ACOR Newsletter

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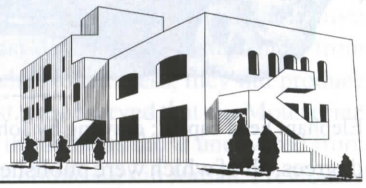
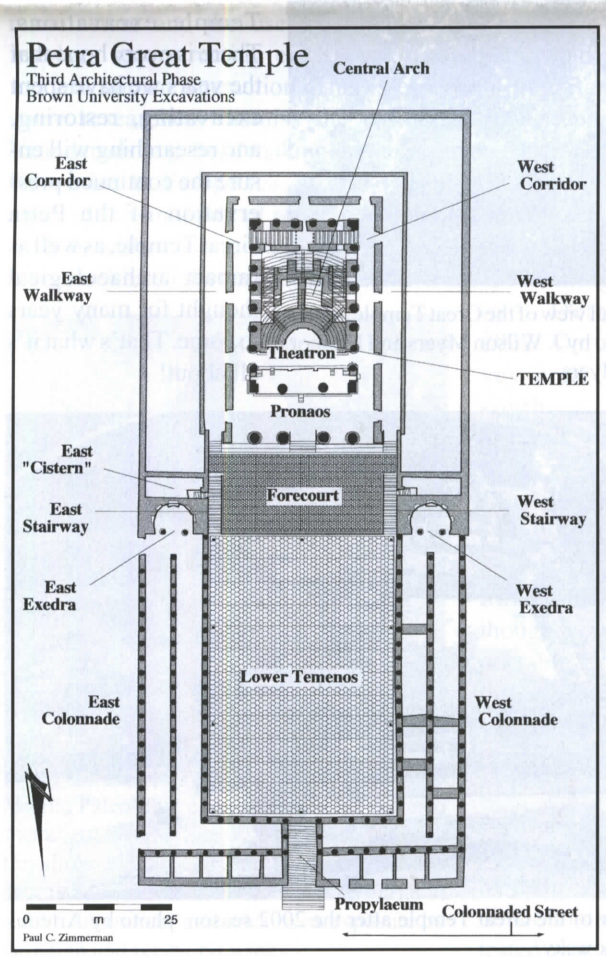


Ten Years of Excavation at the Petra Great Temple: A Retrospective

Martha Sharp Joukowsky

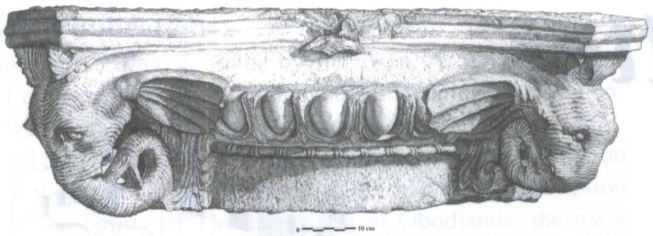


In the heart of the city of Petra is its largest freestanding edifice, the Great Temple, which has been excavated by Brown University archaeologists since 1993. Ten seasons have uncovered a 7560 m-precinct consisting of a Propylaeum (with a shrine of Nabataean double aniconic beytls), a Lower Temenos,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

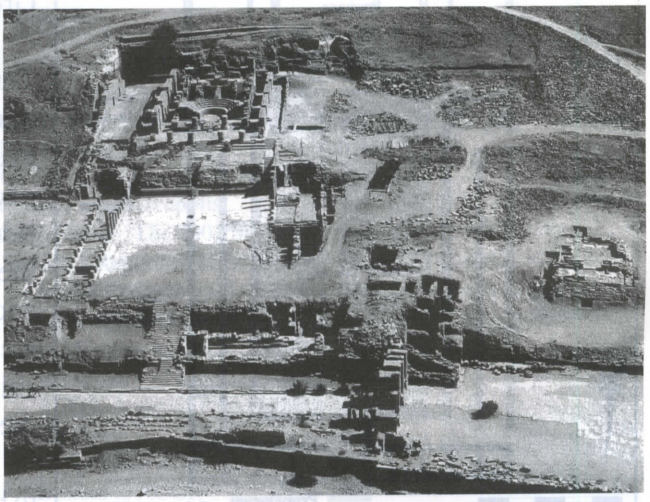
Restoration work; photo by Artemis Joukowsky

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.

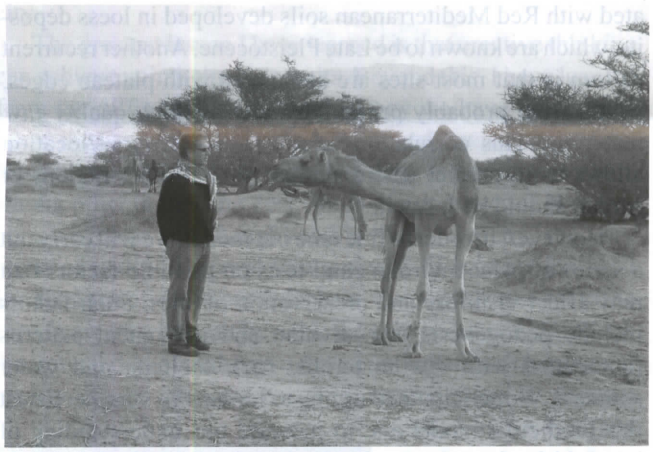
April Nowell, University of Victoria
Michael Bisson, McGill University
Carlos Cordova, Oklahoma State University

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

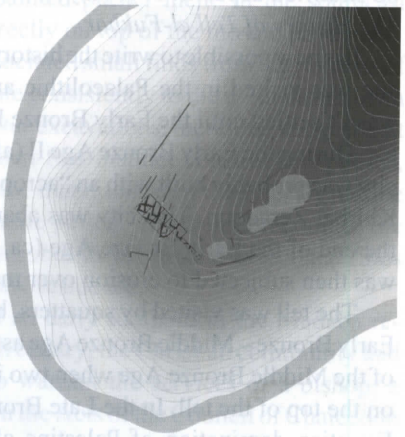
Tell el-Fukhar, located between Irbid and Ramtha in Wadi Shellale, was originally excavated during four campaigns between 1990 and 1993. The tell lies on a spur that extends ca. 375 m into the valley from its east side and measures ca. 205 m at its broadest point. On the top, there is a sort of "acropolis" 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.

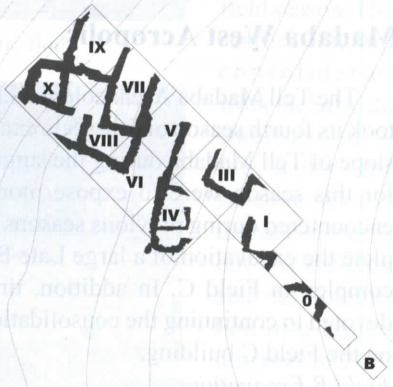
Our excavations revealed rich Late Bronze Age layers containing houses and other installations with pottery from the Late Bronze Age I-II B, indicating that the buildings were probably built at the beginning of the Late Bronze Age and were in use throughout the period. There were no later buildings, 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.).

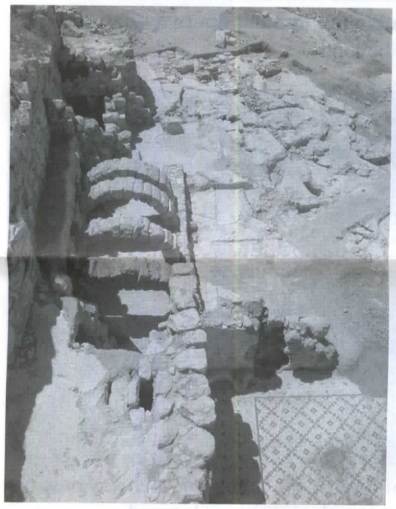
Textual sources are unequivocal about the importance of Madaba and the surrounding plain during this period. According to the Mesha Inscription, Madaba was under Israelite control ("the house of Omri") when Mesha captured (lines 7-8) and rebuilt the town (line 30) along with a series of other cities 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.

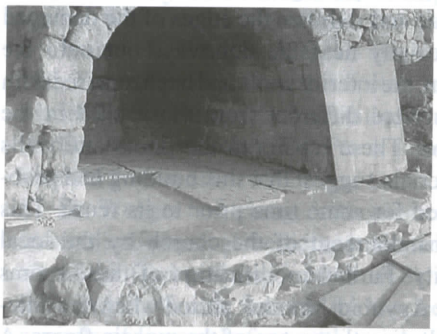
To the north of this area, the remarkably well preserved northeastern corner of the complex was unearthed. A substantial portion of the superstructure of the building was still intact, including the second floor paved with a white mosaic. This second floor was supported by a series of large, flat-lying 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