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Special Issue

The 25th Anniversary of the Establishment of Faculty of Archaeology and Anthropology

This issue has been published to coincide with the 25th anniversary of the establishment of the Institute of Archaeology and Anthropology, which later became the Faculty of Archaeology and Anthropology. At inception the focus was on study and research in Archaeology, Anthropology, and Epigraphy. However, over the next several years the institute broadened its scope to cover fields such as the management of cultural resources, conservation of archaeological sites and materials, tourism, archaeometry and museum studies. As a result of this expansion, the institute formally became a faculty at the beginning of the academic year 2003/2004.

In addition to five academic departments the faculty established, and continues to manage, the Museum of Jordanian

Heritage, the Laboratory Unit, and the Deir 'Alla Station for Archaeological Research in the Jordan Valley. It also has two scientific chairs - the Mahmoud al-Ghul Chair for Studies of the Arabian Peninsula, and the Samir Shamma Chair for Islamic Civilization and Numismatics.

Over the past years numerous studies and field projects have been carried out in cooperation with local and international organizations and institutions. Such collaborative projects, which continue to be initiated, provide students with the opportunity to learn field skills and receive highly valuable hands-on training. Among the several projects currently in progress are the excavations at Tell al-Husn; Khirbet edh-Dharh in cooperation with the Sorbonne University, France; Deir 'Alla in cooperation with Leiden University, Netherlands; Natfeh, in cooperation with University of Arkansas, U.S.A.; and the excavation project in Tell Juhfiyeh, in cooperation with Münster University, Germany.

Apart from excavation projects, the faculty has developed strong relationships with several local, regional, and international organizations for research and funding purposes, such as projects with European partners and TEMPUS funded research. A number of cooperation agreements with Arab and Western universities have also been signed.

The shared vision of all members of the Faculty of Archaeology and Anthropology is to continue its development plans and become a regional focal point of academic excellence, scholarly enterprise, innovation, and productivity under the guidance and supportive leadership of His Majesty King Abdullah II.

Prof. Dr. Zeidoun al-Muheisen

In Memoriam *Mahmoud el-Najjar*

Dear Friends and Colleagues,

Mahmoud el-Najjar was an early pioneer in paleopathology, often publishing the first modern article on a subject such as anemia or tuberculosis. As I am conducting my research, a day never passes that I do not read a scientific article that includes Mahmoud el-Najjar in the bibliography. His contributions to paleopathology were numerous and he was among the very best of his generation! A notice of his death was immediately sent by the officers of the Paleopathology Association to its members throughout the world and expressions of shock and loss were made by many members that said: "this is a very sad news. Mahmoud was a great anthropologist and a great man".

He was a wonderful teacher and he had a significant and lasting impact on the American students who came to Jordan on the joint Yarmouk-Arkansas Universities anthropology field school.

A few of the statements sent to me by these students are:

"I am very sorry to hear the news about Professor el-Najjar".

"I am really sorry to hear about el-Najjar. He was generous and kind-hearted.

"I am shocked to hear this news. Dr. el-Najjar will live as long as we keep him in our minds. His publications, his work, his students, and his colleagues will be a testament to his accomplishments. Dr. el-Najjar was like a father, a teacher, a mentor, and a friend to me and still is. Dr. el-Najjar will never die and he will stay in my mind forever".

"I am so sorry to hear about Dr. el-Najjar. Some of the fondest memories I have of my trip to Jordan were of him sitting with myself and Chris White as we excavated.



He told us one funny story after another. We laughed until it hurt and I still catch myself retelling some of the stories. He was a nice guy".

"I am sorry to learn of the bad news. I will always remember him. I think about my trip to Jordan often and it brings to me good memories".

"I am so sorry to hear about Professor el-Najjar. He was a great man, and I respected him tremendously".

For me, Jerry Rose, Abu Yusef was a great colleague and an even greater friend. Our work together teaching the joint field school was not done for money or fame as there was very little of either money or fame for each of us. We taught the field school because we enjoyed teaching students. For me we continued teaching the field school because we enjoyed working with each other. For me the great pleasure came from being with him on the archaeological site, in faculty offices, and in our homes. He was my best friend and I will miss him a great deal - today and every day. In my office I have a picture of Abu Yusef and I together. He will live in my heart forever as we are in this picture. May God bless him.

Jerry Rose

Preliminary Report of the First Season of Excavations at Tell al-Husn 2008

Zeidoun AL-MUHEISEN

The first season of excavations at Tell al-Husn was conducted in the summer of 2008 under the direction of Prof. Zeidoun al-Muheisen, Dean of Faculty of Archaeology and Anthropology at Yarmouk University, with the support of the Jordanian Department of Antiquities.

Geographic Location

Al-Husn is located nearly 8 km south of Irbid and 70 km north of Amman. The highway which connects Irbid with Amman, intersects the town of Husn, dividing it into eastern and western sections.

The geographical coordinates of al-Husn are 32° 27' N, 35° 37' E and it is located about 680 m. above sea-level. The moderate, warm climate of this region, fertile soil, and strategic location have been instrumental in making it a settlement area of choice since the Calcolithic period (before 4000 BC), throughout the Bronze, Iron, Persian, Hellenistic, Roman, Islamic periods, and even up to the present.

Al-Husn encompasses a total surface area of about 58.5 km², out of which about 20 km² constitutes the main city. The remaining surface area is used for agriculture and has been cultivated with all kinds of crops and

olive trees especially on the heights, where stone quarrying is also carried out.

Naming

'Al-Husn' means a 'well-fortified place' or 'castle'. It is generally assumed that the name of Tell al-Husn was derived from the Umayyad fort which had been built on the *Tell* located in the north of the town. Some parts of this fort were uncovered during the first season of excavation. A mosque, built during the Umayyad period, was also excavated.

Tell al-Husn

Tell al-Husn is located at the north of al-Husn city and dominates the plains of Hawran from the northern and eastern sides. It is large in comparison to other towns, with a surface area of about 90000 m², and an elevation of 26 m above street level.

The Tell obviously played an important role since the Calcolithic Age (4000 BC), and developed in the Late Bronze Age (1550-1200 BC), as indicated by findings of dense settlements. The site began to grow in significance during the reign of Thutmose IV (Menkheperure) (1419-1386) BC, and developed during the second phase of the Late Bronze Age (1410-1340 BC).



A contour map of Tell al-Husn

In the third Phase (1340-1200 BC), under the 19th Egyptian dynasty, the site became famous for its cultivated crops, and grape and olive groves, in addition to its strategic significance.

One assumes that Tell al-Husn is the classical city of *Dion*; one of the cities of *Decapolis* that developed in the Hellenistic and Roman periods, as can be observed through the dense Hellenistic, Roman and Byzantine settlements in the Tell area. Numerous caves, water wells, Roman ponds, rock-cut tombs and mosaic floors of Byzantine churches have been found in this area. Excavations prove that after the Roman period followed by Islamic conquests, forts, castles, and palaces were built in this area by the Umayyads.

Results of Excavations

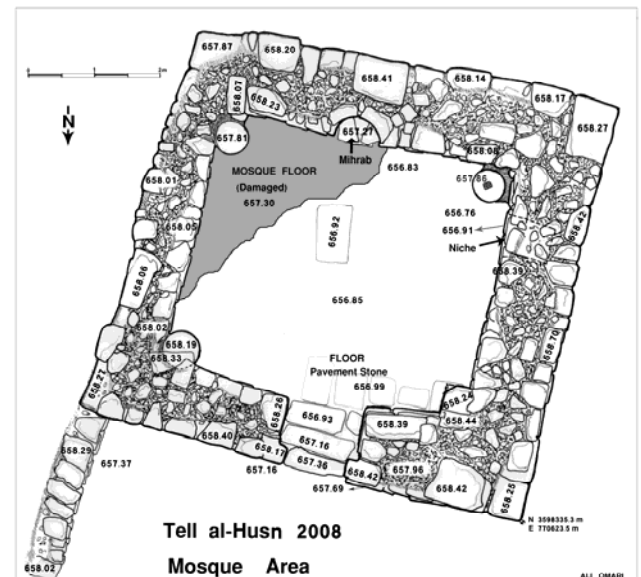
Area A

Various parts of Area A were excavated, in order to determine the successive periods of settlement at Tell al-Husn. The excavation also aimed at uncovering the architectural remains on the surface of the *Tell*, to decide their functions and uses, and document the findings.

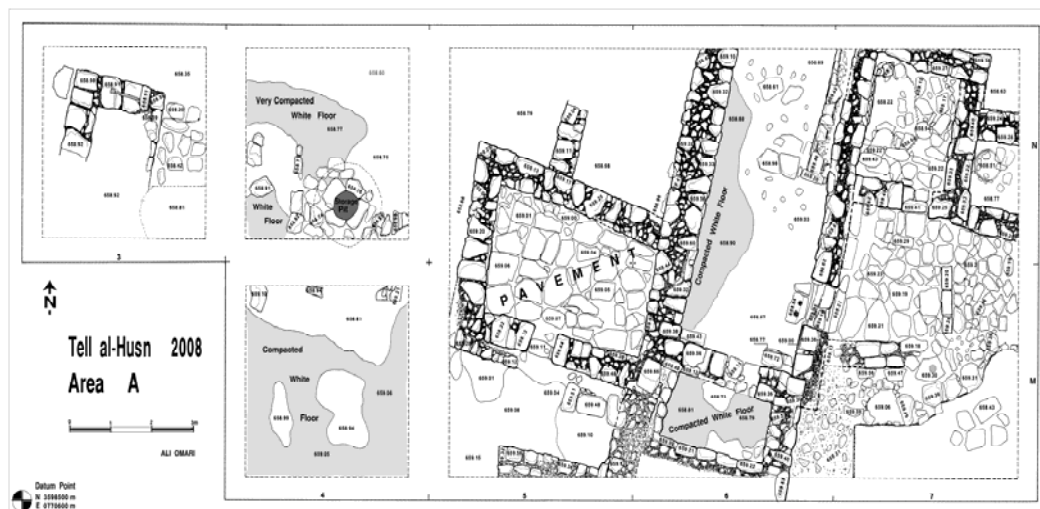
A:1 is located in the middle of the northern side of the hill fort's surface, and to the north of the walls of the Umayyad fortress, which is adjacent to the northern edge of the Tell. It should be noted that there were no visible architectural landmarks on the surface, though some worked stones were found, which could not be linked to the walls or buildings that were excavated over a number of grid squares (N3, N4, N5, N6, N7, M4, M5, M6, M7).

(A:2) was selected at the north-west corner of the walls of the Umayyad fortress, to uncover the north-west corner tower, identify its dimensions and architectural plan, and to follow its extension outside the walls of the fortress. This tower was explored through the squares (E7, E8, F7, F8).

The third location (A:3), was in the far south side of the Tell, a few meters to the west of the main gate of the Umayyad fortress. This site was chosen because of the presence of a pile of stones. Although there were no indications of a particular architectural design, some worked stones built in semi-circular shape and the remains of a small Umayyad mosque were uncovered.



Plan of the Umayyad mosque



The results of these three excavations were of great importance as the uncovered structures revealed much about life during the Umayyad period. The buildings were varied in the nature of use. For e.g. some were clearly domestic units that contained pits for storing grain, while others were more military, such as the defensive tower of the Umayyad fortress. Religious structures, such as the small Umayyad mosque, were found to be fairly well-preserved as is evident from the architectural elements such as *al-mihrab*, the entrance, and roof supports.

Area B

Distinctive architectural remains were uncovered whose upper courses appear above the surface, such as massive walls, towers, and secondary walls meeting main walls. This area was selected in order to examine the nature and function of its structures, and document and date them.

Excavation work was carried out in 12 squares chosen keeping in mind the goals of this season (D20, D21, D22, E20, E21, E22, F21, F22), in addition to the north eastern tower of the citadel in squares (D26, D27, E26, E27).

The north defensive wall of the citadel was excavated and an initial reading of pottery fragments indicated that the citadel could be dated back to the Umayyad period. The

citadel walls were found to have massive foundations, wider than the upper parts, and were supported by towers to strengthen them for defensive purposes.

Under the lower foundations of the citadel, we uncovered some walls and paved floors with stone tiles from the Byzantine period. These walls extended from under the lower foundations of the northern part of the citadel to the outside. A big *Taboun* 120 cm in diameter was also uncovered. In the northern squares (E22, F22) some architectural remains, which can be dated back to the Hellenistic and Roman periods, were found.

The archaeological finds and architectural remains demonstrate that some form of an Islamic occupation existed in the upper layers of the Tell. The existence of the citadel clearly proves the significance of Tell al-Husn as a military and administrative center during the Umayyad period and the huge walls and structures are clear evidence of intensive occupation during the Hellenistic, Roman and Byzantine periods.

Area C: Squares B40 and C40

Area C is located on the EN side of the Tell's foot, almost 5 m to the west from the main street which runs NS. We dug in two squares, B40 and C40, and uncovered some walls which were dated, according to their

structure and pottery findings, to the Late Bronze Age.

Square B40

The following loci were discovered:

000: A layer of "top soil" covered both squares. The soil was grayish, dry, and hard to dig. The squares, sloping from west to east, contained small and medium sized undressed stones and plant roots.

001: A grayish, dry soil layer covered the west side of the square. The middle part was hard to dig. A slope from west to east contained small and medium sized undressed stones.

002: A stone wall running in a curved line from the NW corner to the SE was discovered in the middle squares. It consisted of lime and flint stones, some of which were dressed and others undressed. The stones were between medium to large and the wall was built in two rows with no mortar between the stones. Digging was stopped digging at the fourth course. The stones in the lower courses were found to be bigger than those on the higher ones. Also, the lower courses extended more towards the east than those above.



Basalt bowl (tripod) from Tell al-Husn

003: A stone layer covered the west side of the square. It consisted of lime and flint stones, some of which were dressed and

others undressed. The stone sizes varied from medium to large, some of which might have fallen from locus 002.

004: A soil layer, grayish, dry, and easy to dig, covered the east side of the square, it sloped from west to east, and contained small undressed stones and plant roots.



Bronze spear head from Tell al-Husn

005: An ashy layer was found in the southern part of the square, very soft, very easy to dig, dry, and sloping from west to east.

006: A soil layer covering the east side of the square was dark gray, dry, easy to dig, and contained small undressed stones.

007: A soil layer covering the east side of the square was grayish, dry, solid, hard to dig, and contained dressed and undressed flint and lime stones, the sizes of which ranged from medium to large. They may have fallen here from locus 002.

Locus 002 is at the west of the cylindrical tower which located on the eastern border of the city.

Square C40

The following loci were discovered:

000: The 'top soil' layer covered the entire square. It contained small stones and was gray colored, dry, and easy to dig. The direction of the layer was NE.

001: A soil layer covered the entire square and was brown, dry, and easy to dig. It had small and medium flint gravel stones approx. 0.1-0.5 m in size.

002: A flint stone wall, built with rubble stones and flint gravel ran from the WS corner to the N. meeting locus 003 on the north side. Its dimensions were $2.2 \text{ m} \times 0.5 \text{ m}$.

003: A flint stone wall, built with rubble stones and flint gravel, was found to run EW. Its dimensions were $2 \text{ m} \times 0.4 \text{ m}$, and it met locus 002 on the west side of the square.

004: A soil layer in the northern and eastern part of the square were found here, brown in color, dry, hard to dig, and having small flint stones.

005: A soil layer in the SW corner of the square was found, brown in color, dry, hard to dig, and having small flint stones.

006: A flint stone wall, $1.3 \text{ m} \times 1.2 \text{ m}$, was found to run SN meeting locus 003 on the southern side. The wall was built with rubble stones and flint gravel.

007: A soil layer in the northern and eastern part of the square was found, which was brownish, dry, not too hard to dig, and having small and large flint stones.

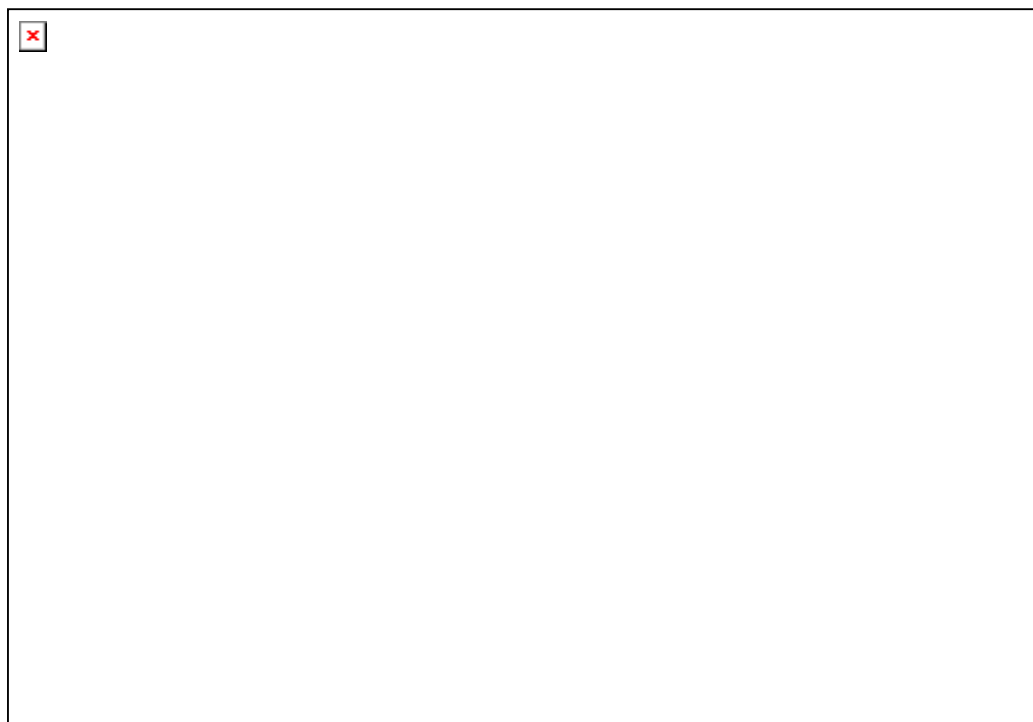
- Locus 004 is located to the south of locus 003 and east of locus 006; and locus 005 is located to the north of locus 003 and west of locus 006.

- Loci: 002, 003 and 006

All these loci had walls that were connected together and running in different directions (NS and EW) but built with the same techniques. These walls could have been of rooms belonging to soldiers' who watched the city tower, or perhaps are parts of the city wall which was connected to the cylindrical tower (locus 002 in Square B40).

Cave Tomb (Tombs 1, 2, 3 and 4)

The cave tomb lies approximately 50 meters to the east of Tell al-Husn, and 10 meters to the west of Irbid- al-Husn Street. These types of tombs, known as 'shaft tombs', go back to the Bronze Age. The main entrance is a shaft leading into these tombs which can be sealed with a pile of stones. At the bottom of the shaft are four entrances that lead to four different directions.



Plan of Tell al-Husn shaft tombs

The aims of this excavation were to:

- Clean the shaft and examine the main entrance of the cave tomb (shaft tomb).
- Enter chamber tomb 1-3 from tomb 1-1 to clear it of dirt, soil and stones.
- Clean chamber tombs 1-1 and 1-2 from tomb 1-1 to study and describe these types of tombs.
- Work on tomb 2.
- Clean tombs 3 and 4 to study the pottery sherds discovered there.

Work began with cleaning the circle-shaped shaft 1.8 m in diameter and 2.5 m high, which is the main entrance to the tomb. At the end of the shaft there were four entrances to the burial chambers. Thermoluminescence dating was used to determine the age of the pottery found in this tomb, which were estimated to be from the late Bronze and Early Iron Ages.



Pottery jar- end of the Late Bronze Age

A Preliminary Report on the 1996-2004 Excavations at TELL DEIR 'ALLA

Zeidan Kafafi

Gerrit van der Kooij

I. History of Fieldwork

The Tell Deir 'Alla Archaeological Project is a joint venture of Leiden University (Holland) and Yarmouk University (Irbid, Jordan) in cooperation with the Jordanian Department of Antiquities. The excavations of Leiden University, directed by H.J. Franken initially commenced in 1960. After the fifth season in 1967, excavations were interrupted; but later restarted by Franken in 1976. From 1979 onwards they were co-directed by G. Van der Kooij and M. Ibrahim, first in cooperation with the Jordanian Department of Antiquities, and then, from 1980, with Yarmouk University. Subsequently excavations stopped for some years, but resumed in 1994, with five seasons ending in 2004 (co-directed by G. Van der Kooij and, since 1996, Z. Kafafi).

II. Aims of the Excavations

H. Franken aimed to establish the stratigraphy, based on pottery chronology in the final stages of the Late Bronze and Early Iron Ages of the region (north slope and top of the Tell) (Franken 1969; Franken and Ibrahim 1978-1979). The main aim of M. Ibrahim and G. Van der Kooij was to study the development of the settlement during the Iron Age II and III periods, which are dated from ca. 1000 to

350 BC (top and southern slope of the Tell) (Ibrahim and Van der Kooij 1983; 1983/1984; Van der Kooij and Ibrahim 1989).

The main focus of recent excavations conducted after 1996 was a study of the Middle-Late Bronze Age settlements (top, southern and eastern sides of the Tell), with the addition of a regional component (specifically, Tell el-Hammeh) (Van der Kooij and Kafafi: forthcoming).



A contour map of Tell Deir 'Alla

III. Chronology

The excavations of Tell Deir 'Alla indicate that the site was inhabited approximately from 1700 BC to 350 BC. The basis for the chronological determinations is provided by the stratigraphic analyses of separate excavation fields, each comprising a set of squares. "Absolute" dating is obtained by connecting artifact typology to their chronology based upon the absolute dates of other sites, and on a few historical connections with the chronology of Egypt (Van der Kooij 2005).

Useful radiocarbon dates are not presently available and adequate samples from the excavation fields have yet to be analyzed.

IV. Stratigraphy

In the 1996, 1998, 2000, and 2004 seasons, excavators decided to continue digging the Iron Age remains on top of the Tell and the Middle and Late Bronze Ages at both the southern and eastern slopes of the site. To do so, several new areas were excavated on the southern slope and a step trench was excavated on the eastern slope (Area X). The area of the sites excavated reached approximately 700 square meters, most of which belonged to the Late Bronze II and the last phase of the Late Bronze and the beginning of the Iron Ages. Most of the Middle Bronze II-III and Late Bronze I archaeological remains were excavated in a step trench (Area X) located on the eastern foot of the site.

The earliest settlement (Phase 3, Middle Bronze II) seems to have ended in a speedy and total collapse, as far as can be ascertained from the small excavated parts; for example in Field X, there are indications of a fire having affected the roofs and upper parts of walls. Middle Bronze III indicates a continuation through the Late Bronze I. Tell Deir 'Alla continued to be occupied from the Late Bronze III to the Iron I periods, and remains belonging to these periods were excavated in the northern and the southern slopes (Van der Kooij 2005).

Iron I remains were found on the northern and southern slopes of the Tell and located over the Late Bronze III remains. However, it is very clear that the site continued to be occupied from the thirteenth to the twelfth centuries BC without interruption. The Iron II archaeological remains were mainly excavated on the summit of the Tell, and the materials discovered at the site have already been published (Van der Kooij and Ibrahim 1989).

V. Archaeological Discoveries of the Recent Excavations

A. The Middle Bronze Age

1. Architecture

The first settlement, which began during the seventeenth century BC, was established on a low natural hill, consisting of laminated Lisan clays with about half a meter of reddish-brown loess on top. The small excavated parts of the first settlement show fairly solid mud-brick architecture with walls 1.0–1.5 m wide, and courtyards. The courtyard in field X includes a cooking area (bread ovens), and partly ashy occupation debris.

The well constructed buildings have several rooms, and are effectively planned (judging by the wall system), although differently oriented in the two small fields excavated.

2. Pottery

The archaeological excavations conducted in the step trench (area X) on the eastern foot revealed sherds of pottery vessels dating to the Middle Bronze III. Unfortunately, no intact objects were encountered. In addition to the chocolate-on-white decorations, Tell el-Yehudiyyeh ware was found at the eastern foot of the Tell. However, during the 1960 excavations, Franken found Cypriot White Slip II ware. A brief presentation of the clay pot forms that were recognized is given below:

a. Cooking Pots

“Hole-mouth”, vertical rim, with a short vertical neck, and flaring rim.

b. Bowls, Goblets, Juglets

A few sherds illustrated out of many that were found, with a white slip and “chocolate-brown” decoration may be considered Chocolate-on-White ware. Among the Tell el-Yehudiyyeh ware there are some more black-burnished sherds from Field X. Cypriote White Slip II pottery appeared in an assemblage from the northern slope (P700) but not during recent excavations.



A shaft-hole axe

3. Metal Artifacts

Several notable bronze tools were found in two squares in contexts dating from the earliest settlement. A trident and “spearhead” were found together at the bottom of pit D/I17.20 (phase IV), which had been dug in a niche of a small room during the 1970’s.

A shaft-hole axe with ribs and lug from X/C1, and a small adze from X/C1.38, just above were also found on courtyard surfaces during the 1998 season of excavations.

B. The Late Bronze Age

1. Architecture

The size of the Late Bronze Age settlement at Deir Alla could be at least 200 m x 150 m, or even perhaps as large as 250 m x 200 m, as it includes an extension of the base of

the Tell-without taking into consideration the washed soil.

The fragmented data obtained from the first excavations are insufficient to allow identification of the uses of Late Bronze built-up areas except for the temple in the northern quarter, and the places for probably domestic use to the east and south-south-west. However, during the 2004 excavation season structures built of burnt mud-bricks, dating to the end of the Late Bronze III, were excavated at the southern side of the Tell.

2. Pottery

The recently excavated pottery assemblages from the eastern and the south-eastern fields have not yet been published. However, the pre-phase E pottery from the northern slope has been studied and published by Franken. The pot forms recognized in the assemblage excavated during past and recent excavations consist of bowls, goblets, chalices, lamps, jars, and cooking pots.

Although no imported clay pots were discovered during recent excavations, examples were found in the northern slope when the earliest digging operations took place.



Jewelry mold

3. Metal Artifacts

A couple of the metal objects found deserve mention here: a bronze “dagger” (DA 3414) from X/B2.8, with a remarkably long narrow tang (13 cm of the total of 32 cm), rather angular shoulders and a blunt tip. A jewelry

mold was also found on the surface (Kafafi: forthcoming 1).

C. The Late Bronze Age III/ Iron I

1. Architecture

The middle area on the southern slope showed a very large room (at least 10x6m) with walls 1.3m thick from this phase with evidence of heavy burning and destruction by an earthquake. (c. 1180 BC) (Kafafi: forthcoming 3).

In this room additional parts of clay tablets (with undeciphered script) were found, two of them fitting with three parts from the previous season, comprising two complete tablets. The use of this room still remains unclear. Adjacent rooms were found as well (Kafafi: forthcoming 2).

The rooms that were immediately rebuilt - still just before the Iron Age, became considerably better known in this area. These rooms, which included a food storage and preparation space, were found to contain large jars with an oily liquid, and a large saddle quern (grinding stone) with fitting hand stone - both of locally found (Zerqa bed) sand stone.

A mud-brick construction of about 10m width, and at least equal length, was found in the burnt phase (although the main parts remained intact) dating to the last phase of the Late Bronze III and the beginning of the Iron I. On top of this construction, the burnt remains of a row of four thick pillars were found at a distance of 70-80cm between each other, but the space behind them to the West, remained unexcavated.

D. The Iron Age I

The beginning of the Iron Age was clear here due to the thick accumulations of “courtyard layers”, with all sorts of materials, including a rounded blowing pipe for a furnace, as was found at the N-slope from contemporaneous layers. The foot area of the Tell partly showed an extension of the industrial activities that had been discovered earlier.



Parts of a LBIII/ II house with wooden pillars



A blow-pipe found on top one of the courtyard layers



Fragment of a clay tablet

E. Iron Age 2 and 3

The Iron Age phases on the Eastern part of the site's summit were somewhat further explored, contributing new facts to knowledge already gained from the 5m wide test trench to the South, and earlier extensions. New data appeared about the exceptional phase VII (c. 700 BC), with its wheel thrown pottery, and phase IX (ca 800 BC) with, among others, a food preparation area containing stored foodstuffs (liquid and solid, such as wheat) and a baking area. Traces of metal craft activities were also found.

The latest Iron Age phases were studied there too, providing clear data about the buildings in the courtyards of phase IV. An exceptional one-spout lamp made of iron was found there.

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KHIRBET EDH-DHARIH

13th Field Season of Excavations and Restorations 2007

Zeidoun AL-MUHEISEN

François VILLENEUVE

Khirbet edh-Dharikh is situated on the King's Highway, in the Wadi al-Laaban, a southern tributary of Wadi al-Hesa, 100 km to the north of Petra, 12 km to the north of Tafileh and 7 km to the south of the high-altitude sanctuary at Khirbet et-Tannour, with which edh-Dharikh is closely associated. The excavations at the site started in 1984 as a joint project between Yarmouk University and IFAPO, headed by Professors Zeidoun al-Muheisen and François Villeneuve. The 23 years of excavations at the site included more than 13 field seasons.

Soundings on the Kings' Highway, 1 km to the north of edh-Dharikh, revealed a small PNA site. This site is chronologically different from the site of edh-Dharikh itself; edh-Dharikh has a small EBII settlement on the southern hill, 350 m to the south of the temple (a small enclosure that surrounds a few dwellings) and beneath the Nabataean oil press V10. The other features include a small rural Edomite settlement of the Iron Age II, but again only with dwellings and solely on the higher parts of the site (on the southern hill beneath the Nabataean house V12, with traces of metallurgical activity). The Edomite level is clearly separated from the Nabataean occupation by an abandonment phase. The buildings were made of mud-bricks and oriented differently. This tends to confirm the hypothesis of relative

abandonment by the sedentary people in the southern Jordanian countryside between the periods of the Edomites and the Nabataeans.

The 13th season was in the summer of 2007, as a joint project between Yarmouk University and the University of Sorbonne, French Ministry of Foreign Affairs, CNRS, and IFPO, with the assistance of the Department of Antiquities. The work was conducted under the joint directorship of Zeidoun al-Muheisen and François Villeneuve.

The main results of the 13th field season of excavations, 2007, are presented below.



A small statue head of gypsum

The Temple Area

The focus, during this season, was on the area around the temple, especially the northern, eastern and western porticos. Excavation works had been completed along the northern side for the temple wall. A vault extending from east to west was discovered under the temple land level. It contained ten arches in the direction from north to south, to carry the vault roof, and the vault floor, partly destroyed, was covered with termed flagstone. The vault had been reused during the Byzantine period as a basin to collect water, as clear from some sealing work done under the arches. Also, two small basins 60-70 cm. deep in the portico floor were found, in addition to a small, gypsum statue head. The portico ended in the western side with an entrance to the west vault.

As a result of the excavations completed on the west side of the temple, a vault with a half barrel roof extending from the north to the south was found. This vault was reused during the Ayyubid-Mamluk period as a stable for horses. The excavations conducted in the eastern portico around the temple of the east side revealed a square room built approximately during the Umayyad period, which seems to have been used for raising animals as two feeding containers were also found - one in the north-west corner, and the other on the south-east corner of the room. The east wall of the room had an entrance open to the east, and the floor was covered with stone plates.

The excavation conducted north of the main east gate of the temple unearthed a room extending from the north to the south. The roof of the room was carried on arches extending from the east to the west, and the floor was paved with stone. Also, the wall had an entrance with an east-west opening.

Inhabited Area

The inhabited area was found in the main southern courtyard of the temple. Excavation had been completed to the west of the

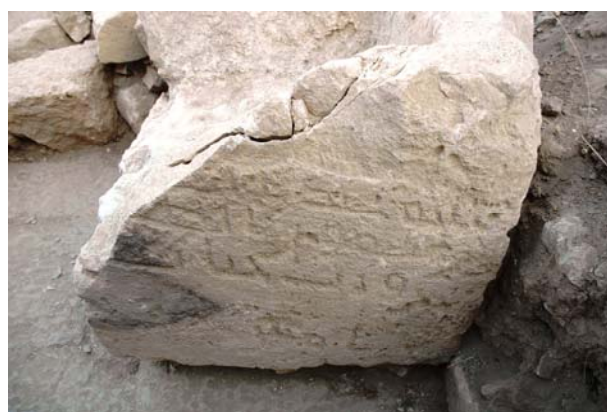
Ayyubid-Mamluk Bath, discovered during the previous season.

During this season, a room extending from the north to the south and paved with stone plates had been discovered. The western side of the room had an entrance to the west. Four stairs leading to the second floor were also found. This proves that the building consisted of two floors. On the room floor, a well with a circular entrance, extending from the north to the west, was discovered. The roof of the well was carried on five arches of lime stone, and the internal sides were covered with a layer of mortar. On the upper part of the well, a bath basin was discovered; its external side displayed a Kufic inscription of four lines.

At the northern side of the room was an entrance, and to the west, a grape press with a circular pressing stone and a small stone rectangular basin to collect the grape juice.

The South Area of the Location

An experiment was carried out in the southern side of the location to test the results of the 2004 archaeological survey. The results had indicated the existence of steel objects, and this excavation proved them to be true. During the season, several traces of iron were found.



Arabic inscription written in Kufic script

Restoration Works

Maintenance and restoration work in the temple area was also carried out during this excavation season, starting from the north wall of the temple, in addition to the restoration of some old walls in the inhabited area which can be dated back to the Byzantine period. The building located to the west of the temple was also restored. However, the focus, this season was on the restoration of stone objects and pottery jars used for storage.

Discussion

As far as the Nabataean sedentary settlement is concerned, at Khirbet edh-Dharh we do not find any definite evidence to place it before the beginning of the 1st century AD. At this point, we can only hypothesize that a progressive sedentarization took place during the course of the 1st century AD, with dwellings and successive phases lasting until about 360 AD at the sanctuary. This was followed by a long period of prosperity and growth at the site, all within a Nabataean cultural tradition. Thus, Khirbet edh-Dharh neither supports the hypothesis of a violent Roman conquest of the Nabataean Kingdom nor a decline in the communities of southern Jordan during the 2nd and 3rd centuries AD.

Edh-Dharh presents a very clear evolution, which can now be considered as a model to be tested by other excavations in southern Jordan, and a landmark for interpreting surveys. In the Nabataean and Roman periods, Khirbet edh-Dharh was the main population center of the area between Tafilah and Wadi al-Hesa, and between Wadi Araba and the desert in the middle of a cluster of hamlets and isolated dwellings.

Although edh-Dharh was not large at all, its regional importance came from its sanctuary.

The site indicates that during the late Nabataean period regional sanctuaries played an important role in the development of the rural population, which was organized in small localities and depended largely on olive cultivation.

The social organization was stratified, dominated by prominent families with luxurious households, who played a controlling role in the temple and owned the monumental tomb. They exercised authority over the common people and peasants, who had modest burials. These leading families probably belonged to the resh Ain Laaban (the curator of the Laaban spring), mentioned in an inscription at Khirbet et-Tannour in 8 BC. At the moment we lack both epigraphic and stratigraphic evidence to support the premise that Khirbet edh-Dharh was populated at the end of the 1st century BC.



*At-Tlul guesthouse "madafa" in Irbid,
Northern Jordan*

DOCUMENTING THE DEVELOPMENT OF TRADITIONAL BUILDINGS IN IRBID GOVERNORATE

an ethnoarchaeological
and architectural Study

Zeidoun AL-MUHEISEN

Starting from the point that the remained traditional buildings are disappearing year after year, this project is intended to document scientifically these buildings and present them in a very technical manner to the public and the potential scholars for better protection and management. The multidisciplinary of the research's methods in this project are designed to ensure better data acquisition and manipulation with a team of different backgrounds including archaeology, anthropology, GIS, architecture and modern photography. The project is funded by Abdul Hameed Shoman Fund for Supporting Scientific Research.

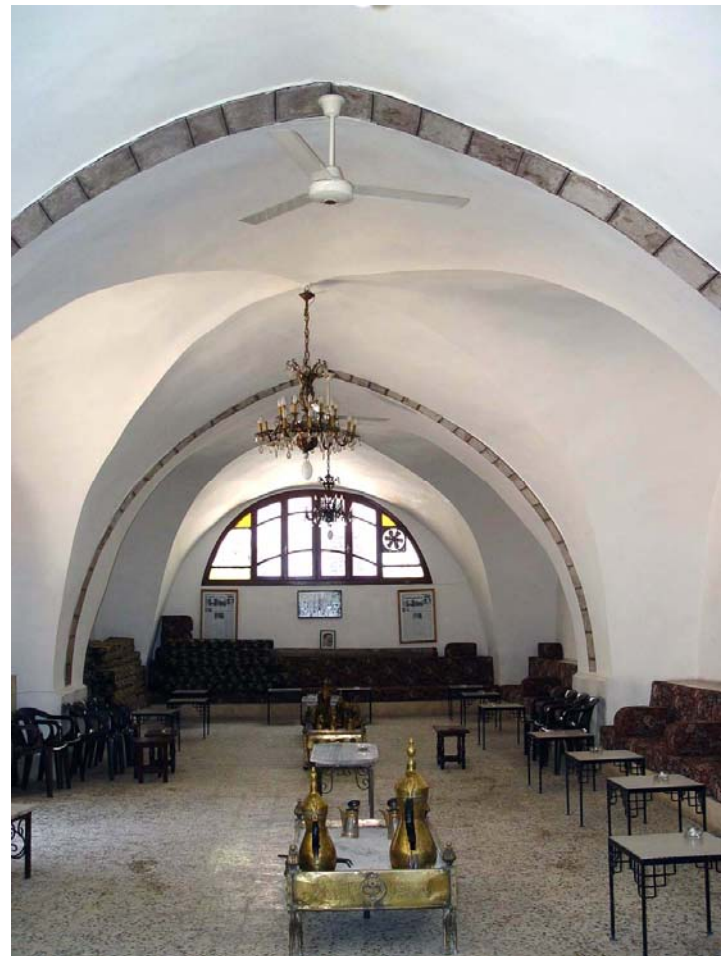
The project is designed to be accomplished in a 12-month period divided into 3 phases: data collection, analysis and dissemination. The results of the project will be written in a form that could be published in one of the specialized and refereed journals as well as a book. The collected data will serve as a resource for the academics and graduate students in the field of traditional architecture and cultural resource management. On the other hand, the resulted information and consequently knowledge will serve as a model for future and further studies in the field of cultural heritage.

“Cultural heritage is the legacy of physical artifacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations” (Wikipedia Encyclopedia), where the traditional buildings are an integral part of it. The traditional buildings in their architecture, material of construction, and the social events that took place once they were established and occupied are an essential component in the cultural heritage of nations, where one can stem his roots and identity.

Jordan is endowed with a vast and an invaluable tangible and intangible cultural heritage. Given that this heritage is under imminent threat of destruction and loss, appropriate measures need to be taken. Various groups- whether academic, official, voluntary, or professional- should take part in the collective responsibility of safeguarding this heritage. The promotion and conservation of Jordan irreplaceable cultural heritage are highly crucial for achieving sustainable development in the country. Traditional buildings in Jordan represent an integral part of its cultural and historical identity. Their architecture, structures and functions have undergone major transformations over time. However, such transformations have remained unresearched and thus undocumented.

The traditional buildings have received a considerable amount of attention during the past few decades, where special volumes were devoted to their significance, conservation and

rehabilitation. The architectural consideration in the traditional buildings in Jordan emerged recently by the study of Maffi and Daher. The traditional buildings in Jordan are currently silent in telling their stories that could be narrated by the melting social, political and environmental impacts the people had experienced hundreds of years ago. This very rich component of our cultural assets has remained unexplored, presented or documented. Unfortunately the urban development in Jordan is walking in speedy steps and vandalizing these buildings, the remained are left strangulated and hidden by the various developmental projects, pollution and ignorance. Although a number of studies in the field of cultural heritage has entailed the traditional buildings, they never aimed at documenting and presenting them to the public.



At-Tlul guesthouse from the inside

Research Objectives

- Document an ignored period in the history of Jordan from the late 19th century to the mid of the 20th century. The beginning of this period inaugurates the appearance of urban and rural traditional buildings in the north of Jordan with some variations in the Jordan Valley. The traditional buildings in the north of Jordan are currently vandalized by the huge urban development and the establishment of large economic projects. Showing the importance of the traditional buildings in rooting the identity may aware the public and thus protect the remained traditional buildings for the future generations of our nation.
- Trace the architectural development in the traditional buildings in the north of Jordan over a period that spanned more than 100 years. Although literature resources are packed with historical data about this period, the social component has been remained to be explored.
- Explore the social, political, economic, and environmental factors that attributed to the architectural development of the traditional buildings in northern Jordan.
- Present the tangible heritage, specifically, the traditional buildings in a scientific way to the scholars and the public.

This study is the basis for conducting further studies in Jordan (cover other parts of the country) and in Palestine. There were no political boundaries between Jordan and Palestine during which the study first covers; there were cultural and economic exchange across Jordan River, which consequently absorbed the minor variation that could have been existed between the two people. Our preliminary investigations point to similarities in the traditional buildings in Jordan and Palestine. Exogenous factors may have played a substantial role in the development of traditional buildings.

Scientific and Application Impacts of Research Results

The results of this study could be classified into 2 major components: social and architectural. The scientific community which is interested in the field of architecture and heritage conservation can benefit from the collected data in terms of top plans, 3D plans and the material of construction that eliminates the efforts for conducting further surveys and pilot studies. Their future plans in heritage conservation and presentation will be guided by the results of the proposed study. This study will be considered as the best nominator for heritage buildings protection for the government (Ministry of Tourism), where it basically aims at classifying the traditional building according to certain typologies that are chronologically ordered. Social scientist and humanitarians may also benefit from the study as it focuses on the social dimension in a period that spanned more than 50 years. In other words the study analyzes and explores the development of the traditional buildings in the north of Jordan within a social context which could be used as a model for further studies in the same field and/or other regions in Jordan and Palestine. As the final report of the study will be in a form of a book, the academic community in the field of architecture, archaeology, tourism and conservation of cultural heritage may use it as an academic resource. The graduate students at the local universities may acquaint themselves with more scientific knowledge on the topic and also may guide their research projects toward enhancing one of the dimensions of the book or the proposed study.

Methodology of Research Plan

This study is considered as a multidisciplinary one as it uses different methods in data collection and analysis. These methods are divided into two parts:

A- Spatial Data Collection and Filing

- Global Positioning System (GPS): a portable GPS will be used for collecting the coordinates of the various traditional buildings using the Palestine Grid (PG).
- Geographic Information System (GIS): a digital map of the northern part of Jordan will be created using GIS to plot the traditional buildings to produce a traditional building map for the northern part of Jordan. This map will be a useful tool in management and tourism guiding.
- Architectural top plans: all of the surveyed traditional buildings will be drawn using advanced softwares (AutoCAD and SketchUp).
- Photography and scanning: all of the traditional building will be digitally photographed for the purpose of filing and entering into the SketchUp program.

3-D view of one of the traditional buildings in Northern Jordan



skills, and knowledge of the peoples who have produced them.

Furthermore, studying and documenting the development of these buildings requires examining the complex and intertwined relationships between culture and space. Therefore, a traditional building is conceived of as a socio-spatial entity where many cultural values, images and meanings are constantly produced and reproduced. To do so, one needs to focus on both internal and external arrangements, as well as the surroundings, of the building. Spatial arrangements make important symbolic statements about social groupings and social relationships. On the

other hand, the ways in which people use social space reflect their social relationships and their ethnic identity. In sum, studying the socio-cultural dimensions of the development of traditional buildings indicates that space is dealt with as a social product which affects spatial practices and perceptions.

B- Ethnoarchaeology

This project seeks to study and document the development of traditional buildings in Irbid governorate from both ethnoarchaeological and architectural perspectives. The former will focus primarily on analyzing the socio-cultural dimensions of these buildings. These buildings greatly contribute to defining the collective identity. They reflect in various ways the development waves of the society and culture in general. They enable us to understand the beliefs, values, products,

*A Project Funded by the
Jordanian Scientific
Research Fund*

*Opens New Horizons for
Studying the Dead Sea
Scrolls*

In the Arab World

Omar al-Ghul

Since their discovery in late 1946 or early 1947, the Dead Sea Scrolls have drawn immense attention of both the scholarly world and the public. This huge interest translated itself into thousands of monographs and ten of thousands of articles that have been published on this subject during the last 60 years, and through the countless scientific meetings and conferences that have been held to discuss the different aspects of these texts. This universal preoccupation with the Dead Sea Scrolls is amply evident in the numerous societies and committees established all over the world to study these texts. The thrilling stories of their discovery and publication have not only become the subject of film documentaries, but also feature films and popular novels.

That the Dead Sea Scrolls have drawn such widespread attention is not, by any means, surprising. After all they have been recognized internationally as the "most important discovery of the twentieth century". Yet, this statement is sadly paradoxical because in the Arab world and Jordan in particular - the very places where one would expect the most curiosity and enthusiasm - the Dead Seas Scrolls have been largely ignored. The scant

attention paid in these parts to such historic and momentous findings is too apparent to be dismissed. Scientific research is as good as absent and publications are very few, with most of them being translations of older western studies. Naturally, the public barely takes notice of these texts. This predicament is even more astonishing, when one remembers the enormous efforts exerted by Jordan to discover, conserve, and publish these valuable texts. More importantly, Jordan's ties to the Dead Sea Scrolls go beyond the merely administrative and logistic; the contents of these texts are an integral part of Jordan's religious and cultural heritage. Palestine and Jordan are not only geographically the closest to where these texts were discovered, but are in many ways inheritors of the religious and cultural values conveyed by the Dead Sea Scrolls.

However, on an optimistic note, there are signs in the horizon that augur a change. The announcement in November 2008 of a list of projects funded by the Jordanian Scientific Research Fund at the Ministry of Higher Education and Scientific Research included a JD 120,000 (approx. \$ 160,000) project on the Dead Sea Scrolls. The two-year project housed at the Faculty of Archaeology and Anthropology, and directed by the current author, will merely be the establishing phase of a long-term project devoted to the study of the Dead Sea Scrolls. The following goals are envisaged for the next two years:

**Establishment of a Library
on the Dead Sea Scrolls**

Since their discovery about 60 years ago estimates put the published works on the Dead Sea Scrolls at about 5000 books and 80,000 articles in more than 100 languages. Libraries in Jordan hold only a negligible fraction of these. The plan of the project foresees purchasing the primary publications of the Dead Sea Scrolls (DVD volumes), the main research tools (dictionaries, encyclopedias, etc.), major journals on the subject and the most significant monographs that have appeared over the years. The JD 60,000 (approx. \$ 90,000) allocated for buying books will by no means be sufficient to

fulfill this goal. The project, therefore, seeks the aid of Jordanian and foreign institutions and individuals. Book donations are most welcome at the address given below. Purchased and donated books will be placed in a special section of the Yarmouk University main library, where they will soon be made available to interested researchers and students.

Translation into Arabic of 3 Books Related to the Dead Sea Scrolls

Two of these will be introductions to the subject and will contain up-to-date information about the discovery, publication, and contents of the Dead Sea Scrolls. They will also address other issues, such as the Qumran community and its relationship to the contemporaneous religious movements, especially Christianity. The translation of one of these books is already in progress, "What are the Dead Sea Scrolls and why do they matter?" by D. N. Freedman and P. F. Kuhlken published in 2007. The selection of the next book will be made in the coming weeks.

The third book will tackle a subject of interest with regard to the Dead Sea Scrolls. The choice will probably fall on a book about the archaeology of the Scrolls, or on a study related to the epigraphical material from Jordan such as the Nabataean texts from the Dead Sea.

Speaking of translation plans, I would like to reveal an ambition that, though not scheduled for the current Project, is still worth mentioning, *i.e.* to provide the Arab reader with a badly needed, reliable, modern translation of the whole corpus of Dead Sea Scrolls. Plans to secure the funds and human resources needed for such a gargantuan task are already ongoing, though it will not be accomplished within the time-frame of the present project.

Disregard of the Dead Sea Scrolls by the Academia

The absence of any courses on the subject of the Dead Sea Scrolls in current study plans of the archaeology, history and religious studies programs in Jordanian and other Arab universities is regrettable. This project will

aim to stimulate academic interest and involvement in the study of the Dead Sea Scrolls by enlightening decision-makers on the enormous significance of this invaluable heritage to the history and culture of Jordan and the region. It is planned to offer practical help too, by designing tailored courses and course materials that would fit with their study plans, and training faculty members to teach such courses.

Public Awareness

This project also aims to raise public awareness of the Dead Sea Scrolls by using various dissemination methods. Efforts to introduce the subject into study plans, public lectures, newspaper articles, exhibitions, and other suitable venues, will hopefully bear fruit. A website containing comprehensive information about the Scrolls and project activities is planned to be launched in both Arabic and English.

Building Bridges of Cooperation

The project seeks to cooperate with international institutions involved in the study of the Dead Sea Scrolls and gain from their extensive experience in the field, by initiating collaborative research and inviting western scholars and experts to deliver lectures to both specialists and the interested public. Embassies of western countries in Jordan have already been contacted with regard to book donations and other project related activities. In April 2009, Dr. Mladen Popovic, acting director of the Dead Sea Scrolls Institute at Groningen University, visited Jordan to participate in a one-day workshop and deliver lectures at a number of Jordanian Universities.

I hereby call on all researchers and institutions involved in research on the Dead Sea Scrolls to support this ambitious and challenging project by contributing publications, sharing research, providing expertise, or assisting in any other manner possible. Only a unified and collective effort can make this project a success and bring the hitherto ignored Dead Sea Scrolls into the limelight they deserve in our part of the world. Inquiries or suggestions to the author are welcome at the following email: dss@yu.edu.jo



The border of the desert and the sown areas at Tell Khanasri near Irbid

Did it move in the past?

Predicting the Impact of Climate Change in Semi-arid Regions

Bernhard Lucke

The United Nations recently issued a desertification alert, warning that global warming may lead to expanding deserts and diminishing resources in semi-arid regions. It is assumed that this process is likely to have tremendous social and political implications. While it is acknowledged that climate change is the trigger of an increasing desertification threat, member countries are advised to

strengthen efforts to reduce human pressure on the land. However, can reduced human pressure compensate for increased climatic forcing? So far, the answer is: we do not know what the impacts of climate change will look like. Also, we do not know whether anything can be done to prevent or mitigate subsequent changes to the environment.

Sediments and paleosols indicate that landscapes in semi-arid regions altered significantly in the past. Changes took place due to climate variations without human contribution, but may also have accelerated or been caused by land use since the introduction of agriculture. It is important to note that climate variations and mismanagement could have identical impacts and might be linked, which makes it very difficult to clarify causal relationships. Furthermore, desertification is described as a feedback process. Thus, regional land cover changes could impact climate.

The complexity of the climate-landscape system makes it impossible to rely on single indicators, and is the reason behind our current inability to predict the impacts of global warming. The key to the future lies in the past. If we could understand cause-and-effect relationships of past environmental changes, we would be able to test models and forecast future developments much more efficiently. The optimal test region for such questions would be located in the transition zone to the desert, such as in Jordan.

Jordan is a country rich in archaeological ruins, which testify to a remarkable fluctuation of settlement activity. Up to now, it has been debated whether these ups and downs were related to mismanagement (e.g. soil erosion due to overgrazing after the Muslim conquest), socio-economic developments, or movements of the desert border due to climatic variations. Recent paleoclimatic data from archives like the Dead Sea or speleothems suggest that climatic forcing is likely to be connected with settlement history. However, it is difficult to project these point data into a regional context. It is also difficult to translate, for example, Dead Sea level variations into rainfall amounts, harvests, or socio-economic developments. As long as the consequences of climate variations cannot be determined in specific terms such as an annual harvest, the filling of cisterns, or landscape instability, the interpretation of climate reconstructions remains speculation.

Since 2006, the Faculty of Archaeology and Anthropology has cooperated with

Brandenburg University of Technology (BTU) Cottbus and the University of Erlangen in a project on "Interactions of land use, climate and soil development in the context of settlement history in the *Decapolis*-Region (Northern Jordan)". This project (which lasts until 2009) examines a transect from the Jordan Valley up to Umm el-Jimal in order to trace landscape changes on the basis of sediments and paleosols. It focuses on the past 2000 years, since these periods are the most relevant to the present desertification issues. The main challenges are to separate the impact of man and climate, assess whether the Byzantine-Umayyad and Mamluk-Ottoman declines were related to climatic changes or other developments, and determine how ancient land use led to landscape change.

The disadvantage of paleosols and sediments is that their temporal resolution is usually not very good, and they only change slowly. Conversely this disadvantage is also a great advantage, since they record the crossing of thresholds where environmental change materialised into permanent landscape change, representing a point-of-no-return. Soils and sediments in settled areas are usually associated with archaeological material, which makes it possible to reconstruct and assess the impact of land use.

First results show no indication that the inanimate landscape changed significantly since the Bronze Age - with the exception of the valley bottoms. There, alluvial fills were laid down before the Bronze Age and during the Medieval, but later eroded. This fact points to changes of the stream regime, which most likely represent changing *patterns* of precipitation. Also, debris layers such as in the theatre of Beit Ras seem to have recorded the occurrence of very heavy rainstorms during the Byzantine-Umayyad period, but which otherwise left no imprints on the landscape.

On the hills and plateaus, historic land use seems reflected by distinct soil development, indicating that the impact of man was more complex and less devastating than previously assumed. Comparative analyses of soils and

colluvia, air photos, historic travel reports, tree rings and climate reconstructions indicate that population growth caused the flourishing of the *Decapolis* - which took place mostly under favourably stable climatic conditions. Periods of decline seem to have been triggered by climatic anomalies. Climatic change was previously understood too linearly. Extreme rainfall events can be more devastating than drought; temperature, wind and rainfall distribution over the year are important as well. Climatic fluctuations during history may have been linked with pests, famines, plagues, and wars, which caused dramatic drops of population levels. The ecological sensitivity of the desert belt may have aggravated the impact of climate variations. Economic recovery took place only when population levels rose again.

It is so far unknown how climate will develop under global warming. It is still debated whether the Near East will receive more or less rain, how the atmospheric circulation pattern will change, and whether impacts can be mitigated by methods such as large-scale reforestations.

Results from Jordan indicate that the impacts of climate variations could be tremendous, even manifesting into events of extreme precipitation. Feedback processes seem of special importance, but are also the most difficult to investigate. In order to explore these questions more deeply, it is planned to form a research group based on the findings of the current project, and extend research into Syria. This would allow catching possible north-south movements of the atmospheric circulations, while the combination of different archives such as lake levels, speleothems, isotopes from bones, and tree rings with the soil studies will allow to project point data regionally. Combined with meteorological modelling, this may facilitate recognition of precipitation regimes, and eventually identification of the thresholds leading to landscape change. Understanding these feedbacks will be essential for assessing the role of land use, and identification of the areas where minimal measures yield maximum effects.

Book Review

Megalithic Jordan

An Introduction and Field Guide

Zeidan Kafafi

Gajus Scheltema

*American Center of Oriental Research
Occasional Publication No. 6. Amman
National Press*

*With an introduction by His Royal
Highness Prince Al Hassan bin Talal
2008, 142 pages*



The title of the book accurately reflects the contents, as the author has clarified at the outset that it is meant to be a field guide. The timing of its publication is also opportune, as there has long been an urgent

need for this type of guide-book in Jordan - a fact highlighted by His Royal Highness Prince Al-Hasan bin Talal in his introduction.

In the preface (pp. 11-15) the writer points to the richness of megalithic fields in Jordan, which have unfortunately not received the attention they deserve – whether from locals or from tourists. Worse still, they are threatened by destruction as a result of an ever-growing population, the price of land, agricultural activities, stone quarrying, treasure hunting and other factors. Scheltema stresses on the need to protect this unique heritage through awareness campaigns and greater attention from scholars and stake-holders within Jordan.

The book has been divided into two parts - an introduction and a field guide, thus targeting tourists and other interested people on one hand, and archaeologists on the other.

Several subjects are discussed in the general introduction (pp. 17- 60) including definitions, general occurrence and distribution of dolmens and standing stones in the Levant, related archaeological phenomena in Jordan, dolmen architecture, Biblical and ancient references to megaliths, history of research on megalithic structures, function and orientation, distribution, typology and dating.

The definitions of "dolmen" and "standing stone" presented in this book are rather brief. However both terms have been defined in detail in several past publications (Kohn 1914: 94; Zohar 1992: 44; 1993: 352; Prag 1995: 75; Worschech 2002, Kafafi and Scheltema 2005: 11). Also, various Arabic names have been given to megaliths in Jordan, which often help to explain their functions (Kafafi 2007 "Arabic").

While discussing the general occurrence of dolmens and standing stones (pp.18-19), the author points out that dolmens generally have a wider distribution, and receive more attention, than standing stones. A map of the distribution of megaliths in Jordan early on in the book, and another showing their distribution in the Near East, are revealing and useful to the general reader. The study of

stone alignments (pp.19-21) is also most interesting especially that, as Scheltema indicates, not enough time has been devoted by researchers, to study the variety of stone alignments in Jordan (p.21). However, a first attempt towards some kind of explanation was made by Körber (1994:69), who connected the alignments with the standing stones, and concluded that the entire structures either represented the dead or were related to a deity. Further discussion of other related archaeological features continues on pages 21-26, where information about the stone circles, cairns, cists, cup holes and rock-cut tombs is offered briefly.

In his review entitled "Biblical and ancient references to megaliths" (pp. 27-31), the author might have been more convincing had he explained at the very beginning why Biblical narratives are useful in explaining megaliths since they were built in the later period of the Iron Ages, well before the Old Testament was written.

The "History of research on megalithic structures" (pp.31-38), is discussed chronologically beginning with "early accounts" dating to the early nineteenth century, and concluding with the "post World War II" period. The information presented is not only valuable but compelling, and summarized in a manner that allows the reader to follow the development of megalithic structures systematically.

The study of the distribution of dolmens in the Levant (pp.38-40) indicates that Jordan is widely populated with dolmen fields, whereas in contrast, surrounding regions have only a few. However, it must be noted that though dolmens are visible almost all over Jordan, their main concentrations are in Wadi az-Zaraqa and regions overlooking the Jordan Rift Valley (Kafafi and Scheltema 2005).

The author presents a most interesting and enlightening debate about the architecture of the dolmens and a re-study of the six types proposed by Zohar (1992). He points out that Steimer-Herbert (2004) added more types to what Epstein (1985) and Zohar had proposed. He accurately reflects... "in

conclusion, however, I think it is less important to try to classify the dolmens into types than to organize that both local (tribal) preferences and the availability of material must have had a decisive influence on the outcome of the construction" (p. 45). Despite this, he points out that unfortunately no significant research has been attempted until now on the construction methods of dolmens (p. 46).

In discussing the date of the dolmens, Scheltema presents a study of all published opinions on this matter (pp.46-48) and agrees with Steimer-Herbert, who was of the view that the two main construction periods of dolmens were the beginning of the Early Bronze and the transition to the Middle Bronze Ages (p.48). As a matter of fact, as the author points out, most of the studied dolmen fields in Jordan such as the ones in Damiyah (Yassin 1985), indicate an Early Bronze Age I date rather than any other period.

Scheltema agrees with the view that dolmens were built for burying the dead, although he admits (p.49) that excavators have never actually found any human skeletal remains in spite of digging in several dolmen fields. His explanation for this apparent inconsistency, as with other scholars, is that the dolmens probably functioned as secondary burials and could be construed as being symbols for members of the same family.

To his credit, Scheltema withholds discussion about the orientation of dolmens ... *"many pages have been written on this subject, and I could do so too, but will refrain"* (p.50). He rightly feels that not much can be read into the orientation of dolmens, and that in fact there is no specific orientation, despite the view of some scholars that their orientation can be linked to astronomy, terrain, or cult centers.

In his general introduction, the author offers a thorough study of "Standing stones: distribution, typology and dating" (pp.53-60). He asserts that *"the shape of a standing stone can vary considerably, and therefore it does not always show a specific 'face', unless*

it is found in a clearly defined situation, such as in a room or adjacent to a platform" (p.53). Actually, a standing stone with a carved "face" has not yet been seen anywhere in Jordan whether 'in a room' or 'adjacent to a platform'. The examples offered by the author are those excavated by Kirkbride at the site of the Rizqa/Aqaba region, dating back to the Neolithic period. In actual fact, the Rizqa carved standing stones were found in an open-air area (Kirkbride 1969a; 1969b). Nevertheless, the study of the distribution and typology (pp.53-58) offered by the author is well illustrated and highly informative. Standing stones built in rooms were first recognized at the Middle Pre-Pottery Neolithic B period at Shakarat al-Musay'id, followed by the Late Pre-Pottery Neolithic B cultic buildings at the site of 'Ayn Ghazal (Kafafi; forthcoming).

The second part of the book entitled "*How to use this guide*" (pp.61-117) is essential to this study as it discusses the major dolmen and standing stone fields in Jordan and also offers detailed information about locations, according to the Global Positioning System (GPS) (p.61) which is of tremendous help, especially in the absence of detailed maps of Jordan. Selected bibliographies, presented at the end of each discussion and at the end of the book, are of potentially great importance to researchers.

Without doubt, Gajus H. Scheltema, although a diplomat (Danish Ambassador to Jordan for four years, 2003-2007), and a non-expert in the field, has produced a compelling, in-depth, and highly professional presentation of the megalithic fields in Jordan. Having traveled the length and breadth of the country, the writer offers invaluable information and insight from the perspective of a foreigner who apart from his great fascination for megaliths also grew attached to its people and heritage. Certainly, this engrossing publication supported by superb photographs, deserves a special place on the bookshelves of anthropologists, archaeologists, historians, and even lay persons interested in the beauty and science of megalithic structures.

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Newly Published

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YASILEH **A CLASSICAL SITE IN** **NORTHERN JORDAN**

Author
Zeidoun al-Muhaisen

In this book, the author examines one of the classical archaeological sites discovered in northern Jordan in 1988 where six seasons of excavations were carried out under the supervision of the author between 1988 and 1997 by the Faculty of Archaeology and Anthropology, in cooperation with the Jordanian Department of Antiquities.

A comprehensive analysis of the archaeological remains and artifacts dating back to the Hellenistic, Roman, Byzantine, and early Islamic eras is presented. These remains are a strong testament to the importance of the Yasileh site and its capacity to attract successive human settlements, having been endowed with fertile soil that was highly suitable for agriculture. It is evident that the inhabitants of Yasileh grew grains, vegetables, and grapes, in addition to adopting cattle husbandry.



The book begins with a historical introduction about the site and its relationship with the economic coalition of the Ten Roman Cities (*Decapolis*). It also introduces the architectural remains of a site richly populated with various religious, residential, and other structures, such as the foundations of a structure dating back to the Hellenistic era which was used for administrative purposes.

The ancient water and irrigation systems at the Yasileh site such as wells, canals, and tunnels that provided the site with water for irrigation are also discussed along with other discoveries such as the grape and olive presses.

Other subjects described and analyzed in detail are the burials, classified according to their type, structure, and burial custom; and other remains such as human bones, pottery, glass, and numismatics.

Special attention has been given to the Byzantine church discovered at Yasileh and the various architectural techniques and structures of two Basilica churches are described and explained.

The book concludes with a descriptive cum analytical study of the floor mosaics and the techniques that produced them. A comparison is made to similar mosaics found in other churches in Bilad ash-Sham and Anatolia.

Summaries of the

Master Thesis Defended at the Faculty of Archaeology and Anthropology 2008

**Women's Quotas and Role in
Parliamentary and Municipal Elections
A Case Study of Bani Kinanah,
Irbid-Jordan**

Nisreen el-Hassan

Supervisor: Mohammed Shunnaq

This study aims to investigate the issue of women's quotas and role in municipal and

parliamentary elections from both anthropological and women's perspectives. Research was carried out in the Bani Kinanah directorate, Irbid, Jordan, where several candidates as well as members of the local community were interviewed to discuss the 'quota system' and the one-vote law. Opinions were sought on whether the system helps women achieve decision-making positions.

The study indicates that the system of women's quotas has both positive and negative outcomes. It has enabled women to occupy positions that were previously exclusive to men, and to actively participate in diverse areas of political development. Nonetheless, some discouraging facets are evident such as its perception as being not entirely fair or balanced and thus discriminatory against women. Also to be taken into account is that tribal bases rarely support a female candidate in her election campaign.

The study further demonstrates that there are different socio-cultural and legal obstacles responsible for impeding the participation of women in decision-making processes, and consequently their empowerment. One of the most prominent examples of socio-cultural restrictions is patriarchy, which considers women to be the weaker gender; while the quota system and one-vote law are obvious instances of legal handicaps.

The study has been divided into five chapters. The first chapter introduces the subject of the study, its importance, methodology, and hypothesis. It also provides a general description of the site chosen to conduct this type of research.

The second chapter examines the theoretical framework of the concepts discussed with emphasis on women's studies that deal with their political participation.

The third chapter discusses the ethnographic data collected through participant observations.

The fourth chapter analyzes the collected data in light of the theoretical frameworks used in this study and the fifth presents the main results along with some recommendations suggested by the research.

Dual Forms in Semitic Inscriptions

Dina Abu al-Haija

Supervisor: Hani Hayajneh

This research examines the dual form in the languages of Semitic inscriptions as it appears in different parts of speech such as nouns, adjectives, pronouns, numbers and verbs. The study was conducted by collecting necessary material for in-depth review and comparative analyses. The researcher used various resources, examining several special textbooks of the grammar of Semitic languages.

The research comprises an introduction, followed by four chapters and conclusions. The first chapter studies the modern classification of the family of Semitic languages according to research published in the last two decades. A historic background of Semitic languages is also given.

The second chapter concerns the philosophy of numbers pertaining to the singularity, duality and plurality in nouns, pronouns, and verbs. Attention is also paid to the role of dual numbers.

The third chapter studies the grammar of duality as it appears in the different parts of speech, and provides examples.

The fourth chapter deals with a comparative study of the grammar of dual nouns, pronouns, numbers, and verbs.

The conclusion explains the results of the study of duality and its history in Semitic languages.

The Impact of Domestic Workers on Family Social Structures in Irbid City

Ruba al-Akashah

Supervisor: Abd al-Hakeem al-Husban

This study takes as its point of reference the recent phenomenon of recruiting domestic foreign maids in Jordanian homes. The 2006 Ministry of Labor statistics indicate

employment of as many as 38808 foreign maids Jordan, and about 95 agencies licensed to recruit foreign workers.

We have attempted to explore this phenomenon, and identify its effects on family structures and social relationships within the local community. The issue addressed focuses on a number of questions based around two main themes:

First: Reasons cited by Jordanian families for recruiting foreign maids.

Second: The effect of recruited maids on social relations.

There was a need felt to further investigate this phenomenon from a social perspective in order to identify its precise nature and origins. The study was conducted in the city of Irbid, where the phenomenon of domestically recruiting foreign maids has become highly apparent.

Using the integrated anthropological methodology, the findings have been addressed over five chapters:

Chapter one comprises a literature review of related prior studies, a theoretical framework, and an examination of relevant facts from the resources reviewed. Basic concepts have been identified along with a historical background of recent developments and changes in the Jordanian community which gave rise to, and brought into the limelight, problems that form the bases of this study. Also presented are the methodology employed, data collection processes, and both field and theoretical difficulties faced by the researcher.

Chapter two and three are about the field work and an ethnographic description of the field under study, including interviews with Jordanian families to explore reasons behind recruiting live-in foreign maids. A description of social interrelations in the population, and changes that have occurred as a result of such recruitment has been presented.

Chapter four analyzes and explains the field data collected in light of the theoretical framework and prior studies reviewed.

Finally, chapter five offers the following conclusions:

First: Recruiting domestic foreign maids is a new phenomenon in Jordanian society greatly influenced and spread by globalization and modern developments.

Second: The phenomenon has brought about clearly perceivable changes within the social network and in particular, relationships both within the family unit and the community at large.

Third: Research suggests predictable changes and new patterns of relations.

Fourth: Modern practices and changing living patterns in the population under study that require recruitment of foreign maids.

Fifth: Effects of recruiting a foreign maid on language, religious beliefs and the economic situation of families.

Raw Material Used in the Roman Glass Industry Discovered from al-Yasileh, Sa'ad and Dohaleh Sites in Jordan A Comparative and Analytical Study

Fatimah al-Zuyut

**Supervisors: Zeidoun al-Muheisen
Ramadan Abd-Allah**

Research was conducted to study the chemical composition and raw materials in Roman glass discovered in the sites of al-Yasileh, Sa'ad and Dohaleh in northern Jordan.

Twelve elements were analyzed, since they represent the bases for studying the remaining raw materials in the glass, i.e. silicon, sodium, potassium, calcium, iron, magnesium, aluminum, manganese, copper, lead the cobalt. Chemical analysis of the samples was carried out by using the atomic absorption technique. Results for al-Yasileh samples were compared with those of the Sa'ad and Dohaleh sites.

The results of the chemical analysis indicated that al-Yasileh glass contains more

than 2% potassium and 3-4% magnesium. This means that the alkaline used is marine herbs and not Nadroon salt. Conversely, results for the samples from Dohaleh and Sa'ad indicate less than 2% potassium, which means the used alkaline in both sites is Nadroon salt and not herbs. It was deduced from these results that the glass may have been produced locally, but the raw material was probably imported from Egypt and Syria.

Ras ed-Deir Church

An Artistic, Analytical and Architectural Study

Haitham Obeidat

Supervisor: Zeidoun al-Muheisen

The present study addresses, from the artistic, analytical and architectural points of view, Ras ed-Deir Church that was excavated during the 6th excavation season of 2005 in the al-Badiya site. The study compares this church with churches I and II at al-Badiya, as well with the higher and lower Mar Elias churches. All these churches share the same basilique plan, decorative elements, and mosaic floors.

The Ras ed-Deir site is described, focusing on the church, and points out the architectural components of the convent, especially the building materials and mosaic floors. Decorative components are also discussed, particularly in the church, with special attention to the mosaic floors and their drawings. A part of the study is dedicated to the recently discovered inscriptions while another discusses the later forms of settlement in the convent.

The following conclusions have been reached:

- Churches and convents were built in the Ajloun region during the early Byzantine period.
- Churches of that period shared similar architectural systems, and most of them were

built after the basilique plan and showed similar decorative mosaics.

- Local building materials were used to construct these buildings.
- Byzantine sites were inhabited in the Islamic era from the Umayyad through the Ottoman periods.
- Most archeological Byzantine sites have been destroyed.

Nabataean Sculptures at Khirbet edh-Dharh: An Artistic Study

Ebtisam al-Yaseen

Supervisor: Zeidoun al-Muheisen

This study, consisting of four chapters, aims at presenting the main aspects and characteristics of Nabataean art in the Khirbet edh-Dharh sculptures.

Chapter One presents the main aspects of Nabataean art in general, including those found in sculpture, architecture, pottery and frescos.

Chapter Two focuses on Khirbet edh-Dharh by presenting basic information about the place and history of archaeological research at the site. A definition of the art of sculpture is also presented with an explanation on techniques as well as bases and elements of works of art.

Chapter Three classifies sculpture into four categories: mythological, human, animal and plant. Each of these four groups is analyzed separately.

Chapter Four offers a comparative study between remains of sculptures from Khirbet edh-Dharh with those found in similar sites, such as Petra and Khirbet et-Tannour, in order to identify common elements between them.

Conservation of Dyed Textile Artifacts in the Museum of Jordanian Heritage

Raghad Alfaisal

Supervisor: Omar Abd el-Kareem

Certain conservation methods were applied on three dyed flattened textile artifacts selected from the collection in the Museum of Jordanian Heritage, with the aim of creating a feasible model to conserve other textile artifacts in this and other museums in Jordan.

Initial investigations and analyses were carried out to identify the fibers and types of deterioration by using non-destructive methods. The results were used to propose treatment procedures that were applied to the objects. Investigation methods involved the use of a Transmitted Light Microscope (TLM) and Scanning Electron Microscope associated with EDAX (SEM - EDAX) to identify the fibers and various aspects of deterioration. Results showed the studied textile artifacts to be very dirty, with white spots, cavities, wrinkles, creases, and fiber damage. Such defects could have been caused by improper display methods, or incompatible environmental conditions that surround the artifacts, such as light, temperature, humidity, pollutants, and microorganisms.

The objects were cleaned using the wet cleaning method which was considered to be the best and safest means of improving the physical and mechanical properties of textile objects and maintaining their original condition. For exhibition and preservation purposes, these textile objects were stitched into a fabric and stretched on wooden frames.

Finally, and according to the needs of the museum, the objects were displayed temporarily inside showcases in a neat and attractive manner.

**Laboratory Evaluation of the
Compatibility of Portland Cement-Based
Mortar used in Restoration Process in the
North Theater, Jerash**

Mohammad M. Alazaizeh

Supervisor: Ziad al-Saad

This research aims at providing a scientific evaluation of the suitability of Portland cement-based mortars to be used in the restoration and reconstruction of archaeological and historical stone buildings. The north theatre in the archaeological city of Jerash was selected as a case study.

Samples from four types of limestone and three types of restoration mortars were collected from the theatre and then studied by X-ray powder diffraction and thin section analysis to determine their mineralogical composition and raw materials which were used in the restoration mortars. The results of the X-ray powder diffraction analysis indicated that only one of the three types of restoration mortars is Portland cement-based mortar. The cement/aggregates ratio of this restoration mortar was determined by using the point counting process.

Identical mortar was prepared in the laboratory to evaluate its compatibility by determining the following physical and mechanical properties: porosity, density, water uptake under atmospheric pressure and under vacuum, capillary water uptake, water vapor diffusion resistance, thermal dilatation and compressive strength.

The obtained results indicate that the studied mortar did not fulfill all the requirements of ideal restoration mortar. Although it is less dense, more porous and weaker than the stone, it does have some serious drawbacks. It does not match the original mortar in color, absorbs more water than the original limestone, and does not have the same thermal dilatation as the stone. Also, in the water vapor permeability test, results show that in wet conditions, the mortar is less permeable than SC and SD types of

limestone; and in dry conditions its permeability is lower than the SB type of stone.

In view of such serious drawbacks, this type of mortar is not recommended for use in restoration and reconstruction application.

**Comparison of Cleaning Methods of
Pottery Objects Excavated from the
Archaeological Sites of Hayyan al-
Mushref and Khirbet edh-Dharih, Jordan**

Sohad al-Howaidi

**Supervisors: Zeidoun al-Muheisen
Ramadan Abd-Allah**

For this study, different cleaning methods were applied to four pottery objects which had been excavated at the archaeological sites of Hayyan al-Mushref and Khirbet adh-Dharih, and are currently placed in the storage facilities of the Faculty of Archaeology and Anthropology. The goal of this experiment was to create a standard model for the conservation of pottery objects.

SEM was used to investigate the surface morphology of these objects and detect the morphological changes on their surfaces. XRD was used to determine their mineralogical composition, as well as the different kinds of dirt which had deposited on their surfaces.

The selected pottery objects were found to be very dirty and covered with dust, soil particles, soot, and salts efflorescence. These deposits could have been the result of improper storage conditions, or environmental conditions during burial, excavation, transportation, or display of the pottery objects.

Cleaning was done by using mechanical, wet, and chemical cleaning methods according to the type of dirt and the stability or durability of the objects.

Finally, the objects were gathered together and treated to ensure their safety while in storage or during display, and to protect them against different environmental conditions by using Paraloid B-72 with a 2% concentration of acetone.

The Impacts of Urbanization on the Cultural Landscape of the Jerash Archaeological Site

Saad al-Saad

Supervisor: Ziad al-Saad

The Jerash cultural landscape is rich in archaeological heritage and natural diversity with several highly significant elements including historical, aesthetic, symbolic, scientific, educational, economic, and religious aspects. It is located about 45 km north of Amman, is one of the most important archaeological landscapes in Jordan. Due to population growth and resulting urban development in the modern city of Jerash, many important monuments and traditional buildings are damaged or have disappeared completely. This study covers its total area which is approximately 2.5km², and one kilometer around it.

The principal aim of this research is to analyze changes in land use, and the root causes and impacts of modern urbanization which have so noticeably influenced the cultural landscape of the Jerash archaeological site between the period extending from 1953 to 2007.

GIS modeling was used to determine the most suitable locations for constructing new multifunctional buildings and an alternative to the Amman-Irbid road in order to protect the integrity of the archaeological site from the impacts of modern urbanization. GIS mapping was also used to produce an archaeological zoning plan by delineating buffer zones around the city wall and the antiquities areas. Such a plan, if adopted, would hopefully help to protect and enhance the visual appearance of the site.

The aerial photographs taken from time to time throughout the period of study (1953, 1978, 1992, 2000, and 2007) were manipulated by using GIS to generate land use maps of the study area. Their analysis shows that significant changes in land use have occurred. In 1953, the unused spaces are estimated to have been at about 65.8%, whereas the urban

development covered 3.1%. In 1978, the unused spaces decreased to half while the developed areas increased to about 24%. In 1992, the unused spaces decreased further to about 14.2%, while building development increased significantly to 40.2%. In 2000, the unused spaces around the site decreased even more sharply to about 2.3%, and areas affected by urban development increased conversely to 61.8%. After eight years, in 2008, the unused spaces around the site decreased gradually to about 1.4%, with areas of urbanization maintaining a constant of approximately 61.4% as in the year 2000.

These changes in land use and rapid urbanization caused by the development of different sectors had serious impacts, damaging and causing visual pollution to archaeological and traditional remains.

The main causes for such adverse changes are lack of adequate legislations to protect the cultural landscapes of archaeological sites, and poor coordination between the various public sector authorities and governmental departments that control the activities of modern urbanization inside the city wall and its surrounding area.

The land suitability model, referred to earlier, was used to find appropriate locations for the construction of multifunctional buildings and an alternative to the Amman-Irbid road. It aimed at reducing the detrimental impacts of urbanization by transferring administrative departments, government offices, and commercial and touristic activities from their current locations to multifunctional buildings outside the city wall and away from archaeological sites. Such a plan would oblige people to leave the walled-city area for the new multifunctional buildings and use the alternative road. The modeling exercise not only assisted researchers in extracting information which would otherwise have been considered either impossible or too expensive to measure, but also offered a viable option to a perilous scenario which threatens to worsen if not properly addressed.

**Evaluation of Previous Restoration
Works of Pottery Objects Excavated from
Khirbet adh-Darih and el-Badiye
Archaeological Sites in Jordan**

Salma Omar

Supervisor: Ramadan Abd-Allah

Pottery is one of the main and most common types of archaeological remains found in archaeological excavations. Having been one of the commonest materials used in ancient times it is easily available, and hence an important element in any study of the past.

Faulty or incompatible conservation and restoration work carried out by inexperienced conservators is a serious problem affecting the proper preservation of pottery objects. A natural result is the acceleration of their decay and damage. Most conservation work is carried out without a proper scientific approach, and the problem is exacerbated by lack of knowledge about appropriate materials and methods.

The main objective of this thesis is to evaluate previous restoration works and the compatibility of materials and methods used for pottery conservation in Jordan. Another aim is to formulate a scientific approach for preserving and conserving pottery objects by addressing causes of deterioration that threaten ancient pottery and diminish its value.

Pottery objects that had been excavated from the Khirbet adh-Darih and al-Badiye sites were selected, for study and evaluation, from the storage facility of the Faculty of Archeology and Anthropology. The selection was made in accordance with specific criteria, such as their historical and aesthetic value, clearly visible signs of deterioration that needed treatment, damage due to faulty restoration work, and finally pottery suitable for the application of appropriate conservation and restoration techniques.

The objects were subjected to an initial examination to evaluate their state and

determine the main conservation processes that needed to be carried out. Then, the following processes were performed: undoing previous restoration, cleaning, preparation of a new adhesive, bonding, gap filling and retouching, consolidation and coating. These processes were carried out by applying the most up-to-date scientific methods and international standards of conservation.

**Documentation and Presentation of
Heritage Buildings in Liwa' Bani Oubeid**

Ranea Qaddhat

Supervisor: Mohammed Shunnaq

This study was conducted with a dual aim. The first was to document the heritage buildings in Liwa' Bani Oubied, (Edoun, al-Huson, and al-Sarih) by surveying and conducting in-depth examinations of structures especially selected on the basis of their locations on the map of Bani Oubeid. The second was to review the laws pertaining to the protection and documentation of cultural heritage in Jordan.

The study focuses on three heritage buildings in Liwa' Bani Oubied chosen for their historical, religious, architectural and artistic significance. They were documented with geometric plans (top and side elevation plans) of the roofs, floors, sections, doors, and windows.

The methodology of this study depended on using AutoCAD 2007, 3ds Max, and GIS (Geographic Information Systems), to create three dimensional images. A data-base which could prove to be useful to other cities and towns in the Kingdom was created, supported by plans, photos and other useful information such as the documentation of raw materials used in building. All information relating to the 168 surveyed heritage buildings was entered into this database, along with descriptive and photographic documentation including aerial photographs.

The study concluded that Jordanian laws for the protection of cultural heritage need more stringent enforcement and implementation. Al-Huson was found to have the most number of heritage buildings still in use, in comparison with Edoun and al-Sarih. Recommendations for more effective documentation of cultural heritage sites and buildings are presented at the end of this study.

**Nomadic Societies in the Levant during
the Late Bronze Age
(1550-1200 BC)**

Najd Mazahreh

Supervisor: Zeidan Kafafi

This research deals with the historical and archeological aspects of nomadic and pastoral societies in the Levant during the Late Bronze Age. Its purpose is to shed light on the roles of these groups during this period of history. Historical resources and archaeological reports, as well as several other studies that deal with the Shasu, Habiru, Ammorites, Aramaeans and the Midianites were used for the study.

The first chapter defines and provides a general description of nomadic and pastoral life with an introduction to the survival strategies (living resources), social and economic aspects, as well and vocational development of these societies.

The geography of the Levant and the natural area where these groups appeared are discussed in the second chapter. It is clear that environmental diversity produced a variety of cultures, and climate patterns affected settlement patterns. Some scholars claim that in fact climate was the factor that determined the choice between establishing permanent settlements and adopting a nomadic way of life.

The third chapter addresses the patterns of settlement in the Levant during the Late Bronze Age and discusses the factors that contributed to forming these patterns, i.e., social, political and economic. It also sheds light on the archaeological evidence gathered through the diggings and surveys in this area.

In the fourth chapter the writer reviews historical sources that mention these nomadic groups. These sources include the Bible, and the Egyptian, Babylonian, and Assyrian texts. The Tell al-Amarnah letters are of special importance since they reflect the points of view and divided loyalties of the rulers of the city-states of Southern Levant, in addition to providing details about the social structure of the times.

Finally, the fifth chapter deals with individual nomadic and pastoral groups mentioned in historical texts, such as the Habiru, Shasu, Ammorites, Arameans, Ahlamu and Midianites.