

ACOR Newsletter

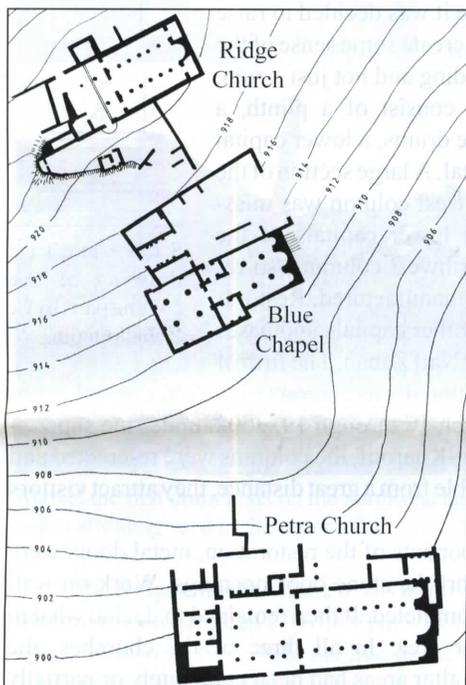
أخبار أكور



Vol. 14.1—Summer 2002

North Ridge Project

Patricia M. Bikai



ACOR's excavation of the North Ridge in Petra began in 1994 and was completed in 2002. The project area, which is on the north side of the city center and above the Petra Church, rises to a bedrock outcrop with a 360 degree view of the central city and of the back entrance to Petra, the Wadi Abu 'Ullayqa. Evidence found during the excavation indicates that there was probably a military installation on the hillside, beginning perhaps in the Nabataean period and continuing into the Byzantine era. With the arrival of Christianity, a building originally constructed in the Nabataean period was converted to a church. This appears to have happened not long after the earthquake that devastated Petra in A.D. 363, making that building, dubbed the Ridge Church, one of the older churches in Jordan. It is possible that the church was for use by the military; a small structure south of the Ridge Church is apparently the tomb of a military officer.

Into the 5th century, the lower part of the hillside contained housing and it would be in a domestic area that the Petra Church would be built. South of the Ridge Church area, before the Byzantine period, was a large structure, the

purpose of which is not known. However, if the top of the ridge was military in the Nabataean and Roman periods, it is possible that what is now called the Blue Chapel Complex was also used by the military, perhaps as a barracks.

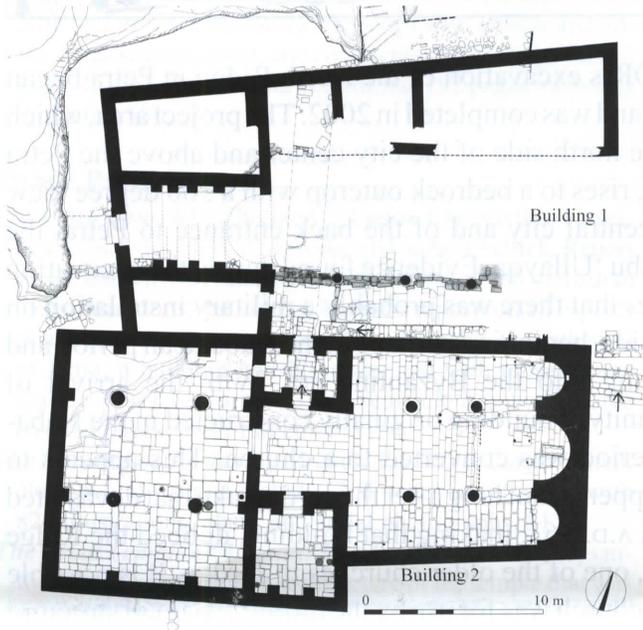
In the late 5th or early 6th century, the Petra Church was built, most likely as the cathedral of the city. The large complex below the Ridge Church may have become the residence of the bishop of the city, a residence that included a small chapel. A radiocarbon date coming from a wooden bench in the Blue Chapel is B.P. 1490±30 or A.D. 511±30. The Blue Chapel Complex consists of two parts, called Building 1 and Building 2. Building 1, the upper building,



View to the southwest of the Blue Chapel

has three segments. The central section has a room with a large door to the west and a courtyard toward the east. The southern section consists of a vaulted room to the west and a portico for the courtyard toward the east. The northern segment, where only limited excavation has taken place, appears to contain a series of small rooms.

The lower building, Building 2, contains a small chapel, a large, porticoed room (West Room), and another smaller room (South Room) that probably served as the sacristy for the



Ground plan of the Blue Chapel Complex; by Chrysanthos Kanellopoulos, Megan Perry, and Patricia M. Bikai

chapel. The two buildings are joined by a staircase that drops 2.64 m from the floor level of Building 1 down to the floor level of Building 2, leading into an entry hallway. The Blue Chapel was built using Egyptian blue granite columns reused from a Nabataean monument. During the 2002 season, it was discovered that the Byzantine builders had “numbered” the bases, column drums, and capitals (α , β , γ , δ , etc.) before they moved them so that they could be easily reassembled.

In the late 6th and early 7th centuries, Petra ceased to be a viable city; among other things, the civil authorities were apparently unable to maintain the systems that brought water into the city. The city was almost, but not completely, abandoned. The remnant population apparently supported themselves by scavenging the ancient city for raw materials such as lead and by looting Petra’s many tombs. To judge by the amount of water available from springs inside the city, the population could not have numbered more than a few hundred people. The earthquake of A.D. 748 caused major damage to the derelict city, damage that included the toppling of the granite columns of the Blue Chapel. Occupation of the area by the remnant population continued, however, at least into the period of the Crusades.

Restoration

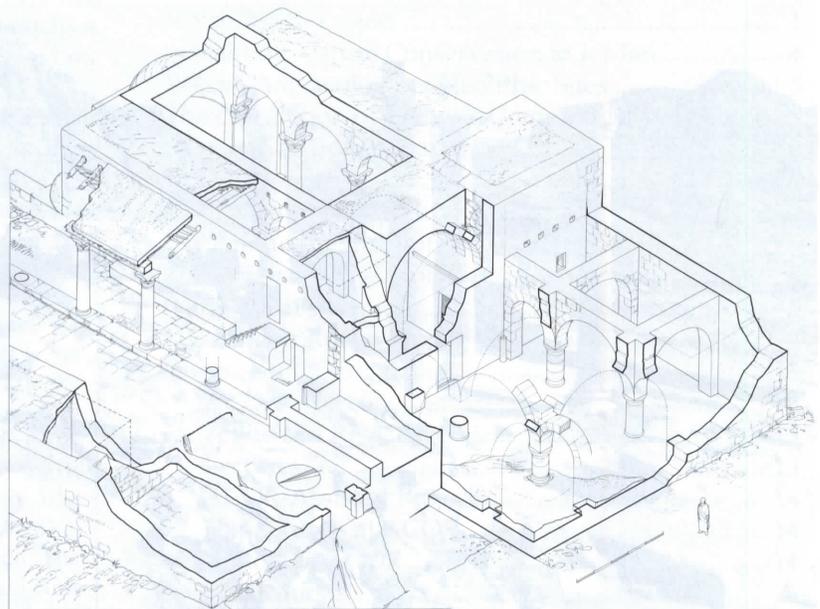
After an engineering study by Hassan Saffarini in 2001, it was decided that the four columns of the Blue Chapel could be restored. The fact that restoration was possible did not necessarily mean that it should be done. All eras uncovered in an excavation should be respected in any restoration. The Blue Chapel had three significant visible phases: the Byzantine construction of the complex; the looting of the building by the remnant population in Petra between A.D. 600 and 748; and the earthquake of A.D. 748. A case could be made that the columns should be left where the earthquake put them, on the ground. Lying as they were found, they had the look of an orientalist painting. Was that what should be presented to the public? After some debate it was decided to raise the columns to re-create some sense of the building as a building and not just a ruin.

The columns consist of a plinth, a base, three granite drums, a lower capital and an upper capital. A large section of the base of the southwest column was missing, as were the lower capitals of the southeast and northwest columns, so replacements were manufactured. Restoration work on the other capitals and bases was conducted by Naif Zaban. The firm of Tarmeem International was contracted to do the actual restoration. From March 17 through 19, 2002, under the supervision of Munther al-Kharouf, the columns were re-erected and since they are visible from a great distance, they attract visitors to the area.



Schematic drawing of the column parts by C. Kanellopoulos

In other components of the restoration, metal doors were installed to support the stone door openings. Work on wall restoration was completed. It then remained to decide what to do with the altar area. In all three of the churches, the pavements of the altar areas had been completely or partially



Axonometric view (from the northwest) by Chrysanthos Kanellopoulos

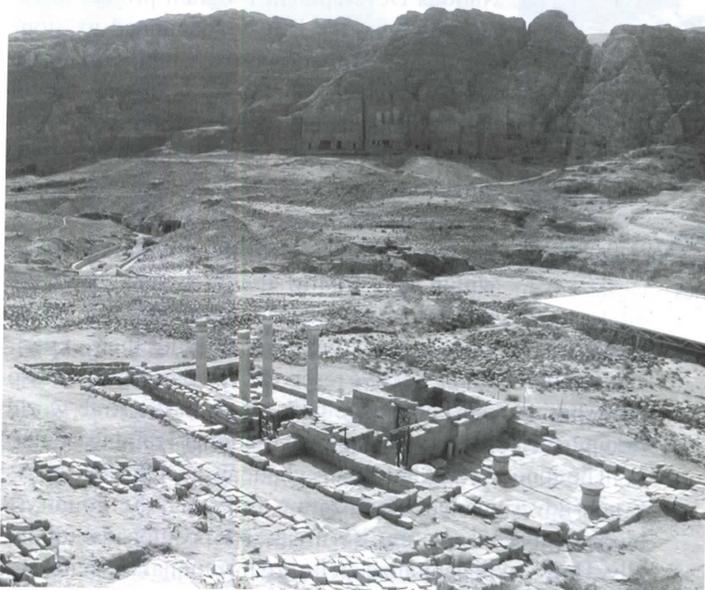


removed, leaving a mortar bedding or rubble underlay- ment as the excavated surface. In each church, there had been steps leading up to the altar area. In all three churches, where the steps were lacking, the transition from the raised altar area down to the nave floor consisted of sloping, unstable rubble.



Above, the first drum is set on the northwest base; below, the crane and scaffolding used in the restoration.

At the Ridge Church, where it was impossible to restore the altar area, it was decided to build what was in effect a shelter—a plain sandstone box out to the line of the westernmost step. In the Petra Church, both the steps and the *opus sectile* floor



View from the northwest; photo by Neal Bierling

of the altar area could be completely restored and they were. The Blue Chapel presented a different situation: between the time that it was abandoned around A.D. 600 and the earthquake, the remnant population explored whether there were (lootable) Nabataean tombs under the chapel. The floor of the altar area was only partially intact because of their activities. What did remain of the floor consisted of marble, alabaster, and limestone slabs. Some of the pattern in which the stones had been laid was discernible. There were a number of displaced slabs that could be restored within our understanding of that pattern. The rest of the altar and steps area, however, were as the looters had left them, in disarray. That disarray was an important part of the history of the monument.

During the 2002 season, the project architect, Chrysanthos Kanellopoulos, suggested that we conserve that area as it was



The altar area as stabilized

found, i.e., keep it frozen in time. The rubble was lifted, one part at a time and reset in mortar. Additionally, areas damaged as the column drums hit the ground were stabilized. The choice to stabilize rather than restore led to the fortunate situation that all phases of the chapel are now visible in the altar platform: construction, looting, and earthquake.

In the 2002 season, work was conducted by director Patricia M. Bikai, assistant director Megan A. Perry, and architect Chrysanthos Kanellopoulos, with the assistance of Tahani es-Salihi of the Department of Antiquities. Other participants were archaeologists Ansam Malkawi and Neal Bierling; Naif Zaban implemented the conservation work.

Work was funded by a donation from the Dick and Betsy DeVos Foundation and by income from ACOR's Petra Endowment, a grant from the United States Agency for International Development. In-kind donations were made by the Department of Antiquities, the Petra Regional Planning Council (thank you to Director Shahadeh Abu-Hdeib and Eng. Sa'ad al-Rawajfa), Al-Sharkeyon (thank you to Sultan Yassin), and the Petra Mövenpick Resort (thank you to Peter Hosle).

The help given by Othman and Rosemary Bdeir is much appreciated. ACOR thanks the Department of Antiquities, in particular the director, Dr. Fawwaz al-Khrayseh, and at Petra, Mr. Suleiman Farajat, for their assistance.

Sustaining Nature Conservation in Jordan

Although Jordan began establishing nature reserves in the 1970s, it was not until the mid-1990s that concerted efforts were launched by the Royal Society for the Conservation of Nature (RSCN) to address biodiversity conservation in the country. Since that time, a coherent network of protected areas has started to emerge that will eventually represent all of Jordan's major vegetation types and provide habitat to preserve many threatened plant and animal species. RSCN efforts are also attempting to merge biodiversity protection with methods to address the social and economic needs of impoverished local communities living in and around protected areas as a path to promoting sustainable development.

Just as significantly for Jordan too, the RSCN has become a leading example of what is possible through institutional reform. By completely revamping its internal managerial approach to conservation planning and implementation, as well as continually enhancing its organizational capacity, the RSCN could become a model for bureaucratic change with far reaching effects on the national scene and the Arab NGO community.

The RSCN's attempts to create integrated conservation-development programs began with the Dana project in 1994. Over the next five years, the organization devised zoning management schemes to promote biodiversity conservation over some 300 square kilometers of reserve area at Dana, which has helped restore habitat for endangered species like the Nubian ibex and the Lesser Kestrel. It also constructed a basic infrastructure in and around the reserve area to accommodate eco-tourists, and this has attracted growing numbers of visitors in recent years.



A herd of ibex in RSCN's Wadi Mujib reserve; photo by Bert de Vries

In addition, RSCN initiatives have spawned a number of socio-economic projects that generate jobs and income for surrounding rural communities long dependent on exploiting the reserve for their livelihood. To date, more than 50 local people in and around Dana are employed in these positions, working in the reserves or as organic farmers and craft artisans producing goods sold with the reserve label "helping nature, helping people." These opportunities have generated both income and enhanced capacity for the diverse communities



Dana; photo by Bert de Vries

with connections to the protected area. RSCN's efforts in this arena will be recognized as one of four global examples of sustainable development at the September 2002 Earth Summit in Johannesburg.

Though threats to biodiversity remain in Dana and challenges persist in successfully combining RSCN's conservation priorities with the economic aspirations of local communities, the "Dana approach" has been modified and applied to create five additional reserve sites in Jordan with two more in the planning and development stages. By the end of the process, a total of eighteen nature reserves are envisioned, encompassing portions of all Jordan's primary biodiversity types.

All of this progress has been made possible largely due to the organization's commitment to remake itself institutionally to enhance its work. As part of the World Bank and United Nations Development Program project to establish Dana, the RSCN abandoned its "top-down" management approach, replacing it with a team-oriented, "bottom-up" organizational culture that encourages local initiative and supervision of projects, as well as strategic planning, innovation and self-reflection throughout the institution. It also eliminated the debilitating power of "wasta" [influential connections] within its operating structures. As a result, the RSCN is now a dynamic organization led by young conservation experts who are applying their experiences to build more effective reserves in Jordan. They are also now sharing their knowledge with others in the Arab world through their interactively oriented Regional Training Center.

The coming years hold many challenges for the RSCN. As a non-governmental organization directing the country's biodiversity conservation, it is in a unique position institutionally. How it will capitalize on its organizational capacities as a leader in Jordan's civil society and navigate its way through

power disparities with government ministries over future conservation issues will greatly influence Jordan's environmental future. Moreover, though the RSCN has created socio-economic opportunities for local communities around Dana and other reserves that are improving the lives of many, its work still confronts widespread popular misunderstandings about the purposes of reserves and the importance of nature conservation. The organization's response to emphasize more awareness building and create stronger public partnerships and participatory opportunities may begin to address these concerns. It must also start to embed the conservation ethic in Jordan that will ultimately be critical to maintaining the RSCN's accomplishments long-term.

John Creed, CAORC Fellow

Rescue Archaeology of Neolithic Sites

Research conducted under my ACOR-CAORC fellowship concentrated on three Late Pre-Pottery Neolithic B (LPPNB) sites in Jordan. AWS-102 was a small (ca. 800 m²) hunting camp in the Azraq oasis area of northeastern Jordan, while al-Basit and 'Ayn Jammam were large farming settlements in southern Jordan.



A large room at 'Ayn Jammam that underwent at least one major renovation; note the two niches high in the wall at the left

During a survey in 2000 in the Azraq Wetlands Reserve in northeastern Jordan, the remains of at least two humans were noted eroding from a silt dune adjacent to surface material that was exclusively LPPNB in age, very similar to the larger hunting camp at Bawwab al-Ghazal located less than a kilometer to the northwest. Because prehistoric human remains are so rare in the desert areas of Jordan, the burials held important potentials regarding possible genetic connections between early pastoral populations in the arid regions and the settled farming communities in the arable western highlands. However, excavations at AWS-102 revealed that the human remains were not Neolithic. Instead, they were relatively recent in age, and the skeletal material that was recovered included remains of seven interments, not just two. The

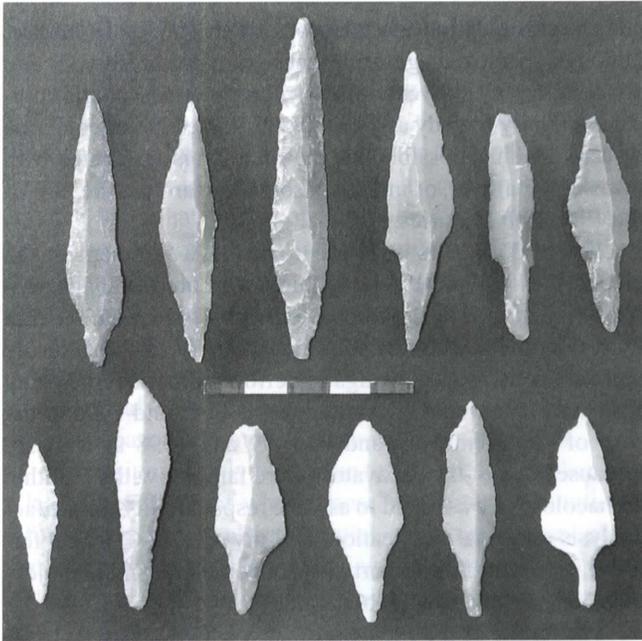
cemetery population included one adult (probably female, although specific diagnostic bones were not preserved) and six children, all six years old or younger. The scenario indicates a family tragedy associated with some kind of epidemic disease, and it is possible that the situation is associated with measles, smallpox, or influenza sometime around the turn of the 19th-20th centuries.

The LPPNB sites of al-Basit and 'Ayn Jammam fit the classic "rescue" aspect of Cultural Resource Management (CRM). Both sites were threatened with destruction, the first by residential and municipal development and the latter by highway construction. Mitigation efforts were undertaken by Jordan's Department of Antiquities in 1995 and 1996 in the case of 'Ayn Jammam and in 1997 and 1998 at al-Basit. Because none of the excavators were familiar with Neolithic archaeology, I was asked to assume responsibility for artifact analysis and final publication, and my ACOR-CAORC fellowship provided the opportunity for completing major objectives leading to a final publication.

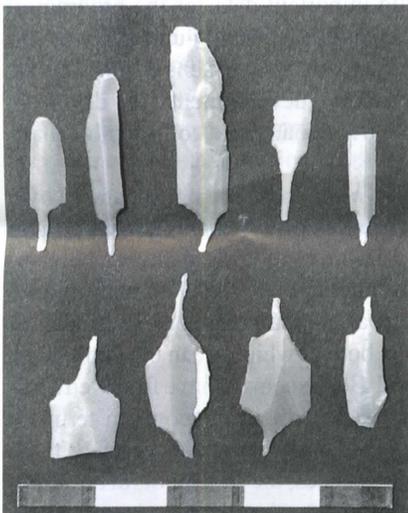
The results of the excavations at AWS-102 have no bearing on the Neolithic use of the Azraq oasis in the Neolithic period, but they will add important data for the program of research on Bedouin populations currently underway by Dr. J.C. Rose of the University of Arkansas. For scholars interested in Neolithic developments, the data from al-Basit and 'Ayn Jammam hold considerable interest.

Basit and 'Ayn Jammam are not separated by a large distance (ca. 50 km), yet preliminary results indicate some fascinating differences as well as similarities. Architecture at 'Ayn Jammam follows the canons seen at contemporaneous sites such as Basta and Ba'ja, both of which are in the Petra/Wadi Musa area, but al-Basit seems to have followed a less pueblo-oriented arrangement of rooms in terms of settlement design. However, while there are these architectural differences, the stone tools at both sites are similar in terms of the dominance of arrowheads, knives, and drills. The last aspect is of particular interest, since there appears to be a focus at both settlements on activities associated with boring, although the number of drilled beads and pendants is remarkably low at both sites. The delicacy of the drill bits at al-Basit, in particular, suggests that the "drills" may have played some other role dealing with organic materials, perhaps as tattooing needles.

The most intriguing element of the stone tools at this point is the focus on drills at both sites. Arrowheads and knives are understandable as the major elements of hunting and processing (even in these farming and herding communities), but the drill component of the chipped stone tools far exceeds the contemporaneous inventory at 'Ain Ghazal, for example. Ornaments were important aspects in southern Jordan, perhaps more than in northern Jordan at the time. Even so, the way people at al-Basit made and used their drills was noticeably different from their neighbors at 'Ayn Jammam. At the latter settlement, the knappers relied more often on relatively thick and wide blades, while at al-Basit the drills relied on specially



Late PPNB arrowheads from al-Basit



Drills from al-Basit; note the delicacy of the drill bits

prepared microblade cores.

The research opportunity afforded by my ACOR-CAORC fellowship has been instrumental in demonstrating the mosaic nature of the LPPNB cultural map of Jordan (and the southern Levant). Barely ten years ago the “flag” of cultural similarities between the northern and southern Levant was

raised to emphasize a “cultural community” of the populations inhabiting the region from central Turkey to the Sinai. These views that homogenized the cultures of the societies that lived in the eastern Mediterranean may have been too global in scope; there seem to have been important cultural differences within areas of the Levant, let alone major distinctions between the northern and southern areas.

Gary O. Rollefson, CAORC Fellow

The Circulation of Ceramic Commodities in Iron Age Central Transjordan

Previous archaeological and historical investigations demonstrate that Iron Age Moab did not evolve from a kinship structured tribal society to a politically and economically integrated territorial state, a trajectory that social evolutionary models would predict. Finding traditional approaches unsatis-

fying then, how is it possible to explore social change in this ancient society? My research investigates Moabite society through an examination into the circulation of ceramic commodities over space and time. By identifying how ceramic objects were produced, exchanged, and consumed throughout Moab's existence, it is possible to make broader statements on the character of Moabite society and explore the dynamics that transformed it over time.

Petrographic and Instrumental Neutron Activation (INA, from hereon) analyses will illustrate these patterns of circulation in the archaeological record. Using both low-powered and polarizing-light magnification, petrographic analysis identifies mineral inclusions within an object's clay matrix like basalt, flint, and straw. Petrography not only provides insight into production techniques, but also preliminarily determines the provenience of raw materials. Complementing petrographic analyses are higher resolution techniques like INA, a sensitive archaeometric procedure that performs qualitative and quantitative analyses of major, minor, and trace chemical elements in ceramic samples.

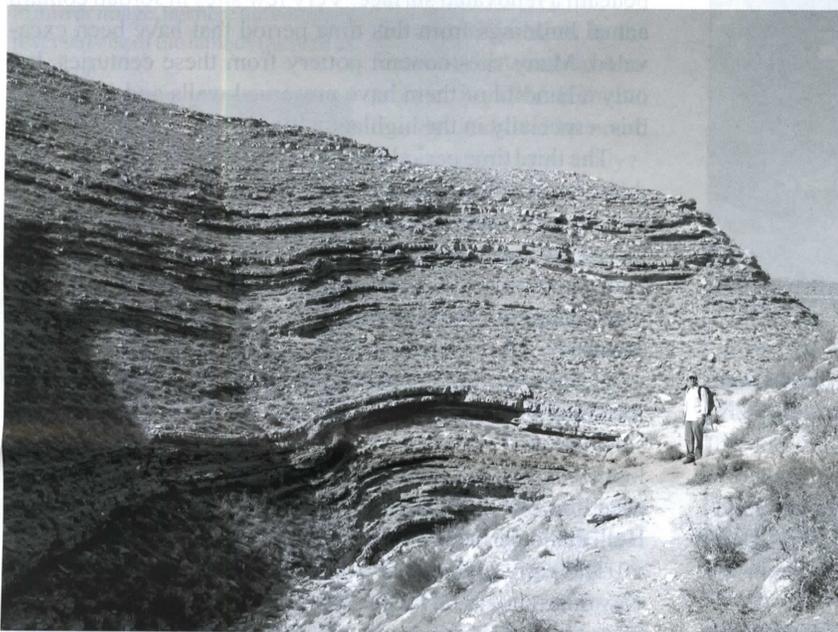
My investigation focuses on ceramic evidence from two excavated sites in Central Transjordan. First, Iron Age I ceramics are drawn from the University of Pennsylvania's Khirbat Mudayna al-'Aliya (KMA, from hereon) excavations, under the direction of Dr. Bruce Routledge. KMA is a typical late Iron Age I village located near the Wadi Mujib. In addition, Iron Age II ceramic evidence is examined from a second excavation, the late William H. Morton's 1955, 1956, and 1965 excavations at Dhiban (Dibon). Ceramic thin sections are first examined to gain a preliminary understanding of the diversity in raw materials. From this information, a small selection of sherds (n=100) is selected for INA analysis.

Two additional data sets compliment this Central Transjordan ceramic sample group. In order to increase this investigation's analytical scales, ceramic samples are collected from well-excavated Iron Age contexts in the study region. These samples will permit an examination of the Moabite ceramic economy at the regional level, illustrating the relationship between the principal sites of KMA and Dhiban, and settlements in their vicinity. In addition, clay samples from the study region are collected for INA analysis to identify the source of ceramic commodities' raw materials.

During the first half of 2002, I have contacted 20 excavations for permission to collect samples from their excavated ceramic evidence with all but two responding positively. Outstanding are the excavations of Aro'er and Khirbat Mudayna al-Mu'rradjeh, both projects of the recently deceased Emilio Olávarri (Any information on the location of these two collections would be kindly appreciated). I have also made substantial progress collecting samples for INA analysis. Fifteen to twenty samples have been collected from each of the following excavations: the Amman Citadel, Ayun Musa, Umm er-Rassas, Lahun, Balu', and Khirbat Faris. I have Dr. Pierre Bikai (ACOR), Dr. Michele Piccirillo (SBF), Professor Denyse Homés-Fredericq (Brussels), Professor Udo Worschech (Friedensau), and Alison McQuitty to thank for their cooperation and generosity. Additional samples from remaining excavations will be collected this Fall. In addition, clay samples

have been collected from several candidate sources for ceramic raw materials in the vicinity of Dhiban and KMA. The entire sample group will be analyzed at Missouri's University Research Reactor (MURR) in the Fall of 2003.

My research places the analytical distinctions between production, exchange, and consumption practices under scrutiny to encourage a new understanding of material culture and value in archaeological research. Variations in these practices over time can point to larger social transformations, from the development of bureaucracies that reorganize local economies to new cultural expressions of social status. The methodology outlined above will allow for an investigation into these variations. For example, can we say with certainty that ceramic production grew increasingly specialized during the Iron Age?



Benjamin Porter in the Wadi Theeb, near Dhiban, where clay sources for Instrumental Neutron Activation Analysis were sampled

Are particular vessels produced for and consumed by elites and does the production of vessels emulating these restricted forms develop in response? Most importantly, what historical, political, and economic forces are producing these new circulation practices in Moabite society?

The manner in which individuals make, obtain, and use objects varies over time, creating a volatile relationship between humans and objects. Value is an important force driving material culture's circulation through society. Broadly considered, value is a culturally assigned quality determined by the meanings that things embody and the functions they perform. Value is that compelling force that draws us to make and consume objects, or that cultural knowledge we possess that helps us to determine one thing's exchangeability for another. But ironically, cultural knowledge rarely remains fixed, and our ability to calculate an object's value is far from consistent. My research recognizes the dynamic force of value and will investigate its contribution to human-object relations in Iron Age Moab.

Benjamin W. Porter, CAORC Fellow

Tall al-'Umayri

Finds from three major time periods in Jordan's history were excavated at Tall al-'Umayri, located about 12 km south of Amman's 7th Circle on the Airport Highway. The Bronze and Iron ages between 1500 and 500 B.C. and the Hellenistic period around 150 B.C. once again yielded up significant discoveries during our ninth season of excavation in 2002.

The team of 37 archaeologists from La Sierra University, Canadian University College, Walla Walla College, and several other locations in the U.S., Canada and Poland worked six weeks at the site, where the Madaba Plains Project has been working since 1984, with a crew of workers from the nearby village of Bunayat. The site is conveniently located between two national parks – the Amman National Park immediately to the west and Ghamadan National Park on the eastern side of the Airport Highway.

The excavations were supported by the Department of Antiquities of Jordan, under its Director General, Dr. Fawwaz al-Khraysh, and is indebted as well to the American Schools of Oriental Research, the American Center of Oriental Research in Amman, the Amman Training Centre (the UNRWA college where we lived) and our land owners, Raouf Abujaber and Jebriil Abu Aysheh.

What appears at this stage of excavation to be an almost 3500 year old palace (or at least more than a domestic building) was discovered with walls preserved to about 1.3 m thick and 3.5 m high. Parts of four rooms of this Late Bronze Age building were discovered along with pottery vessels and crudely made ceramic figurines dating to the time just prior to its construction. The remarkable state of preservation of the building is all the more spectacular because of the rarity of other

buildings from this time period in Jordan. Although other buildings of this date exist at sites in the Jordan Valley, none



Northern portion of Field B, with the Late Bronze Age building in the center

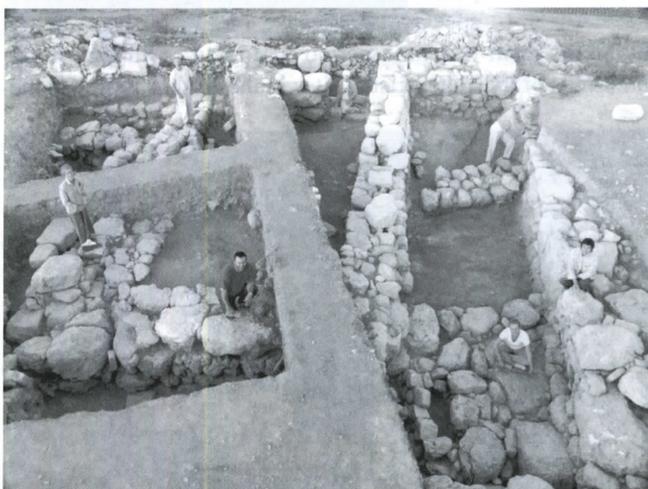


Late Iron I cobbled surface of Field H

are nearly as well preserved as this one, and only two or three others exist in the highlands.

Excavators reached the floor in two of the rooms, but will need another season to do so in the other two. Portions of a large perimeter wall were discovered surrounding the building. An earthquake distorted many of the north-south walls from this period at the site, including some of those in the palace.

The palace probably reused a strong perimeter wall and rampart constructed at the end of the Middle Bronze Age



Hellenistic farmstead in Field L

around 1600 B.C. The structure is now one of the best preserved buildings from this period in the entire Levant.

Another period represented at 'Umayri is the 11th to 9th centuries B.C., a time when the first Ammonites probably

occupied the site. We found thousands of pieces of pottery from this period in the past, but never the buildings and floors. This year we found an entire cobbled courtyard, which may have been a religious area because of the several ceramic shrine models discovered here. In addition to the shrine models, we uncovered stone benches, which were found in a line, and a wooden awning or shelter lining one side of the courtyard. It is possible that this awning was used to shelter some kind of holy place. Pictures of one of the shrine models may be viewed at www.wvc.edu/mpp (click on Photos).

In fact, two courtyards existed, one on top of the other. The lower floor dates to the 11th century, and the upper one dates from the 10th-9th centuries B.C. Only the lower one, however, contained the shrine models, having been smashed and sealed beneath a renovated surface. Very few sites in Jordan contain actual buildings from this time period that have been excavated. Many sites contain pottery from these centuries, but only a handful of them have preserved walls and floors like this, especially in the highlands.

The third time period represented is the Hellenistic period, dating to about 300-100 B.C. The walls of a farmstead from this period were found at the southern edge of the site. Although the walls, floors, and pottery from the building are crude and poor, there were two nicely made coins minted by the Ptolemaic rulers in Egypt. A third coin was found in a previous season.

A long storeroom contained many finds on the floor, including several lamps, six or seven handmade juglets, a few store jars, and other domestic objects, such as grinding stones, loom weights, and spindle whorls. The rooms were obviously used for the daily life of the people living there in the Hellenistic period.

The early Hellenistic period in Jordan does not include very many cities and towns. However, several small rural sites exist in the 'Umayri region, some of which we have already excavated. We can only hope that we will find more.

Larry G. Herr, Canadian University College

Douglas R. Clark, Walla Walla College

Lawrence T. Geraty, La Sierra University

The Palaeography of Iron Age Ammonite Inscriptions from Jordan

Various Iron Age Semitic inscriptions have been found in Jordan during recent decades. Some of these are written in the Ammonite and Aramaic languages and scripts. Although it is readily apparent that the Ammonite language is distinct from the Aramaic language (and from other Northwest Semitic languages), there has been substantial discussion within the secondary literature regarding the script employed to write the Ammonite language. Frank Moore Cross, for example, has argued that the Ammonite script became independent of the Aramaic script (from which it derived) during Iron II, and evolved into a national script by some time in the 8th century B.C. Joseph Naveh, however, has argued that the Ammonite script never became an independent national script. Rather, he argues that the script of Ammonite inscriptions is simply the Aramaic script. One goal of my research, therefore, was to



Ammonite seal, 7th century; traditionally read “belonging to ‘ELYAŠŪ’.” Seals are usually incised in mirror image, but here the engraver reversed one of the lameds (as well as the aleph).



Amman statue inscription (the inscription is on the base), with the personal name “Yerah”azar”; late 8th or early 7th century; photographs above are by Bruce Zuckerman and Marilyn Lundberg.

analyze the script used to write inscriptions in the Ammonite language, to describe the diachronic evolution of the script used to write Ammonite, and to determine if this script should actually be considered an independent national script. Note that although sometimes it has been stated that Ammonite inscriptions were written in the Old Hebrew script, this is completely untenable, based on the vast differences in the forms of the letters in Ammonite and Old Hebrew. Finally, it should be noted that in addition to analyzing the script, my collations generated a number of new readings for inscriptions.

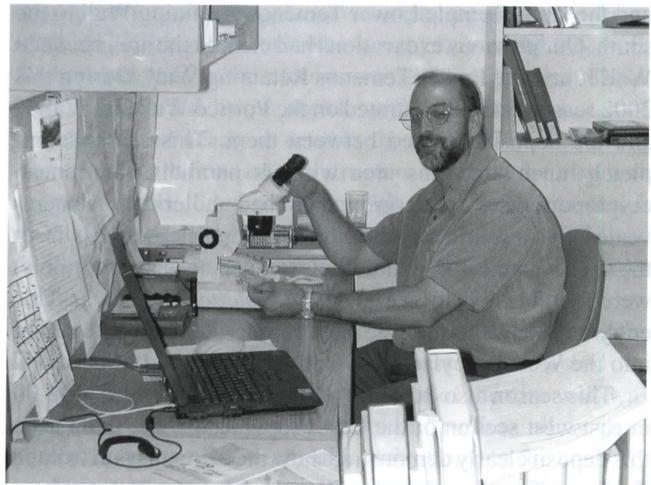
During a four-month residency at the American Center of Oriental Research, I collated scores of provenanced Iron Age Ammonite and Aramaic inscriptions in Jordan. In addition to using traditional methods (e.g., use of a 10x loupe for magnification), I also employed a stereo-microscope (with 20x – 40 x magnification), something that was especially effective for reading and analyzing the script and readings of seals and seal impressions. Most of the collations were conducted at the Amman Archaeological Museum, however, I also traveled to various regional museums as well, such as the University of Jordan Archaeological Museum, the Madaba Museum, the Kerak Museum, the Salt Archaeological

Museum, and the Deir Alla Archaeological Station. Moreover, because of the importance of comparative palaeographic analysis, I traveled to Lebanon and collated Phoenician and Aramaic inscriptions there. In addition, while at the National Museum in Beirut, I also collated some Late Bronze Age inscribed arrowheads as well, because of their value as exem-

The Origins of the Alphabet

The alphabet was invented once, by Semites, probably during the 18th century B.C., based on new evidence from Wadi el-Hol (Egypt). All alphabets derive from the early Semitic alphabet. This original alphabet was “pictographic” and based on the “acrophonic principle.” For example, “waw” is a Semitic word for “nail,” “peg,” and so the early letter “waw” actually looked like a “peg,” or “nail,” and represented the alphabetic letter “w.” In addition, “Rosh” (Arabic “ras”), for example, is a Semitic word for “head,” and so the early “rosh” actually looked like a “head,” and represented the letter “r.” The fact that one grapheme stood for one “phoneme” or “sound” distinguished the early alphabet from the earlier writing systems of Mesopotamia and Egypt, which were non-alphabetic systems.

After the invention of the alphabet during the Middle Bronze Age, the script continued to develop during the Late Bronze Age and ultimately became more linear (and less pictographic). Naturally, the forms of the alphabetic letters, though deriving from a single alphabet initially, began to develop differently in different regions. So, for example, the Phoenician script of Iron Age differs substantially from the Aramaic script (even though the Aramaic script derived from the Phoenician). Moreover, the Ammonite script differs substantially from the Old Hebrew script. In short, the national scripts (Phoenician, Aramaic, Old Hebrew, Ammonite) all became independent and exhibit morphological differences. Finally, it should be noted that the Arabic script probably derived from the Nabataean script, and the Nabataean script derived from an earlier form of the Aramaic script. (C. Rollston)



Chris Rollston in his study at ACOR

plars of the very early history of the alphabet.

During my fellowship tenure, I arranged for Bruce Zuckerman and Marilyn Lundberg of the West Semitic Research Project to travel to the region in order to take large format photographs (4” x 5”) of the targeted inscriptions. Zuckerman and Lundberg are considered to be among the very best epigraphic photographers in the world. The photography

conducted during this project was very successful and these film images will ultimately be scanned on a high resolution drum scanner, so that I will be able to begin to analyze the digital data, and to draw the inscriptions digitally, as part of this continuing research project.

This research on Iron Age scripts and inscriptions will be published in various places, including a lengthy article in a volume honoring Harvard Professor Frank Moore Cross, edited by Jo Ann Hackett and Walter E. Aufrecht (forthcoming, Eisenbrauns).

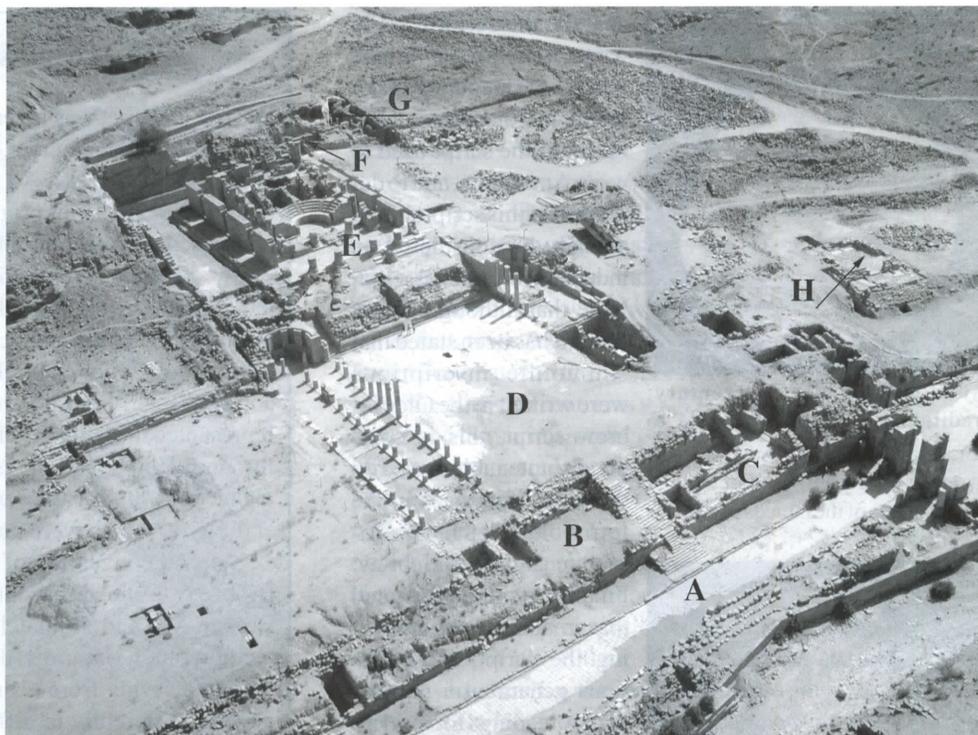
Christopher A. Rollston, NEH Fellow

Petra: Great Temple

The tenth season of excavations by Brown University archaeologists took place from June 15 until August 3, 2002.

The north side of the West Propylaeum, the western monumental entry to the Great Temple precinct, lies 7 m east of the Qasr al-Bint Temenos Gate. In the West Propylaeum, there are three parallel east west walls, including the Portico Wall, to the north, which borders the Colonnaded Street and was part of the original urban plan to “modernize” Petra by the Nabataeans; the Middle Wall, which is also known as Wall K; and the Great Temple Lower Temenos Retaining Wall to the south. Our previous excavations had cleared the area between Wall K and the Lower Temenos Retaining Wall. During this 2002 season, we concentrated on the Portico Wall and Wall K and the deposits located between them. This season completely uncovered this area with its parallel subterranean cryptoporticus (underground arched galleries). Also revealed was a west entry into the Cryptoporticus across from the niche where the double betyls (Nabataean stone idols) were found last year (see *ACOR Newsletter* Vol. 13.1). This entryway stands to the side of a 3.8 m wide stairway leading into the West Propylaeum from the Colonnaded Street.

This season also explored a 15.45 m north south-by-13.00 m east west section of the East Propylaeum. The finds from this deposit clearly demonstrate how the elements that fronted the Great Temple precinct collapsed, for some 260 architectural fragments were registered, including 75 column drums, 83 ashlar wall blocks, 27 elephant head fragments, and 17 cornice fragments. The remaining architectural materials were comprised of hexagonal pavers that had fallen from the Lower Temenos, elephant head capital motifs including eggs and tongues, helices, darts, and other capital elements with bead and reel designs. One extraordinary find was a fragmented life-sized male head finely sculpted in white limestone.



Aerial view of the Great Temple (facing southwest): A. Colonnaded Street; B. East Propylaeum; C. West Propylaeum; D. Lower Temenos; E. Great Temple; F. Baroque Room; G. Residential Quarter; H. Small Temple; photo by Artemis A. W. Joukowsky

We also completed excavation of the South Passageway Shrine, which was partially recovered in 2001. To our great surprise, a newly recovered west doorway led into an adjacent room measuring 4.50 m north south-by-3.67 m east west. This room was an incredible discovery because it was filled with delicately painted and gilded plaster that had collapsed from the ceiling and walls. We named this room the “Baroque Room.” These finds are remarkable because, heretofore, com-



Mother-of-pearl dolphin pendant; photo by Artemis A. W. Joukowsky

parable quantities of such an array of decorative materials have not been found in Nabataean contexts. Based on the fact that Nabataean coins and pottery were associated finds, the decorative canon can roughly be dated to the 1st century A.D. This decorative material was removed and will be restored during the fall of 2002.

To the west of the Baroque Room is a “Residential Area” of two neighboring caves added onto by extensive architectural units—including eleven columnar and/or arched rooms. As far as we know this is the first discovery of caves and architectural units that were built in conjunction with a civic structure. In this context, we recovered masses of unpainted and figuratively painted Nabataean ceramics ranging in dates

from the 1st century B.C. to the 1st and 2d centuries A.D. Although Cave 1 interconnects with Cave 2, at this point in our investigations, we cannot ascertain if or how they were integral to the Great Temple precinct, although it is clear that they were in use at the same time. Besides the pottery repertoire, a lovely mother-of pearl dolphin pendant was found in the debris.

The Small Temple

The layout of the Small Temple was defined in its entirety and was found to measure approximately 13 m square. Hundreds of inscribed marble fragments and over 5000 fragments were found to clad the walls in this building, which we identified as a Roman Imperial cult building. Based on the reconstructed inscriptions, we posit that this structure was in use from the reign of the Emperor Trajan during the 1st century A.D. until the reign of Elagabalus (A.D. 218-22) during the 3d century.

In conclusion, this tenth excavation campaign would not have been possible without the generous assistance of the Department of Antiquities of Jordan and its Director General, Fawwaz al-Khraysheh, the Petra National Park and its Director, Suleiman Farajat, and the American Center of Oriental Research and its Director, Pierre M. Bikai. We also thank Brown University for making this season possible and H.R.H. Prince Faisal bin Hussein, who provided helicopter coverage for the season's aerial survey.

Martha Sharp Joukowsky, Brown University

The Roman Aqaba Project

The sixth season of the Roman Aqaba Project was conducted from May 22 to July 7, 2002. The project's principal goal is to reconstruct the economy of the city of Aila (ancient 'Aqaba) in the Roman Empire. The research design consists of a regional survey (completed in 1998) and excavation of Aila to recover evidence about its economy. Excavation in 2002 focused mostly on previously opened areas, although one new area was opened in Aqaba itself and limited soundings were conducted at Qasr al-Kithara.

Excavation continued in Area M, an Early Roman/Nabataean and Late Roman domestic complex just west of al-Istikhlal Street. In 2002 excavation continued in five existing trenches to recover more evidence of this earliest period of Aila's history and to complete plans of the major phases of occupation. Occupation began in the mid-1st century A.D. and continued through two Early Roman/Nabataean phases. The complex seems to have been briefly abandoned around the turn of the 2d century, but was reoccupied early in the 2d century. Two Late Roman phases witnessed continued domestic use of the mudbrick and stone structures, some reused from the Nabataean period. Quantities of natural clay, water channels, and large quantities of ceramic slag and kiln wasters suggested a local pottery industry in both the Early Roman/Nabataean and Late Roman periods. The complex was abandoned in the 3d century A.D. and was later used as a cemetery in the 4th century.

Area J lies south of Area M along both sides of al-Istikhlal Street. Excavation has revealed two major structures: a monu-

mental mudbrick structure of the 4th century (tentatively identified as a church) and a stone fortification wall of the late 4th or early 5th century. Excavation in 2002 revealed more of the overall plan and internal architectural details of the mudbrick structure. The structure was founded directly atop an early Roman/Nabataean structure of the 1st century A.D. It appeared



Overview of the possible 4th century church, view to the west; the later Byzantine city wall and one of its towers are to the left; photo by K. Cavanagh.

that later builders had shaved off and leveled the earlier Nabataean building before construction of the later monumental mudbrick building.

The team continued excavation of the Byzantine city wall just south of the putative church this season. *In toto*, counting the segment now buried under al-Istikhlal Street, ca. 120 m of the city wall have now been exposed. The wall in places still stands over 4.0 m high and averages 1.10 to 1.40 m in width. An interesting feature of the western segment is a large structure built against the inner (south) face of the city wall, further elucidated in 2002. It consists of three elliptical mudbrick towers connected by mudbrick walls, all erected on stone foundations set nearly as deep as the city wall itself. Pottery from the foundations of this structure abutting the city wall suggests it was added in the late 6th century. The mudbrick structures apparently represent a late 6th century rebuild and reinforcement of a segment of the city wall that had earlier collapsed.

One new excavation area was opened to trace the line of the Byzantine city wall between King Hussein Street and the modern shoreline. A 4 m long segment of the city wall was uncovered just below the modern ground surface, allowing us to reconstruct the line of the city wall almost to the beach.

Area K lays ca. 50 m southeast of Area J and east of al-Istikhlal Street, inside the Byzantine city wall. Previous excavation revealed significant remains of the Umayyad and Abbasid periods (7th to 10th centuries), as well as stone and mudbrick structures of the 4th and 5th centuries built along the east side of a street. Rich artifactual remains, including a variety of imported fine wares, amphorae, and numerous coins, suggest the vibrancy of Aila's economy in this period. Excavation in 2002 exposed more of the Early Byzantine

architecture and continued through Late Roman and Early Roman/Nabataean strata of the 1st century A.D. by season's end. One notable fact is that the line of a street running NE-SW through the area, established in the Early Roman/Nabataean period, remained basically unchanged through the following eight centuries into the Umayyad period. This is remarkable evidence for continuity in the city plan. Area K has thus produced a complete stratigraphic profile of Aila's history from the 1st through 10th centuries.

Qasr al-Kithara

Qasr al-Kithara lies about 20 km north of Aqaba near the modern Desert Highway. It sits atop a spur composed of fluvial gravels at the intersection of two wadis. In antiquity the site served as the first major road station along the *via nova Traiana* running north from Aqaba. The qasr is a small fort with rooms surrounding a central courtyard. Earlier surface surveys collected pottery ranging from the Early Roman/Nabataean to Late Byzantine periods. The date of the extant structure, with its projecting corner towers, was unclear. The soundings in 2002 aimed to date the extant fortifications and recover evidence to suggest what products were exiting Aila from the south and entering Aila from the north.

One trench was opened against the external intersection between the northwest corner tower and western curtain wall. Excavation reached the gravel layer on which the fort was founded. The evidence suggested that the tower was originally a freestanding structure, only later joined by the curtain wall to the later fort. This might explain the rather odd plan of the fort, which has been aptly described as "essentially a square fort one of whose towers has been pulled out to create a diamond outline." The curtain wall seems to have been founded at the turn of the 2d century, perhaps by adding a Roman fort to an existing Nabataean tower.

A second sounding was laid out within the central courtyard, and a third was opened within an interior room in the northwest corner. Excavation revealed a doorway into this room from the central courtyard and an external doorway, preserved with its lintel still *in situ*, in the north curtain wall just east of the corner tower. Given the existence of the main gateway in the same wall just to the east, the existence of this second doorway seems puzzling. Excavation also uncovered the remains of a plastered installation built against the northwest corner of this room. Flue-pipes extended up the walls of the installation, suggesting that a furnace lies under the plastered installation. The installation, perhaps a small bath, was choked with tumbled debris and only partially excavated. Its date is unclear.

Artifacts recovered from Kithara included sherds of imported amphorae from Gaza and Egypt as well as Egyptian Red Slip ware. The Egyptian pottery presumably reached Kithara by way of Aila, where large quantities of both Egyptian amphorae and Egyptian Red Slip wares have been recovered by the project.

Conclusion

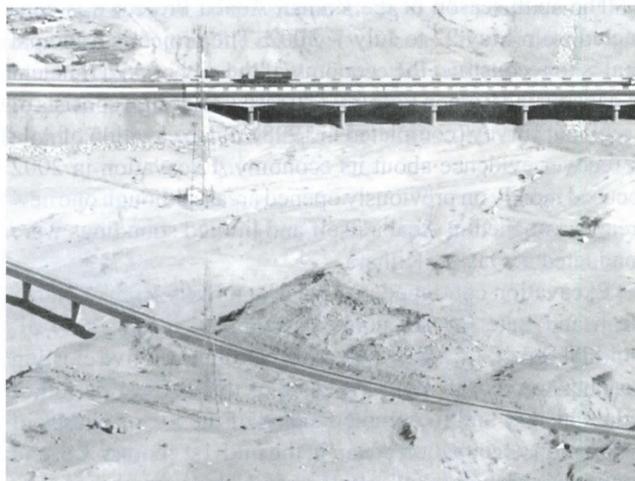
Much was learned this season about Early Roman/Nabataean Aila. It now appears that the heart of Nabataean Aila was close to the modern shoreline and that the northern domestic areas, such as Area M, represent only the northern fringe of the

Nabataean city. Unfortunately, the thick overburden of later remains in the south limits our knowledge of Nabataean Aila in this sector.

In addition, there was significant Nabataean pottery production at Aila. There is also evidence of copper-working, bone-carving, and other industries in this period. Various trade goods, such as wine, oil, glass, fine ware pottery, and metal, passed through the port in this era. There is clear evidence of discontinuity around the turn of the 2d century in several domestic complexes, which were all abandoned about this time before being reoccupied in the early 2d century. This widespread abandonment, without evidence of destruction, may relate to the Roman annexation of Nabataea in 106. It is as yet unclear whether there is similar evidence for such discontinuity in the southern excavation areas.

Similarly, all these excavation areas experienced significant re-occupation in the Late Roman period. This was largely domestic in nature, although there is evidence of continued ceramic production and other industries. The northern domestic complexes were abandoned by the 3d or 4th centuries, when the now ruined Area M complex was used as a cemetery.

The city wall clearly demarcated the northern limit of Byzantine Aila. The city wall with its projecting interval towers testifies to the availability of sufficient economic resources (whether local, imperial, or both) for its construction and some perceived threat to the city's security in this period. The region north of the wall was now used for cemeteries. Construction of a mudbrick buttress system of elliptical towers to repair the city wall in the late 6th century surely



An overview of Qasr al-Kithara, looking north. The roughly rectangular fort is visible near the center of the photo. The southern part of the fort was destroyed by construction of the modern railway line, visible at the bottom of the image.

implies that the fortifications were in use in this period. It was perhaps not until the early 7th century that the city wall fell out of use for defensive purposes, as its exterior face could be incorporated into domestic complexes. A gateway was seemingly cut through the wall in the Umayyad period and other portions were robbed for stone to build the adjacent Early Islamic Aila.

S. Thomas Parker, North Carolina State University

Director's Report: January through June 2002

Pierre M. Bikai

ACOR Projects

Petra North Ridge Project, ACOR, Patricia Bikai, Megan Perry, and Naif Zaban, USAID Petra Endowment

Petra, Petra Mapping Project, ACOR and Hashemite University, USAID Petra Endowment

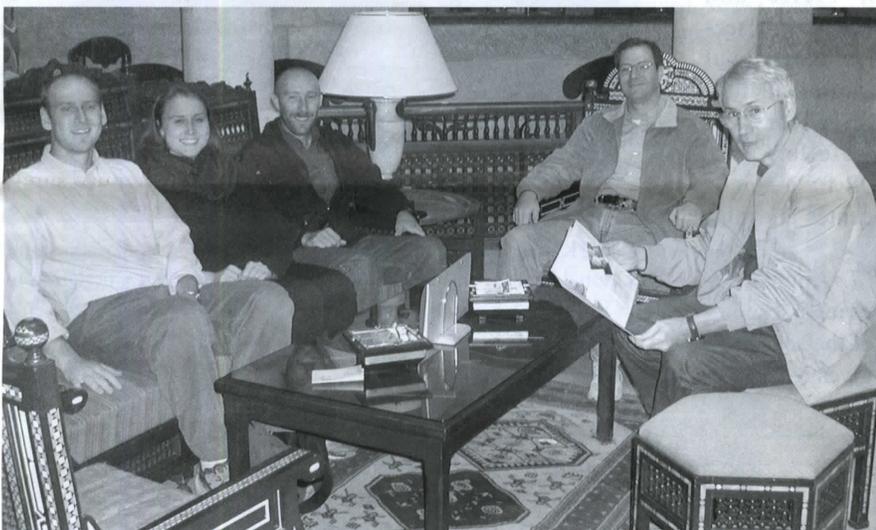
Petra, Petra Documentation Project, Chrysanthos Kanelopoulos, USAID Petra Endowment

Petra Scrolls Project, U. of Michigan: Traianos Gagos and Ludwig Koenen; U. of Helsinki/Academy of Finland: Marjo Lehtinen, Jorma Kaimio, and Maarit Kaimio

Fellows in Residence

Council of American Overseas Research Centers (CAORC)
Senior Fellows:

Bruce Borthwick, Albion College, The Water Shortage in Jordan



Benjamin Porter, Jenny Jacobs, Todd Clausen, Russell Lucas, and Bruce Borthwick; photo by Nancy Coinman

Douglas R. Clark, Walla Walla College, Domestic Architecture in Jordan during the Iron I Age

Nancy R. Coinman, Iowa State U., Geological Settings of Upper Paleolithic Sites in the Levant

William R. Darrow, Williams College, The Islamic Transformation of the Late Antique Levant

Gary Rollefson, Whitman College, Rescue Archaeology of Jordanian Neolithic Sites

Sandra Scham, U. of Maryland, The Heritage Presentation of Crusader and Ottoman Sites in the Middle East

Council of American Overseas Research Centers (CAORC) Fellows:

Thomas Abowd, Columbia U., Jewish-Arab Relations and the Politics of Everyday Life in British Mandate Jerusalem, 1917-1948

Fida Adely, Columbia U., Education and Girls in Jordan

Betty S. Anderson, Boston U., Political Education in Jordan and Palestine

John Creed, College of Charleston, The Politics of Promoting Eco-Development to Sustain Nature Conservation in Jordan

Diane Grubisha, U. of Wisconsin, Milwaukee, Steatite from Archaeological Sites in Jordan

Russell E. Lucas, Political Liberalization and the Peace Process in the Era of King Abdullah II

Benjamin W. Porter, U. of Pennsylvania, Craft Specialization and State Formation in Iron Age Moab

John D. Rucker, U. of Missouri, Columbia, Da'Janiya Hinterland Survey Project

Ann Elise Thomas, Brown U., Transmission of Musical Heritage: Youth Involvement in Arab Music at the National Conservatory of Music, Amman, Jordan

National Endowment for the Humanities (NEH) Fellow:

Chris Rollston, Johns Hopkins U. and Emmanuel School of Religion, The Palaeography of Iron Age Ammonite Inscriptions from the Hashemite Kingdom of Jordan: Scrip Morphology, Script Variation, Diachronic Evolution, and Ductus

Lectures

Jan. 4. William R. Darrow, Williams College, The Islamic Transformation of the Late Antique Levant

April 6. Diane Grubisha, U. of Wisconsin, Milwaukee, Steatite Artifacts in Jordan

April 27. Bruce Borthwick, Albion College, The Water Problem in Jordan

May 4. Douglas R. Clark, Walla Walla College, Domestic Houses in Jordan during the Early Iron Age

May 11. Nancy Coinman, Iowa State U., Geoarchaeology of the Wadi Hasa

June 24. Benjamin Porter, U. of Pennsyl-



Carmen Clark, Diane Grubisha, Douglas Clark, and Ann Elise Thomas; photo by Nancy Coinman

vania, Building a Regional Neutron Activation Analysis Database for Iron Age Central Transjordan

June 29. Fida Adely, Columbia U., The Education of Girls in Jordan

ACOR-Assisted Projects

Ted Banning and Lisa Maher, U. of Toronto, Wadi Ziqlab Project

Rebecca Foote, Islamic Art Society, Humayma-Qasr Project
Martha Sharp Joukowsky, Brown U., Petra Great Temple Excavation Project

John P. Oleson, U. of Victoria, Humayma Excavation Project
S. Thomas Parker, North Carolina State U., Roman Aqaba Project

Happenings at ACOR

Jan. 5. Pierre takes a congressional delegation and USAID Mission Director to Jordan Toni Christiansen-Wagner on a



Senator Rockefeller and Pierre

tour of Petra. Later that evening in Amman, Pierre and Patricia host a second congressional delegation, including Senator Jay Rockefeller, at ACOR for a tour of the center and dinner.

Jan. 7. Amman receives its first snow-fall of the season.

Jan. 11. ACOR fellow Anne Elise Thomas gives a concert, with her qanun, for ACOR residents.

Jan. 12. Pierre takes another congressional delegation on a tour of Petra. The four representatives in the group include: Reps. Saxby Chambliss (GA), Jane Harman (CA), Peter Hockstra (MI), and Richard Burr (NC).



ACOR Assistant Director Kurt Zamora clearing snow in front of ACOR

Jan. 13. Pierre tours Petra with Andrew Natsios, USAID Administrator.

Jan. 23. ACOR hosts lunch for H.R.H. Princess Majda Ra'ad,



Widad Kawar, H.R.H. Princess Majda, and Karen Asfour of the Petra National Trust with Pierre, who has just handed over a donation to PNT

Widad Kawar, Karen Asfour, Marussia Zimmerman, and Rosemary Bdeir.

Jan. 25. Pierre takes a group from the Friends of Archaeology

Donors to ACOR

From January through June 2002, the following friends of ACOR made donations:

General Donations were made by Connie and Terry Christensen, Nicholas Clapp, Dick and Betsy DeVos Foundation, Sally and Bert de Vries, William Dickens, Carol and Harold Forshey, Henriette and Robert Fremont, Martha and Artemis A.W. Joukowsky (Joukowsky Family Foundation), Robert Mittelstaedt, Martha and John Oleson, Cynthia Shartzer, Beverly and Robert Shumaker, David Webster (Webster Charitable Foundation, Inc.), Norman Whalen, and Judy and Harold Zimmerman.

Donations to the Petra Church Conservation Endowment were made by Mary Ellen Lane, and Anne and Charles Roos.

The Kenneth W. Russell Memorial Trust received donations from Glen Peterman, Kay Russell, and Cynthia Shartzer.

The James Sauer Fellowship Endowment received donations from John Bartlett, Jodi Magness, and Jane and Prescott Williams.

A donation towards the Pierre and Patricia Bikai Endowment was received by Carol and Harold Forshey.

Donations to the Anne C. Ogilvy Library Endowment were made by Aina and Roger Boraas, John Lee, and Annette Kestell Mellott.

Donations of books and journals were received from Ghazi Bisheh, Michelle Bonogofsky, Bruce Borthwick, CERMOC (courtesy of Aida Maraqa), Nancy Coinman, Rami Daher, Thomas Dailey, Embassy of the United States-Jordan (courtesy of the Community Liaison Office), Cynthia Finlayson, Jaako Frösen, Joseph Greene, Artemis Joukowsky, King Saud University (courtesy of Suleiman Zeeb and Said Faiz), Ian Kuijt, Marjo Lehtinen, Adrian McIntyre, John Oleson, Konstantinos Politis, Martha Roth, Irfan Shahid, Union of the Arab Historians (courtesy of Muhammed al-Mashhadani), Tomasz Waliszewski, Peter Warnock, Prescott Williams, Udo Worschech, Yarmouk University (courtesy of Ali Zaghal).

Special thanks to Douglas Clark and ACA-Walla Walla College for generously donating a Claridge 10 ft. projector screen, which was installed in the lower library.



Field trip to the Blue Chapel; kneeling in front: Naif Zaban, Said Adawi, and Abed Adawi; first row: Doug and Carmen Clark, Marjo Lehtinen, Humi Ayoubi, Kathy Nimri, Todd Clausen, Russell Lucas, Diane Grubisha, and Bruce Borthwick; second row: Kurt Zamora, Nisreen Abu al-Sheikh, Pierre and Patricia Bikai, Mohammed Adawi, Jenny Jacobs, Benjamin Porter, and Ann Elise Thomas; photo by Nancy Coinman



H.E. Michel Marto, H.R.H. Prince Ra'ad, H.E. Talib Rifai, U.S. Ambassador Edward Gnehm, and Pierre Bikai, after the signing of the Memorandum of Understanding; photo by Nancy Coinman

for a visit.

April 13. New bookshelves for the lower library arrive. Abed and the library staff are kept busy for several weeks reorganizing ACOR's rapidly expanding collection.

April 23. ACOR fellow Nancy Coinman delivers a lecture on the Upper Paleolithic at the U. of Jordan.

May 1. A Memorandum of Agreement, which confirms ACOR's status, is signed between ACOR and the Ministry of Tourism and Antiquities. Signing on behalf of ACOR are H.R.H. Prince Ra'ad and Pierre Bikai and on behalf of the Ministry of Tourism is H.E. Talib Rifai. Also in attendance are several ACOR trustees, including H.E. Mohammed Asfour, H.E. Michel Marto, Sami Habayeb, Widad Kawar and H.E. Leila Sharaf, along with U.S. Ambassador Edward Gnehm, USAID Mission Director Toni Christiansen-Wagner, and USAID officer Jon Lindborg.

May 12. ACOR hosts a farewell lunch for Alberto and Katy Fernandez. Alberto was the Public Affairs Officer at the U.S. Embassy and was very helpful to ACOR.



Larry Geraty and Artemis Joukowsky

May 15. Pierre presents a lecture on dendrochronology at a Yarmouk University workshop entitled Archaeology: Past, Present and Future.

June 2. The ACOR Board of Trustees meets in Amman. They bid farewell to Dr. Lawrence Geraty, who has served on the ACOR Board since 1976 and as second vice president since 1982. The Board also elected two new members, H.E. Mr. Abdul-elah M. Khatib and Nina Köprülü. ACOR later hosts a small reception on the veranda for the Trustees. At that reception, Larry Geraty receives the ACOR medal.

June 8. Marjo arrives with the final manuscript for ACOR's next publication, *The Petra Papyri I*.

June 19. Patricia delivers a lecture on the North Ridge Project for the Friends of Archaeology.

on a tour of Khirbet Salameh, the archaeological site across the street.

Feb. 2. Pierre takes members of the U.S. Embassy community on a tour of Madaba, which includes the Madaba Archaeological Park.

March 8. Patricia leaves for Petra to begin her season of the North Ridge Project.

April 2. ACOR staff and residents make a day trip to Petra, where Patricia gives them a tour of the Blue Chapel. The fact that it is freezing out does not stop them from having ice cream after the visit!

April 9. ACOR trustee Randy Old is in Amman and stops by

New Publication

The Petra Papyri I, edited by J. Frösén, A. Arjava, and M. Lehtinen. This first volume on the 6th century A.D. carbonized Petra papyri begins with the historical and archaeological context of the papyri, their conservation, an introduction to the chronological systems of their era, and a description of the family of Theodoros son of Obodianos, the main character of the papyri. All the texts are documentary and were written in Byzantine Greek. The volume includes eleven main documents and five minor documents, each with an introduction, Greek transcript with critical apparatus, English translation, and commentary. This large format (33 x 25 cm), cloth-bound volume has 192 pages including 26 plates. \$80.

Other Publications

The Petra Church by Zbigniew T. Fiema, Chrysanthos Kanellopoulos, Tomasz Waliszewski, and Robert Schick. Report on the church excavated by ACOR in Petra. With more than 700 illustrations, the volume contains reports on all aspects of a project that excavated what was probably the cathedral of Petra, a building lavishly decorated with mosaics and marble. This large format (33 x 25 cm), cloth-bound volume has 464 pages, 36 in full color. \$150.

The Mosaics of Jordan by Michele Piccirillo. Large format, cloth-bound volume includes 303 pages in full color with 824 illustrations, plans, and aerial photographs. \$175.

The Great Temple of Amman: The Architecture by Chrysanthos Kanellopoulos. The architecture of the temple that was excavated and partially restored by ACOR. Large format, cloth-bound. \$80.

JADIS: The Jordan Antiquities Database and Information System: A Summary of the Data, edited by Gaetano Palumbo. Basic information on nearly 9,000 archaeological sites from all periods, plus 117 maps. This 453-page, hard-bound volume is xerographically reproduced. \$40.

The Great Temple of Amman: The Excavations by Anthi Koutsoukou, Kenneth W. Russell, Mohammad Najjar, and Ahmed Momani. Description of the 1990-93 excavations undertaken by ACOR and the Department of Antiquities. This hard-bound volume has 180 pages and 3 fold-out plates. \$65.

Madaba: Cultural Heritage edited by Patricia M. Bikai and Thomas A. Dailey. Catalogue of the remains from the Early Bronze Age through late Ottoman vernacular houses (113 pages, paperbound) Over 150 illustrations, five in color.

ACOR and its Newsletter

ACOR, the American Center of Oriental Research, is a nonprofit academic institute whose services are supported through endowments, donations and grants. ACOR is tax exempt as a 501(c)(3) organization, as determined by the U.S. Internal Revenue Service. Inquiries may be sent to ACOR, P.O. Box 2470, Amman 11181, Jordan, Tel.: (962-6) 534-6117, Fax: (962-6) 534-4181, e-mail: ACOR@go.com.jo, or to ACOR, Boston University, 656 Beacon St., 5th Floor, Boston, MA 02215-2010, Tel.: 617-353-6571, Fax: 617-353-6575, e-mail: acor@bu.edu. The *ACOR Newsletter* is edited by Patricia M. Bikai and Kurt Zamora. Printed in Jordan by National Press.

Includes a separate large map. An Arabic translation is available at no additional cost. \$35.

Ancient Ammonites & Modern Arabs: 5000 Years in the Madaba Plains of Jordan edited by Gloria A. London and Douglas R. Clark. Life across the centuries in the area excavated over the past 30 years by the Madaba Plains Project. \$27.

The 150th Anniversary of the United States' Expedition to Explore the Dead Sea and the River Jordan by Robert E. Rook. An assessment of the Lynch expedition in 1848. Hard-bound volume of 32 pages. Many reproductions of Lynch's illustrations, including his three maps. \$20.

Madaba Map Centenary 1897-1997. With assistance from ACOR, the proceedings of the international conference on the Byzantine map have been published, edited by Michele Piccirillo and Eugenio Alliata. This well illustrated hard-bound volume has 278 pages, and is available for \$125. All prices include shipping.

ACOR Trustees

Class of 2003: Mr. Mohammed Asfour; Mr. Sami Habayeb; Dr. Donald Henry; Dr. Øystein LaBianca; Dr. Nancy Lapp; Dr. John P. Oleson; Mr. Neil Silberman; and Mrs. Judy Zimmerman

Class of 2004: Mr. Henry Christensen III; Mr. Nicholas Clapp; Mr. Artemis A.W. Joukowsky (President); H.E. Mr. Abdel-elah M. Khatib; Mrs. Nina Köprülü; H.E. Dr. Michel Marto; Dr. Bert de Vries; Dr. Mary C. Wilson; and H.R.H. Prince Ra'ad bin Zeid (First Vice President)

Class of 2005: Mr. Vincent Fay; Mrs. Nancy Frederick; Dr. Harold Forshey; Mrs. Widad Kawar; Mr. Randolph B. Old (Treasurer); Dr. S. Thomas Parker (Second Vice President); H.E. Senator Leila Abdul Hamid Sharaf; and Dr. James Wiseman

Ex-Officio: Dr. Lawrence T. Geraty, ASOR President

ACOR's Web Site: www.bu.edu/acor

Contents

North Ridge Project	1
Sustaining Nature Conservation in Jordan	4
Rescue Archaeology of Neolithic Sites	5
The Circulation of Ceramic Commodities in Iron Age Central Transjordan	6
Tall al-'Umayri	7
The Palaeography of Iron Age Ammonite Inscriptions from Jordan	8
The Origins of the Alphabet	9
Petra: Great Temple	10
The Roman Aqaba Project	11
Director's Report:	13
ACOR Projects	13
Fellows in Residence	13
Lectures	13
ACOR-Assisted Projects	14
Happenings at ACOR	14
Donors to ACOR	14
Publications	16
ACOR Trustees	16