

MORE TREASURES AND NABATAEAN TRADITIONS AT THE PETRA GREAT TEMPLE: THE BROWN UNIVERSITY 10TH CAMPAIGN, 2002¹

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The tenth 10-week season of excavation by Brown University archaeologists at the Petra Great Temple took place from June until August 2002, and helped further clarify the architecture of the precinct. Nine trenches and three special projects were excavated with startling results. A revised site plan is shown in (Fig. 1) and an aerial photograph of the site at the conclusion of the 2002 season is illustrated in (Fig. 2).

2002 Excavation Staff ²

The members of the 2002 Brown University team included Artemis A.W. Joukowsky, photographer; Deirdre G. Barrett, cataloger; Brian A. Brown, Assistant Director and surveyor; and Master Senior Surveyor, Paul C. Zimmerman. Also present were Sara Karz Reid, Small Temple supervisor, who is completing her dissertation on the Small Temple excavations and seasoned senior archaeologists: Emma S. Libonati, José I. Fusté, Steven Larson, Christian F. Cloke and Amanda G. Henry. The team of Andrew Willis and Pierre-Louis Bazin from the Brown University Engineering Department served as part of our United States National Science Foundation Grant (#BCS-9980091) devoted to archaeological applications of digital archaeology. I was fortunate to have extraordinary help from volunteer Shari Saunders who undertook numerous tasks including pottery analysis, and Anne-Catherine Escher and Ulrich Bellwald were indispensable for the recording and recovery of the Baroque Room plaster. Anne-Catherine Escher also aided in the drawing of architectural elements. Restorer Naif Zibbin magically helped to find joins for the fragmentary mar-

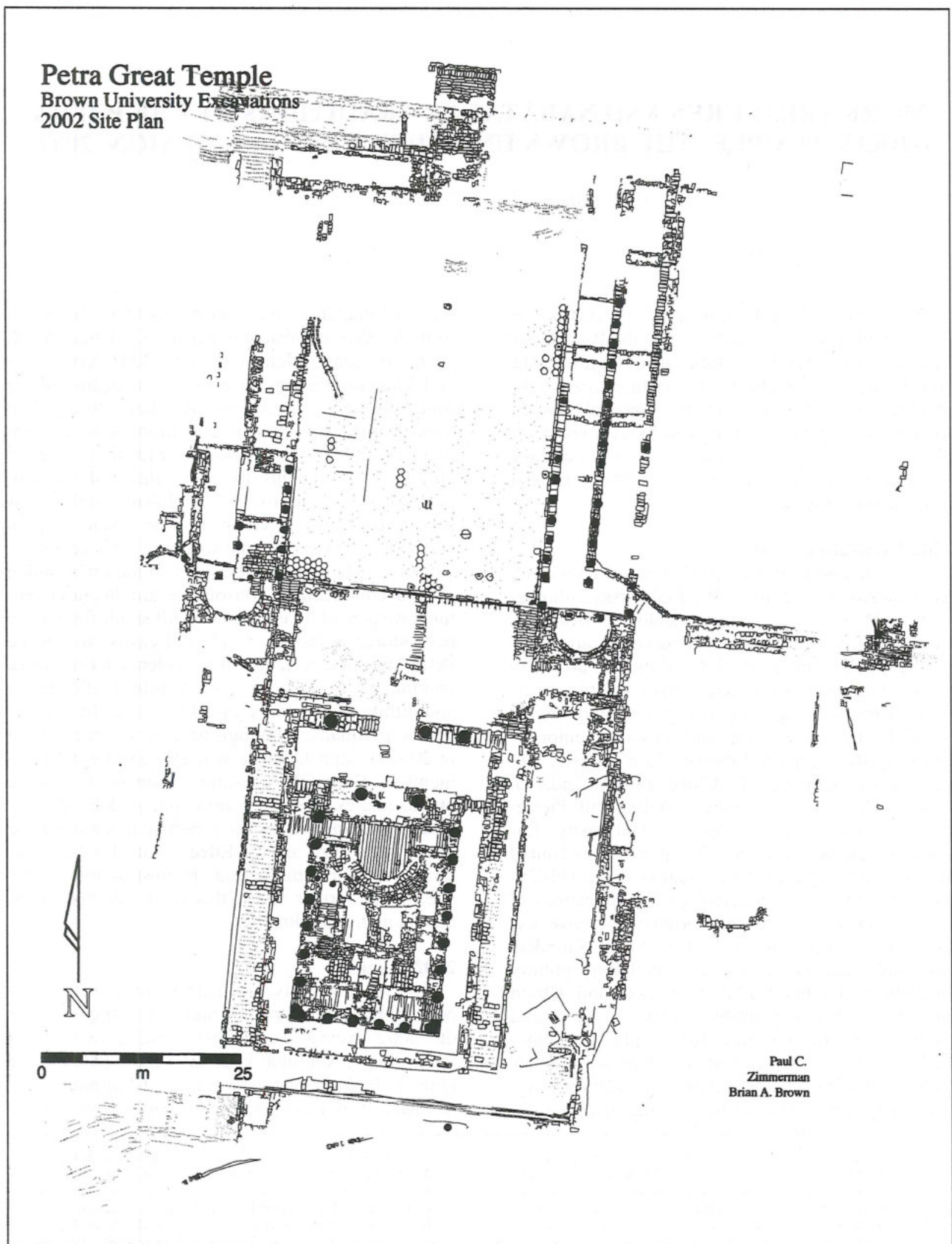
ble wall cladding and inscriptions from the Small Temple. Our numismatic expert, Christian Augé, spent two days identifying our 2000-2001 coins and Traianos Gagnos gave us a first reading of the Small Temple inscriptions. As done during previous campaigns, frescos and mortars were sampled for analysis to provide us with their original chemical constituents by May Shaer of the Department of Antiquities. Dakhilallah Qublan, our expert foreman and Great Temple restorer, again served a crucial role in the success of this year's excavations. He oversaw the 50 workmen who aided us and continued to consolidate architectural features weakened by excavation. All small finds have been stored at the site in cleared caves, and in the Petra Museum. At home in Providence RI the work continues with the help of artists John Philip Hagen and Emily Catherine Egan who have drafted artifacts and plans. Although he was not in the field in 2002, Joseph J. Basile was also an integral team member. Donna D'Agostino continued to update our databases, and we owe a special debt of gratitude to Adam Brin for his expertise in updating the Petra Web Page and to Eileen Vote for her continued work on the virtual reconstruction of the site. As in former years, this work has been conducted under my direction.

2002 Sponsors

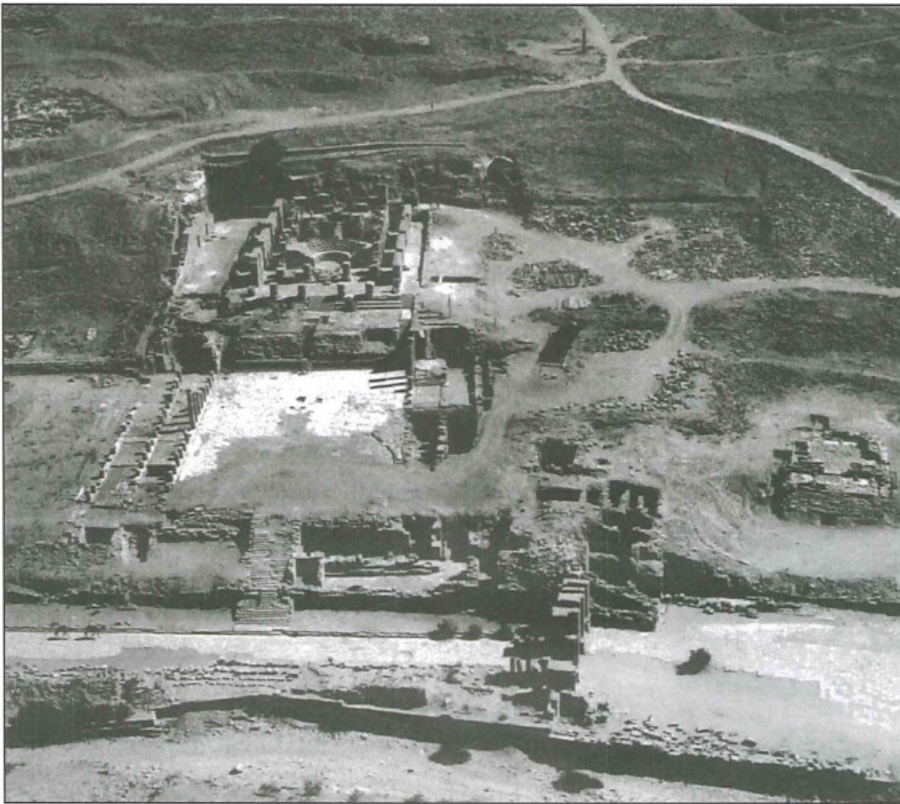
I have been truly fortunate to receive the support of Brown University and many sponsors for the 2002 excavations. Major funding came from the Luther I. Replogle Foundation, the Manchester Growth Fund (Donald E. Besser, Chairman), Mr. and Mrs. Wuk Rai Cho, and the Joukowsky Family

1. Annual overviews of these excavations have been published in the Annual of the Department of Antiquities of Jordan with briefer notes in the American Journal of Archaeology and the American Center for Oriental Research Newsletter. The project web site can be found at <http://www.brown.edu/Departments/Anthropology/Petra>.
2. Special visitors to the Great Temple in 2002 included H.R.H. Prince Faisal and his family, the United States Am-

bassador Edward W. Gnehm and his family, H.R.H. Prince Ra'ad bin Zeid and his family, Eric Widmer and Meera Wiswanathan, and Jane Taylor. These along with Nina, Murat and Sureya Köprülü, and Suha Shoman volunteered their moral support to the excavation as did Mamdouh Bisharat, and our dearest friends and supporters, Ali Jabbri and W. Chesley Worthington who passed away this year.



1. Plan of the 2002 Petra Great Temple trenches (Paul. C. Zimmerman and Brian A. Brown).



2. Aerial photograph of the Petra Great Temple (Photograph by A.W. Joukowsky).

Foundation, which has most generously underwritten the expenses of site consolidation and restoration. H.R.H. Prince Faisal helped provide us with helicopter support of the Seventh Squadron of the Royal Jordanian Air Force for aerial photographs. This tenth campaign would not have been possible without the generous assistance of the American Center of Oriental Research (Pierre M. Bikai, Director), and the support of the staff of the Petra Crown Plaza Hotel to whom we are most grateful. Most importantly, I am in tremendous debt and want to express continued gratitude to the Jordanian Department of Antiquities for making this season possible. Fawwaz al-Kraysheh (Director), Hani Fallahat (our Department of Antiquities Representative) and Suleiman Farajat (Director of the Petra National Park) have all been indispensable for their confidence in our research.

Excavation Results

The 2001 season saw the cleaning of the street (Roman road), and the continuation of excavations in the West and East Propylaea and the Lower and Upper Temenoi, probes in the Great Temple proper, and the discovery of the Baroque Room and the Residential Quarter to the southwest. These investigations will be described in the above order with a concluding note about our artifact recovery and consolidation programs.

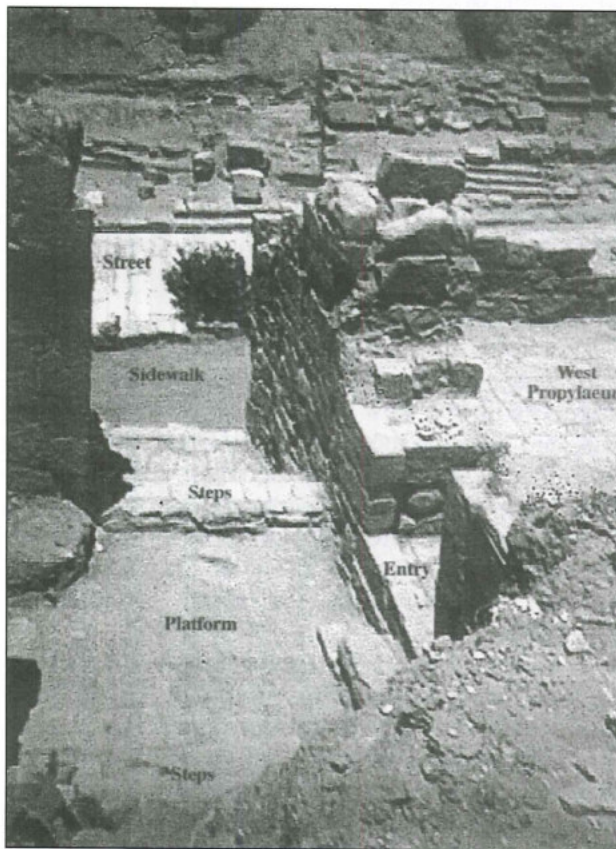
Sidewalk and Colonnaded Street

We know that in the early first century BC, the Nabataeans constructed a terrace adjacent to and aligned with the flow of the Wādī Mūsā on which was laid a major thoroughfare of sand and gravel. This thoroughfare formed the main access to the Petra central city and lies perpendicular to the north south axis of the Great Temple. The elevations for the street crown directly north of the Propylaeum average 890.326m and the south gutter is at 890.146m.

Special Project 88, comprising the portion of the street and sidewalk from the main Great Temple Propylaeum Steps to the Qaṣr al-Bint (قصر البنت) Temenos Gate, averaged 11.30m north south in width-by-34.30m east west in length. The street here measures 6.10m north south in width-by-34.30m east west in length, and the sidewalk averages 5.25m north south width-by-34.30m in length. Between the street and the sidewalk is the outer street curbing averaging 0.75m in height, comprised of a row of stretchers set perpendicular to the street. The inner curbing is set with a row of headers abutting the sidewalk, approximately 0.38m in height. From the archaeological deposit, four developmental phases for the sidewalk are apparent: The earliest phase was its foundation over the sand and gravel street; the second phase was the laying of a finely cut limestone pavement, of which only



3. Central thoroughfare and Propylaeum west (Photograph by A.W. Joukowsky).



4. West Stairway, Propylaeum west (Photograph by A.W. Joukowsky).

portions are preserved and the majority of which is missing; the third phase was the robbing of the sidewalk pavement; and the fourth phase was the collection of debris and soil on top of the foundation blocks. Onto this sidewalk opened the West Stairway also excavated in 2002. (Fig. 3) shows the street during cleaning with the Portico Wall and the Temenos Gate of the Qaṣr al-Bint in the background.

West Stairway

In 2002, an additional stairway (Fig. 4) to the Great Temple precinct was uncovered — a west staircase which served as access from the street sidewalk to both the Propylaeum West (hereafter PW) and the so-called Bath Complex. Freed from 2.00m of soil and debris under my supervision, these steps in Trench 88 are located 6.90m from the pedestal of the Temenos Gate at the west end of the street. In the as yet unexcavated south are the remains of three steps leading down to a landing platform, accessing both the Baths to the west and the PW to the east. Below the landing is a seven-step stairway leading down to the entry threshold from the sidewalk. The exposed west steps measured 3.80m in east west in width in the south near the entry to the PW but narrowed to 2.80m at the north opening onto the street sidewalk. Their total excavated length was 10.10m. It is clear that these stairs extended further south towards an entry to the Lower Temenos.

Propylaeum West

At its far west end, the Great Temple PW terminates in a doorway leading out to the west stairs. Under my supervision, Trench 81 of the Cryptoporticus West (contained within the Propylaeum West and known hereafter as CW), measuring 11.70m north south in length-by-an average of 6.70m east west in width, was defined as a western north south strip spanning the north south extent of the PW perpendicular to the west doorway. Parallel to the west stairs in the southeast wall as shown in (Fig. 5), twin betyls were discovered in 2001. Based on the 2001 findings, excavation focused on the area in front of the betyls believed to encompass part of a sacred area in the PW. It was hoped that the excavation of this area would shed light on the specific stratigraphy of the PW and ascertain whether the west door was a principal point of access, and, if so, what relationship did the betyl shrine have with this doorway? How did the physical plan and architectural flow direct human activity?

The function of the PW CW appears to have been a sacred shrine, which greeted the visitor as they entered the PW — this is attested to by the double betyls, shown restored in (Fig. 6). Other unique finds from this area include a horned altar (Fig. 7) and a bench resting on a finely cut limestone pavement at an 892.735m elevation set below the betyl wall. Together, these discoveries confirm that these west stairs were a ritual entry, intimately connected with the sacred nature of the Great Temple precinct.



5. Propylaeum West Entry and Betyls (Photograph by A.W. Joukowsky).

The PW consists of three parallel east west walls shown in the (Fig. 8) plan. The northernmost of these, bordering the Colonnaded Street, is P.J. Parr's (1970) Portico Wall separating the Great Temple precinct from the main thoroughfare of the central city as also can be seen in (Fig. 3). The Great Temple Portico Wall is preserved to a 5.00 to 6.00m height-by-1.72m width, and is constructed of three rows of sandstone ashlar, averaging 0.95m in length-by-0.70m in width-by-0.53m in thickness. Representing multiple rebuilding episodes, its collapse makes it impossible to reconstruct its upper courses. Several conclusions can be drawn from the evidence uncovered — the hypothesis put forth by P.J. Parr (1970) that Wall K and the Portico wall are substantially older than many of the civic buildings in the downtown of Petra can be supported by the architecture and the stratigraphic analysis of the PW. It also is likely that in its early building stages the Portico Wall originally continued in a straight line to the west, but was reconfigured when the west stairway was constructed partially for the building of additional northwest and west walls in order to create an entryway for the west stairs (Fig. 8). Although we are not able to determine when these modifications took place, they are probably coeval with the building of the PW.

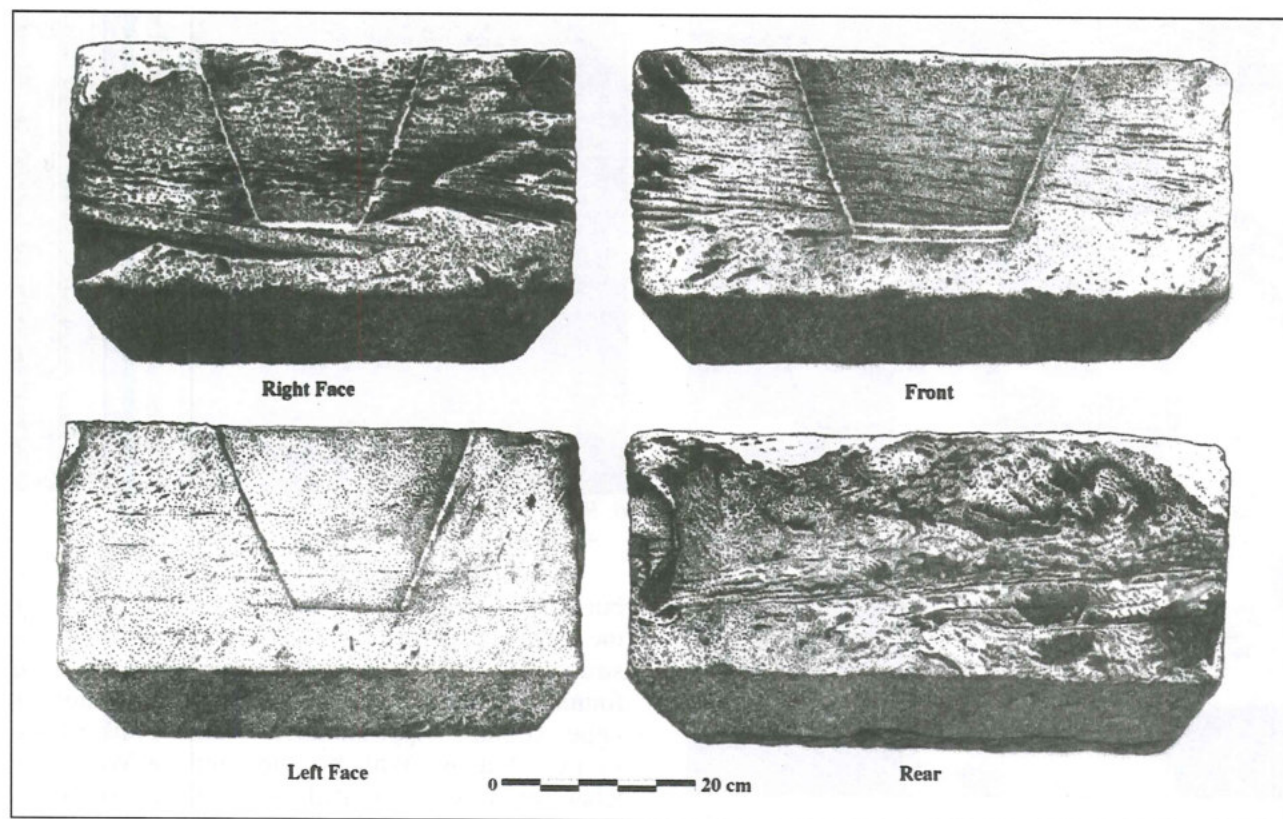


6. Restored Propylaeum Betyls (Photograph by A.W. Joukowsky).

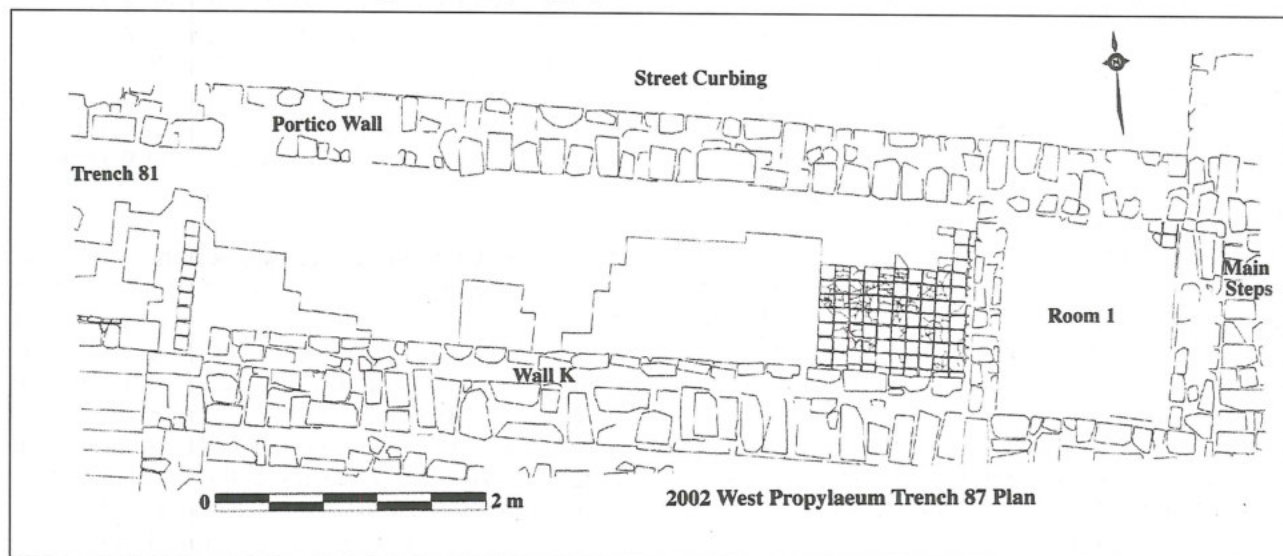
The depth of the Portico Wall is still unknown but it is assumed that it is at or below the level of the Nabataean street, because we reason it was constructed at the same time. Stratigraphically, the founding course of the Portico Wall antedates its upper courses. Approximately 3.00m south of the Portico Wall is "Wall K" and south of Wall K is what we have designated as the Great Temple's Lower Temenos retaining wall. In the Great Temple PW, Wall K ends at an east doorway abutting the perpendicular betyl wall. In earlier PW excavations the section between Wall K and the Lower Temenos retaining wall was excavated, and in 2002 we completed the excavation of the northwest cryptoporticus between the Portico Wall and Wall K, to which we now turn.

Northwest Cryptoporticus and Room 1

Following past excavations of the CW and the junction between the west and north cryptoporticus systems, the excavation of the northwest PW was completed in 2002. Under my co-supervision with Amanda G. Henry, Trench 87 measured 4.39m to 5.30m north south in width-by-19.41m east west in length. Subsequent to clearing the topsoil off the larger portion of the northwest corridor, excavation began separately in a small east room, Room 1, located next to the main Propylaeum entry stairs leading from the Colonnaded Street to the Lower Temenos. In the main part of the trench, there was considerable evidence of earthquake damage and collapse of the columns in the CW — 421 architectural fragments were recovered — 234 ashlar, 52 capital fragments 25 of which were elephant headed capital elements (one of which is shown in Fig. 9), 40 cornice pieces, and 31 column drums. Eventually the homogeneous fill between the Portico Wall and Wall K was excavated and a floor of



7. Propylaeum Horned Altar (Drawn by John Phillip Hagen).



8. West Propylaeum Plan (Paul C. Zimmerman and Brian A. Brown, Amanda G. Henry and Emily Catherine Egan).

square ceramic tiles measuring 0.27m^2 was uncovered at an 892.735m elevation. The overburden in Room 1 was also removed to the same level where the ceramic flooring was found.

The possible presence of a colonnade along the top of the Portico Wall had been suggested before, but the evidence continues not to be strong enough to prove this theory. The column drums found in the main part of the trench appear to have tumbled

south to north off the colonnade atop Wall K as shown in (Fig. 10). The diameter of the drums that fell next to each other is greater on the southern drums (83cm) than on those in the north (81cm). Other evidence supports a south-to-north fall pattern, including the heavier damage to the floor tiles in the north as well as a clear slump of ashlar from Wall K to the north. Also evident from the collapse pattern was that until the arches over the CW fell,

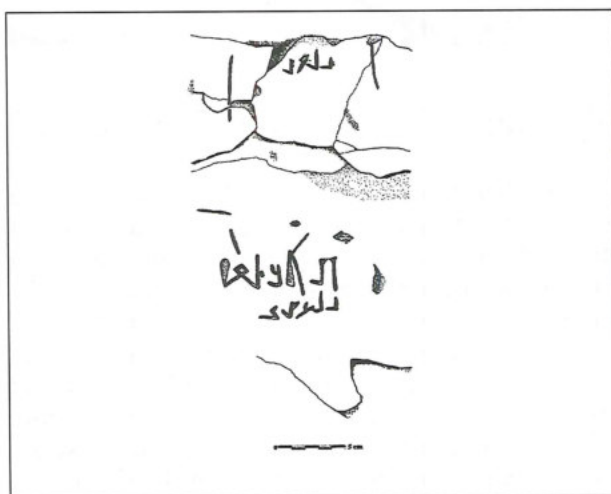


9. Elephant from the West Cryptoporticus (Photograph by A.W. Joukowsky).



10. Collapse of West Propylaeum columns looking south (Photograph by A.W. Joukowsky).

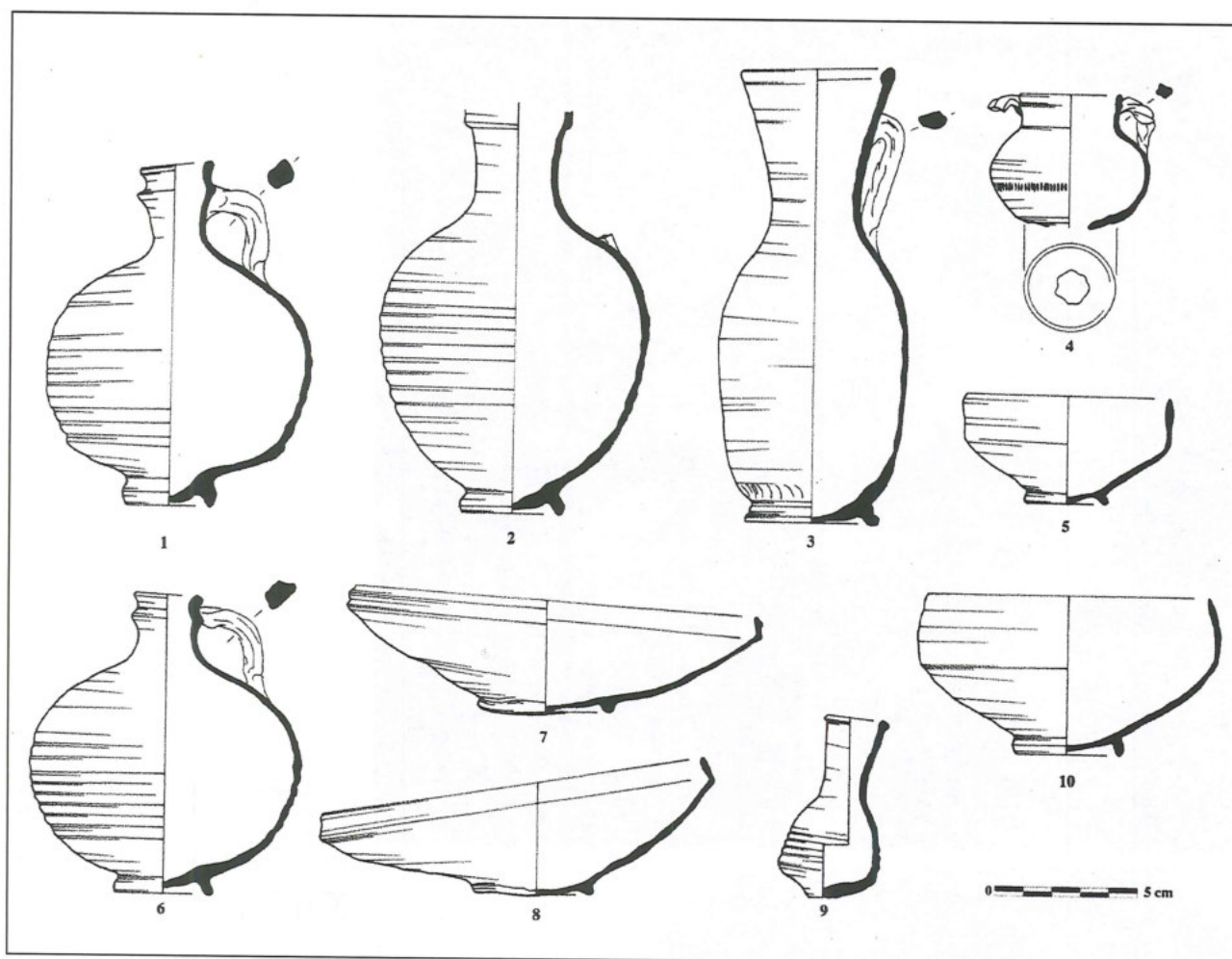
the area was relatively undisturbed. In several places the voussoirs collapsed directly from their original positions onto the tile floor, and, as no earth deposit accumulated between the fallen arch stones and the floor, the arch collapse perhaps even caused the abandonment of the area. There was surprisingly little damage to the floor tiles underneath the fallen arch stones, implying that these voussoirs may not have tumbled from a great height above



11. Three-line inscription in the West Propylaeum (Drawn by Amanda Henry, Drafted by Emily Catherine Egan).

the floor. Of interest is a two-course bench to the north of Wall K and in the north wall of the Wall K plaster an incised a partial three line inscription was found shown in (Fig. 11). A Nabataean Type 2 capital (McKenzie 190, Diagram 14 h-I) was also recovered from the fill.

The east doorway into Room 1 raises questions about access to the area. If the main Propylaeum entry stairs were constructed after the CW



12. Assorted 2002 pottery (Drafted by Emily Catherine Egan).

system, then this east access to Room 1 may have been from an earlier period, and the east wall of Room 1 and its doorway may have been constructed with a separate stairway. Room 1 and its window in the south wall were then blocked off when the Propylaeum entry stairs were built. Therefore, the pottery found in Room 1 (Fig. 12) would give a *terminus post quem* for the stair construction. It is also possible that the room remained in use after the stairs were built. The east wall of Room 1 could have been constructed at the same time as the stairway, narrowing the east west dimension of the room. This would explain why the east wall overlies the ceramic floor in Room 1, since the wall would have been built after the floor was laid. It might also explain why the stairs directly east of the doorway are missing, since there would have been a flat platform in front of the doorway. This theory would not explain, however, why the ceramic tile floor in the PW was also raised, since the floor clearly postdates the construction of the wall that divides Room 1 from the rest of the trench.

Without probing further under the ceramic tiles for an earlier floor level, it will be impossible to resolve this issue, and excavation under the main stairs will be necessary to determine if there were another, earlier stairway and platform.

The artifact repertoire was curious, especially because of the presence of 52 round ballista balls averaging 12-18cm in diameter found predominantly in the fill just above the ceramic floor level, and also lodged in the gray mortar underlying the floor tiles. We cannot ascertain if these balls were used as sub floor fill or if the CW was bombarded and the balls broke through the tiles to become lodged in the mortar.

From Ammianus (14.8.13), we know that Cornelius Palma, the governor of Syria, subdued part of Arabia including Petra subjecting it to Roman rule — this is the sole reference we have to the annexation of the Nabataean kingdom and its incorporation in the Roman province of Arabia. It has never been clear, however, from archaeological or historical sources if Cornelius Palma led a military

expedition to Petra. The lack of a recorded aggression has suggested that Palma oversaw a peaceful takeover, and Roman coins minted after the annexation inscribed with 'Arabia adquisita', not 'Arabia capta', indicate a pacific annexation. But with the presence of so many ballista balls, we cannot help but speculate that the Propylaeum was bombarded from the north, and that some sort of skirmish took place.

Before leaving the PW it should be noted that several architectural structures are difficult to date. The bench fronting Wall K, the wall inscription, and the blocked off window in Room 1 are associated vaguely with specific construction phases.

East Propylaeum

The particular strategy for Trench 93 was to uncover and document the Propylaeum East (hereafter PE) to determine the plan and integrity of the area as well as to define the stratigraphy where the PE abutted the central stairway of the Propylaeum and to compare its architectural plan to the PW. Under my direction the area excavated measured 15.45m north south in length-by-13.00m east west in width. A rubble terrace for the Lower Temenos was exposed in the south, built against and up to the East Lower Temenos retaining wall, and in the deposit was the installation of a basin connected to a subterranean canalization system extending to the southwest.

Although no floor surfaces were found, these excavations clarified the later chronology and distribution of archaeological fragments, clearly confirming how the elements that fronted the Great Temple precinct collapsed. Some 264 architectural fragments were registered — 76 column drums, 94 ashlar wall blocks, 19 cornice fragments, and the fragments of 61 capitals, of which 27 were elephant head elements — including eggs and tongues, helices, darts, and other carved pieces with bead and reel designs. Other architectural remains included limestone hexagonal pavers fallen from the Lower Temenos. This deposit clearly demonstrated that these columns and capitals were part of the collapsed elements of the proposed north colonnade on Wall K that fronted the Great Temple precinct both in the PE and PW. The density and distribution of these architectural fragments argue for considerable earthquake activity. One extraordinary artifact was a fragmentary life-sized male head with open lips finely sculpted in white limestone shown in (Fig. 13).

Lower Temenos

Only one excavation took place in 2002 in the Lower Temenos. Located on the terrace ap-



13. East Propylaeum Male Head fragment (Photograph by A.W. Joukowsky).

proximately 5.00m south of the Propylaeum Staircase, Special Project 92 supervised by Brian A. Brown, measured 3.00m east west in length-by-2.00m north south in width. Here was the intersection of the subterranean canalization system. Covered with hydraulic plaster, the north south channel was the continuation of the main north south channel in the temple forecourt that extended under the central staircase where the major intersection of the Great Temple's canalization system was uncovered in 1994. This 2002 recovery of the canalization also confirmed the 1995 results of the Ground Penetrating Radar that the main north south canalization extended as far north as 3.00m south of the top of the main Propylaeum Stairs, and, based on a comparison with its other major intersections, that it was built in the same phase. Because the two east west channels bond with the north south channel, they too were coeval, and in all probability connected with the PE canalization and basin to the east.

Upper Temenos

The Upper Temenos is enclosed on the east by a towering wall — the East Perimeter Wall. The 2002 excavations in the Upper Temenos included the completion of Room A in the East Perimeter wall (Trench 91), the reinvestigation of the great East Plaza cistern (Trench 90), and the completion of the Shrine Room in the west Upper Temenos. Further to the west was the unparalleled discovery of the Baroque Room with its collapsed plaster ceiling and walls (Trench 89/94 Part I), and finally the recovery of the 11 room Residential Quarter (Trench 89/94 Part II). Each of these sectors will be briefly described.

East Perimeter Wall

The overall purpose of excavating Trench 91



14. Upper Temenos East Perimeter Wall stairs (Photograph by A.W. Joukowsky).

was to reveal the passageway connecting Room A, the interior arched room of the East Perimeter Wall, and the south bedrock chamber built above the East Plaza cistern, both discovered in 2001. The unstable fill between the rooms could not be removed in 2001 because the deposit would have collapsed, bringing down surrounding walls as well. After undertaking successful consolidation — the walls were reinforced and repaired, excavation in this corridor revealed a bedrock basin cut into the floor and a series of regular steps (Fig. 14) cut into the living rock providing access from Room A to the bedrock room located above the East Plaza great cistern.

Water Channel and Underground Cistern below East Plaza

After a successful excavation of the southeast shaft and the removal of some interior fill from the great cistern beneath the temple's East Plaza in 2001 the one remaining task was to locate the southwest opening leading into the cistern. While the 2001 excavations in the East Plaza revealed a large bedrock-cut channel above the west side of the cistern, exploration narrowly missed discovering where this channel fed into the cistern. Fortunately during the winter of 2001-2001 the rains loosened the soil near the southwest shaft leading into the channel. Christian F. Cloke, who

followed and analyzed the Great Temple water systems as well as the great East Plaza Cistern, undertook excavation of the southwest shaft, channel, and cistern. The trench was roughly 36m north south in length-by-13m east west in width.

After the removal of a voussoir covering the cistern shaft, excavation of the fill began at a point where access to the cistern could be gained with adequate light and ventilation. At that point, a test trench inside the cistern was undertaken to the north of the brick-built pillar in the southwest so as to ascertain how and why this interesting element was constructed and to gather a broader sampling of artifactual material from the cistern deposit. During excavation it became apparent that the cistern was not of uniform depth but was slightly shallower on its west side. The discovery of the cistern's depth was important for a more informed estimation of its overall size. After completion of the test trench probe within the cistern, its depth measured 7.93m. A close approximation of the cistern's water capacity now could be estimated at 327.64 cubic meters — thus the great cistern (filled to the ceiling, although not overflowing into either shaft) could have held approximately 86,562.488 gallons or 327,640 liters of water.

It was also discovered that the brick pillar in the cistern southwest extended to the floor at a depth of 897.289m, and that it was well built and far sturdier than had been estimated in 2001. This pillar was original to the cistern's construction. The ceiling bedrock in the southwest may have been weak thus necessitating support — had the ceiling become compromised when the cistern was cut, this pillar could have been installed at that



15. Upper Temenos bedrock channel leading from the cistern to the north (Photograph by A.W. Joukowsky).

time. The lamp found between courses of the pillar in 2001 dated to the first century AD ought to be a good indicator in determining the date of the cistern's original completion and/or its repair.

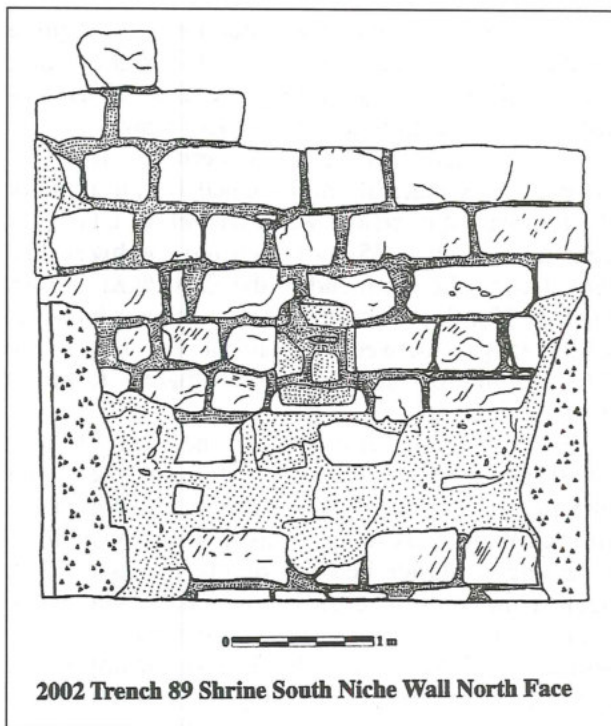
In the southwest of the cistern we also uncovered a cylindrical shaft topped by an arch for the removal of overflow water as well as a bedrock channel extending 35.30m from the southwest cistern shaft to the north end of the East Plaza. Shown in (Fig. 15), this channel slopes to the north and its width ranges between 0.26m at the bottom to 0.63m at the top, and it is approximately 1.00m in depth.

Finally, on the east side of the East Plaza, a small project was conducted to discover the nature of a platform above the cistern next to the East Perimeter Wall. This feature was thoroughly cleaned, revealing a plaster bed for piping on its east set against the wall. The only functional element appears to have been the pipe along its east side, which was linked to a bedrock basin nearby to the north, and perhaps also to the great East Plaza cistern. Additionally mortar and building stones were excavated to the level of the platform base, comprised of a thin pavement under which there was bedrock. This useful exploration of the East Plaza platform answered several long-standing questions about this puzzling feature. Although there appears to be no clear overarching purpose for its presence, its lack of central functional components suggests that it was indeed a platform, perhaps serving as a statue base or a place for the acceptance of small offerings in thanks for water. This cannot be directly supported, however, and is based solely on the preponderance of water systems in this area.

Now we will turn to the 2002 excavations of the Upper Temenos Southwest.

Upper Temenos Southwest — Shrine Room, Baroque Room and Cistern

Trench 89/94 Part I excavations were undertaken by Emma Susan Libonati in the Upper Temenos southwest. This area includes (from the east) the Anteroom (excavated in 2001), the Shrine room (partially excavated in 2001), the Baroque Room (2002), and the as yet unexcavated cistern with hydraulic plastered walls and a connective channel to the South Passageway water system of the temple. The dimensions of this part of the trench are 9.28m east west in length-by-6.65m north south in width. Although the initial excavation goal was to discover the west wall and extent of the Shrine room (an area left partially unexcavated during 2001), there was a dramatic change of excavation strategy with the recovery of the Shrine Room doorway to



16. Shrine Room niche (Drawn and drafted by Anne-Catherine Escher).

the west and the subsequent astonishing discovery of the Baroque Room with its intriguing plaster collapse and its spectacular decorative program.

Shrine Room

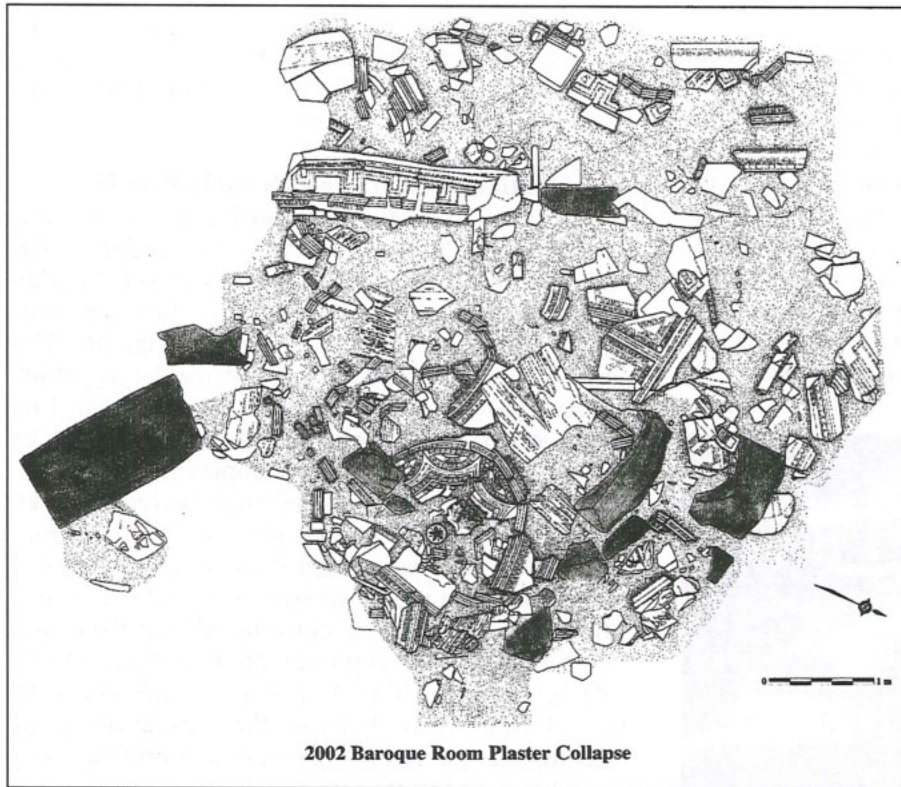
From the South Passageway the Shrine Room is entered from the Anteroom to its east. The Shrine Room measures 3.87m east west in width-by-5.65m north south in length and is so-called because of the niche (**Fig. 16**) in its south wall (reported on in 2001). Its limestone hexagonal pavement (elevation 905.587m) was custom cut after the surrounding walls were constructed, and it revealed localized burning in the northwest corner and plaster collapse in the west. The importance of this room is its well-executed architecture and its ornately decorated plaster comprised of multi-colored fragments as well as stucco dentils, volutes, columns and columns with vine relief decoration and intact painted plaster bands still intact on the walls in the southwest corner.

The threshold between the Shrine Room and the room to its west, the Baroque Room, consisted of a single limestone block 1.05m north south in length-by 0.20m east west in width — with a lip in the Baroque room which was 1.24m north south in length-by-0.15m east west in width. Slivers of decorated wood found in the Baroque Room collapse were most likely from a wooden door separating the two rooms.

Baroque Room

Measuring 4.50m north south in length-by-3.67m east west in width, the Baroque Room contained the massive wreckage of incredible and extensive remains — the unexpected discovery of a room filled with delicately designed painted and gilded plaster collapse from the ceiling and walls. The remains of the stucco fall were first found along the west wall and with delicate cleaning using trowels, bulb syringes, dental tools and soft brushes — the excavators followed the plaster collapse, which completely covered the room (**Fig. 17**). The wall plaster fell before the ceiling, and the ceiling flipped over so it landed decorated side up. Fortunately, only two ashlar fell with the plaster and a good cushion of earth no doubt helped to preserve the delicate fragments. Based on the fact that Nabataean coins and pottery also were found, the decorative canon roughly can be dated to the second Style of Pompeian wall painting (first century BC or to the first century AD). The major cataclysmic event of AD 363 precipitated the collapse also affected the Baroque Room walls. The south façade wall was founded on and built abutting the bedrock and therefore had greater stability than the others that underwent greater earthquake shock crumbling their plaster. What we also know is that the Baroque Room's collapse was the result of one event that fortunately rendered this room inhospitable to future plunder or to occupation — its excavation reveals that this area was abandoned and not reused like the outlying rooms in the East Plaza.

The Baroque Room walls were covered with flat painted stucco as well as two-dimensional and three-dimensional elements with naturalistic designs. The intact plaster on the west wall indicates that they were designed with dark-colored plain panels in midnight blue, specifically, perhaps, to draw the eye upwards to the spectacular ceiling features decorated with bright colors and rich details. Not only do the remains imitate architectural and natural subjects, some are painted to resemble trompe l'oeil designs. Also there are decorative red painted stucco columns with swirling leaf patterns, and a few stucco grape clusters and leaves are fashioned in the round, as is the striking pomegranate in high relief in the middle of the central medallion (**Fig. 18**). There are painted columns with curling vines and leaves molded in relief — all of which were jumbled together with other elements of complicated and ornate architectural designs and patterns (**Fig. 19**) such as Corinthian capitals painted in three dimensions. Further, unusual and diverse color schemes were used with abstracted repre-



2002 Baroque Room Plaster Collapse

17. Baroque Room collapse (Drawn and drafted by Anne-Catherine Escher).



18. Baroque Room collapsed stucco (Photograph by A.W. Joukowsky).

sentations of nature and finely painted faux architectural detailing strongly resembling the decorative canon in the Great Temple South Corridor. Some fragments seem so compulsively human in execution — one being of Pompeian red on which the artisan trailed his fingers through the pigment creating a wavy design, and another of abstract blue and white waves. Surrounded by the rigidity of formalized designs, these pieces demonstrate freedom in artistry and in execution, exhibiting an uncanny sense of play and spontaneity.

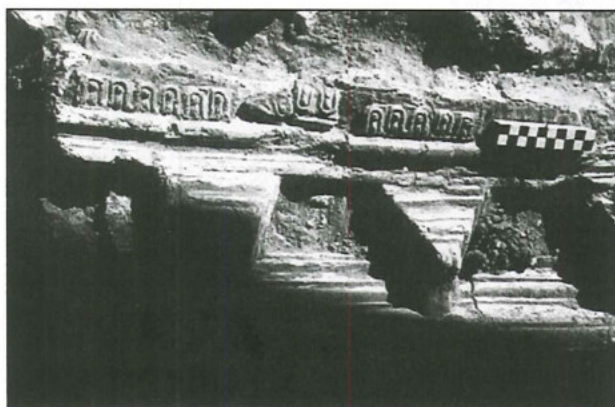
During excavation our conservator, Ulrich Bell-

wald, assisted by Anne-Catherine Escher, removed the plaster on wooden trays and moved it to the safety of a cave where restoration has been ongoing — once it is complete and the decorative panels are recorded they will be turned over to the Petra Museum. After their removal, José I. Fusté completed excavation underneath the collapse to find the vestiges of a crude plaster floor.

The lavish decoration of the Shrine and Baroque Rooms not only raises questions concerning the unusual artists who decorated their walls, but also their function and the activities of the people who used them. There is no evidence that they functioned as either domestic or residential spaces, but could they have served for some sort of official use? Unlike the storage chambers under the Theatron, their functional reconstruction remains elusive, however the excavated evidence points to a special and limited number of people who were to enjoy their opulence. Clearly the wealth of information to be gleaned from the Baroque Room will provide an invaluable resource for the decorative styles found in Petra, and more specifically in rooms with likely semi-private functions that are associated with massive civic structures. As far as we know, the Baroque Room is unique in its execution, design, and *in situ* preservation. These finds are remarkable because, heretofore, comparable quantities of such an array of decorative materials have not been found in Nabataean contexts.

The Southwest Cistern

The cistern to the west of the Baroque Room was purposefully left unexcavated so as not to disturb the Baroque Room plaster recovery — this allowed a stable environment for the Baroque Room's continued cleaning. However there appeared to be a blocked doorway between the Cistern and the Baroque Room in the northwest corner measuring 0.59m in width. At some point this doorway was filled in, most probably when the Cistern was segregated as a separate area for water storage. We reason that this would have been synchronous with the installation of the Baroque



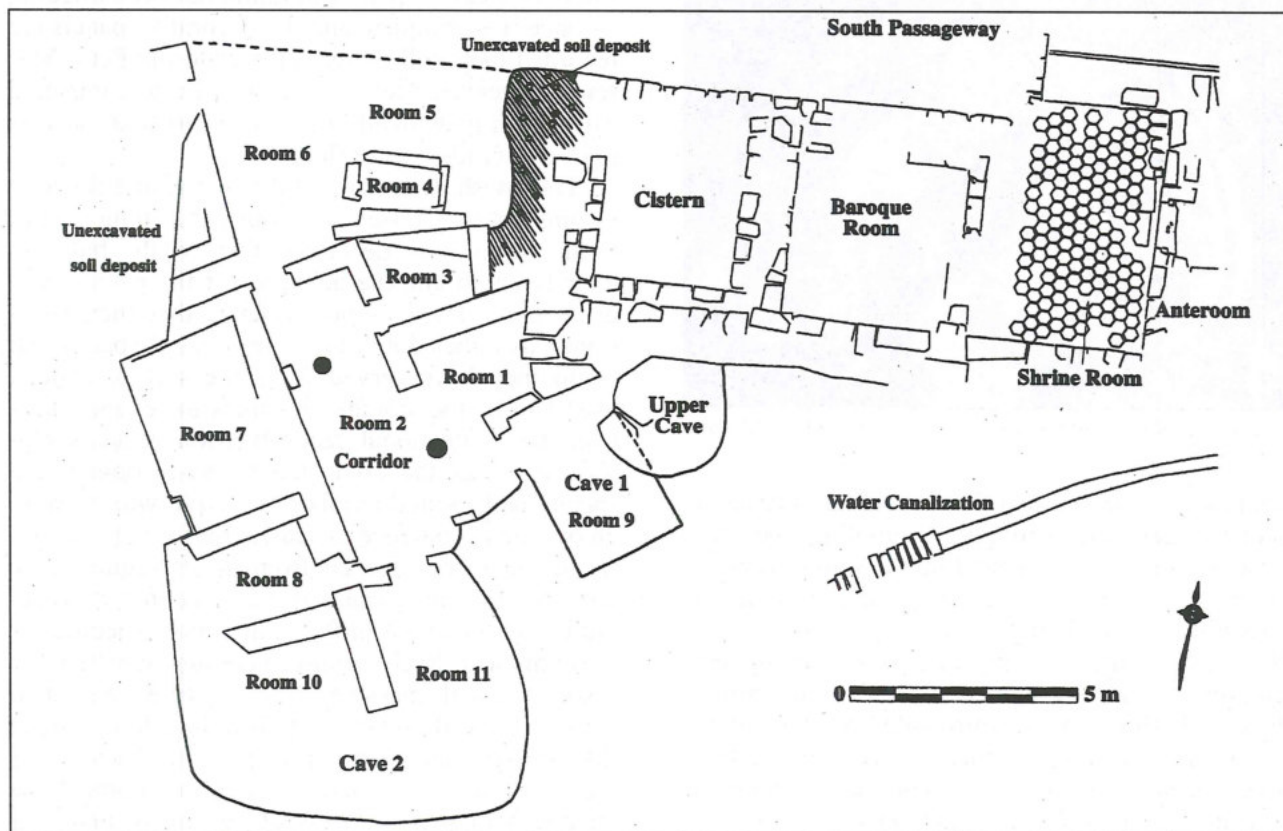
19. Baroque Room stucco molding (Photograph by A.W. Joukowsky).

Room decoration at which time the Anteroom accessed the Shrine Room which in turn admitted entry into the Baroque Room — the most important and most restricted of rooms.

Residential Quarter, Trench 89/94 Part II

In order to protect and not impact the excavations of the Baroque Room's spectacular plaster fall, Trench 89/94 Part II was extended an additional 12.00m west into an area we have identified as the Residential Quarter shown in (Fig. 20). This area was situated beyond and outside the as yet unexcavated west perimeter wall. Emma Susan Libonati supervised Trench 89/94 Part II joined by José I. Fusté to handle the complexities of the excavation and the overwhelming increase in artifactual material, particularly ceramic deposits. This excavation successfully uncovered a series of caves and built rooms serving as households within the urban core of Petra, constructed over the course of at least six distinct phases, progressing from simple domestic dwellings to a more complicated schema of apartments. Because these excavations are incomplete, the following discussion provides only a preliminary interpretation and analysis.

The caves are identified as Caves 1 and 2. Cave 1 is the smaller east cave measuring 3.00m north



20. Residential Quarter plan (Drawn by Emma S. Libonati, Drafted by Emily Catherine Egan).



21. View to the north from Cave 1, Residential Quarter (Photograph by A.W. Joukowsky).

south in width-by-4.50m east west in length and its uneven floor rests at a 907.215m elevation; it has a niche in its south wall; (Fig. 21) is a view to its north. Cave 2 is the larger west cave measuring 6.25m in length-by-5.40m in width; its floor elevation at 908.126m and its height is 3.85m. Inhabited above Caves 1 and 2 is a "Small Upper Cave" 2.90m north south in length-by-2.50m east west in width and its height is 3.05m. Rooms 1-11 are numbered — Rooms 1-8 progress from Room 1 in front of Cave 1 to Room 2 the central corridor; then in a counter-clockwise direction to Room 8 in front of Cave 2. Room 9 consists of the Cave 1 interior, and Rooms 10 and 11 are inside Cave 2.

The earliest construction in the Residential Quarter is similar to the initial temple phase consisting of the cutting and preparation during which

the cave interiors were chiseled out. For the temple, the bedrock was dramatically scaled back in order to create a platform for the structure. The bedrock cutting for the Residential Quarter, however, was less invasive. Those who built and lived here made use of what nature had provided rather than undertaking dramatic changes. Cave 1 was almost entirely intentionally cut in a cube shaped configuration, whereas Cave 2 was a natural bedrock cavity necessitating minimal manipulation — the floor was cut and a small niche and beam slots were cut into the wall. The Small Upper Cave was also a natural geologic cavity, but a basin and channel were cut into its floor for water catchment. Although Room 3 has bedrock cuts for water channels, the bedrock itself was minimally manipulated. Outside of Room 8 in Cave 2 the bedrock suddenly falls away — and

Room 8 was filled in to create a flat surface. Compared with the considerable amount of labor put into the construction of the temple, the Residential Quarter's minimalist construction may have been due to lack of interest, or limited economic and human resources.

Following the preparation of the bedrock was the construction of the cave façades enclosing them for habitation. (A modern parallel to this can be commonly found in the Petra region — many Bedouin built façades onto caves and tombs in order to convert them into living quarters.) To provide a surface up against which architectural elements could be constructed, the façades of Caves 1 and 2 were built, and in a later phase, these façades were reinforced to buttress new features. At this time Caves 1 and 2 were joined making them part of a larger domestic complex or apartment, and the Nabataean builders constructed a long north south wall abutting the Cave 2 façade. Thus these two caves together with the addition of Rooms 1, 2, and 3 were one unit. Room 2 would have served as a central north south corridor connecting the rooms with an entrance to the north. Here we found a rotating grain mill standing as if ready for this year's wheat harvest. Outside of this enclosure, were three chambers, Rooms 4, 5, and 6, which likely served as later additions. Room 6 seems to be a vestibule, providing access to both east and west domestic spaces, and the entire complex was covered with a single roof supported by two columns and arches. Although the overall function of Room 6 is indeterminate; it may be a key transitional area, but we do not have a clear grasp of it. There could very well be more domestic architecture on a lower terrace presently obscured by debris. This remains to be confirmed by future excavations.

Additionally revealed was the eastern portion of a separate house to the west consisting of Rooms 7 and 8. Unfortunately, the excavators were unable to excavate the entirety of this structure, so its architectural plan remains to be determined. We do know, however, that Rooms 7 and 8 were partitioned with interior walls, doors, and windows, and a meter of bedding was found to raise its floor. One observation regarding the quality of construction visible in all of these architectural features is that the masonry is less elaborate in the earliest construction phases, but later Residential Quarter ashlar becomes well cut, expertly dressed, and the area is appointed with arches and columns.

Perhaps the greatest difficulty encountered in the excavation of the Residential Quarter was the

appearance of water channels — in the Small Upper Cave as well as in Cave 1, Room 1, Room 3, Room 4 and Room 6. The installations in the east may or may not be interrelated, and those in Room 6 do not have any clear relationship to any other systems. As such, it seems plausible that such channels were installed at different times. Nevertheless, because they could not be fully excavated, it is impossible to determine their coherent phasing. Possibly they connect to the adjacent, unexcavated cistern in Trench 89/94 Part I as well as to the canalization of the South Passageway. In Room 4, a further puzzling water installation is a limestone paved sluice gate lined with hydraulic cement that must have served for water collection. It is unclear, however, how it might have operated.

The existence of these cave households reveals that there must have been a compact concentration of organically built residences tightly packed against the west and southwest bedrock escarpments. It also seems plausible that these households are part of a larger domestic zone, extending south to the Swiss excavated Nabataean villas of az-Zanūr. These remains testify to the pervasive presence of domestic space within the Petra urban core — just beyond the formal civic and religious structures the pandemonium of daily life began.

These residential units were in use at the same time as the Great Temple, for the pottery and coins from the fill removed in the lowest sealed contexts of Rooms 3 and 7 are contemporaneous to the pottery and numismatics from the temple. The Residential Quarter has an overwhelming amount of pottery — some 41,000 fragments were recorded and many complete vessels were unearthed, some of which are illustrated in (Fig. 12). As with the Great Temple, these residential units were likely destroyed or compromised in the CE 363 earthquake. The north is heavily damaged, whereas the south is relatively intact suggesting that the cataclysmic collapse preserved the architecture here because of its bedrock support, whereas the northern areas were more exposed to eventual architectural and natural deterioration.

The unforeseen and novel discovery of Nabataean dwellings in such proximity to the Great Temple offers insight into the vast array of architectural forms in Nabataean Petra. Indeed, this discovery and the excavations of the newly excavated villas next to Qaṣr al-Bint (قصر البنت), and at az-Zanūr (الزنطور) (Bignasca *et al.* 1996; Kolb and Keller 2001) on the hillside above the Great Temple indicate that the urban environment was indeed densely populated, and due to space constraints houses were pressed close to these precincts. As

more civic structures are excavated, it seems clear that domestic spaces will also be recovered in close association to them.

Great Temple

Two 2002 projects in the Great Temple consisted of Trench 92 to remove the west half of the Theatron stage, and test trench Special Project 93 to better understand the foundation platform and subterranean features in southwest South Corridor. These will be discussed in the above order.

West Half of Theatron Stage, Trench 92

Under the supervision of José I. Fusté, the excavation of Trench 92 consisted of the removal of the west half of Theatron stage located from the south of the Pronaos to the front of the Theatron. This area was originally excavated as Trench 40 in 1997, and revealed the main architectural components of the Theatron stage and the west anta pier. In order to elucidate its architectural phasing, we removed all remnants of the west Theatron stage, revealing the bases of the attic west anta pier with its anta engaged column, as well as the base of the adjacent west Pronaos column. We also revealed the original floor bedding of the area that had been left exposed after its pavement was robbed. After interpreting the evidence, it was unquestionable that the Theatron stage was a later, crude construction built atop the exposed floor bedding, which cut into at least one architectural feature contemporary with the Theatron, and abutted the Pronaos anta wall and column bases. Moreover, instead of being constructed of fine masonry, it was comprised of robbed out architectural elements, such as capital fragments. Thus, we can assert that during the theater's original construction, it did not have a stage.

The subterranean features in southwest South Corridor, Special Project 93

This project, overseen by Christian F. Cloke, was intended to expose the water system(s) leading into the central arch of the Great Temple. The extent of the trench was roughly 2.00m north south in length-by-2.50m east west in width-by-0.60m in depth. Because the capstones of the channel in the central arch dead-ended at a T-shaped junction with one channel facing east and the other west, it was decided that the unusual floor features in the southwest corner of the South Corridor were a probable place for discovery of an earlier portion of this canalization. However, as features originally believed to be capstones were removed and their substructures examined, it was realized that



22. Mother-of-pearl dolphin from the Residential Quarter (Photograph by A.W. Joukowsky).

these ashlar were merely an unusual floor-buildup for support. It is possible that this platform marked an earlier stage in building or was not constructed parallel to the walls it supported. The bedrock was lower on the temple west (as it can be seen outside the walls), and although no water channels were found, the platform built to prop up the architecture was particularly interesting because of its unusual orientation. Its eastern extent continued beneath the southwest heart-shaped column, however, it appeared only under the north half of this column. This area held great promise, and further exploration of these possible features in the Great Temple's life-span promises to be rewarding.

Artifacts 2002

Besides the artifacts mentioned, recovered in 2002 include 74 coins, 6 cataloged lamps, 63 pottery vessels and figurines, 46 additional elephant head components, and 10 bone pins. The shell pendant of a dolphin shown in (Fig. 22) was recovered from the Residential Quarter. Our databases accumulated over ten years of excavation continue to swell with architectural fragments bringing the total up to 10,030, and there were considerable amounts of cultural materials, numbering 50,419 for the 2002 season with a total of 325,575 artifacts recorded in our Grosso Modo database.

Small Temple

This 2002 season also saw continued excavations of the Small Temple supervised by Sara Karz Reid who recovered additional inscribed marble fragments. The dimensions of this edifice were also redefined. This building probably served for the Roman Imperial cult — its excavations will be reported on in a separate submission for this publication.

Consolidation 2002-2003

One of the reasons for our project's continued success is that Dakhilallah Qublan has been re-

sponsible for site consolidation and preservation. This year the projects undertaken beginning in September 2002 highlight a number of outstanding architectural problems resolved through our consolidation efforts.

In the Propylaeum and Lower Temenos, there has been the pointing and consolidation of the CW arches and walls in the PW. As for the Lower Temenos, a column north of the highest extant column in the Lower Temenos has been built up; the eroded blocks of the East Exedra have been replaced and the walls have been reconstructed to the same height as the West Exedra walls. As for Upper Temenos, a terrace wall in the precinct southwest has been constructed to deflect water from the Shrine and Baroque Rooms as well as the Residential Quarter; the southeast ashlar of the South Passageway have been consolidated; and the East Perimeter Wall has seen the replacement of the towering east arch that was purposefully dismantled because of the danger of its collapse on the excavations below. Finally, Ulrich Bellwald has undertaken the restoration of the decorative stucco of the Baroque Room.

In Conclusion

This then is the Great Temple as it is to be enjoyed today after 2000 years of existence. It is mi-

raculous that it survived at all. But now that its unique indigenous tradition as a Nabataean outdoor museum has been recognized, there is every hope that the years we have spent excavating and restoring it will ensure its continued preservation for many years to come.

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