# ACOR Newsletter

# أخبار أكور

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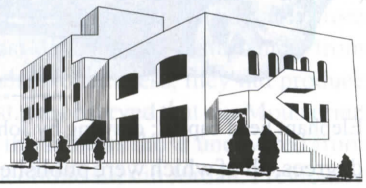
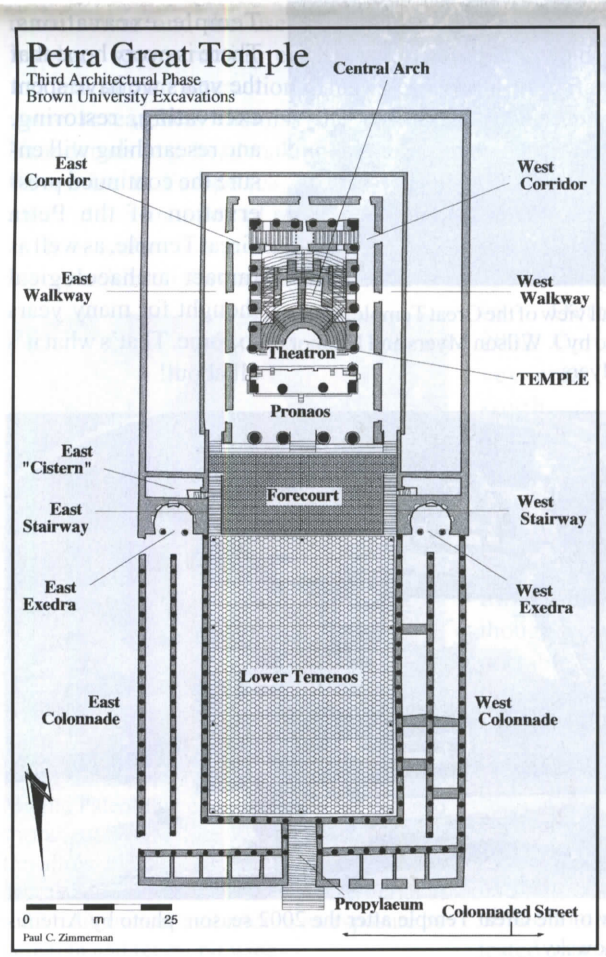


## Ten Years of Excavation at the Petra Great Temple: A Retrospective

*Martha Sharp Joukowsky*

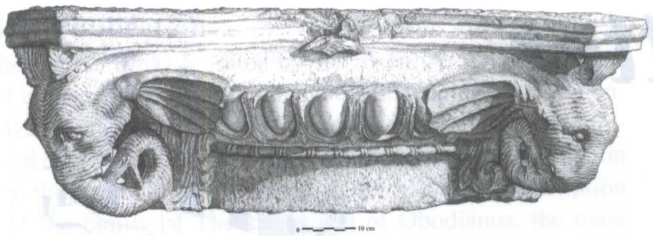



In the heart of the city of Petra is its largest freestanding edifice, the Great Temple, which has been excavated by Brown University archaeologists since 1993. Ten seasons have uncovered a 7560 m-precinct consisting of a Propylaeum (with a shrine of Nabataean double aniconic beytls), a Lower Temenos, and monumental stairways leading to the Upper Temenos—the sacred enclosure for the Temple proper.

The Lower Temenos has triple colonnades decorated with 120 columns topped with capitals featuring the heads of Asian elephants. The Great Temple itself is tetrastyle in antis (four columns in front). It measures 35 x 42.5 m and is approximately 19 m in height (floor to roof peak). The entry stairway approaches a broad hall, which in turn leads into colorfully stuccoed side corridors which access a 630-seat theater. There are exterior walkways with sculpted facial fragments and fine, deeply carved architectural elements. In the Upper Temenos, there is a towering precinct wall, a sword deity relief, and an underground cistern with a volume of 327,640 liters or 86,562 gallons of water. Behind the temple is the south passageway with a shrine, a room lavishly decorated with stucco, plus an 11-room residential area. The stratigraphy and the elaborate floral friezes and acanthus-laden limestone capitals suggest the Great Temple was constructed in the 1st century B.C.

For over ten years I have been excavating the Petra Great Temple, and in each of those years, I have been amazed by our discoveries, especially the temple's architecture. However, our accomplishments go well beyond what we have uncovered, and this is due to the loyalty of our staff, the fidelity of our Bedouin workmen, and most importantly, the cooperation of the Jordanian Department of Antiquities and the support we have received from ACOR. Together, we have shared the best ideas for interdisciplinary scholarship—bringing to bear a multiplicity of perspectives upon the Great Temple site and its research.

We have accomplished much over the years, as attested to by the 125 publications we have contributed to the public record. Project participants have been awarded three Ph.D.



Elephant head capital; drawing by John Philip Hagen

degrees, all of which were published; six M.A. degrees, two of them published; and had six undergraduate Brown University Senior Honors theses projects accepted by scholarly peer-reviewed journals. We have also received two National Science Foundation grants to explore a virtual reality CAVE reconstruction of the excavations. Furthermore, we have trained a myriad of undergraduate and graduate students each field season and have continued to conserve and protect the site on an annual basis. Our preliminary multi-disciplinary results were published in a Five Year Report with a CD-Rom. Our web page, http://www.brown.edu/Departments/Anthropology/Petra/, has received an award from public school teachers, and we are currently working on our final report. We have also been involved with public outreach at the site so that visitors understand the architecture and the temple's place within the city.

The greatest lesson I have learned is that creative thinking can achieve unimaginable results. Beyond this, I have learned from the different kinds of technology we have used, and I know the use of technology has improved our learning. What is peculiar to the theories of archaeology is that they explore, among other things, the very limits of our power of observation, language and thought-and perhaps, thereby, the very limits of reality. Because vast amounts of information exist and so much of it is in our databases, the conclusions cut to the very heart of what can be said, thought or interpreted. Such theoretical digital archives *a fortiori* affect all archaeological inquiry. To be sure, the limits of databases are an abstract endeavor-but that they are far removed from essential archaeological concerns is mistaken. Our databases speak to the multi-disciplinary directions we have taken.

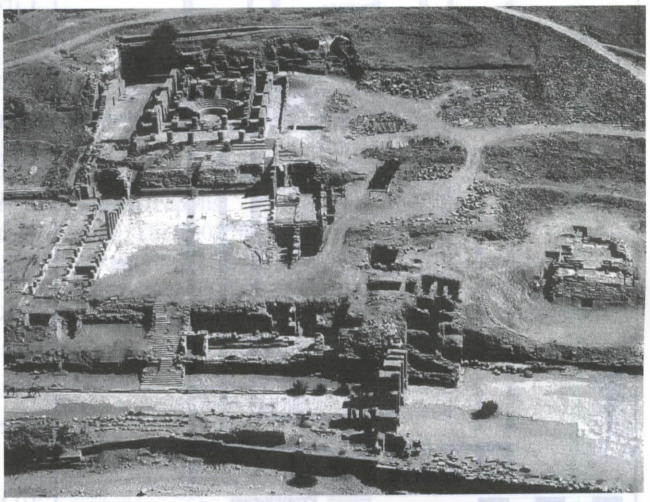
Restoration work; photo by Artemis Joukowsky

The Great Temple databases, accumulated over ten years of excavation, continue to swell with architectural fragments, which currently total 10,030. Considerable amounts of cultural material have been recorded, including pottery, bone, faience, glass, and shell—in toto 325,851 objects are encoded in our site database, which we are putting on line so our results will be available to other scholars.

There is currently no full-scale discussion of both standard and non-standard digital archaeological archives that apply to archaeology. Such discussion would have a direct impact on the field. The research theories developed by those of us working on this project directly challenge the constraints of language or thought imposed by standard unstructured research. We seek to direct information sharing for the study of the Petra Great Temple databases so that any researcher can explore, query and analyze our data. Obviously student learning has been at the core of this project. Undergraduate and graduate students have "come into their own" as investigators as they explore the potential of information sharing by structuring data in innovative ways. Now, because of the technology we have instituted and taught them to use, they can ask the difficult questions. I teach them how to look for answers, and they teach me how to answer the questions-and they also help me ask questions that need to be answered. What have I learned from the ten-year experience? That learning never ends-there is always a question to be asked or a problem to be solved, and there are no easy answers.

Aerial view of the Great Temple, 1992; photo by J. Wilson Myers and Eleanor E. Myers

This then is a postscript for ten years of the Brown University Great Temple excavations. There is every hope that the years we have spent excavating, restoring, and researching will ensure the continued preservation of the Petra Great Temple, as well as impact archaeological thought for many years to come. That's what it's all about!



View of the Great Temple after the 2002 season; photo by Artemis Joukowsky

## Middle Paleolithic Survey of the Wadi al-Koum Region

One of the most interesting areas of research in Paleolithic archaeology concerns the relationship of Neandertals to modern humans. The last surviving Neandertals disappeared some 30,000 years ago from the European fossil record, but the reasons for their demise remain a matter of intense debate. Nowhere is this debate more pertinent than in the Middle East. It is in Israel, Syria, Iraq and presumably Jordan (although Neandertal fossil remains have yet to be recovered here) that there is considerable archaeological and paleontological evidence for the coexistence of Neandertals and anatomically modern humans until nearly the end of the Middle Paleolithic (up to about 60,000 years ago). As Neandertals were a long lived, highly successful sub-species of *Homo sapiens* (*Homo sapiens neandertalensis*), their extinction begs the question of what abilities or advantages modern humans might have possessed that allowed them to survive when the Neandertals did not. This is an especially interesting question as the archaeological record reveals that both hominid groups were using the same types of stone tools.

Questions of this sort involve trying to piece together similarities and differences in Neandertal and modern human behavior in a variety of ways. This includes looking at the use of space in terms of both patterning of sites across a landscape, the separation of activities (or the lack thereof) within a site, subsistence strategies, raw material procurement, stone tool manufacture and the use of symbols. This research also involves reconstructing evidence for possible Neandertal-modern human interaction. This is especially important as some researchers dismiss the cultural achievements of Neandertals (e.g. bead making) at the beginning of the Upper Paleolithic in Europe (ca. 40,000-30,000 years ago) as the result of the imitation of modern humans by Neandertals.

It is within this context that we began our preliminary survey of Middle Paleolithic sites in the Wadi al-Koum region in October 2002. Our survey area, just south of Madaba, consisted of a plateau dissected by Wadi al-Koum and its tributaries. Although we were not able to locate any habitation sites in our brief survey, we did uncover eight open-air sites where Middle Paleolithic hominids tested raw material and manufactured stone tools. The lithic assemblages from these sites consist primarily of flakes and cores characteristic of the "Tabun C" or "B" type Levantine Mousterian.

Middle Paleolithic core, found on the deflated surface of WKM Site 7, that produced both Levallois blades and points; the carbonate encrustation indicates relatively deep burial in red Mediterranean soil prior to its exposure by deflation and recent plowing

These sites are not likely candidates for further excavation as they are surface sites that have suffered considerably from erosion, deflation and post-depositional disturbance from plows and domestic animals. Nonetheless, they did produce two significant results. First, we observed that our Mousterian lithic assemblages are not the same as those uncovered from almost all other Middle Paleolithic sites in Jordan. Previously located sites have been of the "Tabun D" variety with a large number of spear points. Our discoveries include only a few cores for producing points as well as tools that could be used for processing plant materials as well as meat. The sites in the Wadi al-Koum area may be younger than sites previously recorded in Jordan because many researchers believe there is a chronological progression from "Tabun D" type to "Tabun C" and "B" types. Conversely, the difference in assemblages may represent different degrees of raw material conservation or different types of subsistence activities.

Second, it was observed that Middle Paleolithic sites in this region are associated exclusively with the Pleistocene loess deposits resting directly on a crust of indurated calcium carbonate or *caliche* (*nari* in Arabic). Most sites were associated with Red Mediterranean soils developed in loess deposits, which are known to be Late Pleistocene. Another recurrent pattern is that most sites are associated with plateau edges, which were probably prime locations for high quality raw materials. This correlation of sites and soil types/location allows us to predict where similar sites in other regions of Jordan should be located.

However, in order to fine tune our model, we will carry out a series of paleoenvironmental tests on possible factors that may affect visibility and preservation of sites. Such factors include pedogenesis, soil erosion and geological patterns (associated with raw materials, rock shelters, and water sources). We anticipate returning to Jordan this summer to test this predictive model and to increase our understanding of hominid land-use patterning by locating Middle Paleolithic habitation sites, which we were not able to locate in the Wadi al-Koum area due to the lack of appropriately sized rock shelters and caves containing Pleistocene sediments. In this way we may be able to begin to contribute to the much larger questions of Neandertal behavior and adaptation.

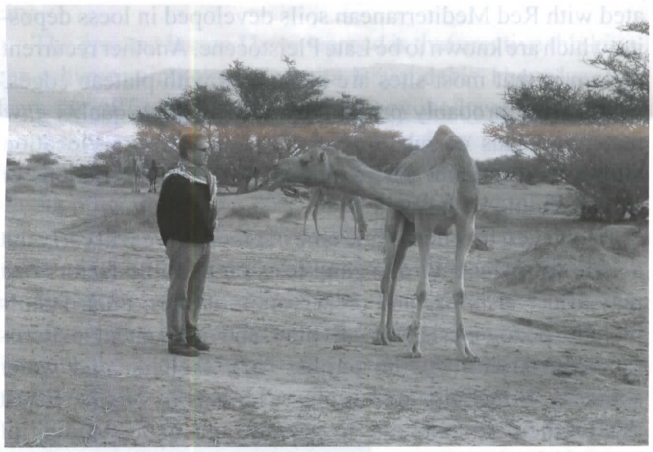
*April Nowell, University of Victoria*
*Michael Bisson, McGill University*
*Carlos Cordova, Oklahoma State University*

## Tribes, Metallurgy, and Edom in Iron Age Jordan

The evolution of complex societies, that is social formations with institutionalized social inequality, is of broad interest to anthropologists, archaeologists, historians, and other researchers. In the southern Levant, the earliest evidence for these social formations is most clearly seen during the Iron Age (ca. 1200–586 B.C.). In Jordan, the rise of the Iron Age kingdoms of Ammon, Moab and Edom represents perhaps the

earliest examples of local archaic states in this part of the southern Levant. After the collapse of the Late Bronze Age 'world system' in the eastern Mediterranean, during the Iron Age (ca. 1200–586 B.C.), a tapestry of small Levantine states evolved, including Phoenicia, Philistia, Judah, Israel, Aram, Ammon, Moab, Edom, and others. The case of Edom is of particular interest because it is located in the desert periphery of the southern Levant in a seemingly barren environment.

Edom extends from the Wadi Hasa in the north to the area around Aqaba in the south, and it broadens out on both the east and west sides of the Wadi Arabah. More importantly, Edom straddles the desert trade routes from Arabia to the Mediterranean coast, and it is rich in copper ore. The Faynan region, located in northwest Edom about 50 km southeast of the Dead Sea, is home to the largest source of copper ore deposits in the southern Levant – larger than the only other sources in the region, Timna and the southern Sinai. My NEH project focused on the role that copper production, its control, and distribution played in the evolution of the Edomite kingdom/state. During my fellowship period at ACOR, by using archaeological surveys and large-scale excavations at the site of Khirbat en-Nahas (KEN), a clearer picture is emerging of how Edom evolved into a complex polity.



NEH Fellow Thomas Levy with friend in the Jabal Hamrat Fidan

Before the Iron Age, there was a long history of human exploitation of the copper ore in Edom. From the beginnings of ore extraction in the Pre-Pottery Neolithic B period (ca. 7500-5500 B.C.) through most of the phases of the Early Bronze Age (ca. 3600-2000 B.C.), Faynan was perhaps the largest producer of copper ore and metal in the southern Levant. From the Middle Bronze Age (ca. 2000–1550 B.C.) through the Late Bronze I (ca. 1550-1400 B.C.), there seems to be a gap in occupation and exploitation of this copper ore district. However, during the Late Bronze IIA-B (ca. 1400-1200 B.C.) and into the Iron I period (ca. 1200-1000 B.C.), our recent research suggests that there is growing evidence that the exploitation of Faynan copper ores picked up again. By the Iron II (ca. 1000-586 B.C.), copper production was booming in Faynan as seen at major sites such as KEN, Khirbat al-Jariya, Khirbat Ghuwayb, and the area around Khirbat Faynan.

My research explores how four interrelated factors may have contributed to the emergence of the Edomite kingdom in southern Jordan during the Iron Age. These include: 1) the significance of tribal level social organization in the evolution of complex societies in this part of Iron Age Jordan; 2) identifying the shifting control of ore procurement and metallurgy by groups who occupied Faynan throughout the Iron Age sequence, 3) examining the role of core-periphery relations in structuring changes in social interaction between the Faynan copper ore resource zone and core areas of sociopolitical development in Egypt, Mesopotamia and the Levant; and 4) examining the impact of social interaction between the Edomite highlands vs. the lowlands.

To begin to test these ideas, I began my fellowship period in Jordan by carrying out library research in the ACOR library and collecting geological data from the National Resource Authority mapping division and remote sensing information from the Royal Jordanian Geographic Centre. This was followed by an archaeological survey of the Wadi al-Ghuwayba and Wadi al-Jariyah in the Faynan region and excavations at KEN. This was part of the Jabal Hamrat Fidan project which is sponsored by the University of California, San Diego (UCSD) and the Department of Antiquities of Jordan. The project is led by the present author, Russell Adams, and Mohammad Najjar. The field team consists mostly of graduates and students from UCSD who serve as the 'backbone' staff for the excavation and in-field analyses of data from our excavations and surveys.

The surveys along Wadi al-Ghuwayba (WAG, ca. 1.5 km long) and Wadi al-Jariya (WAJ, ca. 3.5 km) represent the first intensive systematic pedestrian archaeological surveys in those areas to the east of KEN. The primary aim of this work was to identify the network of Iron Age sites linked to the copper ore procurement and processing networks in this part the Faynan area without ignoring all other sites. This was accomplished by surveying all areas within 250 m of the respective drainage channels and recording sites from every prehistoric and archaeological period.

During our three months in KEN, we accomplished the systematic mapping of over 120 building complexes on the site surface and the excavation of three key areas related to Iron Age copper metal production and its control. The excavated areas include: a) the gate to a huge (ca. 73 x 73 m) Iron Age fortress located in the northern aspect of the site, b) a

Overview of the 2002 excavation of the Iron Age fortress gate at Khirbat en-Nahas (KEN)

building complex in the eastern sector devoted to the processing of slag waste from nearby smelting operations; and c) the first systematic excavation of a slag mound in Jordan.

Excavations in the building complex (Area S) revealed a specialized processing area for the crushing of slags so that every minute piece of copper metal (small prills) could be separated from the black slag. Over 350 grinding slabs, hammers, mortars, and other ground stone artifacts used for crushing and grinding were found associated with this building. Of great interest are some of the imported goods including Midianite pottery, a leaf shaped metal arrowhead, and two scarabs that point to a 13th to 11th centuries B.C. date for some of the occupation in this part of the site. The building as a whole illustrates the high degree of specialized Iron Age metallurgical processing activities that were carried out at the site. Finally, the excavation of the slag mound is helping in the clarification of the actual Iron Age smelting process, the scale of production, and how it was organized at the site.

In conclusion, the NEH fellowship at ACOR provided me with the much-needed time to carry out library research and conduct fieldwork to begin to test a number of models related to the rise, consolidation, expansion and ultimate demise of the Edomite kingdom as viewed from the lowlands of Edom. However, while our surveys were intensive and systematic, they covered relatively small areas. Our recent excavations at KEN provide only a glimpse of what this magnificent site can offer for understanding the early history of Jordan and the prominent role that metallurgy played in its development. In short, the results of this research period highlight just how much we are at the initial stage of grappling with the nature of the Iron Age in this part of Edom. It is my hope that our research now and in the future will not only contribute to scholarly goals, but also help promote KEN and the Faynan district as an important region for ecotourism in Jordan, thereby helping to contribute to the local economy of this part of the country.

*Thomas E. Levy, University of California, San Diego*

## Revealing the History of Tell el-Fukhar

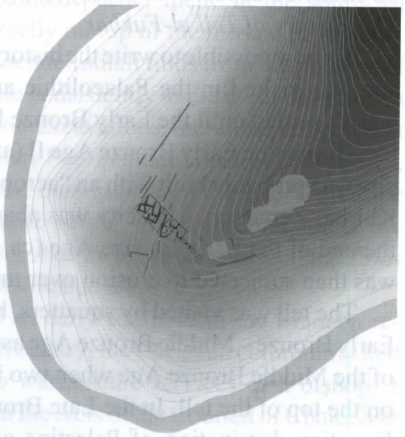
Tell el-Fukhar, located between Irbid and Ramtha in Wadi Shellale, was originally excavated during four campaigns between 1990 and 1993. The tell lies on a spur that extends ca. 375 m into the valley from its east side and measures ca. 205 m at its broadest point. On the top, there is a sort of "acropolis" measuring 80 x 100 m that is surrounded by a wall from the Iron II C period (between 600 and 300 B.C.).

*The 2002 Season*

During July and August of 2002, we excavated the lower part of the tell, which was closest to the water and where the highest concentration of Early Bronze Age pottery had been found during a previous campaign. The Department of Antiquities of Jordan, Yarmouk University, and the residents of Ramtha provided invaluable support to the project.

Before excavating, we conducted a survey across the lower part of the tell, including the steep sides around the area to be excavated. We found a fair number of sherds, mostly from the Bronze Age, but also from later periods, including a couple of Hellenistic sherds and even a Mamluk sherd. We also discovered a fair number of flints from many periods, the oldest being from the Levallois Age, indicating a very early habitation. However, most of the flints date to the Chalcolithic period and the Bronze Age. On the surface, we noted a number of more or less parallel and rather heavy walls, which our excavations later revealed to be great terrace walls that had also been used as house walls.

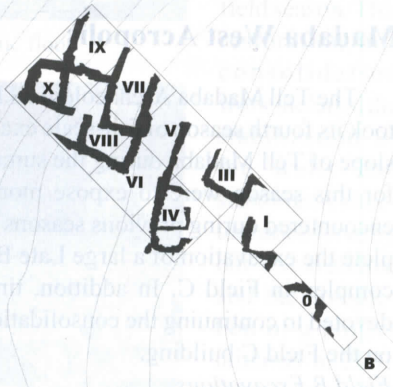
Our excavations revealed rich Late Bronze Age layers containing houses and other installations with pottery from the Late Bronze Age I-II B, indicating that the buildings were probably built at the beginning of the Late Bronze Age and were in use throughout the period. There were no later buildings, such as those found on the "acropolis". These buildings were organized as "insulae", similar to those found in later Hellenistic and Roman cities. The lowest "insula" was located in squares VIII – X and contained three rooms (in squares VII, VIII and X). It also had at least two courtyards with several tabuns, some of which were made from large craters or collared rim jars turned upside down. The walls were solid and well built, founded on a huge fill from the very beginning of the Late Bronze Age.



The lower part of Tell el-Fukhar with walls and trenches

Another building, separated from the above building by a street located in squares V and VI, was found with walls that extended outside the squares. This second building was more damaged, perhaps because it was at a higher level and had been more exposed to erosion. It also showed repairs and additions. It was possible to clearly see at least one room (in square 4) and a courtyard with a tabun and a mortar embedded in the floor. This building was founded directly on top of an earlier building which dated to the Early Bronze Age. We also found Late Bronze Age walls, founded directly on bedrock, in squares O and B. Although it was impossible to discern any plan, these walls had the same orientation as further down the slope.

We found terrace walls dating from the Early Bronze Age below the Late Bronze Age fill in the lower squares. These walls had a different align-




Trenches on Tell el-Fukhar

ment from the alignment of the Late Bronze Age terrace walls; they were founded on bedrock, which showed traces of quarrying or forming of steps. On bedrock in square V, we found an alignment of stones that possibly date to the Early Bronze I B period. We also found traces of a bin hewn into the rock. These features show settlement in the Early Bronze I B period corresponding to the many sherds found in later fills.

We also uncovered pottery from the Intermediate Early Bronze–Middle Bronze Period as well as from the Middle Bronze I Period, indicating a settlement. However, there were no stratified deposits, so it may be a squatters' settlement.

*The History of Tell el-Fukhar*

It is now possible to write the history of Tell el-Fukhar. The site was visited in the Palaeolithic and later periods, but it wasn't settled until the Early Bronze I B period, before 3000 B.C. During the Early Bronze Age II (after 3000 B.C.), a walled city was probably built with an "acropolis" and a "suburb" on Khirbet Zeraqoun. This city was abandoned or destroyed at the end of the Early Bronze Age (ca. 2300 B.C.), and the tell was then subjected to erosion over many centuries.

The tell was visited by squatters, both in the Intermediate Early Bronze – Middle Bronze Age as well as in the beginning of the Middle Bronze Age when two individuals were buried on the top of the tell. In the Late Bronze I period, during the Egyptian domination of Palestine after 1500 B.C., Tell el-Fukhar was settled again. During the Late Bronze II B period, it was an important center with a large palace on the "acropolis" and a heavy city wall with a gate. After abandonment at the end of the Late Bronze Age around 1200 B.C., which was followed by a short period with squatters, Tell el-Fukhar was settled by a farming community for 100 to 200 years, after which it was abandoned for about 400 years. In the Persian period, Tell el-Fukhar was settled again, this time as a government post with a protective wall around the "acropolis"; buildings and storage bins were also built during this time.

Tell el-Fukhar was last settled during the Hellenistic period, with a villa that was occupied no more than 150 years on top of the tell. However the tell was visited often over the centuries as testified by the Roman, Byzantine and Mamluk sherds. In the early 20th century, the tell was visited by Bedouins during the winter seasons, and in 1932, they created a burial-ground on top of the "acropolis" after a battle with townspeople of Ramtha.

*John Strange, University of Copenhagen*

## Madaba West Acropolis

The Tell Madaba Archaeological Project (TMAP) undertook its fourth season of full-scale excavations on the western slope of Tell Madaba during the summer of 2002. Our goals for this season were to expose more of the Iron II levels encountered during previous seasons in Field B, and to complete the excavation of a large Late Byzantine/Early Islamic complex in Field C. In addition, time and resources were devoted to continuing the consolidation and restoration work on the Field C building.

*Field B Excavations*

Excavations have been ongoing in Field B since 1998, and thus far have uncovered remains dating to the Late Ottoman, Early Roman/Nabataean, Late Hellenistic and Iron II periods. In an effort to unearth more of the Iron Age levels, two 5 x 5 m units were reopened to the east of the large pre-classical fortification wall. Excavation in the easternmost unit exposed the remains of a poorly built rectilinear structure, constructed of medium-sized, unhewn stones. The upper course of a wall made of considerably larger stone had begun to appear beneath this structure toward the end of the season.

Field B excavations

In the western unit, a thick deposit of thinly laminated ash layers, probably the result of post-destruction abandonment accumulation, was sealed against the inner face of the monumental city wall further to the west. Beneath this ashy material were the remains of a north-south wall with a possible doorway, uncovered in the final days of the season. The size and shape of the stones in this wall suggest that it should be associated with the earlier phase wall in the first unit. Excavations to the east of the wall encountered a substantial amount of destruction debris, the product of an intense fire that apparently vitrified much of the building's superstructure. This destruction layer sealed the well-preserved remains of three tabun and a debris-strewn surface. The ceramics associated with the two separate architectural phases uncovered in Field B date to the Iron IIB period (ca. 9th-8/7th centuries B.C.).

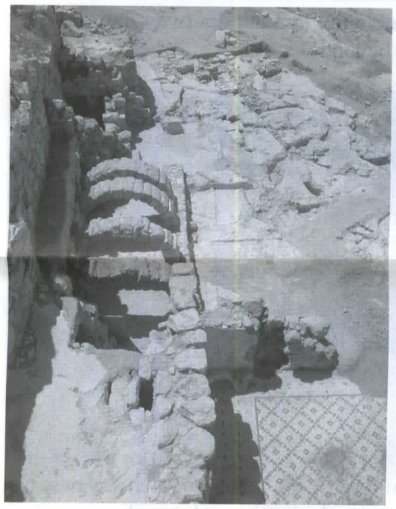
Textual sources are unequivocal about the importance of Madaba and the surrounding plain during this period. According to the Mesha Inscription, Madaba was under Israelite control ("the house of Omri") when Mesha captured (lines 7-8) and rebuilt the town (line 30) along with a series of other cities on the tableland in the mid to late 9th century B.C. (either during or shortly after the reign of Ahab, the son of Omri). The surface survey we conducted in 1993 supports this view of a flourishing settlement during the Iron IIB period, with surface sherd distribution indicating a site between 13 and 16 ha in size, easily making Madaba one of the largest Iron Age sites in Jordan and the entire southern Levant. Although our investigations of the Iron Age levels in Field B are still at an early stage, it is tempting to link the renovation and expansion of the city wall to the building program inaugurated by Mesha in the latter part of the 9th century. The archaeological evidence we have uncovered thus far also suggests that Madaba was destroyed and abandoned toward the end of the Iron IIB or early in the Iron IIC period (ca. mid- to late-7th century B.C.). This destruction was apparently so devastating that the site remained uninhabited for about 500 years until it was reoccu-

pied in the Late Hellenistic period.

*Field C Excavations and Consolidation/Restoration*

Excavations in Field C focused on two sections of the partially excavated complex: a bedrock ledge to the west of previously exposed rooms that back against the fortification wall, and an undisturbed area to the north of these rooms. Although heavily damaged by bulldozing activity in the early 1980s, excavations on the bedrock ledge produced a series of

Field C excavations



Northeast corner of the Field C complex

interconnecting walls, which delineate the rooms that once formed the southern wing of the building. The bedrock was pitted with a number of post-holes, presumably sockets for door hinges. More of the flagstone floor and water channel system, first exposed in 2000, were also uncovered.

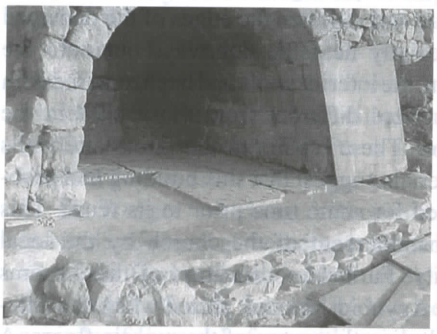
To the north of this area, the remarkably well preserved northeastern corner of the complex was unearthed. A substantial portion of the superstructure of the building was still intact, including the second floor paved with a white mosaic. This second floor was supported by a series of large, flat-lying stone slabs that rested on three arches located in the ground floor room below. The floor of this room was carved directly out of bedrock, and is equipped with a channel down the center toward a shallow oval depression set against the room's north wall. A sealed window pierced this northern wall.

Room with mosaic floor and plaster niche

Excavations to the west of the corner room uncovered a second well-preserved room with a polychrome mosaic. Two matching pairs of arch supports, attached to the north and south walls, were all that remained of two large arches that once supported a ceiling, and possibly a second story floor. The room underwent substantial renovation, including a mortar patch and repairs along the western edge of the mosaic, and the installation of a painted plaster niche in the southeast corner of the room, directly on top of the mosaic pavement.

The pottery and associated small finds from the remains of the Field C complex date consistently to the 6/7th through 8th and 9th centuries A.D. Our excavations, therefore, suggest that the complex experienced two distinct construction phases, and was in use during the transition from the Late Byzantine period to the Early Islamic period. The exact function of the building remains unclear, but its layout and associated finds suggest a wealthy private residence.

Christianity gained an early foothold in the Madaba region, and by the mid-5th cenury, the Christian community had grown large enough to warrant the services of a bishop, a development revealed in the Acts of the Council of Chalcedon (A.D. 451). Although the town goes unmentioned in the literary sources for the remainder of the period, it clearly continued to prosper, and over the succeeding two centuries (ca. 6th to 7th centuries A.D.) numerous churches and other public structures were constructed. Following the Islamic conquest and the establishment of the Umayyad Caliphate in the mid-7th century, Madaba continued to flourish. Renovations were carried out on a number of Byzantine churches, and the town remained the seat of a bishopric. It is during this important transitional period that the Field C complex, with its impressive architecture and artistic embellishments, was built and occupied.



Partially reinstalled mosaic floor

Completed mosaic restoration

The ongoing effort to preserve the architecture in Field C continued during the 2002 field season. This restoration and consolidation work included the stabilization of the walls and standing architecture uncovered by our excavations, and the completion of a project initiated in 2001 to restore mosaic pavements re-

moved from the site in the early 1980s. This restoration project, which has been supervised by the Italian mosaic conservator Franco Sciorilli, has involved a painstaking process that included separating the mosaic pavement section by section from slabs of concrete bedding, and then reinstalling them in their original position on the site.

*Debra Foran and Timothy Harrison, University of Toronto*

## Tell Ya'amun: The 2002 Season

The field school in bioarchaeology conducted at Tell Ya'amun from 12 June to 25 July 2002 was jointly sponsored by the King Fahd Center for Middle East and Islamic Studies, University of Arkansas, and the Institute of Archaeology and Anthropology, Yarmouk University. The field school, with staff from both universities, enrolled one Jordanian and seven American students in addition to engaging six Jordanian graduate students as field supervisors.

This year, in addition to excavating 12 robbed tombs in the necropolis, we began excavating outside the south wall of the previously excavated Byzantine church. Here we found an intact walkway of paved flat stones separating the outer church wall from a secondary building. We were able to clear two of the rooms in this building. Each has walls still standing to a height of 2 m and a doorway opening onto the pavement. The mosaic floors are preserved, and each room has a single circular field with a decorative figure in its center: a diamond pattern in one and two fish in the other. Along the side walls, we found the bases and initial stones of the archways that once supported the ceilings. Coins, the stratigraphy of the foundations and floors, and the style of the mosaic floors all indicate that these rooms were built and used in conjunction with the 6th century church.

These rooms were extensively modified during the Umayyad period when flat paving stones were used to replace loose mosaic tesserae and stabilize the edges of the damaged mosaic floors, especially near the doorways out onto the walkway. In addition, the interior walls had been repaired with stones whose sizes were different from those used in the original construction. These repairs to the floors and walls using different materials suggest that this building had probably been abandoned for some time prior to its reuse. This further suggests abandonment of the church by the local Christian community. Further modification of these rooms occurred during the Ayyubid-Mamluk period when new interior walls were built directly on top of the mosaic floors. A stone hearth, egg shells, animal bones and ash indicate that the west room had been used as a kitchen. The east room was almost completely filled with the large dressed stones of the outer walls. As the lowest stones were removed, we could see the depressions (dents) that they had made when they fell onto the mosaic floor; thus use of these rooms may have ended with destruction of the building by an earthquake. There is no other explanation for these large blocks from the walls falling into the center of the room.

In the northeast corner of the tell, we expanded our excavations where we had found, during the previous season, rooms constructed directly on the bedrock. We dated these to the Late Bronze Age using sherds, a cylinder seal and a scarab. In this year's excavation, we found a courtyard with two entrances built directly upon the bedrock. The courtyard is surrounded by large rooms, one of which is bounded on the north and east by other corridors. In a later time, this area

Paved walkway in the foreground and the doorway into the west room with its mosaic floor beyond

The east room with its fish mosaic in the center, the archway base just to its left, and the doorway onto the pavement beyond

underwent extensive construction changes. One of the large rooms was filled in and made into a platform paved with stones and gravel and surrounded by the walls of other rooms. There is a short staircase of three steps that leads from this raised platform down into the now sunken courtyard. We think that the courtyard complex dates to the Late Bronze Age because the walls are continuous with the firmly dated rooms excavated the season before.

The rooms adjacent to the courtyard were subsequently filled in, and new rooms were built at a higher level. These were also eventually abandoned, and the sunken courtyard and walkways were filled in with trash and debris thrown out by the people living to the south of the excavated area. This trash consists of sherds; broken basalt grinding stones; the bones of large animals, including goats, sheep and pigs; and many small objects such as broken iron blades and points. Preliminary analysis of this trash dates it into the Early Iron Age, surely Iron II, but possibly Iron I.

*Jerome C. Rose, Mahmoud El-Najjar, Nizar Turshan, Charles Hunton II, and Kimberly Rolf*
*University of Arkansas and Yarmouk University*

## Director's Report:

## July through December 2002

## Pierre M. Bikai

### ACOR Projects

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

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

**Petra, Petra Documentation Project**, Chrysanthos Kanellopoulos, USAID Petra Endowment

**Petra Scrolls Project**, U. of Michigan: Traianos Gagos; U. of Helsinki/Academy of Finland: Marjo Lehtinen

### Fellows in Residence

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

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

**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

Alina Levy, Thomas Levy, Neil MacKenzie, Adolfo Muniz, and Mezna Qato

**Neil D. MacKenzie**, Urban, Economic and Social History of the Ajlun Area under the Ayyubids and Mamluks

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

**Mezna M. Qato**, St. Antony's College, U. of Oxford, Narrat-

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### In Memory of Bruce Borthwick

ACOR lost a good friend when former ACOR fellow Bruce Borthwick passed away in his Michigan home on November 16, 2002. The sad news shocked the ACOR staff because Bruce had completed an ACOR fellowship only six months earlier.

Bruce received his Ph.D. in political science from the U. of Michigan in 1965. The same year, Bruce joined the faculty of Albion College (Michigan), from where he would retire as a professor of political science in 2000. At Albion, Bruce taught courses on American and international foreign policy, comparative politics, and political systems in Europe. Between 1975 and 1982, he was the chair of the political science department. He was a specialist on Middle Eastern and Chinese politics.

During his academic career, Bruce traveled and studied extensively in China, Europe, and the Middle East. He came to ACOR on three fellowships. He was first awarded a fellowship to study Arabic under ACOR's Arabic language immersion program for the academic year 1993-94. He returned to Amman as an ACOR fellow in 1998 and again in 2002 to study policy making in regards to the water situation in Jordan.

### In Memory of Francis L. Wenger

Francis L. Wenger, MD, known to most of us simply as "Dr. Frank," passed from this life on January 26, 2003, after a brief illness. He was the husband of Nan Frederick, longtime ACOR Board member; Dr. Frank joined her on their many visits to Jordan since 1983.

Dr. Wenger had a long, distinguished career as a doctor of internal and physical medicine in Washington, D.C. A graduate of the Georgetown U. Medical School, he served in the U.S. Public Health Service in Mexico, London and other capitals of Europe before settling into practice as director of the Department of Physical Medicine at Washington Hospital Center. He also served as associate professor of medicine at his alma mater and George Washington U.

He perhaps is best remembered to us as an unofficial resource of medical science as well as historical knowledge, engaging ACOR residents and visitors in wide-ranging discussions and encouraging their work. He also was responsible for obtaining ACOR's collection of eastern Mediterranean research materials by the late Dr. J. Lawrence Angel, forensic anthropologist at the Smithsonian Institutions. In recent years, he sponsored the visit of Dr. Jesse Easton of South Dakota to help develop Jordan's pediatric rehabilitation services.

ing the Catastrophe: Counter-Nationalism and Palestinian Historiography, 1948-1961

**Tiffany M. Raszick**, U. of Liverpool, Analysis of the Chipped Stone Assemblage from Tell esh-Shuna North

*National Endowment for the Humanities (NEH) Fellows:*

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

**Thomas E. Levy**, U. of California, San Diego, Ancient Metal Production, Heterogeneity, and Social-Economic Change: Social Consolidation and Fragmentation during the Iron Age in Southern Jordan.

*Pierre and Patricia Bikai Fellows:*

**Steven J. Larson**, Brown U., The Christian Reuse of Polytheistic Cultic Sites (4th-6th c.)

**Adolfo A. Muniz**, U. of California, San Diego, Pastoralism and Social Change during the Iron Age: The Faunal Assemblage of Khirbat en-Nahas, Jordan

*Harrell Family Fellow:*

**Adolfo A. Muniz**, U. of California, San Diego, Pastoralism and Social Change during the Iron Age: The Faunal Assemblage of Khirbat en-Nahas, Jordan

For information on ACOR's fellowships contact:

ACOR, 656 Beacon St., 5th Floor, Boston, MA 02215-2010; tel.: 617-353-6571; fax: 617-353-6575; e-mail: acor@bu.edu; or on the web at www.bu.edu/acor.

## ACOR-Assisted Projects

Phillip Edwards, La Trobe U., and Steven Falconer and Patricia Fall, Arizona State U., Archaeology and Environment of the Dead Sea Plain

Timothy P. Harrison and Debra Foran, U. of Toronto, Tell Madaba Archaeological Project

Larry G. Herr, Canadian U. College, and Douglas R. Clark, Walla Walla College, Tall al-'Umayri, Madaba Plains Project

Martha Sharp Joukowsky, Brown U., Petra Great Temple Excavation Project

Thomas E. Levy, U. of California, San Diego, and Russell B. Adams, Jabal Hamrat Fidan

Tina Niemi, U. of Missouri, Kansas City, Qasr Tilah

April Nowell, U. of Victoria, Survey of Middle Paleolithic Sites in Wadi al-Koum

John P. Oleson, U. of Victoria, Humayma Excavation Project

S. Thomas Parker, North Carolina State U., Roman Aqaba Project

John Strange, U. of Copenhagen, Tell el-Fukhar 2002

## Lectures

July 2. Betty Anderson, Boston U., Political Education in Jordan and Palestine

July 6. Chris Rollston, Johns Hopkins U., Palaeographic Methodology: Linear Alphabetic Scripts of the Iron Age

July 10. Meredith S. Chesson, U. of Notre Dame, Architecture, Mortuary Practices and Social Organization in the Early Bronze Age of the Southern Levant

July 10. Gary Rollefson, Whitman College, Rescue Archaeology of Jordanian Neolithic Sites

July 13. Thomas Abowd, Columbia U., Jewish-Arab Relations and the Politics of Everyday Life in British Mandate Jerusalem, 1917-1948

July 15. S. Thomas Parker, North Carolina State U., The Roman Aqaba Project: The 2002 Campaign

July 20. John Creed, College of Charleston, The Politics of Promoting Eco-Development to Sustain Nature Conservation in Jordan and the Middle East

July 22. Jerome C. Rose, U. of Arkansas, From the Bronze Age to the Byzantine at Ya'amun, North Jordan

July 22. Sandra Scham, Jerusalem U. College, The Heritage Presentation of Crusader and Ottoman Sites in the Middle East

July 29. Larry G. Herr, Canadian U. College, and Douglas R. Clark, Walla Walla College, Results of the 2002 Excavation Season at Tall al-'Umayri, Madaba Plains Project

Aug. 5. Martha Sharp Joukowsky, Brown U., The Brown University Excavations at the Petra Great Temple, 2002

Aug. 26. Debra Foran, U. of Toronto, Recent Discoveries on the West Acropolis in Madaba

## Happenings at ACOR

July 11. Pierre gives a tour to the Friends of Archaeology in Aqaba.

July 30. The heatwave continues with temperatures reaching 45° C.

Aug. 12. The International Conference on Science and Technology in Archaeology and Conservation, sponsored by the Hashemite University Queen Rania's Institute of Tourism and Heritage, begins today. Pierre, Patricia and Martha Joukowsky attend. ACOR-CAORC fellow Doug Clark gives a lecture on Tall al-'Umayri for the Friends of Archaeology.

Aug. 20. Don returns to the Boston office after an exciting summer of excavating in Greece.

Aug. 27. ACOR receives a visit from Julia Costello, a former ACOR fellow and former president of the Society for Historic Preservation, and Leila Badre, Director of the AUB museum.

Aug. 29. Pierre takes Senator Jon Corzine (D-NJ) on a tour of Jerash and ACOR.

Sept. 2. ACOR receives a large donation of much needed furniture from USAID.

Sept. 11. Pierre and Patricia are in Ghent, Belgium, attending the Heritage, New Technologies and Local Development Conference, hosted by the Ename Center.

Oct. 18. A group from Archaeological Tours arrives for a morning tour of ACOR.

Oct. 22. Pierre begins an extensive tour of Jordan for a group from the Landmine Survivors Network.

Oct. 26. Former ACOR-CAORC fellow Leigh-Ann Bedal arrives at ACOR for a brief stay before heading down to Petra where she will present a paper at The Second Conference on Nabataean Studies.

Nov. 6. Ramadan begins.

Nov. 16. Nancy Lapp, an ACOR Trustee who is also chair of ACOR's Fellowship Committee, arrives for a three-day visit.

Nov. 18. Zakariya leaves for Toronto, where he will present a paper at the annual ASOR conference.

Thomas Parker, Donald Henry, Artemis Joukowsky, James Wiseman, and Øystein LaBianca at the Toronto meeting

Nov. 22. The Board of Trustees hold their November meeting in Toronto.

Nov. 28. ACOR staff, family, and residents enjoy a wonderful Thanksgiving Iftar prepared by Mohammed, Said, and Abed. Guests cannot decide which is better-the imported Butterball or the local turkey—both are delicious.

Pierre with Uday Abed Adawi, Mohammad Said Adawi, Sara Hassan (daughter of Nisreen Abu al-Sheikh), and Saja Said Adawi with Ala' Mohammed Adawi behind her

Dec. 15. ACOR says goodbye to Sonia and Earl Acorn. Sonia stayed at ACOR for two months while she was a visiting Professor at Hashemite University. She was involved with course and program development for the fourth year of Hashemite's nursing program.

Dec. 15. The ACOR library receives new bookshelves, funded by the Department of Education.

Dec. 25. ACOR staff, family, trustees, and residents celebrate the holiday season with a festive buffet.

Dec. 31. Best wishes for a peaceful New Year 2003!

## Donors to ACOR

From July through December 2002, the following friends of ACOR made donations:

The ACOR Endowment received donations from Virginia and Wesley Egan and Jane S. Elins.

General Donations were made by Ames Planning Associates, Inc., Carol Andreae and James Garland, Mary Jane and Robin Andrews, Andrews University (Øystein LaBianca), Andrews University (Randall Younker), Donna and Paul Antoon, Richard Antoun, Gamal Badr, Whitney and Roger Bagnall, Laird Barber, Mette and Robert Beecroft, Francesca and Thomas Bennett, Martha Boling-Risser and Robert Risser, Stephen Bonadies, Elizabeth and Carroll Brown, Caroline Bruzelius, Gladis Callahan-Vocci, Ellen and Nirmal Chatterjee, Lois and T.W. Christiansen, Henry Christensen III, Nancy Coinman, Kathleen Corrigan, Sally and Bert de Vries, Laurel and Ralph Doermann, Fred Donner, Stephen Dyson, Felix Emse, Carol and Harold Forshey, Jane and Robert Geniesse, Gillian and Lawrence Geraty, Helen and Jonathan Goldstein, Anna Gonosova, Kathy and Mark Green, Gruber Family Foundation, Jill and Nelson Harris, Landmine Survivors Network, Nancy Lapp, Anne and Robert Latz, Alina and Thomas Levy, Pamela and Stephen Lintner, Judith and James Lipman, Joann and Jesse Long, William Lyle, Anna Martin, Donald Mayo, George Mendenhall, Janet and Eugene Merrill, Helene and Kenneth Miller, Gerda and Donald Mook, Peter Nalle, John Oleson, Jane and Ronald Olson, Elizabeth and William Overstreet, Elizabeth Platt, Susanna and Walter Rast, Ann Boon Rhea, Suzanne Richard, June and W.L. Roadman, Sarah and Jack Sasson, Marilyn and R. Thomas Schaub, Denise Schmandt-Besserat, Charles Schutt, Jr., Kathleen and Ross Sherbrooke, Katherine and Donald Snook, James Socknat, Marie Spiro, Suzanne and Jaroslav Stetkevych, Heather and Edwin Taylor, Mari and David Terman, Trainer Family Foundation, Inc., Norman Whalen, Theresa and Thomas Whetstine, Sarah and Marlin White, Donald Wimmer, Margaret and James Wiseman, and Judy and Harold Zimmerman.

The Kenneth W. Russell Memorial Trust received donations from Chrysanthos Kanellopoulos, Marjo Lehtinen, and Robert Mittelstaedt.

The James Sauer Fellowship Endowment received donations from Jo Ann Hackett and John Huehnergard, and Paula and Edgar Harrell.

A donation towards the publication of the Petra Papyri was received from Lou Gonda (Gonda Family Foundation).

The Dick and Betsy DeVos Foundation made a donation to the North Ridge Project.

Donations of books, journals, and other materials were received from Adeib Abu-Shmais, Russell Adams, Salman Al-Ani, Andrews University (Douglas Clark), Ignacio Arce, Abd al-Sattar Azawi, Birzeit University (Khalid Nashef), Ghazi Bisheh, Michael Bisson, Jose M. Blazquez, Cincinnati Art Museum (Kathryn Haigh), Thomas Dailey, Michele Daviau, Vanni Desideri, Renate Dietrich, Steven Falconer, Patricia Fall, Zbigniew Fiema, Jaakko Frosen, Michal Gawlikowski, Seymour Gitin, Michael Homan, Kimberly Katz, Lahav Research (Paul Jacobs), Marjo Lehtinen, Thomas Levy, Megan Perry, Jane Peterson, K. Politis, Benjamin Porter, Christopher Rollston, Vivian Ronay, Erja Salmenkivi, Scott Sanford, Joab Simon, John Strange, U.S. Embassy, Amman, Tomasz Waliszewski, and Udo Worschech.

## 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. 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 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 Jordanian Printing Press.


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