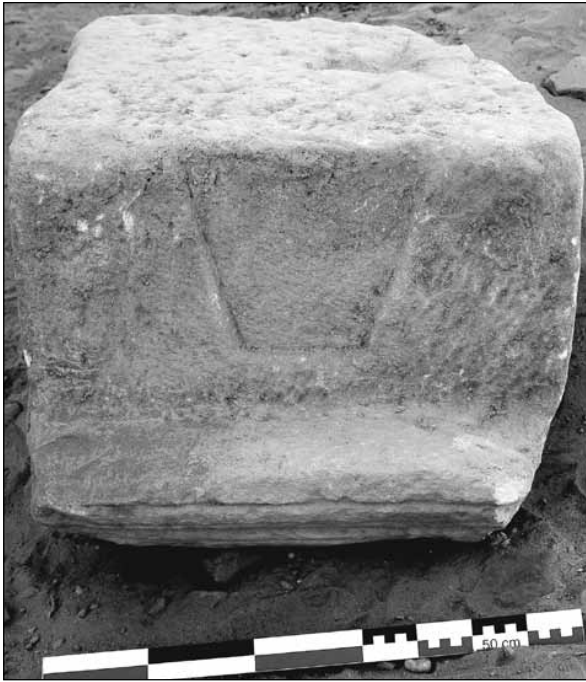
#### *Sculpture*

Discovered in the debris fill of this area, under the vault, were a number of sculpted objects including a horned altar, a torso of a marble warrior and a marble head, each of which are described below.

#### Seq. No. SP131042

Sandstone horned altar (**Fig. 5**) was found tipped on its side in the collapse below the vault. This altar has horns carved in low relief on all four corners, and its base is composed of a cornice divided into four levels. It is square in appearance and it stands 0.64m in width, 0.40m in height and 0.43m in thickness. The rear is not as well carved as the front, and it bears a drill hole — perhaps for attachment.

As a god block, the horned altar is a meaningful talisman. Symbolizing the presence of god, it is a religious metaphor for the power of the god and it carried a universal imagery for the



5. Horned altar (Artemis W. Joukowsky).

Nabataeans. Its form has roots extending to the Bronze Age where it can be traced to many sites. This horned altar is similar to the one found in the West Propylaeum in 2000 (Joukowsky 2007: 82, Fig. 2.45). Its position in the vaulted portico collapse must have lent some religious significance to this passageway.

Seq. No. SP131041

This battered, but skillfully modeled crystalline marble head fragment (**Fig. 6**) has a full fleshy cheek, one open eye, and hair on the left side of the face. The head measures 0.14m to the eye, its thickness is 0.23 m, and the width is 0.124m. The eye is 0.03m in width and 0.02m in height. The nose is battered, as is the right side of the face. The hair hangs in wavy tendrils encircling the cheek, and there is a drill hole where the hair and the neck meet. The hair on the right side flows to the rear. On the battered right face, the hair is obviously more crudely sculpted. The hair on the left and ridges in the back may have held a diadem or crown, or the figure may have been veiled.

Although the marble is similar to the Warrior torso (see below), the proportions are sufficiently sized, and the styled angle of the hair bears a likeness, no joins have been found between the two sculptures. If in fact the two sculptures be-



6. Marble head, right side (Artemis W. Joukowsky).

long to the same piece, a fragment is missing from the neck. What is clear is that a statue or perhaps many statues decorated the walkway, two of which we recovered from the collapse.

Seq. No. SP131040

This headless, marble, double-sided warrior torso (**Figs. 7 and 8**) is carved on both sides. Its height is 0.45m, and its width is 0.53m from arm to arm.

The front (**Fig. 7**) shows that the right breast is bare with emphasized pectoral muscles. The clavicle is emphasized, as is the scapula. The right arm is partially battered but was once protected with a now incomplete armband 0.10m in height. There is a deeply chiseled groove between the arm and the chest. The front is sculpted with a V-shaped baldric — the height of the right baldric is between 0.65m and 0.70m, whereas



7. Marble Warrior (front), (Artemis W. Joukowsky).



8. *Marble Warrior (back)*, (Artemis W. Joukowsky).

the left baldric measures 0.65m in height. To the left of this baldric is a partial cuirass, with the fringe of the breastplate extending over the figure's left shoulder.

The left front is sheathed with a baldric measuring 0.10m in width at the top. Two raised areas include a fringed cuirass<sup>1</sup> with a sheath, perhaps in leather. The cuirass is decorated with a fringe that continues to the rear, showing that this figure wears both a breastplate and a backplate. There is a faint inscription, scratched like a graffito, irregularly incised on the front base, which may in fact be a later addition to the sculpture. It reads:

L – Φ – I E I

On the rear right (**Fig. 8**), there is a single baldric. The flowing hair extends over the shoulders to 0.14m and is emphasized with deep grooves; individual locks are grouped or bunched into clumps. On the right 13 locks are bundled together, whereas on the left only 11 locks are grouped together. Including the shoulder locks, the hair is grouped into 19 bunches. Several drill holes are found in the rear that in all probability serve for attachments. From the rear right-to-left, the cuirass fringe also has a deep hole drilled into it, and on the strap at the

shoulder there is another puncture, as if to hold a decoration of some sort. The baldric is also notched. Additionally, to the left there are two perforations in the baldric, suggesting that appliqués, such as weapon(s), may have been attached to the rear. Although the sculpture is to be viewed from both sides, the rear is not as well sculpted as the front, and portions of the figure's back appear to be unfinished.

It is obvious that the Romans had statues brought to Petra for display. Numerous inscriptions have been found in the Small Temple-Roman Imperial Cult Building, and the heads of emperors have been unearthed at the Qaşr al-Bint. The presence and iconography of this warrior bust suggests that the West Perimeter Wall portico was an official place, perhaps where ceremonies were held. This warrior sculpture may commemorate a Roman victory, or it could have been a votive gift. Does it represent the statue of a god or a demigod? Could it be a mythological hero or famous Roman? Or may it be an honorific statue of a local citizen or benefactor? Clearly it is associated with the cultural activities of the baths and the West Perimeter Wall. An epigraphist will be consulted to help us elucidate the inscription.

In summary, these 2008 excavations help us visualize the west precinct of the Great Temple. Founded in the Nabataean period, the West Perimeter Wall delimited the precinct to the west and appears to have been an important strategic landmark in the Nabataean and Roman periods. The façade of the portico faced east, where the officials could enjoy an unobstructed view of the palaestra. The portico may have had a ceremonial character, being decorated with at least one marble statue, perhaps two, found in the portico's collapse. We assume it was accessorized also with the display of the god-block or horned altar.

Although the West Perimeter Wall and its portico existed for over 300 years, part of it fell out of use in the 4th century AD (Stage 3) and was abandoned sometime thereafter. A series of natural earthquake disasters struck the Petra Great Temple. For the meantime, however, this did not seem to affect all of the activities taking

<sup>1</sup> This is similar to the sculpture with the edge of the cuirass shown with the Medusa head; see McKenzie in

Markoe (2003: 167, Fig. 171).



place in the Roman-Byzantine Baths, which remained a focus of activity. Likewise, further to the west, the Roman Imperial Cult Building also continued to be an active element in the city. Although the West Perimeter Wall ruins probably must have been visible long after the earthquake of the 4th century, no rebuilding by the then residents seems to have been undertaken to restore it. The days of prosperity and the building boom were long gone.

Now we turn to the 2008 Roman-Byzantine Bath excavations.

### Roman-Byzantine Bath Excavations

These trench excavations and removal of overburden focused on the area south and adjacent to the Roman-Byzantine Baths, excavated in 2005 and 2006. Three trenches in the bath complex were excavated, Trenches 130, 131 and 133. Trenches 130 and 131 combined, measured approximately 21m north-south x 35m east-west. These excavations were under the supervision of Eleanor A. Power. We will discuss Trench 130 followed by Trench 131, and conclude with a brief statement about Trench 133. Presented here are excerpts from Eleanor A. Power's 2008 trench reports.

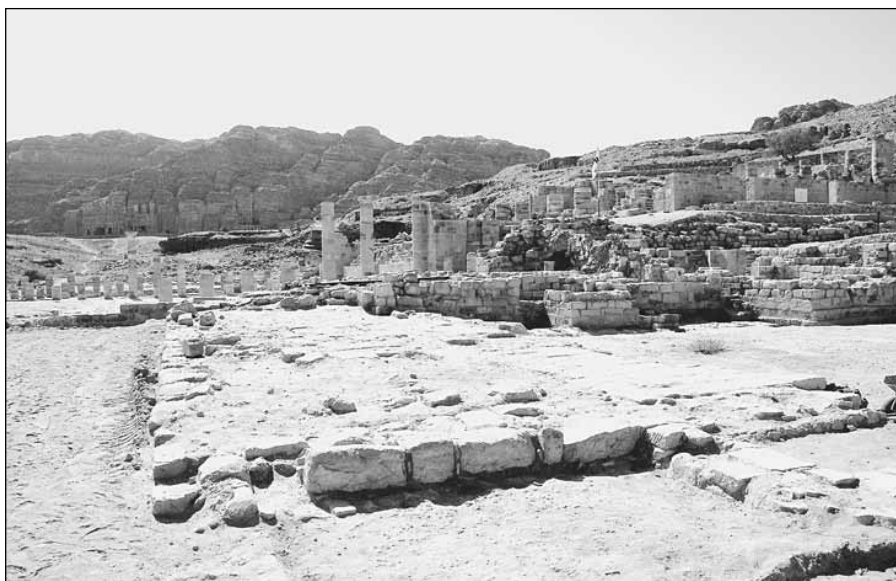
#### Trench 130

The goal of Trench 130 (**Fig. 9**) was to clarify the architectural plan of the remaining area in the north-west of the Roman-Byzantine Bath Complex. This area is located at what would have

been a central access point, linking the Great Temple West Entry Stairs, the Lower Temenos with its Triple Colonnade, and the Roman-Byzantine Bath Complex. In an attempt to better understand this nexus, the excavation of Trench 130 was undertaken. More is now known of the architecture of this area, though a myriad of questions still remain regarding the use of this space and the traffic patterns through it.

As only the tops of walls were exposed, phasing of the loci of this trench must remain very tentative. We expect that the floor-level of these rooms was rather near the surface, as the extant floors of the 'platform' and the 'hypocaust room' suggest. As both of those rooms also had sub-floor architecture for their hypocaust systems, the lack of any extant floor in Trench 130 could simply suggest that a similar sub-floor support collapsed at some point, lowering the level at which we would expect to find remains of the floor. Without much sense of the depth of these rooms then, little can definitively be said about their use, and the phasing of their construction / destruction must remain similarly vague.

The earliest stage of construction in this trench is dated to Site Phase VI, 106 AD and the 113 / 114 earthquake, and corresponds to the main construction of the Roman-Byzantine Bath Complex. The major walls of this construction period are two east-west walls and the two westernmost north-south walls. In the west of the trench, these four walls form a small room. Given the heated rooms to the south and to the



9. Roman-Byzantine Baths, Trench 130 to east (Artemis W. Joukowsky).

west of this room, it is likely that this space was also heated. A low wall in the south of the room may be part of the sub-floor support for the hypothesized hypocaust system in the room. Access to this room would have been from the south (connecting with the 'hypocaust room' of 2006 Trench 126) or from the east. What was in the space to the east is less clear. The semicircular apse of the 'hypocaust room' juts into the center of the space, giving the room an awkward shape. Furthermore, the room appears to have been open to the east at this time.

Given the cursory nature of excavation in Trench 130, only the overburden and topsoil covering the walls were removed. There were hints, however, of collapse emerging in the deeper soil. The partially exposed, but not removed, ashlar is thought to be part of the major collapse of the Great Temple and Bath Complex in the 363 AD earthquake of Site Phase IX.

Following the presumed period of collapse, there are some suggestions of later re-use and building in the trench. The wall extending north-south into the middle of Trench 130 appears to be later in date, and is associated with some re-used architectural fragments (e.g. a column drum) supporting the later dating of this locus. It is thought that this wall likely continues to the north, with courses lower down being better preserved than those already exposed. It is possible that the wall is actually earlier in date and contemporaneous with the main construction of the bath complex. It is being phased later because of related blockage using re-used architectural pieces. The insertion of this wall may have been to facilitate dumping in the area, or to shore up the extant architecture. Without further excavation, we cannot be sure.

The final stage in the history of Trench 130 is a long period of collapse and the accumulation of debris and sediment over the extant architecture. This process has likely been a long and gradual one, continuing to the present.

### *Trench 131*

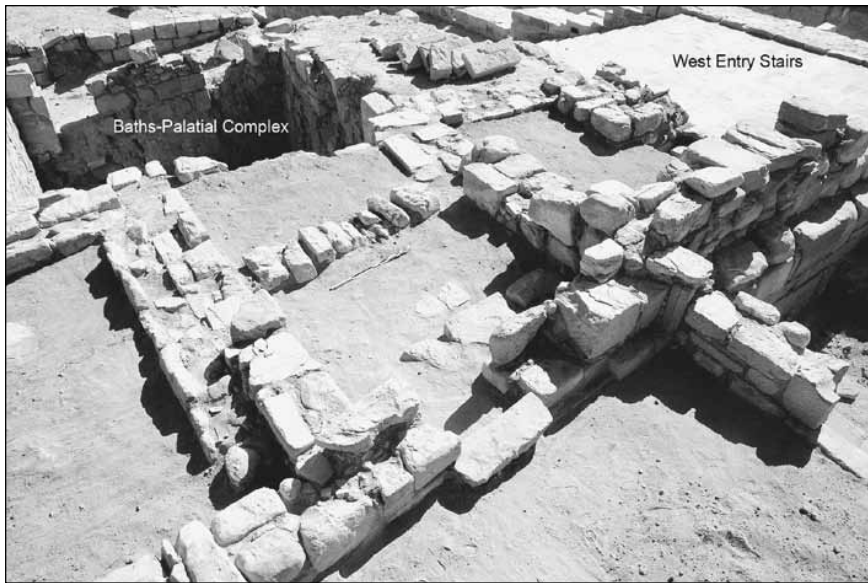
We wanted to understand the relationship between the Great Temple Roman-Byzantine Baths and the West Baths-Palatial Complex that was excavated in the 1960s by the Jordanian Department of Antiquities, under the supervision of Mohammed Mershed. The most compelling

feature of the Baths-Palatial Complex is the elegant stuccoed grand staircase with its colorful yellow plastered and painted walls. The north section of Trench 130 lies adjacent and fronts the earlier Baths-Palatial Complex excavations and this staircase (these dangerously deep excavations have remained exposed ever since). For clarity and understanding of the features in the following discussion, the Baths-Palatial Complex feature the 'grand staircase', whereas the Great Temple Roman-Byzantine Baths Trench 130 includes the so-called 'sea urchin staircase', so named because of the thousands of urchin spines found in the debris above the stairs.

It is clear that we may be dealing with two bath systems that were in use at the same time, from the 1st century AD onwards. It may be that one system was reserved for women and the other for men, but this is conjecture. The following report of the Trench 131 excavation is written by Eleanor A. Power who supervised the excavations.

Trench 131 (**Fig. 10**) is located in the area west of the Lower Temenos, north of the previously excavated Roman-Byzantine Bath Complex. It was excavated in three areas: first, to the west of 2006 Trench 121, second in the area north of Trench 121, and third in three new rooms just west of the top of the West Entry Stairs and south of the massive spiral staircase of the Baths-Palatial Complex, excavated by the Department of Antiquities in the 1960s. The first part of the trench located in the west measures roughly 7m north-south x 5m east-west. The second part of the trench extends from the west boundary of the first section roughly 28m to the east. This area is defined by the major east-west perimeter and terrace wall to the north, and the north wall of the platform to the south. More extensive excavation was focused in the north-east area of the trench, north of 2006 Trench 122, west of the upper platform of the West Entry Stairs, and south of the massive spiral staircase of the Baths-Palatial Complex. This third area is roughly 6m north-south x 12m east-west.

The goal of this trench was to expose the architecture north of the bath complex, where it meets the West Entry Stairs and the so-called Baths-Palatial Complex. The relationship between these spaces was not clear, and the full extent of the bath complex was not known. Af-



10. Roman-Byzantine Baths, Trench 131, overview (Artemis W. Joukowsky).

ter exposing the walls and features in the 7m x 5m area in the west, work shifted to the north-east rooms north of the West Entry Stairs. The rest of the season was focused in this area, and especially the easternmost room (measuring 3.95m north-south x 3.79m east-west). There, the unique assemblage in the soil loci in that room resulted in a shift in strategy, from one focusing on simply exposing the tops of walls, to a more systematic excavation of the room. The soil in the room appears to be the result of regular dumping in the area, but lacks clear stratigraphy. There were two main lenses with different assemblages, but they were intermixed in a way that made excavating them separately unfeasible. To retain some information about broader changes in the assemblage, each day of the excavation of this area was assigned a unique locus number, so that if there are changes with depth, that at least can be recorded. Unfortunately, time limitations did not allow for the full excavation of the room. In a bid to establish the floor level, a 1m x 1m sondage was sunk in the south-west corner of the room. When no floor was found at the expected level (the threshold in the west doorway to the room), the balk at the west threshold was pushed back to see if the floor extended. Instead, we discovered that the room was actually a staircase, meaning that the floor level was much deeper than we had anticipated. By the time of this discovery, there was not sufficient time to excavate the remainder of

the room. To preserve the remaining soil and additionally to allow easy tourist access through the space, the sondage in the south-west corner of the room and the area exposing the first two steps were covered with mesh and backfilled. In view of the unique assemblage of the soil (full of shells, sea urchin spines and pottery) and the importance of the stairway, this area merits further study.

Although much of the work in Trench 131 involved the removal of sediment and overburden containing little material culture, the finds in the east room of the north section of the trench were rich and unique. In the west and central sections of the trench, little of merit was found. One coin (SF#1, Seq. No. 131013) was recovered near the north face of Locus 14, though it was not properly *in situ*. Work in the east room, however, yielded many impressive finds. Loci 4 to 7 (which can be considered separately excavated spits of the same deposit) were densely packed lenses of dumped material, comprised primarily of pottery, shell and bone. Most surprising of all were the thousands of sea urchin spines found in the room. Fourteen special finds were found in the area: four complete lamps, two microliths, four pieces of worked bone, a piece of worked ivory, a buckle made of bone and copper wire, a pendant made of bronze alloy, and a small cup. A piece of plaster with gold inlay was also found.

The excavation of Trench 131 covered a

large expanse of space and, despite the mainly shallow exposure of features, managed to reveal much of this crucial area connecting the Great Temple, the Roman-Byzantine Bath Complex and the Baths-Palatial Complex. The plan of this area has now been partially completed, and areas for further study identified. Though much of it must be very tentative and await further excavation, a preliminary reconstruction of the history of construction, use and destruction of this area is now possible.

The first construction event (Stage 1) in Trench 131 was that of the main east-west wall, that served as a perimeter retaining wall for the area to the south. This wall and the north-south wall cleared in Special Project 130 combined to form the boundaries of what would later become the Roman-Byzantine Bath Complex area. This construction took place in Site Phase II or the mid-1st century BC, when preparations for the Great Temple and the surrounding features were underway.

The second major construction event (Stage 2) was the Grand Design of Site Phase IV, dated to the last quarter of the 1st century BC and beginning of the 1st century AD. Within Trench 131, features dating to this period are located in the north-east section and are associated with the West Entry Stairs and the monumental spiral staircase of the Baths-Palatial Complex. Along with the construction of those two large staircases were the three rooms of the north-east section, most important of which is the easternmost 'sea urchin staircase room'. This east staircase room connected the top platform of the West Entry Stairs to the west, leading people back down, probably both to the west (into the center room and through that into the monumental spiral staircase) and to the south (presumably into parts of the Baths-Palatial Complex). The center room (with the collapsed arch) and the west room both connected the spiral staircase to areas further to the south. With the easy flow of traffic through these rooms, all three were likely important arteries, allowing for free movement from the spiral staircase and the Baths-Palatial Complex into the area of the Roman-Byzantine Bath Complex. Of interest, too, are all of the staircases in the area: the West Entry Stairs, the monumental spiral staircase of the Baths-Palatial Complex, and Trench 131's 'sea urchin

staircase'.

The 'sea urchin staircase' is defined as the staircase in the east room of the north-east section of the trench. It has been partially exposed. It is closely related to the threshold that essentially serves as the top step of the staircase. Only just over a meter of the length of the stairs were exposed, with more still under the dump deposits in the south. Presumably, the stairs continue the length of the room, extending to abut the south wall. The top step of the staircase has a width of 0.50m and a height of 0.18m. In the north-east corner of the step is a carved rectangular depression of unknown function, measuring 0.30m north-south x 0.22m east-west. The second step has a width of 0.39m. A small part of the third step is visible, but because of a collapsed ashlar resting on the second step and limited excavation time, more could not be exposed. The steps are constructed of long well hewn sandstone ashlar, and it is thought that they may pivot around the feature so that the lower steps would be oriented north-south instead of east-west. However, that is similarly confusing, as it would essentially result in two stairways mirroring each other — this staircase and the West Entry Stairs. This seems unnecessary and repetitive. It may be that the stairs extend east-west, with a platform below the rectangular feature allowing for entry into the rooms to the west. Clearly, this room should be fully cleared, both to reveal the direction of the stairs, and because of the important nature of the dumps that cover them. Connected as they are to both the West Entry Stairs and the monumental spiral staircase of the Baths-Palatial Complex to the north-west, these stairs are associated with the Grand Design of Site Phase IV.

Four layers of dumping cover the north-east 'sea urchin staircase' and are assigned by the excavator to Site Phase VIII, or the late 2nd century AD.

Why so many staircases were necessary in one area is still not clear. Hopefully, further excavation of the 'sea urchin staircase' will provide an explanation. There is clearly a drop-off of the bedrock in this area, and the Baths-Palatial Complex monumental spiral staircase makes clear that this area has two floors, which may still be intact in the north-east section of the trench. Unfortunately, given the current state of

the exposed walls of the spiral staircase in this area, full excavation of those rooms seems impossible.

The next construction stage in Trench 131 (Stage 3) is of those features associated with the Roman-Byzantine Bath Complex, located primarily in the south-west section of the trench. The walls and water features just to the west of Trench 121 (the platform of 2006) appear to have been connected with the Bath Complex, bringing it water and defining what is thought to be the west boundary of the palaestra. What was uncovered would have been just below floor level. This stage is attributed, along with the construction of the Roman-Byzantine Bath Complex, to Site Phase VI (the Roman annexation and the 113 / 114 earthquake).

Stage 4 marks the first substantial period of disuse and abandonment of some of the area lying within Trench 131. The 'sea urchin staircase' room was blocked up and filled with dump. The dumped material (Loci 4, 5, 6 and 7) was extremely dense, rich and unique. Huge numbers of shells, sea urchin spines and bones reveal new information about the probable eating habits of the Nabataeans / Romans at this time. The pottery was surprisingly consistent, with large numbers of sherds from Nabataean bowls, cups and large storage vessels. Many complete profiles were recovered, along with a number of complete lamps. A cursory look at this pottery assemblage suggests that it dates primarily (if not exclusively) to the 3rd century AD. One particularly unique glazed turquoise piece from Locus 5 could however be of later date, and the dumping events could clearly have continued for some time. At the very least, this assemblage provides a clear *terminus post quem* for the dumping in this area, and it cannot have occurred before Site Phase VII, dated to the mid-2nd century AD. Given the consistency of the material, an early date in Site Phase VIII, or the late 2nd century AD, for this dumping is suggested. This is further reinforced by the Roman cement seen in the construction of Locus 26, one of the blocking walls. It is certainly possible that dumping in this area continued after the 363 AD earthquake, but this episode is still tentatively attributed to Site Phase VIII, prior to that event. Site Phase VIII is generally associ-

ated with a period of minor disuse around the Great Temple, so it is not inconceivable that dumping would have occurred at this time. The purposeful blocking and dumping in this space could have been precipitated by changes in the use of the area. In the north trenches of the Roman-Byzantine Bath Complex, there is similar evidence for collapse and modification.

Stage 5 covers presumably substantial collapse in the trench during the 363 AD earthquake (Site Phase IX). The only direct evidence of this in Trench 131 is the collapsed arch (Locus 21) of the center room in the north-east section of the trench. All other evidence of this event is either no longer extant or still buried.

Stage 6 covers the later blockage and disuse seen in the west room of the north-east section of the trench, dated to Site Phase X or 4th-5th centuries AD. Locus 17 (the narrowing of that room) and Locus 19 (the blockage of its doorway) are attributed to this post-363 AD period because of the re-use of an elephant head in the construction of Locus 17. Most likely, the earthquake compromised the integrity of the architecture of this space, requiring reinforcement of the walls if it was to continue in use.

Stage 7 is the final period of abandonment and sedimentation, continuing from Site Phase X to the present.

In conclusion, Trench 131 was a surprising trench that generated much new information about the linkages between the public spaces to the west of the Great Temple. It was an extensive trench, with a primary goal of exposing the plan of this area. This was accomplished and, as a result, goals for future research can now be focused on the intriguing and enigmatic features found here.

The enormity of finds from this deposit was significant. Notable finds were approximately 5,500 sea urchin spines, worked bone fragments, oyster shells, a wide variety of Nabataean and later wares, complete lamps, and several coins.

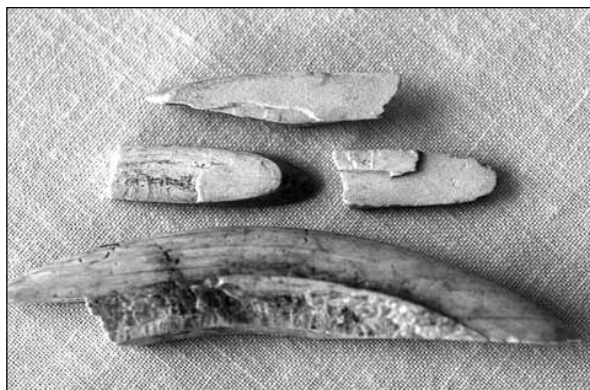
Also essential is a close study of the material remains from the dumping loci of Trench 131. The unique finds of the many shells and sea urchin spines is of course surprising, and the large pottery assemblage could give a very clear date for the dumping event, as well as providing much-needed information about Nabataean daily life.

*Special Finds from Trench 131*

Donna Strahan, Conservator at the Sherman Fairchild Center for Objects Conservation, The Metropolitan Museum of Art, examined a collection of worked bones found in Trench 131, Locus 6, Seq. No. 131090 (**Fig. 11**). She concludes that they are all hippopotamus tusk, and definitely not elephant, bone or antler. She also discovered that they all fit together to make part of one object which, she suggests, may have been a cosmetic box. These will be analyzed and published by David S. Reese in *Petra Great Temple* Volume III.

Seq. No. 131058

Lamp, Cat. No. 08-L-4 (**Fig. 12**), found in Trench 131, Locus 6, was analyzed by Deirdre G. Barrett who reports that it is known as a Darom lamp or molded Judaeen lamp, dating from 70 to 135 AD. (Israel and Avida 1988: 50, No. 88; 61, Nos. 134-136). These lamps feature rosettes and nozzles ornamented with small circles in the corners. The decoration around the filling hole is of tendrils, probably derived from the grapevine (Israel and Avida 1988: 62, No. 147). Similar fragments have been found at Petra, which possibly belonging to the same category (Khairy 1990: 17, Nos. 31, 33; Fig. 15, Pl. 8.) There are two lamp fragments from Trench 131, Locus 4 that also belong to the Darom lamp corpus (Khairy 1990: 75, Nos. 202 and 203). The motif on one of the fragments is of leaves / branches, found beneath the two raised ridges framing the nozzle. Other such lamps have been recovered from Masada. (Barag and Hershkovitz 1994: 66). The Masada fragments were found in rooms in the casemate wall occupied by the



11. Hippopotamus fragments from Trench 131 (Artemis W. Joukowsky).



12. Lamp, Cat. No. 08-L-4, Trench 131 (Artemis W. Joukowsky).

Zealots, and “therefore probably date from the last decade or two before the siege and fall of Masada” (Bailey 1994: 67). Examples of these lamps were also found at the Citadel in Jerusalem, unearthed in the burnt destruction level of 70 AD (Bailey 1994: 68).

*Trench 133*

A pedestrian survey in 2005 indicated that there were additional structures above and to the south of the Colonnaded Corridor, south of the Roman-Byzantine Bath Complex. The 2008 excavations gave us an exciting opportunity to evaluate this previously undocumented area. Adjacent to the Colonnaded Corridor to the north and the Sculpture Garden to the south is Trench 133 (**Fig. 13**), supervised by the author and Mohammad Qublan, and measuring 11m north-south x 28.5m east-west. The upper levels of soil were skillfully removed by mechanical equipment. After 62.70m<sup>3</sup> was excavated, the walls of several rooms were revealed and prepared for future excavation. The Colonnaded Corridor Wall supports fragments of one primary building with one room delineated and a partially uncovered second room extending further to the east. To the south-west there is what



13. Trench 133 clearance of topsoil to east (Artemis W. Joukowsky).

appears to be the corner of an additional room. These rooms are on the same east-west axis as the baths, but they have to be excavated to confirm their function and to determine if they bear a direct relationship with the baths. These building remains are strategically placed and their excavation should reveal how and when they were built — giving a better understanding of the Great Temple west plaza — and whether or not they were associated with the Roman-Byzantine Baths building plans.

Removal of the bath overburden involved the excavation of approximately 219.45m<sup>3</sup> of earth. The results of these 2008 excavations have shown that the archaeological evidence for the building is as well preserved as those structures already excavated. It appears not to have been disturbed by geo-morphological effects or occupation since antiquity.

#### *2008 Catalogue - Special Finds*

In addition to the artifacts described above, 18 objects were recorded as special finds. Of these, four coins, four complete lamps, a ceramic cup, the bone leg (see below), the Trajanic inscription (see below), and the marble sculptures were handed in to the Petra office of the Department of Antiquities of Jordan.

#### **Other Projects**

##### *Ballista Balls*

Recovered from the Great Temple Propylaeum west in 2005 was an assemblage of 423 bal-

lista balls, which were documented at that time (Joukowsky 2007: 62-63). Because of the partial loss of the previously collected ballista ball size and weight data, Süreya M. Köprülü undertook the re-measurement and re-weighing of 102 ballista balls. This discussion will be forthcoming in *Great Temple Volume III*, but a summary of the results indicates that their average diameter is 13.6cm, with an average weight of 2.2kg.

#### **Inter-Season Research**

##### *Great Temple consolidation and restoration*

Preservation of the site remains a priority of our research design. In 2008, Dakhilallah Qublan's team of restorers skillfully constructed a protective shelter for the well-preserved caldarium of the Roman-Byzantine Bath complex, so that the public can view this excavation, and at the same time the structures and features are protected.

In the Lower Temenos West, the west face of the west cryptoporticus wall was in danger of collapse. This wall has been reinforced, rebuilt and stabilized, and is strong enough to support elements of the West Triple Colonnade. This lends symmetry to the overall aspect of the site.

##### *Publication*

This year the publication of *Petra Great Temple, Volume II* appeared (Joukowsky 2007) and work continued on *Petra: Great Temple, Brown University Excavations 1993-2007, Volume III: Architecture and Material Culture*.

*Coin Catalogue*

The 759 coins recovered and registered from the Great Temple 1994-2006 excavations have been put into our catalogue database. The Coin Catalogue has been edited and is now available on the internet for researchers at *Open Context* (<http://www.opencontext.org>). Christian F. Cloke, Christian Augé, Deirdre G. Barrett and this author have been responsible for this successful achievement.

*Bone Leg*

During analysis of the bones, Sarah Witcher Kansa recovered a finished bone artifact, pictured in **Fig. 14**, which I took to Donna Strahan, Conservator at the The Sherman Fairchild Center for Objects Conservation, The Metropolitan Museum of Art. The following is Strahan's careful analysis.

"The Petra carved leg is 9.8cm long and was carved from a single piece of bone with a slight bend at the knee. When examined under magnification the typical bone structure of small vein holes are especially evident along the bottom edge of the upper thigh. The toes, now missing, were pinned to the foot by a copper-alloy pin. Whether this is a repair or the original method of fabrication is unclear. The remains of the pin extend out the front and back of the foot. It is severely corroded and has cracked the bone across the bottom of the foot.

The leg appears to be the handle portion of an object. The slight curve of the leg helps it fit very comfortably in a small hand. The toes would have extended upward below the hand. The top of the thigh is finished and has four decorative lines running around its circumference. There is a deep, round drilled hole into the top of the leg 3.5cm deep. It was likely drilled to hold the tang of an unknown object, perhaps a blade or comb. A large loss runs across the top of the thigh down the length of the hole. If the leg is held as a handle and a strong downward force



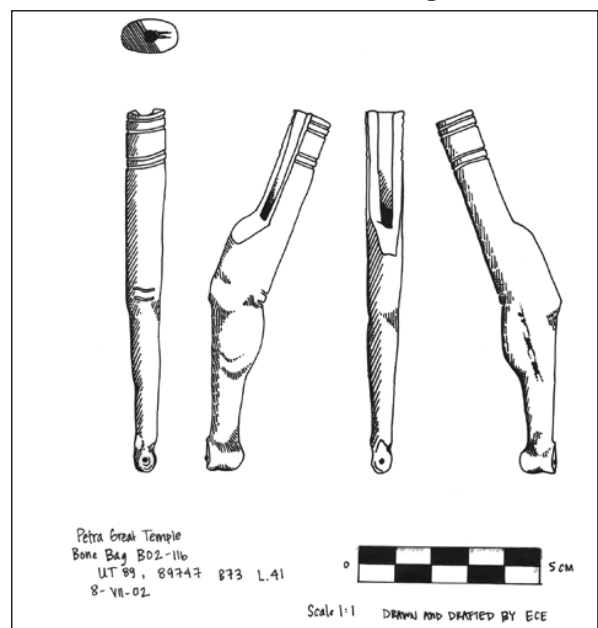
14. Bone handle, leg-shaped (Artemis W. Joukowsky).

was applied it may have caused pressure from the 'blade' to crack the bone, thus causing the loss across the top of the hole. The hole does not have any visible traces of metal corrosion such as iron, copper, or silver; so it is unclear what was held by the handle".

The leg was then drawn and drafted (**Fig. 15**) by Emily Catherine Egan, and handed in to the Petra Museum with the 2008 artifact catalogue.

*An Imperial Inscription from the Petra Small Temple*

Under the direction of Christian Augé, archaeologists working at Petra's Qaṣr al-Bint examined the Small Temple-Imperial Cult Building, located to the east of Qaṣr al-Bint. This structure was excavated in 2001-2002 by the Brown University Petra Great Temple team, under the supervision of Sara Karz Reid who published the results in 2005. Found lying face up was a marble four-line inscription that had fallen away from the south-west exterior wall of the Small Temple. Its secondary use had been as wall facing for the dado of the Small Temple. So it would be hidden from view, the French excavators covered the inscription over with earth, and the discovery was reported by Christian Augé to Christopher A. Tuttle, Associate Director, American Center of Oriental Research (ACOR) in Amman. On December 12 2007, Tuttle visited the Petra Small Temple, found the



15. Drawing of the bone handle (Emily Catherine Egan).



inscription plus a second fragment and photographed them (Fig. 16). He recovered the piece and carried the inscription to the American Center of Oriental Research in Amman for safekeeping. The author was informed of the discovery, and it was agreed that the inscription should remain at ACOR until it could be documented. On June 7 2008, Tuttle presented the inscription to Joukowsky who, in turn, asked Traianos Gagos of the University of Michigan to examine and analyze the fragment. Gagos confirmed that it was indeed Trajanic. Shown in Fig. 17, this Trajanic inscription was transferred with the 2008 catalogue to the Department of Antiquities at the Petra Museum. Its translation and significance will be published by Traianos Gagos in *Petra Great Temple Volume III*.

The autumn of 2008 was also marked by successful defense of Christopher A. Tuttle's Ph.D. dissertation at Brown University's Joukowsky Institute for Archaeology and the Ancient World. Tuttle's work is entitled *The Nabataean Coroplastic Arts: A New Approach for Studying Figurines, Plaques, Vessels and other Clay Objects*. This is a seminal study, and one in which



16. *Small Temple, Trajanic Inscription with impression left in the wall* (Christopher A. Tuttle).



17. *Small Temple, Trajanic Inscription* (Martha Sharp Joukowsky).

we take great pride.

In conclusion, the long history of use in the Great Temple West highlights the dense nature of the public buildings in the central city of Petra. It further reveals a degree of interconnectedness that is surprising. The easy flow of traffic through the Great Temple, the Baths-Palatial Complex and the Roman-Byzantine Bath Complex blurs their boundaries. The 2008 Great Temple excavations reveal a dense multi-storey urban space. Hopefully, further excavation will expose more of the architecture of this area west of the Great Temple. The project goals of establishing a chronology for the Petra Great Temple cultural sequence, and of attaining an understanding of the thriving Nabataean and Roman culture through these Brown University excavations has been attained. Through these syntheses we have identified a major Nabataean — Roman center — a monumental institution — resulting in a better understanding of religious, social, economic and political traditions. Petra was a developed capital capable of ruling the desert highway. Nabataean kingship and Roman leadership constituted the base of its elites. The

Great Temple is a remarkable reflection of this time period, and the extraordinary revelations of our 2008 season have proved crucial to our understanding of Nabataean Petra, its pervasive Romanization and its urban crystallization.

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