BROWN UNIVERSITY 2003 EXCAVATIONS AT THE PETRA GREAT TEMPLE: THE ELEVENTH FIELD CAMPAIGN[1]

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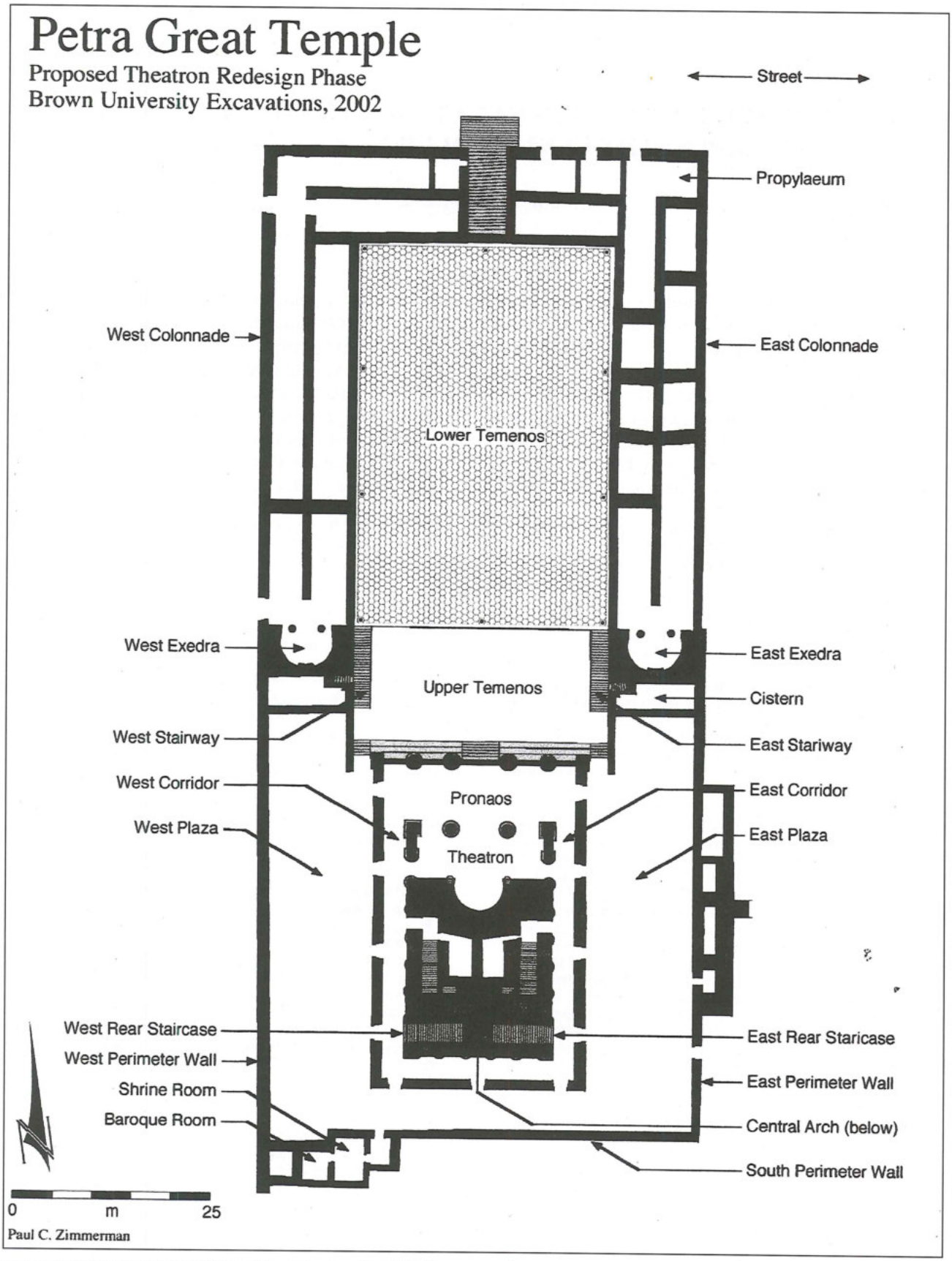
The eleventh season of field excavations by Brown University archaeologists took place from July 5 until July 31, 2003, under my direction. **Fig. 1** is the digitized site plan.

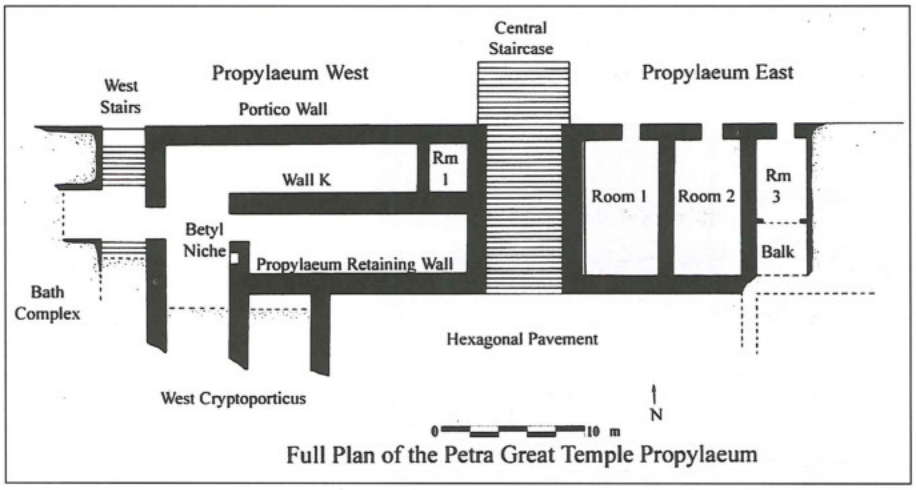
This article presents the 2003 excavations of the Great Temple Propylaeum shown in its entirety in **Fig. 2**, however, our 2003 excavations concentrate on the Propylaeum East shown in **Fig. 3**. Thereafter our 2003 architectural fragments and consolidation efforts are summarized. Simultaneously, during the 2003 summer, analysis is undertaken on previously excavated materials at Brown University, discussed in a concluding statement.

This campaign would not have been possible without the generous assistance of the Jordanian Department of Antiquities, Fawwaz al-Kraysheh, Director, Suleiman Farajat our Department of Antiquities Representative and Director of the Petra

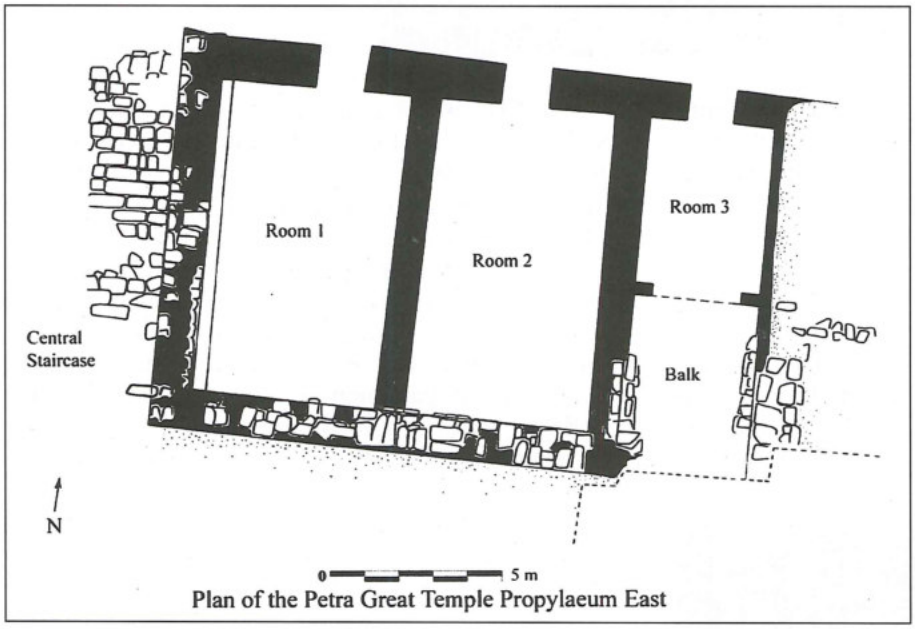
1. For the reader's convenience, a brief review of the site is provided here. The Great Temple represents one of the major archaeological and architectural components of metropolitan Petra. It is the largest freestanding building yet excavated in the city. Located to the south of the Colonnaded Street and southeast of the Temenos Gate, this 7560 m² precinct is comprised of a Propylaeum (monumental entryway, where there is a shrine of Nabataean double aniconic betyls), a Lower Temenos, and monumental east and west stairways which in turn lead to the Upper Temenos—the sacred enclosure for the Temple proper. No structures were evident before the Brown University 1993 excavations under my direction. The precinct, which is partially constructed on an artificial terrace, was littered with carved architectural fragments toppled by one of the earthquakes, which rocked the site.
In the Propylaeum and Lower Temenos are triple colonnades on the east and west with a total of 120 columns crowned by phenomenal Asian elephant-headed capitals. Under these colonnades are cryptoportici or vaulted chambers. These colonnades lead into east and west semicircular buttressed exedrae. Here in the Lower Temenos, large, white hexagonal paving stones were positioned above an extensive subterranean canalization system, traced from under the Temple to the Lower Temenos, the Propylaeum, and the Colonnaded Street to the Wādī Mūsā. In addition to 11,000 architectural fragments, there are coins, limestone facial frieze elements, lamps, Roman glass, and ceramics including figurines and Nabataean fine wares. Elaborate floral friezes and acanthus-laden limestone capitals suggest the temple was constructed in the beginning of the last quarter of the first century BC by the Nabataeans who combined their native traditions with the classical spirit.
The Great Temple in its Site Phase IV rebuilding had its columns and walls colorfully stuccoed, which must have had a dramatic impact when set against its rose-red environment. It is tetrastyle in antis (four columns at the front) with widely spaced (ca. 7m, 21ft.) central columns at the entrance, two end columns located about five meters (15ft.) to the east and west, respectively, and beyond these originally stood anta walls decorated with carved reliefs. Approximately 15m in height, the Porch columns plus the triangular pediment and the entablature, hypothetically place its height at a minimum of 19m. The temple itself measures 35m east west, and is some 42.5m in length. The podium rests on a Forecourt of small hexagonal pavers; a stairway approaches a broad deep pronaos (entry), which in turn leads into side corridors that access a 630-seat theater. The Pronaos entry is marked by two columns, which are the same diameter (1.50m) as those at the temple entrance, but are larger than either the eight flanking the side walls or the six at the temple rear, which have diameters of 1.20m. In the interior north are massive anta walls resting on finely carved Attic bases. To the south is a two-or-three-storied complex dominated by a large, central vaulted arch and twin stepped arched passages leading to paved platforms, plus a series of steps which accessed the rear of the Theater, and another series of steps which accessed the colorfully stuccoed temple corridors. There are exterior paved walkways on the temple east and west, where sculpted facial fragments and fine deeply carved architectural elements have been recovered. The relief of a Sword Deity can be seen carved into the rear wall of the Upper Temenos and below is an underground cistern with a volume of 390,000 liters or 103,038 gallons of water.
Based on what we knew about a partially recovered South Passageway shrine in the temple south, we completed its excavation—measuring 5.64m north south-by-3.87m east west. A west doorway leads into an adjacent room measuring 4.50m north south-by-3.67m east west where a massive wreckage of extensive remains was discovered—the Baroque Room filled with collapsed delicately designed painted and gilded plaster. The exacting task of the removal of these stucco components has been completed and their restoration is now underway. To the west of the Baroque Room we excavated a "Residential Quarter" of two caves with extensive architecture—including eleven rooms with columns and arched walls, along with masses of plain and figuratively painted Nabataean ceramics.
Five years of excavation results 1993-1997 with a CD-ROM have been published and are available to the public by contacting the director. Annual reports can also be found in the *Annual of the Department of Antiquities of Jordan (ADAJ)* and in the *American Journal of Archaeology (AJA)*, and the final report of these excavations is now underway.
Web page: <http://www.brown.edu/Departments/Anthropology/Petra/>



1. Great Temple Site Plan of Phase V architecture (Paul C. Zimmerman).



2. Sketch Plan of the Propylaeum (Emily Catherine Egan).



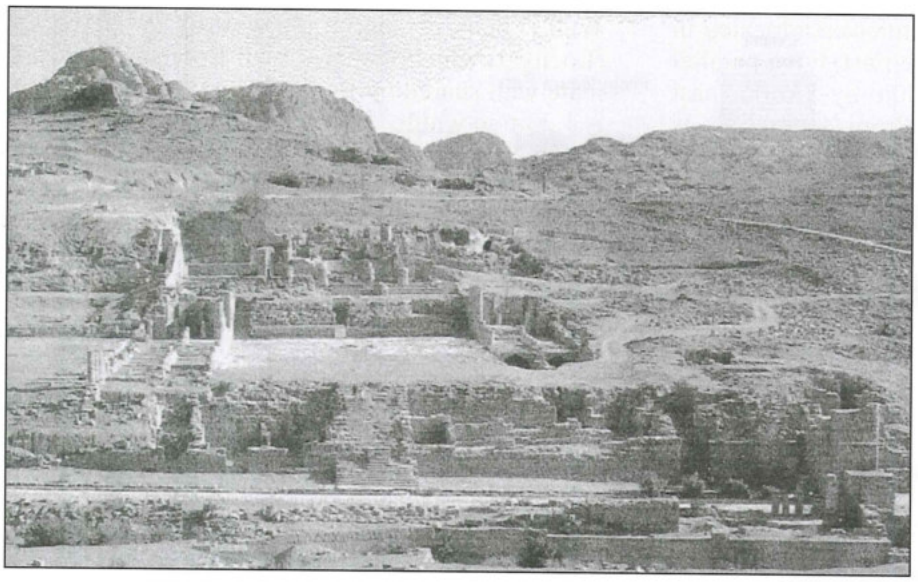
3. Sketch Plan of the Propylaeum East (Emily Catherine Egan).

National Park and the American Center of Oriental Research, Pierre M. Bikai, Director. We would also like to express our gratitude to Brown University for making this season possible.[2]

Excavation Results

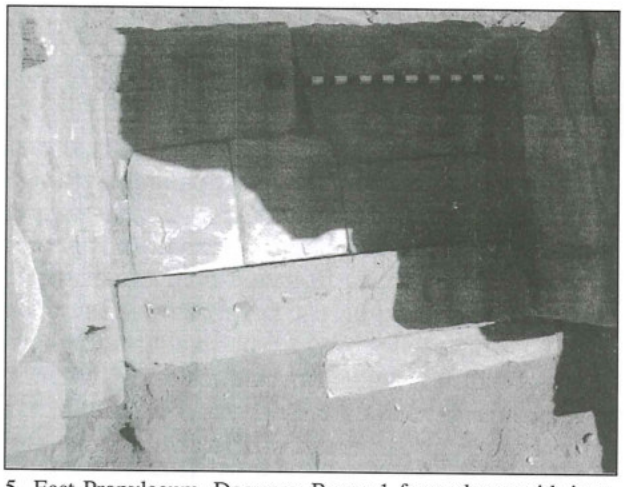
The total area covered by the Propylaeum East is 25.00m east west-by-11.00m north south. A large portion of the Propylaeum East now is completely exposed, measuring 11.00m in north south width-by-17.00m in east west length to an approximate depth of 7.50m. **Fig. 4** shows the site at the close of the 2003 excavations. Although the finds are homogeneous, the architectural character of the East Propylaeum is considerably different from its counterpart to the west as can be seen in **Fig. 2**. Revealed are three entries into the Propylaeum East from the Roman Street, two of which are rooms and the third is a passageway (?) into the East Cryptoporticus west. Of particular importance is that the Propylaeum East is contained within two walls, the Portico Wall and the Propylaeum Retaining Wall, whereas the Propylaeum West has middle Wall K bisecting the area. This is clearly illustrated in **Fig. 4**, indicating that major revisions are undertaken in the Roman period, when Wall K

2. This work was funded partially by the Replogle Foundation, the Brown University Exploration Fund and the Joukowsky Family Foundation. Brown University Staff members included Artemis A. W. Joukowsky, and Shari L. Saunders who is researching the plain wares from the Residential Quarter deposits served as a valued staff member. We were supported by a work force of 24 devoted Bedouin, directed by Dakhilallah Qublan, Foreman. The Petra Crowne Plaza Hotel and the American Center of Oriental Research in Amman, to whom we are most grateful, also provided additional support.



4. Overview of the Petra Great Temple to south at the close of the 2003 Excavations (Photo Artemis W. Joukowsky).

is dismantled and the character of the Propylaeum East changes from east west galleries and cryptoportici to large north south rooms. Most curious about these rooms is that each of their limestone thresholds has vestiges of ten closely fitting bars, serving as stationary iron grills across their doorways (**Fig. 5**). We question how these rooms functioned in antiquity because access into and out of them would have been difficult with such impedimenta. This evidence suggests that the Propylaeum East is a more public space with direct exposure to the street than its counterpart on the Propylaeum West.



5. East Propylaeum, Doorway Room 1 from above with iron pins in the threshold (Artemis W. Joukowsky).

At first we thought we might be excavating shops, and that possibility cannot be ruled out, however, if what is protected is secured behind bars, these rooms may serve as a state treasury or a place where exotica such as animals are kept. Unfortunately this functional analysis remains conjecture because the massive collapse filling the rooms and the robbing of the floors before the collapse. What is known is that the contents of the rooms (floor pavements), are cleared before the collapse takes place, for elephant-headed capital fragments and pilaster blocks are found in the fill on the floor bedding where they tumbled.

The particular strategy for Trenches 95 and 96 was to recover and document the Propylaeum East.[3] The goal was to continue the 2002 excavations and explore the area adjacent to the Central Propylaeum Staircase and understand the integrity and functional analysis of the area as compared to the Propylaeum West. Trenches 95 and 96 were opened to determine the character of deposits as well as to define the stratigraphy where the deposits abutted the Propylaeum Central Staircase and Retaining Wall. Trenches 95 and 96 fulfilled their goals and defined the latest architecture of the Propylaeum East. Three north-facing rooms were found, from west to east Propylaeum East Room 1, Propylaeum East Room 2, and further east in Trench 96, Propylaeum East Room 3. In each of these rooms robbed out floor surfaces were found.

3. Excavation in Trench 95 began July 5 and continued until July 28, 2003. Sequence numbers began at 95000 and ended with 95994. Four Trench 95 Sub datum points were assigned and marked with PK nails. Sub Datum #1 was located on the Propylaeum Main Stairway where it becomes flush with Trench 95 in Locus 5 at an elevation of 894.437 m. Sub Datum #2 was located on an inner ashlar block of the Portico Wall West Doorway, Locus 7, and is approximately 0.65m below Sub datum 1 at 893.657m. To provide control for the east side of the trench, Sub datum #3 was located on the Locus 8 wall (below and abutting our Locus 3 wall) in the trench east at an elevation of 894.585m. Sub datum #4 was located at 894.395m on the central north south Locus 9 wall to the west of Sub datum #3.

Trench 95 is a large rectangular area located in the west area of the Propylaeum East, lying parallel to the Street. Measuring 10.50m-by-23.50m east west before excavation,[4] the Propylaeum East is bordered in the north by the Great Temple Portico Wall, and its east perimeter is bounded by a party wall shared with Trench 96. In the south, the Propylaeum East is bordered by the Propylaeum Retaining Wall, and its west flank terminates with the main staircase of the Propylaeum as it is seen today. **Fig. 6** shows the Propylaeum East, Rooms 1-3 looking northwest to the street.

Once excavated, Room 1's interior measurements are approximately 9.70m north south-by-5.05m east west. It is bounded on the north by Doorway #1 (Loci 7 and 13, its west and east doorjambs, respectively), on the east by the partition wall (Locus 9) which it shares with Room 2, on the south by the Propylaeum Retaining Wall (Locus 1), and on the west by the west walls that delimit the main Propylaeum Staircase (Loci 2 and 6). The casemate party wall (Trench 95, Locus 9) shared by Rooms 1 and 2 measures 0.90m in width. As mentioned above, the interior threshold of Doorway #1 (Locus 17) is comprised of a limestone ashlar 1.62m in length-by-0.33m in width with ten iron bars set in mortar approximately 0.165m from one another. Against the northwest corner of Room 1, a sondage, SP 95 infra, was excavated to determine earlier deposition levels.

Room 2's internal measurements are 9.68m north south-by-5.05m east west. It is bounded on the north by Doorway #2 (Loci 14 and 15, its west and east door jambs, respectively), on the east by a party wall shared with Room 3 of Trench 96 (Locus 8), on the south by the Propylaeum Retaining Wall (Locus 1), and on the west by the party wall (Locus 9) which it shares with Room 1. The casemate wall shared by Rooms 2 and 3 (Loci 3 and 8) is 1.23m in width.

Trench 96's overall measurements before excavation are approximately 6.50m north south-by-4.00m east west, and the subsequent discovery of the architecture restricted these dimensions; smaller than either Room 1 or Room 2, Room 3's internal excavated measurements are 3.90m north south-by-3.44m east west. In these excavations ten loci are assigned. The Room 3 excavations were halted at the south balk between it and its probable continuation in the East Cryptoporticus, which was partially excavated in Trench 82 in 2001. On the north is Doorway #3 which is entered through its west and east piers (Loci 2 and 3), to the east lies the north south wall (Locus 4) and on the west is the wall shared with Room 2 (Locus 8).[5] Although it is not completely excavated to the south there seems to be minimal evidence for the Propylaeum Retaining Wall in Room 3. To the south lies the south balk (Locus 9) with ashlar pier extensions (Loci 5 and 6) built out from the east and west sides of the east and west walls. The balk and the piers are shown in **Fig. 7** with tethering holes (possibly for use for tethering animals). Found in the fill is a corroded fragment of the iron bar (Seq. No. 96103) that had blocked the threshold entry; it is 12.5cm in length, 3.5cm in width-by-2cm in thickness and weighs 8 oz. In antiquity, these bars must have provided a formidable protection for these rooms.

Special Project 95 (2003) — Sondage in Trench 95 Room 1, under Locus 10

To explore below the fill and debris of the PE

6. East Propylaeum, Rooms 1, 2, and 3 to northwest (Photo Artemis W. Joukowsky).

7. Propylaeum East, Room 3 south balk (Photo Artemis W. Joukowsky).

4. The results of its excavation should be thought of as a continuum of Trench 93 2002.

5. Locus 8 in Room 2 and Locus 8 in Room 3 were used to designate the same wall.

Trench 95 Room 1 (Locus 10), Special Project 95 (**Fig. 5**) was undertaken measuring 2.00m north south-by-2.40m east west, located in the northwest corner of Trench 95 Room 1 under the Locus 10 deposits. The main question to be answered by this sondage was the nature of the deposits under the assumed robbed out floor level of Trench 95 Room 1 and at the base of Doorway #1. What were these room walls built on? Would there be foundation deposits? What was the nature of the soil and how had it been impacted by the earthquakes and the resulting massive column fall and overburden of collapse? The Sub datum 2 point on Trench 95 (Locus 7) with an elevation of 893.657m served for the control of this test trench.

This test trench presented us with the basic information we were looking for: the original deposits under the floor of Room 1. Important was the fact that here we were excavating in a homogeneous sandy fill to a depth of 1.46m that had been built over by the Portico Wall and the other room walls that were not impacted by the collapse and fill of the earthquake. This was the original pre-Great Temple deposit of the Nabataean city. The only cultural material found was Nabataean pottery, some shell and some metal. Save these artifacts, the deposit lacked any architectural elements, giving us every indication that we were below the earthquake collapse level.

We now turn to the overall phasing of the Great Temple precinct, which is followed by a discussion of the Propylaeum East phases.

Phasing

Before the Propylaeum East stratigraphy is investigated it will be necessary to examine the different phases identified within the Petra Great Temple deposits. Based on site deposition the general sequence of some 14 phases (I-XIV) is now evident for the Great Temple construction, collapse and abandonment. Although these sequences (progressing from earliest to latest) indicate the following stages of construction, future excavations may modify these ideas. Building periods are sometimes separated from artifact periods moving the latter to later phases, depending upon the context in which the materials were found. Therefore, even if an elephant head we ascribe to the Propylaeum colonnade was constructed in Site Phase IV, it is placed in Site Phase IX where it was found mixed in with other elements of the AD 363 collapse. We will begin each brief description with the Propylaeum, since it was the focus of the 2003 excavations, but we will consider the other areas of the Lower Temenos, Upper Temenos and the Great Temple as well.

Nabataean Great Temple Site Phase I is assigned to the preparation of the precinct — the quarrying of bedrock, particularly on the east and south for the terrace surround as well as the import of fill for areas requiring leveling. Site Phase II, the first and earliest major Nabataean construction phase follows shortly thereafter when the Propylaeum east west Portico Wall fronting the street is constructed, as well as a distyle in antis temple with a central stairway to access the structure (Joukowsky 1998: 147 note 4). Site Phase III marks a period of minor damage[6] to the distyle building and this prompted the Nabataeans to undertake a monumental rebuilding,[7] in Site Phase IV. Known as "The Grand Design", this phase sees the completion of the full Propylaeum with two additional east west walls behind the Portico Wall, from north to south: Wall K and the Propylaeum Retaining Wall. The Portico Wall is breeched at this time for the construction of the Propylaeum West Stairs that are shared with the Temenos Baths to the west. In the Propylaeum and the Lower Temenos this phase also includes the construction of cryptoportici under the triple colonnades and the installation of the limestone elephant-headed capitals. Flanked in the east, west and north by the colonnades and twin exedrae is the sweep of the great Lower Temenos plaza with its white limestone Hexagonal Pavement. In the Upper Temenos, the complex including the Anteroom, Shrine Room and Baroque Room (located behind the South Perimeter Wall) and the Residential Quarter are constructed. Additional measures include building of the walls and arches of the East Cistern and the precinct's East Perimeter Wall and its plaza are also completed. The focal point of the complex, the then freestanding distyle temple is expanded into a tetrastyle in antis structure with a new stylobate, an extended porch bordered by east and west antae along with the erection of perimeter corridors and exterior walkways. Other monumental structural changes take place as well coinciding with the building up of the temple Forecourt with fill and its embellishment with smaller white hexagonal flagstones.

On the basis of the floral decoration stylistics, especially seen on the limestone capitals and elements of the entablature, the Petra Great Temple Phase IV iconography appears to be similar to that

6. This could possibly be attributed to the earthquake of 312 BC.

7. This idea is suggested in Joukowsky 1998: 147, note 45.

of the al-Khazna.[8] Tentatively, the evidence suggests that the Great Temple and the adjacent Residential Quarter to the southwest are originally constructed sometime in the last quarter of the first century BC[9] by the Nabataeans who combined their native traditions with the classical spirit during the reign of Malichus I (62-30 BC), or Obodas II (30-9 BC).

In Site Phase V many exciting changes occur in the Propylaeum West — most notably the installation of the double betyls (Joukowsky: 2002 :317-318, figs. 4-5). The most major change in the upper area of the precinct includes a major remodeling of the temple interior to hold a theater, supported by the contemporary additions of casemate intercolumnar walls (walls between the columns), a central arch, vaulted chambers and four vast interior stairways, two with landings and small steps for entrance into the Theater rear and new limestone floor pavements. This renovation we place sometime in the AD first or early second centuries near the end of the reign of Aretas IV, ca. AD 40/44, or to the rule of Malichus II (AD 40/44-70), and possibly to the reign of Rabbel II (AD 70-106).

Dated to the mid-second century, Nabataean-Roman Site Phase VI coincides with the ca. AD 106 Roman annexation — witnessing collapse in the Propylaeum along with the collapse of the south cryptoporticus of both the Propylaeum West and Propylaeum East. In the Lower Temenos repairs are made to the Hexagonal Pavement and to the East Exedra walls, and the subterranean canalization system is reworked due to soil accumulation — some containing first century ceramics. In the Upper Temenos is the probable collapse of the Baroque Room and damage occurs in both the Anteroom and Shrine Room, and shortly thereafter there is the abandonment of the Shrine Room and modification of the Anteroom's east wall. This phase may also be the latest use of the Residential Quarter. In the temple proper, the East, West and South Corridor doorways are blocked or narrowed restricting access to the sanctuary's interior. Further collapse is indicated by damage to the east and west walls of the East Interior Staircase, the major structure, however, remained standing, as far as we know.

In Site Phase VII (AD mid-second century) is a period of repair and reconfiguration in the Propylaeum with the building of the upper treads of the Central Staircase to provide direct access to the Lower Temenos. The Roman Street is also paved at this time, and Wall K is rebuilt in the west, but razed in the Propylaeum East. Also in the Propylaeum West, benches are installed against Wall K in Room 1, and the east Portico Wall is reconfigured with the insertion of the three north south doorways of Rooms 1-3; their thresholds securely fitted with iron bars. The Lower Temenos East Cryptoporticus has cross walls built between the stylobate walls of the East Colonnade and between the cross walls an intentional fill is deposited supporting their structural integrity. There is also continued repair of the East Exedra, and the West Exedra's small bathhouse construction. A lead pipe is laid across the base of the Lower Temenos Retaining Wall extending across the precinct from east to west between the two exedrae.

In the Upper Temenos, aboveground canalization trenches are cut into the bedrock in the south and east. A bench is built along the South Corridor Wall facing the South Passageway, and drains of the temple Forecourt are repaired with ceramic pipes for aboveground canalization. As far as the temple is concerned there are visible repairs, as well as the robbing of structural elements seen in the removal of the Pronaos floor pavements and the blocking or narrowing of the East, West and South Corridor doorways restricting access to the temple; there is also the installation of the east and west walls at the south end of the east and west walkways. Phase VII in the temple also sees the reuse of large ashlars and worked architectural fragments with the building of the theater pulpitum (stage). Closely following is Site Phase VIII, predating the late AD second and third centuries. During this time there is another period of damage, abandonment, collapse and reuse.

Site Phase IX is dated to the major AD 363 earthquake — a cataclysmic event bringing about the fall of the Propylaeum and the Lower Temenos cryptoportici with their arches tumbling onto the floors. Additionally there is the partial collapse of the Propylaeum Retaining Wall. In the Lower Temenos the collapse of the West Colonnade is clear-

8. Judith McKenzie (1990) has undertaken the most detailed study of Petra monuments. And also see the discussion regarding the site of Madā'in Ṣālih in Saudi Arabia, Judith McKenzie and Angela Phippen (1990) "The Chronology of the Principal Monuments at Petra", 1990: 152. They summarize their views of Nabataean sculpture by stating: "Simplification of the classical elements of architectural decoration is related to chronological development. This change was seen in the moldings, Doric frieze, capitals, florals and sculpture".
9. J. McKenzie's (1990) chronological assessments assign the structures including the Qaṣr al-Bint, al-Khazna, the Temple of the Winged Lions and the Baths to this time period.

ly indicated by rows of deep indentions in the Hexagonal Pavement. The Lower Temenos is covered over by the accumulation of architectural fragments mixed with fill and sedimentation extends over the West Perimeter Wall. Some collapse is also seen in the south of the East Triple Colonnade. In the Upper Temenos, there is the major collapse of large features and fluvial and wash down deposits accumulate — the lower levels of which were found to contain scanty remains of two human bodies. In the Shrine Room, abandonment occurs followed by collapse and the accumulation of debris. The West Walkway wall is destroyed, as is the Residential Quarter after which more sediment accumulates. The temple west Porch columns fall onto the temple Forecourt and other temple elements crash and fall into the west Upper Temenos and the Lower Temenos. In the temple, at some point in this phase, the floors are robbed out and debris covers the lower risers of the interior staircases, allowing for the robbing out of the upper treads. Subsequent silting of the areas occurs and the west intercolumnar wall buckles under the pressure of falling debris.

In Phase X there is little activity in the Propylaeum and all signs indicate an abandonment of the precinct represented by the collection of a fluvial deposit dated to ca. AD 4th-5th centuries. As a period of Byzantine reuse the Lower Temenos deposits indicate secondary destruction levels and the rebuilding of intercolumnar walls using temple pilaster reliefs as building elements. There are industrial activities taking place as well as including lime manufacture in the south East Triple Colonnade and exedrae. Using fallen architectural elements a platform is constructed in front of the West Exedra, and there are continued industrial reuses of several areas in some cases leaving significant quantities of burned ash residue. During this period in the Upper Temenos the East Plaza floors are stripped, and there are modifications in East Perimeter Room A. Within the casemate of the East Perimeter Wall, the floor of Room A is built up with purple sandstone bedding and a low blocking wall is installed across the doorway to retain the fill. Tethering holes are cut beside a trough set into the room's east arch, transforming Room A into a possible animal shelter and blocking the entrance to the east Garden area. Haphazard masonry walls are also constructed, drainpipes are installed clumsily and scattered shabby walls are built. Multiple drainage systems are put into place, and in the west, the most western precinct wall is rebuilt along with its aboveground canalization system. In the temple there is the robbing of various elements including the upper treads of the interior staircases and the east and west landings. There is some attempt to rebuild the East and West Walkways. Domestic secondary uses are found in the temple Theater stage, vaulted chambers, cistern, central arch, and in the East Corridor.

8. East Propylaeum looking west (Photo Artemis W. Joukowsky).

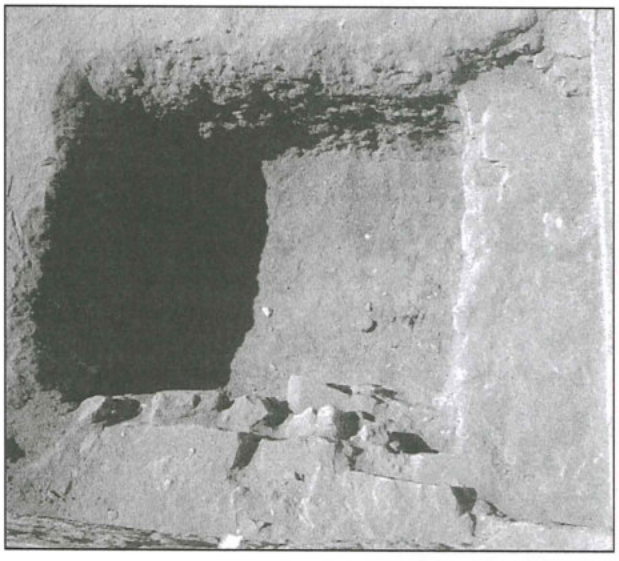
In Site Phase XI there is further collapse that possibly post-dates the AD fifth century and possibly may be the result of the earthquake of AD 512. In the Propylaeum major collapses continue, and in the Lower Temenos there is continued accumulation of fill and the East Colonnade collapses along with the East Exedra's entablature. The Upper Temenos also is subject to further collapse, with the accumulation of fill after disuse of the canalization system, and areas of localized burning. The temple East Porch columns collapse, and fluvial deposits continue to accumulate. Site Phase XII is a time of abandonment, and robbing. Another fluvial deposit then accumulates. In Phase XIII, again, there are a series of major collapses, and Phase XIV encompasses the modern era when the Lower Temenos is used for Bedouin farming marked by the division of the area into two fields by overturned column drums. The Bedouin also construct various makeshift walls in the Lower Temenos.

In the Upper Temenos temple Forecourt, fill is found including pieces of plastic tent stakes and an Israeli bullet casing. Nazzal's dump is dug between the collapsed Porch columns. There is the German survey of the temple stylobate and Forecourt, resulting in the reverse stratigraphy of these deposits. By this time the temple precinct is deeply buried under successive collapses and topsoil. When we arrive in 1993, the only visible components are the collapse of the East Porch columns and the outline of temple walls seen in the 1992 aerial photographs.

Propylaeum East Site Phase Chronology

Several distinct occupation phases are visible in the 2003 excavations. There is a clear chronological relationship among the three terrace walls. The Portico Wall is the earliest; and sometime later the middle wall, Wall K (not present in either Trenches 95 or 96) and the Propylaeum Retaining Wall are probably constructed at the same time. Wall K, the middle retaining wall of the Propylaeum (recovered in the Propylaeum West), is not found in the Propylaeum East suggesting a period of substantial redesign in this area. A photograph of the Propylaeum East is shown in **Fig. 9**. From earliest to latest the phases in Trench 95 are as follows:

In Site Phase I an early use of the Propylaeum is found in Trench 95 (Locus 20) where an early wall is recovered below the presumed floor level — it is not aligned with other walls, including the Portico Wall. In Site Phase II of the first century BC the lower levels of the Portico Wall in the Propylaeum East and West are constructed.[10] As a result of minor damage in Site Phase III, the Propylaeum undergoes considerable change which takes place in Site Phase IV: The Grand Design, which includes the construction of the full Propylaeum. Wall K and the Propylaeum Retaining Wall are built with cryptoportici between them and both walls are topped by a colonnade crowned by elephant-headed capitals. This creates both an east west and north south passages in the east and west areas of the Propylaeum. We do know that Wall K must have existed originally in the Propylaeum East because there are north south arch springers that have been incorporated into the construction of the east face of the main Propylaeum Central Staircase and there are the remains of some 13 slots in the Propylaeum Retaining Wall originally holding them in place. These extend to the north from the Propylaeum Retaining Wall and must have had their support from a counterpart wall, presumably Wall K. The remains of these springers can be seen also in the west balk where the Propylaeum Central Staircase is built to incorporate them and also in the Locus 8 wall where their voussoirs still extend to the south. In the east the remains of arch springers indicate the presence of a groin vault where the north south arches leading into the East Cryptoporticus abut the east west springers that were part of the original east west East Cryptoporticus. This indicates that at one time one large gallery extended across the East Propylaeum, and with the collapse of the cryptoporticus arch system the main staircase of the Propylaeum was extended.



9. 2003 Sondage in SP 95 (Photo Artemis W. Joukowsky).

In Site Phase V in the Propylaeum West is the installation of the double betyls (Joukowsky 2002: 318, figs. 4-5). In Site Phase VI, ca. AD 106, some collapse and damage occurs which theoretically I believe is the result of the Roman bombardment of ballista balls in an attack on the Propylaeum by general Cornelius Palma (Joukowsky 2003: 389-406). This would account for the number of ballista balls found along this wall in our 2002 excavations. Site Phase VII is the AD mid-second century time of repair and reconfiguration when the Colonnaded Street is paved and the upper treads of the Propylaeum Central Staircase are constructed. In the Propylaeum West Wall K is rebuilt; Propylaeum West Room 1 is built and benches are installed. In the Propylaeum East, however, Wall K is razed and there is the reconfiguration of the east Portico Wall with the insertion of Rooms 1-3. Sometime later the original doorways are modified and their thresholds are fitted with iron bars. In Site Phase VIII there is some column collapse and in Site Phase IX the area undergoes further damage due to the AD 363 earthquake with the partial collapse of the Propylaeum Retaining Wall and the accumulation of soil and debris. In Site Phase X, dated to the Byzantine period in the AD fourth and fifth centuries, there is abandonment, and in Site Phase XI the Propylaeum undergoes further major collapse, possibly the result of the earthquake of AD 512. In Site Phase XII the robbing and abandonment continue, in Site Phase XIII there are ongoing major collapses throughout, and in the modern period in Site Phase XIV we assume the Propylaeum is clogged with debris. The only rec-

10. This wall may be aligned to the early wall found in Trench 86 of the Propylaeum West excavated in 2001.

ognizable sign of use, however, is a graffito, "1921", inscribed on Room 2 Doorway #2.

Now we turn to the rich collection of architectural fragments unearthed in these excavations.

Architectural Fragments

In 2003, from the approximate 5.00m depth of deposit, it is clearly demonstrated how the elements that fronted the Great Temple precinct collapsed, for in the three rooms some 975 architectural fragments were registered — 152 (16%) column drums, 563 (58%) ashlar wall blocks — six of which bore Nabataean Mason's Marks. There were 133 (14%) capital elements, of which 39% were elephant head fragments, and 59 (6 %) cornice fragments, which clearly are the collapsed elements of the colonnade that fronted the Great Temple precinct in the north. Combining the architectural fragments from Trenches 82 in 2001, Trench 93 in 2002 and those from Trenches 95 and 96 in 2003, a cumulative total of 1346 fragments are recorded from the Propylaeum East: 250 column drums, 673 ashlars, 95 elephant head capital fragments and 62 cornice fragments. From our Great Temple database of 11,006 fragments to date, 12 percent of the total are recovered from the Propylaeum East excavations.

Extraordinary architectural materials from the 2003 excavations were comprised of relief sculptures fallen from the Propylaeum and Lower Temenos, and elephant-headed capital motifs including eggs and tongues, helices, darts, and other capital elements with bead and reel designs. Among the spectacular finds are partial pilasters including one most exciting find of Athena (Seq. No. 95977) shown in **Fig. 10** with her two javelins and a battered Medusa relief on her chest. The block is 0.36m in height-by-0.30m in width and 0.18m in width. To the left she has a twisted hair plait and her shoulder is draped. The Medusa pendant is visible hanging from a snake necklace, and a herringbone pattern distinguishes the breastplate.

10. Relief of Athena (Seq. No. 96104) with her weapons and Medusa medallion (Photo Artemis W. Joukowsky).

Remains of a cyma reversa can be seen on the top of the block and there is a partial cyma reversa on the left. A round hole is carved in the base and there are two holes in the neck area probably for affixing the head. A parallel for this figure is published as a sculpture of Allat-Athena (Zayadine 1990: 45, Pl. I:2; McKenzie 1990 Pl. 60.b).[11]

One finely sculpted relief is a female in two fragments emerging from a helix acanthus cluster (Seq. No.95490) shown in **Fig. 11.** Measuring 0.195m in length and 0.15m in width it reminds us of a figure published by McKenzie (1990:Pl. 64.b to the right). **Fig. 12** pictures a spectacular ornamental bow measuring 0.41m in length, 0.35m in width and 0.19m in thickness, with bunched grape leaves in white limestone (Seq. No.95471). Found in front of the doorway to Room 3 is perhaps the most extraordinary pilaster relief of a Hellenistic type embossed helmet with double perforations on the cheek flaps with a (?) quiver. Pictured in **Fig. 13** (Seq. No. 96014) this panel measures 0.65m in length, 0.42m in width and 0.285m in thickness. The helmet itself measures 0.295m in length, the curious embossed volute is 0.07m in length and the cheek flap measures 0.13m in length. There is a partial weathered cyma reversa on the left face, and in the upper right is a circular gouge approximately 0.08m in length.[12] Another is the shoulder of a draped female (Seq. No. 95922), which is also a fragment from a pilaster.

A pilaster relief of a female (Seq. No. 95345) is found on the sidewalk in front of Trench 95. Shown in **Fig. 14**, it is 0.54m in height, 0.87m in width and 0.31m in thickness. The head insert measures 0.15m-by-0.10m. The shoulders and breast (left breast fractured) are covered with a chiton worn over a diaphanous peplos with wavy pleats, higher on the right shoulder than on the left, and there is a herringbone braid around the neck. There are vestiges of two corkscrew curls on the left shoulder and a V-shaped depression in the neck above — vestiges of plaster where the head was inserted. This block is fractured on its left side, the top is scored, the rear and side are rough,

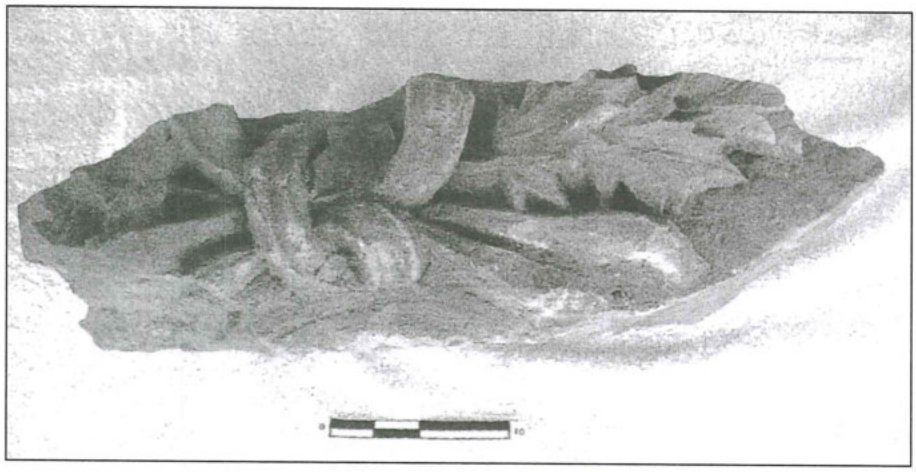
11. Female figure emerging from acanthus leaves (Seq. No. 95490) Trench 95 Locus 10 (Photo Artemis W. Joukowsky).

but a smooth area is found on the left side, which is indented 0.15m-by-0.12m. It is weathered with lichen remains on the right side and the cyma reversa on the left side is 0.11m in width. Of interest is that no cornucopia is represented as we have found in other similar pilaster sculptures recovered at the Petra Great Temple.

Based on this extraordinary corpus, I would like to suggest that some of the sculptures represented in McKenzie's (1990: 134-135, Plates 60-66)

11. This pilaster was brought to my attention by my graduate student, Lisa M. Anderson, who comments: "The two finely carved javelins behind Athena are unusual in their number. While Roman soldiers are occasionally shown with more than one javelin or spear (Bishop and Coulston 1993, figs. 3.2 and 4.2), to my knowledge, this relief represents the first occurrence in the iconography of Athena or Allat…This example is from a double faced pilaster panel, discovered south of the arched Gate of the Qasr al-Bint Temenos. The figures look similar and the position of the caduces on the other face with Hermes corresponds to the position of the spears in the Great Temple panel".

12. Lisa M. Anderson observes: "Although the top of the helmet and the bottom of the cheek flap are missing, the lack of a neck guard and the shape of the brim help to place this helmet firmly within the ream of Hellenistic representation". Volute decorations are common on Hellenistic helmets, although most are much tighter (resembling a snail shell) and twist toward front of the helmet and not toward the back, as is this case. The best parallels appear in sculpture, for example on the Pergamon Altar (although cheek flaps are lacking) and the so-called Altar Domitius Ahenobarbus. A relief of Ares, which probably belongs to the same group as the Athena relief, depicts a helmet with a loose volute, LIMC 1981: II, fig.1.



12. Relief of Grape Leaves tied with a knotted ribbon (Photo Artemis W. Joukowsky).

13. Pilaster relief (Seq. No. 96104) decorated in relief with an embossed helmet (Photo Artemis W. Joukowsky).

14. Pilaster relief of a female (Seq. No. 95345) (Photo Artemis W. Joukowsky).

"1967 Group of Sculpture" dated to the first century BC, belong in fact to the Great Temple. These new discoveries combined with those already published by J. J. Basile (2001: 335-346) and E. L. Schluntz in Joukowsky (1998: 225-234) demonstrates the very high quality of Nabataean workmanship.

As was mentioned previously, these deposits clearly demonstrate that they are part of the collapsed architectural elements of the north colonnades that fronted the Great Temple precinct as well as elements that presumably were used in the Great Temple itself. I believe now it is possible to theorize that the Great Temple was entered through a monumental gate that was decorated with pilaster reliefs. This could also account for the large number of pilaster fragments found in Great Temple contexts and may include some of those reliefs identified in the McKenzie group as well. The density and distribution of the architectural fragments vividly argues for considerable earthquake and fluvial activity.

Concerning the Catalog registry of Great Temple Propylaeum East, small finds include six coins, a small horned altar, a bead and a metal clasp.

Conclusions

Of particular importance is that the Propylaeum East is contained within two east west walls, the Portico Wall and the Propylaeum Retaining Wall, whereas the Propylaeum West had central Wall K bisecting the area. This would seem to indicate that major revisions were undertaken in the Roman period, when Wall K was dismantled and the char-

acter of the Propylaeum East changed from east west galleries and cryptoportici running parallel to the street to large north south single chambered rooms aligned on a completely different axis and with no access between them. The revised spatial arrangement of these fully enclosed triple rooms is perpendicular to the street. As soon as the north south walls appeared, one of my beliefs was that we were excavating a shopping complex. During excavation the recovery of the partition walls dividing the three rooms indicated that these rooms may originally have functioned as shops, but we were convinced otherwise when we recovered the thresholds with bars extending across them. We had to wait until the conclusion of the excavations to find the most suitable explanation for those enclosed spaces — notably Rooms 1 and 2 with no outlets, no stairs and no entries except for the doorways. In other words there was no point of access from within the precinct at all. Although there are bars also covering its threshold, Room 3 poses another set of problems, because it appears to have served as an entry into the East Cryptoporticus. But of this we cannot be sure until this room is fully excavated.

A concluding note must also be offered about the three thresholds found in Rooms 1, 2, and 3. Each of these doorways is comprised of three rows of blocks. To the north is usually a large sandstone ashlar, which provides the step into the threshold from the sidewalk and street. This ashlar stretcher was put in place to span the width of the doorway, but often its shortfall had to be compensated by another ashlar on either the east or the west to span the full width. There is then a second row of ashlars, often a combination of limestone (or white sandstone) pavement stones, placed at approximately the same level as the outer sandstone ashlar. Inside of this row, and raised above the second row of slabs, is a horizontal limestone slab with sturdy iron pins stabilized with lead that form the inner threshold. It appears that the outer threshold area would have secured a pair of wooden doors that opened onto the sidewalk, and we assume the bars on the thresholds would remain in place. With signs of bars at the thresholds of these large rooms, these excavations are providing us with even more surprises in our excavations of the Petra Great Temple.

In later periods, these rooms were robbed and re-used as far as we can tell, until the AD 363 earthquake collapse. Since the thresholds for these rooms were their only access, there must have been a moveable upper part of the cage or some system for the entry for whatever was placed inside these rooms. We question how these doorways with their threshold barriers and their rooms may have served in antiquity because these bars obviously prohibited easy entry and/or exit and were a physical boundary between the world of the sidewalk and street and what was going on inside the precinct.

Further Discussion

Our work in the Propylaeum West in previous seasons indicated that double rows of columns were erected at one time. These fronted the monumental entry of the Propylaeum, and were placed on top of Wall K and on the Propylaeum Retaining Wall to define the structure's northern extent. Most of the column drums that originally lined the East Propylaeum Retaining Wall were found in Trench 95, but this column drum fall raises a number of logistical questions. If Wall K no longer existed when these rooms were created, as we have presumed in our phasing at the beginning of this report, then the drums found in Trenches 95 and 96 could have fallen from a single row, standing on top the Propylaeum Retaining Wall. Would this seem to indicate that there was a remodeling of the Propylaeum perhaps once the cryptoportici collapsed, and only one line of columns thereafter was left in place? This and other questions involving the functional reconstruction no doubt will further stir researchers to seek out other explanations. Comparable physical evidence from other sites at the moment is lacking. But for now although the functional significance is problematic, the physical evidence offers a few possible interpretations, including that these rooms served as a

- Zoo for exotic animals
- State treasury
- Holding space for criminals or captive people
- Sacred area devoted to the veneration of the city or a deity
- Storage facility

Unfortunately there is no balanced explanation and the non-verbal clues we have excavated have left us with major questions and few definitive answers. Unfortunately we have no documents from anyone who actually saw the Great Temple.

What conclusions can be drawn about the roofing for this area? We do know that the Locus 1 Wall's extant height is 6.33m and that the depth of the area from the Lower Temenos measures approximately 7.50m. It is possible that there was either no roof or that there was a sloping or flat tiled structure that, using the aforementioned dimensions as a guide, extended across the whole area from a monumental height on the north to cover the two part doorways. This, however, is con-

jecture, and will have to be reckoned with the architectural historians in their reconstruction of the Propylaeum.

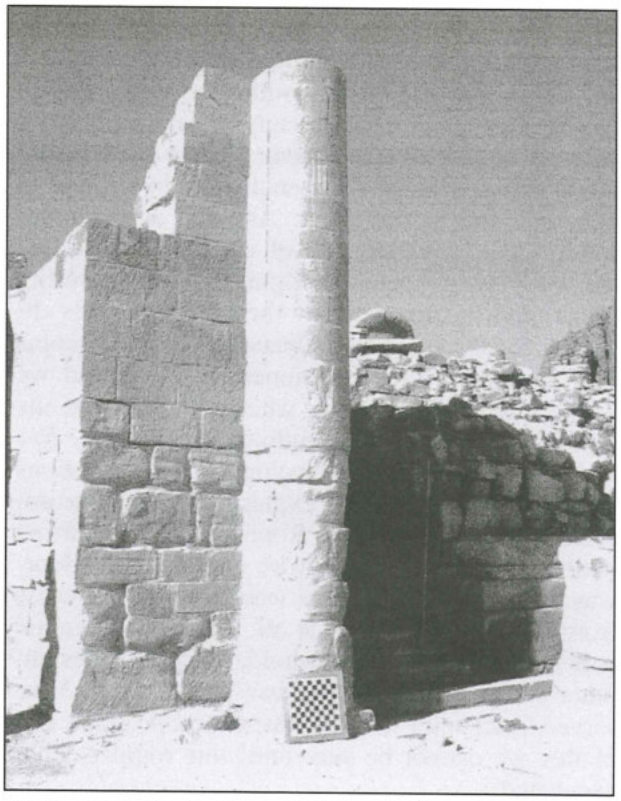
Potentially, more questions have to be answered by the completed excavations of the Propylaeum East to determine the early architecture that was here before the massive construction of the Great Temple took place.[13] Additionally, the early wall that surfaced in Room 2 (presumably covered by the flooring) should be followed in Room 1 to determine its full extent and to ascertain if it was part of an earlier structure that went out of use when the new plan for rooms was instituted.

Dating

This discussion should make it clear that the architectural evidence for these rooms must be separated from their contents. As was mentioned earlier, the artifact contents cannot be associated with a functional analysis of the rooms. In other words, the architecture of these three rooms cannot be dated by associated artifacts, and the relationship between the rooms' architecture and the contents found in the collapse must be assigned to different periods of time. Because we are operating on the assumption that the AD 363 was responsible for the destruction of the Petra Great Temple, in short, we cannot date the room construction by its contents, but we can say that the last use phase of the rooms was terminated by the AD 363 earthquake collapse. Artifacts such as the elephant-headed capitals and pilaster blocks from the destruction of AD 363 date to Site Phase IV from the first century BC to the AD first century when the Petra Great Temple in all its glory was constructed. The construction of the rooms we assign to the later Site Phase VII in the mid AD second century, and the AD 363 earthquake to Site Phase IX.

Consolidation

As for consolidation, the Petra Great Temple has achieved tremendous success in reconstruction not only for Petra itself, but also for the elucidation and distinction of Nabataean sites in general. Restoration is under the direction of Dakhilallah Qublan and includes numerous projects such as the re-erection of the columns and the pointing of walls. Shown in **Fig. 15** is the restoration of the East Exedra engaged column. Also restored in 2003 and shown in **Fig. 16** are the Lower Temenos West Cryptoporticus arches and **Fig. 17** is the Upper Temenos East Perimeter Wall Arch, which was a massive project. Naif Zaban was involved in the puzzle of fitting together the thousands of pottery sherds from the 2002 excavations of the Residential Quarter and Ulrich Bellwald removed the Baroque Room decorative ceiling plaster and continues to serve as



15. The East Exedra Engaged Column, to south re-erected in 2003 (Photo Artemis W. Joukowsky).

16. The Lower Temenos West Cryptoporticus arches to south, restored in 2003 (Photo Artemis W. Joukowsky).

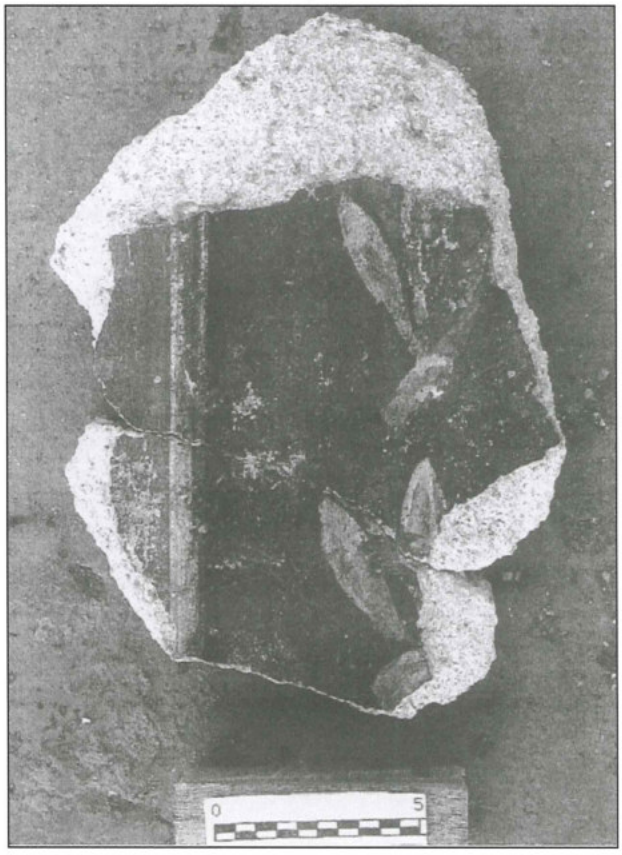
13. To complete the excavations of the Propylaeum East, the area to the north of Trench 80 2001 and the adjacent earth fill measures approximately 5m north south-by-4.5m east west. Trench 82 is an area 5m north south-by-3m east west and to the south of Trench 82 5.00m north south-by-5.00m east west. These excavations should complete the excavation of the Propylaeum East as well as clarify its functional reconstruction.

17. The Upper Temenos East Perimeter Wall and arch to east, restored 2003 (Photo Artemis W. Joukowsky).

its conservator. One fragment of painted plaster from the Baroque Room is shown in **Fig. 18**.

At Home Research 2003

At home during the 2003 summer through 2004 fall seasons analytical and organizational work continued on the Great Temple excavation material. Team members Christian F. Cloke, Emily Catherine Egan, Eleanor A. Power, and Brown University anthropology student Margaret McNamara finalized the phasing of the site, defining the fourteen distinct phases we have chronicled here for the evolution of the Great Temple complex. Based on the new phasing, the site databases for the Petra Great Temple Catalog, Architectural Fragments, and Grosso Modo were updated, assigning a final temple phase to each of the 96 trenches and myriad of special projects excavated since 1993 and their loci and associated material finds. Excavation efforts throughout the precinct from 1993 to 2002 were compiled and summarized, and chapters are currently being written on the Petra Great Temple water systems and stucco decoration in preparation for the final site publication. Volunteer Laura Harrington gave further assistance in research.

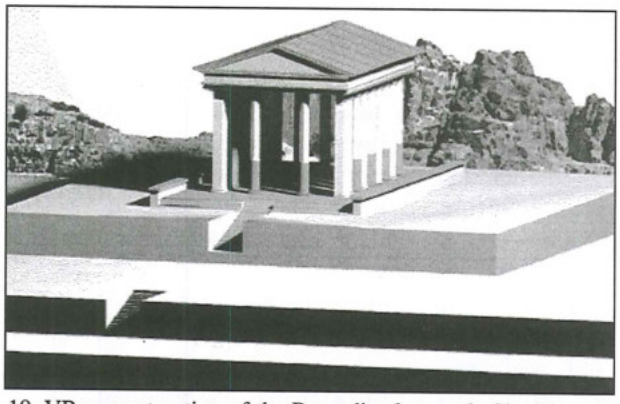


18. Painted Plaster from the Baroque Room (Photo Artemis W. Joukowsky).

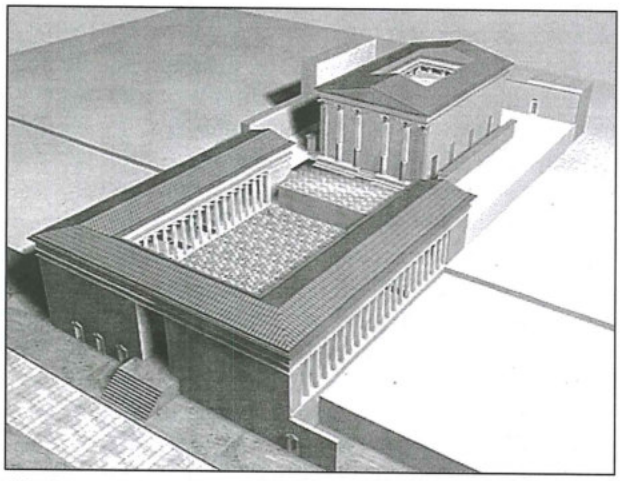
Now that our phasing of the deposits has neared completion an additional direction we have taken is to have our faunal record analyzed by Sarah Whitcher Kansa. Our interests are threefold: the first is to trace the faunal record to see if there are any demonstrative differences between the various phases of the site. Second is to compare remains found in the Residential Quarter to those from temple contexts. And third we want to know if there were different activities taking place within the Residential Quarter itself to see if the households there reflect the subsistence base. Another study we have undertaken is to analyze the shells of the temple. David S. Reese is undertaking this analysis. Again, the evidence from the Petra Great Temple survives in some quantity and although bones and shells are already quantified in our Grosso Modo database, the analysis will give us evidence that may modify some relationships hitherto unknown.

As part of our integrated program we have given some thought to the virtual reality reconstruction of the temple. In creating the CAVE (Cave Automatic Virtual Environment), we have had to think of what physical (e.g. shape) and what theoretical aspects should be emphasized and transformed into the VR environment. The architectural tangibility of the temple can now be analyzed using a myriad of factors such as its architecture and the distribution of artifacts. This is an area we have spent some time developing in 2003 and winter 2004, and many fresh ideas have emerged for research potential. **Figs. 19 and 20** illustrate Site Phases II and VII as represented in the CAVE.

On other fronts, Sara Karz Reid is completing her work on the Small Temple architecture and its interpretation in a dissertation entitled, "Imported Marble and Success in Trade Relationships at the Small Temple at Petra". Additionally, Deirdre G. Barrett is completing her dissertation entitled, "De-



19. VR reconstruction of the Petra distyle temple Site Phase II (Eileen L.Vote).



20. VR reconstruction of site phase VII (Eileen L. Vote).

tecting Cultural Identity Within Nabataean Society After the Annexation of Its Kingdom in CE 106 By Examining the Terracotta Oil Lamp Within Sacred and Secular Sites: Khirbet et Tannur, The Tombs of the Petra Ridge Church and the Petra Great Temple."

We are also in the process of writing our final report even before the completion of the excavations and are hopeful that we will publish the full results of the excavations within the next three years. We are, after all, excavating but one phenomenal complex and the task of its completed excavation should take us no longer than two-to-three more field seasons. After having committed 11 years to the Great Temple, we have uncovered an astonishing wealth of information that has much potential for future research and the multi-vocality of the site and for Petra as a whole.

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