NEWSLETTER

VOL. 30 / 2010

Publications Office
Faculty of Archaeology and Anthropology
Yarmouk University
Irbid-Jordan
Postal Code: 211-63

E-mail: archpubl@yu.edu.jo

Print: National Press - Amman

ISSN 1021-5174

EDITORIAL

This issue of the *Newsletter* contains – in addition to excavation reports and summaries of MA theses – several Arabic essays on the topic of cultural heritage and its preservation. Just as it was ready to go to print however, Israel added the Ibrahimi Mosque in Hebron and Bilal bin Rabah mosque in Bethlehem to the list of Jewish cultural heritage sites, although both buildings are considered important landmarks on the rich canvas of Arab and Islamic heritage.

Such an incident represents only a single, recent, episode in a long series of such practices against symbols of Arab and Muslim heritage that came under occupation after the 1967 war. Thus, the current issue includes some articles, in Arabic, that discuss the role of international organizations in protecting national heritage under occupation, and the use and abuse of cultural heritage for political reasons.

Special features in this issue are the remarkable contributions by colleagues from other institutions, including the late Khaled Nashef of the Jordanian Department of Antiquities, Moawiyah Ibrahim, Jordan representative in the Jordanian World Heritage Committee, Mahmoud Abd al-Aziz of Al al-Bayt University, and Yaser Abu-Nuqta of the Syrian Department of Antiquities.

A happy after-effect of the establishment of the Publications Office at the Faculty of Archaeology and Anthropology two years ago was that it revived the exchange of publications between institutions and individuals. We are pleased to report that after the publication of just 2 newsletters and 7 monographs in the last two years, our library received over three hundred publications from all over the world. Such a positive response has been quite overwhelming, and we wish to thank all our partners for their generosity and interest. It has only encouraged us to redouble our effort to continue producing and delivering outstanding, quality, publications devoted to the cultural heritage of Jordan and the Arab and Islamic world.

Editor In-Chief

Prof. Dr. Zeidan Kafafi

Results of the 2009 Season of Excavations at Tall Deir 'Alla and Tall al-Hammeh, Jordan Valley

Zeidan Kafafi
Gerrit van der Kooij

The Jordanian-Dutch archaeological expedition at the sites Tall Deir 'Alla and Tall al-Hammeh in the Jordan Valley concluded the 2009 season of excavations on Thursday June 25th. On this occasion, their Excellencies, Prof. Dr. Sultan Abu Orabi, President of Yarmouk University

(YU), Mrs. Joanna van Vliet, the Dutch Ambassador to Jordan and Mr. Mohammad Akhtar Tufail, the Pakistani Ambassador to Jordan visited both sites on Friday, June 26th. They were received by the co-directors of the project, Professors Gerrit van der Kooij, Leiden University, and Zeidan Kafafi, Yarmouk University.

The archaeological fieldwork at the two sites was jointly conducted on the Jordanian side by a team from Yarmouk University and the Department of Antiquities, and Leiden University (LU) from the Dutch side. In addition to students from both universities, other technicians and staff were involved in the digging operations. Citizens of the local community belonging to the towns and villages of Deir 'Alla, Abu ez-Zeighan, Dirar and Khizma were part of the fieldwork.

Excavations at Deir 'Alla, and Tall al-Hammeh, Middle Jordan Valley, took place from May 17 to June 25, 2009. During the six weeks 50-60 workers, technicians and camp personnel of the local communities were employed.

This excavation season was the 6th in series re-started in 1994, and concentrated on the Late Bronze Age remains on the southern slope of the site. Some excavations also took place at the top, in Iron Age II and III periods, with findings complementing existing data.

1. *Introduction: Background and History of the Project*

Excavations at Deir 'Alla, with some soundings in the neighbourhood, started in 1960 directed by Henk Franken of LU. The programme concentrated on the Late Bronze Age and Iron I period, and stopped after four seasons in 1967. Franken's final publications about both periods appeared.

Work was resumed in 1976 as a joint expedition with the DoA and Moawiyah Ibrahim as co-director from 1980, representing the recently set-up YU. Gerrit van der Kooij became co-director in 1979. The three parties established the Deir 'Alla Station for Archaeological Studies in 1982 consisting of a dig-house, field school, and a 'first-aid' centre which served as a main storage facility for Deir 'Alla objects as well as an exhibition room where the public could view the archaeological results.

Six seasons of work took place until 1987, concentrating on the Iron Age II and III periods at the top of the site. Preliminary reports of all seasons appeared, as well as a major summary and intermediate report of new results, together with an extensive exhibition in Leiden in 1989.

The third and current series of excavation seasons started in 1994, with Zeidan Kafafi as the new co-director since 1996. Work has concentrated on three aspects, namely finalisation of the exploration of Iron Age phases, further excavation of MB-LB strata at parts of the site outside the N-slope, especially the SSW-slope and foot, and some regional elements. The regional elements had a rescue and heritage-management aim, but were also triggered by the research questions and strategy. Within this framework some work was done on the nearby Tall al-Hammeh (1996, 1997, and 2000) with the unexpected iron production remains, and minor work was done elsewhere including damage assessment of some sites.

The Deir 'Alla results demanded (for adequate interpretation) a research-branch of intensive surveying of the neighbourhood (area of the 'Zerqa-triangle' between Wadi Rajib, Zerqa and Jordan rivers with work mainly carried out by Eva Kaptijn), and site-probing (conducted primarily by Lucas Petit). This was a major part of the largely externally financed *Settling the Steppe*-project, which took place from 2004-2007, with several monographs soon to be published as end-results. Furthermore the iron production data from Tall al-Hammeh were studied (at an earlier stage by Alexander Veldhuijzen, with Yoshua al-Amri) making additional studies necessary and jointly labelled *The Iron Track of Jordan* project – one of the two foci of this season's proposed work.

2. *Fieldwork of 2009*

This season's fieldwork concerned mainly two sites: (A) Tall Deir 'Alla and (B) Tall al-Hammeh. Two geophysical techniques have been used on Tall al-Hammeh and also on survey field no. 81 (C).

Iron Age water drainage channel in the 6th century BC village at Tall Deir 'Alla

Pottery sherds on a courtyard surface from the final stages of the Late Bronze Age, Tall Deir 'Alla

A clay object with unclear use from the floor of the large LB-building at Tall Deir 'Alla

A. *Tall Deir 'Alla*

Since the start of the new series of excavations in 1994 six seasons of fieldwork took place, the latest being 2009, with an additional study season in Spring 2007, including the preparation of three large pull-offs from the site, for exhibition in The Jordan Museum in Amman. This season's work is oriented towards partially finalising the excavations of Tall Deir 'Alla by the joint expedition. However, some additional work will be added in 2010 or in due course.

This fieldwork is in fact a follow-up to that of the 2004 season, on a smaller scale and has reached the following results:

1. Digging in Square D/A6 offered more understanding of the stratigraphical sequence of the Iron Age II and III deposits. With these new data the final publication of Iron Age II and III use of space will be prepared.

2. On the southern slope, Area C/Squares J4-J6, the final phase of the Late Bronze Age and the beginning of the Iron Age periods exhibited in the large building uncovered during the last seasons, has been cleared.

B. *Tall al-Hammeh*

(2.2 km East of Deir 'Alla)

Based on the unexpected results of previous work conducted by the joint expedition at Tall al-Hammeh (in 1996, 1997 and especially during the 2000 season), a specific project (*The Iron Track of Jordan*) has been designed and adopted as pilot research within the cooperation between LU and TU-Delft, labelled as CAAS. It is being conducted jointly with YU and DoA, as a branch of the Deir 'Alla project. The *Iron Track* project consists of three main components: remote sensing, excavation, and study of materials (including archaeometry) - all framed within archaeological research questions. The first part of the remote sensing step concerning the interpretation of multi-band satellite images for which fieldwork took place in spring 2007, has already concluded. The second part of remote sensing concerning ground penetrating radar and magnetometry on the site of Tall al-Hammeh took place during the first week of this season.

The 2009 season excavation goals set forth in the proposal submitted to the Jordanian Department of Antiquities have been achieved. The goals were as follows:

A pile of debris from an iron production smelting furnace in Tall al-Hammeh, around 900 BC

Firstly, to make a stratigraphic examination of archaeological evidence for more ca. 900 BC iron production workshops and investigate the possibility of their connection to domestic use of the site.

Secondly, to search for other periods of iron production on the site - especially older ones - in order to get as close as possible to the origins of iron smelting technology, considered to have started around 1200 BC? The two geophysical techniques were applied to most slopes of the site. Ultimately, only few archaeological data pointing to the 10th century BC were recognizable.

A group of pottery from the 9th century BC, as stored in a house at Tall al-Hammeh

Acknowledgments

The archaeological expedition would like to thank the following institutions and individuals for their kind cooperation and assistance:
- The Department of Antiquities of Jordan, represented by His Excellency Dr. Fawwaz al-Khraysheh.
- Yarmouk University, represented by His Excellency Prof. Dr. Sultan Abu Orabi.
- Yarmouk University, Deanship of Graduate Studies and Research, represented by Prof. Dr. Sami Mahmood.
- The Netherlands Embassy in Jordan.
- The University of Leiden, Faculty of Archaeology, represented by Prof. Dr. Willem Willems.
- Governorate of Deir 'Alla Region.
- Municipality of Deir 'Alla.
- Local community of al-Aghwar al-Wusta.

Second Season of Excavations at Barsinia, 2007

Lamia El-Khouri

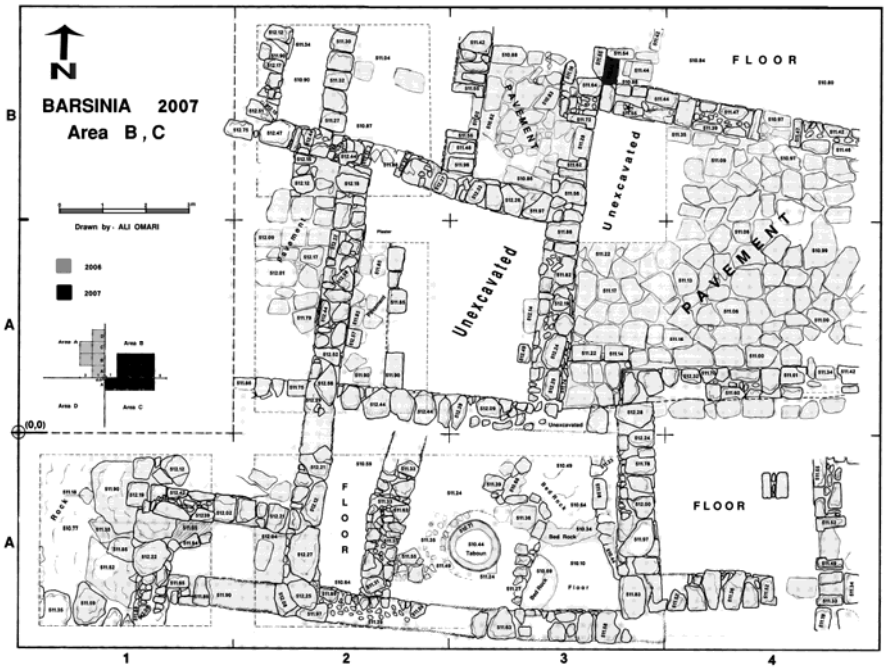
Barsina is located in the northwestern part of Jordan, 15 km west of the city of Irbid, 2 km east of Deir es-Se'neh village. The second season of excavation at this site was conducted as part of the training course of field archaeology at the Department of Archaeology, Yarmouk University, from June 17th to August 2nd, 2007. This joint project between Yarmouk University and the Jordanian Department of Antiquities was directed by Lamia el-Khouri and the late Mohammed Hatamleh. The supporting staff consisted of Wajih Karasneh, representative of the Department of Antiquities; Maher Tarboush, Muhammad Jaradat, the late Nabil al-Qadi, archaeologists and area supervisors; Ali Al-Omari, draftsperson; Yousef Al-Zoubi, photographer, and both BA and MA students of archaeology courses Arch. 310 and Arch. 610.

The prime objective of this season of excavation was to try to get a sense, and extent, of the larger complex that had been found during the 2006 season. This objective required laying out excavation squares east of the structure excavated in 2006, following the alignment of the uncovered stone walls.

Architectural Remains

This season of excavation took place in the central part of the site. Ten 5x5 meter squares (B-B2, B-B3, B-B4, B-A2, B-A3, B-A4, C-A1, C-A2, C-A3 and C-A4) were excavated in two areas B and C. Architectural remains consisting of a number of rooms were uncovered. Some walls showed that the whole complex continued further in all directions which meant the whole structure extended over a larger area.

The top edges of some walls were clearly visible even before excavating. Some walls were removed during illegal diggings down to the lowest one or two courses. The walls were constructed with (reused) earlier blocks and the spaces between had been filled with rubble and debris. These earlier blocks



Plan of the Area B and C

seemed to have originally belonged to significant structures of the Roman-Byzantine period, perhaps a temple or a church. Among the noteworthy items were two decorated lime stones with a carved cross in the middle, a small marble column, marble fragments of a slab mostly belonging to the furniture of a church (perhaps a chancel screen post), and a large number of mostly white, pink and black tesserae, the majority of which were lime-stones and some, white marble. Also noticeable were large numbers of terracotta roof tiles, both tegulae and imbrices. Traces of plaster covering parts of wall (Locus 001) in square B-A2 indicated that the walls had been encrusted with a thick coat of plaster.

An inspection of the flooring revealed that most floors were paved with uneven stone slabs. At least three of the uncovered rooms were furnished with hearths (*taboons*), the largest and oldest of which was located in square C-A3, about 1.00 m in diameter and 1.00 m deep. Four other fireplace installations in fragmentary form, two in square B-A3, one in square C-A4 and one in square B-A2, were also uncovered. They apparently belonged to the later phases of occupation, as they appeared on the upper layers of the squares, leaving ashy deposits and fragments of charcoal on the outer edges of the installation. The *taboons* in square B-A3, however, were more intact than the others in squares C-A4 and B-A2. The presence of so many hearths is evidence that large-scale cooking processes took place here, and this assumption is especially reinforced by the discovery of a fair amount of fragile animal bones and sherds of cooking pots, dating mainly to the Late-Byzantine and Umayyad periods.

Taboon

One of the pavement floors in Barsinia

The rooms defined by the walls in these squares were all paved with uneven slabs of lime and flintstones. The pavements however, were only partially preserved in some rooms. Also noteworthy was the existence of tesserae in almost every locus - evidence of destroyed mosaic floors in some rooms. Most of the walls were deep and much lower than the pavements and great changes had been made to the uppermost levels of the walls. The pavement floors go back to the same period as the doorways. The pavement floors in the western part of the excavated area reached a higher level than the eastern part. For example, the pavement in squares B-A2 and C-A1 reached a level of about 512.00 m. and ran at the top of some walls, especially in square C-A1. In this square, which is located at the highest point of the site, the bedrock was at a height of 510.77 m. In the eastern part of the excavated area the pavement was about 1 meter lower than the western part, reaching a level of about 511.00 m. in squares B-A4 and B-B4.

As expected, most of the pottery found on the paved floors consisted of late-Byzantine and Umayyad jars and cooking pots. The lower phase beneath the paved floors could be dated probably prior to the late-Byzantine period. However, none of these floors were removed or excavated. Evidence from the previous season of excavation in 2006, found in the layers underneath the paved floors showed that the excavated architectural remains were built over older structures. Verifying this assumption and bringing to light the phases beneath is a high priority target for our next excavation season.

Hellenistic pottery lamp

Roman pottery lamp

It seems clear, through the archaeological materials collected, especially pottery sherds, that the excavated structure was used over a long period of time. Interpreting the phases of occupation has naturally involved much hard work. Results of the 2006 season of excavation were helpful in defining the phases of this structure, because the excavation in that season went deep, reaching the earlier phases, which was not the case during this season. Such "vertical exposures" that reveal different layers, floors, and periods during which walls were built, abandoned, and destroyed are important to archaeologists for understanding the history of the site.

To summarize, evidence of the stone walls of the whole structure having been rebuilt offers evidence of a later occupation phase. The structure was most definitely affected by the earthquake of AD 749 before being rebuilt and used thereafter. The most modern pottery sherds found at the excavated squares were dated to the Abbasid period. The earliest however were dated to the Late-Byzantine, except for a few sherds from the Early-Byzantine, and individual pieces from the Roman periods, as well as two intact Hellenistic (2^{nd} - 1^{st} BC) and Roman (1^{st} - 2^{nd} AD) pottery lamps.

COINAGE DEBASEMENT UNDER ṢALĀḤ AD-DĪN AL-AYYŪBĪ

Salih Sari

The debasement of coinage during the time of Ṣalāḥ ad-Dīn, who founded the Ayyubid Dynasty in Egypt, was part and parcel of the deteriorated situation prevailing in the Arab Muslim world around the middle of the twelfth century. The Arab polity was dilapidated, authority having been distributed among several local sects and various Islamic groups, each watching and waiting for opportunities to undercut the others. Political and military anarchy prevailed everywhere and Šiʿīte-Sunnite confusion was the order of the day in both Egypt and Syria.

Ṣalāḥ ad-Dīn was able to overthrow the Fatimid caliph on 17 September 1171 (567 AH) when he ordered that the *ḫuṭba* be given in the name of the Sunnite Abbāsid caliph al-Mustaḍīʾ. This religious and political revolution took place without a sign of opposition or bloodshed. Ṣalāḥ ad-Dīn thus ended the Šiʿīte Fatimid dynasty, which had been the greatest Islamic power on the shores of Mediterranean for two and a half centuries, and he thereby restored Egypt to the orbit of Sunni Islam.

Gold

At the time Ṣalāḥ ad-Dīn overthrew the Fatimid caliphate, he began issuing gold coins on which were inscribed the name of al-Mustaḍīʾ and the name of Ṣalāḥ ad-Dīn's master, Nūr ad-Dīn Maḥmūd ibn Zankī, the lord of Aleppo. After the death of al-Mustaḍīʾ in 575 AH/AD 1179, a new series of *dīnārs* appeared with the name of the new caliph, an-Nāṣir, engraved in the center of the reverse, and the name of Ṣalāḥ ad-Dīn in the inner circle on both sides.

In times of tremendous instability people tend to hoard gold in expectation of better times to come. The time of Ṣalāḥ ad-Dīn was such a period when gold was very scarce, as al-Maqrīzī indicated in this report:

> *In the year 567 AH/ AD 1171 a calamity overcame Egypt, because gold and silver left and never returned. The scarcity was so acute that to speak of a red [i.e. gold] dīnār was like mentioning a spouse's name before a jealous husband, while to get such a dīnār in one's hands was like getting the keys of paradise.*

This observation reflects the economic and political developments of the time when the gold mines in Wādī al-ʿAlāqī in the eastern desert of Egypt were no longer under the government's control. The export of Egyptian industrial products had been severely curtailed under the later Fatimids. The Crusaders were active in smuggling out gold coinage into Europe. Industrial centers were recurrently raided by the Crusaders, who were able to capture the Syrian ports, cut off Egyptian trade routes from the east, and control the Mediterranean Sea trade.

Further, the succession of wars Ṣalāḥ ad-Dīn was involved in against both the Crusaders and the local states which were created amid the ruins of the Fatimid empire must have undermined the bases of the state treasury. The army spent the sums drawn from the tax base in Egypt for the purchase of food, fodder, arms and war machinery in Syria and Iraq, a pattern of spending made more problematic by Ṣalāḥ ad-Dīn's tremendous expenditures aimed at building up his navy. All these developments, whether inherited by Ṣalāḥ ad-Dīn from his predecessors or created by him, explain the massive withdrawal of gold coins from circulation in the markets. As a result, silver *dirhams* (referred to later in the article) came to dominate the marketplaces, to the extent that the Ayyubid era was said to be the period of the *dirham* rather than of gold. The debasement of gold coinage under Ṣalāḥ ad-Dīn thus illustrates and conforms to the well-known economic Law of Gresham: "Bad coinage drives out good coinage".

The specific dimensions of this debasement can be studied thanks to Ehrenkreutz's investigations, based on the analysis of the specific gravities of Fatimid and Ayyubid *dīnārs*. His studies revealed that the gold *dīnārs* struck under Ṣalāḥ ad-Dīn were debased in terms of the standard of fineness and that they vary - notably in weight. Many specimens were underweight and consequently the gold coins, although they continued to bear the denomination *dīnār*, could not be traded by tale but only by weight. Since the coins minted under Ṣalāḥ ad-Dīn contained a lower percentage of pure gold, the debasement must have affected the economy even more during the initial period of Ayyubid rule rather than during the later Fatimid period.

As far as the various types of gold coinage circulating in Egypt under the Ayyubids are concerned, we are well informed, thanks to Manṣūr ibn Barʿa's manual, *Kašf al-ʾAsrār al-ʿIlmiyya bi Dār aḍ-Ḍarb al-Miṣriyya*, especially chapter two. The chapter has been well edited and translated by Ehrenkreutz, whose version I will quote, at some length because of the importance of the source.

The contents of this chapter are arranged in the following pattern:

1. Types of gold coins.
2. Loss suffered by 100 *miṯqāls* of this gold in the refining process aimed at the adjustment of its alloy to the official standard of Egyptian gold coinage.
3. Tax imposed by the state, the costs of production and the salaries of the minters, the total of which amounted to 5 *miṯqāls* or 5%.
4. The exchange value of the type of gold coinage against the *waraq dirhams* [see below], based on the exchange rate between the Egyptian gold coinage and the *waraq dirhams*, which stood at 1:40. For an easier understanding of this chapter it was thought advisable to reproduce its substance in a tabulated form.

Thus under the fiscal administration of Ṣalāḥ ad-Dīn the standards of weight and fineness were largely abandoned for gold coins. However, the same situation did not necessarily prevail under his successors. Again we must turn to the researches of Ehrenkreutz, who tested the fineness of eighteen *dīnārs* issued by al-Kāmil, who came to power a quarter century after Ṣalāḥ ad-Dīn's death. The specific gravity method revealed that only four of the *dīnārs* displayed a standard inferior to 95% purity of alloy; the other *dīnārs* had between 96.29% and 98.33% purity. The high quality of the *dīnārs* struck by Ṣalāḥ ad-Dīn's immediate successors can be attributed to the economic growth and internal security in Egypt, developments for which Ṣalāḥ ad-Dīn had laid the foundations.

Silver

As gold was withdrawn from the markets and silver took its place, new forms of the silver coinage were introduced into Egypt a few years after Ṣalāḥ ad-Dīn's accession to the throne. At the time, there were several types of *dirhams* in use.

Type of Gold	Loss	Tax	Remains	Exchange
Yaʿqūbī (gold)	very pure			
Sūriyya (*dīnārs*)	2.50%	5%	92.50%	1:37
Dimišqī (gold)	5%	5%	90%	1:36
Muẓaffariyya (*dīnārs*)	11%	5%	84%	1:33
Murābiṭiyya (*dīnārs*)	15%	5%	80%	1:32
ʾAtābikiyya (*dīnārs*)	15%	5%	80%	1:32
Duqiyya (*dīnārs*)	30%	5%	65%	1:26
Ṭūriyya (*dīnārs*)	35%	5%	60%	1:24

Black *dirhams*, also called *waraq dirhams* or *Miṣrī dirhams*, were rough and uneven small rectangles or squares. Ṣalāḥ ad-Dīn inherited this type of coinage and continued to mint it, as did his successors. Even al-Kāmil issued coins of this type, at least until the allegedly broad reform of 622 AH/AD 1225. These coins were called *Miṣrī dirhams* because they were minted for the use of the internal Egyptian market as they met the needs of the local retail trade. The alloy was 30% silver and 70% copper; the exchange rate against gold coinage was 40:1. For the sake of comparison, we may note that the exchange rate of pure silver to pure gold was at 13.67% to 1.

The proper application of the term *Nāṣirī dirham* is not entirely undisputed. Al-Maqrīzī used the term for all normal-sized, round-flan *dirhams*, including those issued after Ṣalāḥ ad-Dīn's death. This is misleading. The term *Nāṣirī* should be applied only to Ṣalāḥ ad-Dīn's *dirhams* and not to those struck by al-ʿĀdil or even by aṣ-Ṣāliḥ Ayyūb. The exchange value of the *Nāṣirī dirham* was 26.67% to 1 unit of gold coinage.

The *Nāṣirī dirham* was debased; its alloy involved 50% silver and 50% copper. Its extrinsic value was higher than its intrinsic value. The people, realizing the makeup of such coins, referred to them as *ziyūf* 'debased.' This disesteem led al-Kāmil to abolish the coin and replace it with a new type of *dirham* called *al-Kāmiliyya* after him, in 622 AH.

The high-grade silver coins were the *Nuqra dirhams*. These were the official currency serving as the base of all large-scale calculations and financial operations, as well as the *ḫarāǧ*. They were struck with pure silver in an alloy consisting of 2/3 silver and 1/3 copper. Their exchange rate was 13.50% to 1 unit of gold coinage.

The most controversial *dirham* was the kind called *al-Kāmiliyya or mustadīra* 'circular'. Al-Maqrīzī reports that in the month of *Ḏu al-Qiʿdah* in the year 622 AH/AD 1225, Sultan al-Kāmil introduced a new type of *dirham* to replace the *Nāṣirī*, or *waraq dirhams*, made of an alloy that was 2/3 silver and 1/3 copper. These coins continued in circulation until the end of the Ayyubid rule in Egypt.

Dār al-Ḍarb

Under the Fatimids there were a number of mints operating in Egypt, al-Fusṭāṭ, Cairo, Alexandria, al-Fayyum, and Qus. This was a situation that Ṣalāḥ ad-Dīn was out to change. The main minting centers under the Ayyubids were Cairo and Alexandria, according to Ibn Māmātī (d. 606 AH), who was still alive during the period under discussion. Al-Maqrīzī reports that Alexandria and *Miṣr* were the minting centers. By *Miṣr* he may be referring to the old capital of Egypt, which Ṣalāḥ ad-Dīn revived and used as a center for minting coins dated to 573 AH, as did his successor al-Kāmil in 623 and 624 AH. The term *Miṣr* can hardly refer to the new capital Cairo, which replaced Miṣr al-Qadīma/al-Fusṭāṭ, after its founding by al-Muʿizz, the Fatimid Caliph, in 359 AH/AD 969.

Cairo and Alexandria produced *dīnārs* and *dirhams* under Ṣalāḥ ad-Dīn, al-ʿĀdil I, al-Kāmil I, al-ʿĀdil II, and aṣ-Ṣāliḥ Ayyūb. The coins were inscribed with Kufic script until al-Kāmil changed the script to *Nasḫ*. It is noteworthy that the mints at Cairo and Alexandria produced only gold and silver coins except a unique *fals* similar in shape to the black *dirham* type. There is controversy between Arab chroniclers and modern scholars with regard to the *fals*. The former state that copper was used, claiming that al-Kāmil ordered copper coins struck in Cairo in 622 AH. Some scholars, most recently Balog, disagree stating that there are no *Kāmilī* copper coins with the Cairo mint name, though there do exist copper coins, undated and without mint specification, which could be the copper coins mentioned by the chroniclers. This problematic issue can hardly be judged conclusively in the absence of firm numismatic evidence and constitutes a puzzling historical phenomenon.

The Function of the Mint

The mint was an indispensable institution which played a remarkable economic role, similar in scope and effect to that played by banks today. Its primary function was to supply coins for the needs of the government and the general public.

It also served as a place where debased coinage could be exchanged for new issues. More importantly, it sought to maintain stability between supply and demand in order to inhibit inflation and avoid financial problems. Metal bullion was also stored in the mint, making it an ancillary treasury.

Note

1- The most common method of determining the purity of a coin, particularly a gold coin, is to compare its specific gravity with that of a standard. The specific gravity of pure gold is 19.30. The specific gravity test involves this: the coin is weighed accurately in air, and then it is weighed with a fine wire in distilled water at about 25° C. The weight of the coin in water minus the weight of the wire will give the weight of the coin alone. The weight in air minus the weight in water divided into the weight in air gives the specific gravity.

Summaries of the

Master Thesis

Defended at the Faculty of Archaeology and Anthropology

2009

The Umayyad Mosque at Tall El- Husun, Architectural and Analytical Study

Tamara Al-Nahar
Supervisor: Zeidoun Al-Muheisen

Tall Al-Husun is located on the right side of the highway between Irbid and Amman, about 8 km from Irbid. The first season of excavations at the tall took place in the summer of 2008.

The methodology of this thesis is three fold: The historical method, used to determine the historical sequence and succession of the tall; the descriptive analytical method, which used photos, plans and drawings of the field to study and describe the case; and last a study of parallel examples from other excavation reports to shed more light on the architectural analysis.

The descriptive classification method studies pottery shreds taken from different layers during the excavation in the mosque area. Ware, shape, surface treatment and technique of production are dealt with for each sherd, and parallel examples are examined in order to better understand and analyze the history and date of our objects. Each sherd has been drawn and photographed to scale.

The thesis comprises an introduction, three chapters, conclusions, and recommendations. The introduction sets out the importance, goals, methods of the study, and a review of previous studies.

Chapter One discusses the name of Tall Al-Husun, the local environment, the geological significance and previous historical and archaeological studies.

Chapter Two defines the architectural elements of the mosque and gives a detailed

study of each element, including architectural analysis and parallel examples.

Chapter Three represents the descriptive classification and analytical study of the pottery shreds collected from different layers of the mosque area.

After comparing this church with the churches mentioned above, the researcher concluded that they share a remarkable similarity in terms of the pavements. This observation led the researcher to date the church of Hofa al-Wastiyah to the sixth century AD, though a previous excavation, carried out by Ruba Abu Daloo dated it back to the late fifth century AD.

Hofa Church
An Artistic and Architectural Study

Mohammed Al-Azzam
Supervisor: Zeidoun Al-Muheisen

This study examines the artistic and architectural elements of the church of Hofa al-Wastiyah, which is located to the south-west of the Irbid governorate. It is compared with four other churches of archaeological importance, located on various sites in the northern part of Jordan, Khalda church, al-Yasileh church, and the First and Second Qam churches.

Hofa Church was built in accordance with the Basilica style, consisting of three aisles and two apses located at the end of the northern and middle aisle. However, no traces of an apse are to be found at the end of the southern aisle. A long paved courtyard is located in front of the church and inside the yard a cemetery and a storage basin have also been discovered. Apparently, dressed stones, cut from the adjacent quarries, were used for construction.

The apses of the church are characteristically equal in diameter and may be considered one of the main, and most distinctive, features of the church under discussion. This feature is a unique facet of basilican architecture, and a similar style is found in the Khalda church.

The church of Hofa al-Wastiyah contained beautiful mosaic pavements, some of which suffered disfigurement. The pavements included geometric, floral, and animal representations, in addition to Greek inscriptions and some religious symbols.

Classical Pottery from Tell al-Husn Site, Season 2008
An Analytical Study

Anwar Al-Fandi
Supervisor: Zeidoun Al-Muheisen

This study sheds light on the classical pottery uncovered at the Tall Al-Husun site during season 2008. The results of work during this season provided evidence of settlements at the tall from beginning from the Bronze Age, and continuing on to the Iron, Hellenistic, Roman, Byzantine and Islamic periods.

The study was based on a combination of typological and analytical approaches. In the typological study, the pottery was categorized into different groups, according to function, and documented with photographs and drawings on a scale of 1:1. They were then studied in terms of form, clay color, and surface treatment. This was followed by a comparative study of these samples and similar samples from other archaeological sites of the same period.

In the analytical study, two techniques were used to examine samples. Petrographic analysis was conducted to determine the materials in the pottery clay and whether they were present naturally or had been manually added. This was done by examining thin sections of pottery under the polarizing microscope. X- Ray Diffraction was used to recognize the primary materials of the clay that the pottery was made of.

Results were then compared with the clay from Tall Al-Husun to determine whether the pottery was local or imported.

The study consists of an introduction, four chapters, conclusions, and recommendations.

The introduction elaborates on the importance, purpose, and methodology of the study, and also presents a survey of previous studies.

The first chapter investigates the Tall Al-Husun site in terms of its location, name, climate, geology and population. The history of archaeological research conducted on the site is discussed, and a detailed report on the first excavation season of the site carried out in 2008, presented.

The second chapter examines the general characteristics of Roman and Byzantine pottery, including type of clay, techniques of production, surface treatment, and decorations and forms.

The third chapter is a descriptive study of 51 of bowls, jars, bases, handles, spoons, lids and sherds from the body of the vessels. Comparisons with pottery uncovered at other sites are made.

The fourth chapter is an analytical study of the pottery samples by using petrography, and X- Ray Diffraction. How to prepare and read samples is explained, and findings are discussed.

The Roman and Byzantine Pottery from Yasileh Tombs A Comparative Study

Loreen Khouri
Supervisor: Zeidoun Al-Muheisen

This study seeks to examine and compare Roman and Byzantine pottery from Yasileh tombs which are located at a site about 8 km east of Irbid.

A classification of the sherds is presented by dividing the pottery into the following groups: bowls, jars, cooking pots, and lids. Following this is a description of the sherds based on form, color of the clay and surface treatment and their documentation through photographs and drawings. Finally, the researcher compares these pottery sherds with others found at various locations, using resources that present full descriptions of the Roman and Byzantine pottery.

The study is divided into four chapters:

Chapter One offers a historical background of Yasileh, and sums up previous reports since excavation in this site first began in 1988.

Chapter Two describes in detail different types of Yasileh tombs, with sketches.

Chapter Three provides general information about the Roman and Byzantine pottery. This information takes into consideration features and descriptions of the clay and surface treatment.

Chapter Four presents a detailed study of Roman and Byzantine pottery, including analysis, description, and classification of 20 pottery pieces. A comparison is then made of Yasileh pottery with those of various other locations.

Copies and graphs of the pottery, a sketch, a location map and a contour map of Yasileh are also offered.

The Local Community Within the Random Policies and the Sustainable Development for Heritage Management Case Study/ Amman Citadel

Husam Higazeen

Supervisor: Muhammad Al-Shunnaq

This study aims to shed light on the integration and participation of the local community, residing near the antiquities of the Amman Citadel, in a

sustainable development plan that was carried out at the site. Of particular concern are the owners of the heritage buildings at Jabal al-Qal'a near the Citadel site, to involve them in the maintenance of the archaeological site. This was done by formulating a management plan for these buildings, and linking it with the national strategy for the development of the tourism sector in Jordan, and the master plan for the city of Amman.

This study consists of five chapters. Chapter One deals with the problems associated with this study, information gathering techniques, the difficulties of field work, theoretical and analytical frameworks, previous studies, the methodology and procedures and the experience of various other countries. Chapter Two is a historical introduction to the city of Amman. Chapter Three consists of three parts that aim to identify the views and reactions of the local community, in relation to their participation in the development plan of the antiquities at the Citadel. The first part is the questionnaire; the second consists of personal interviews with members of the local community, while the third part is a selection of case studies involving groups to whom the problems addressed in this study apply.

Chapter Four includes the master plan of the city of Amman, the conservation and restoration work at the site along with the role and involvement of the local community, and the new plan for the development of the Citadel. Finally Chapter Five presents the analyses and results, and links them to the international conventions and previous studies that endorse local community participation in the development plans of neighboring archaeological sites. The study concludes with recommendations.

This study reached the following results:

First: A high proportion of local community members based adjacent to the archaeological site lack awareness of the importance of archaeological and cultural heritage. Consequently, many heritage buildings are neglected or even deserted, leading to their deterioration. Some have become waste dumps and others have been rented out to expatriate workers and people who are completely unaware of their cultural and historical importance.

Second: The affinity that some locals feel towards the place may be partially attributable to a lack of affordable, alternative housing with the high cost of living and difficult economic conditions faced by them. However, some locals do attach a sentimental value to the area.

Third: The participation rate of the local community in the development plan for the Citadel stands at merely 4%, which has led to dissatisfaction and non-cooperation from their side. This marginalization and resulting alienation of the locals could lead to disregard and apathy for the archaeological site, which would in turn adversely affect the parties overseeing the development project.

Fourth: The reason for some of the residential buildings are derelict is that their owners have deserted them to move to newer and better maintained homes, when their economic conditions improved.

Fifth: Some owners of the residential buildings adjacent to the archaeological site have been positive about the development and management plan being established to transform these homes into tourist attractions through restoration and maintenance. Such a development plan would be conducted under the umbrella of the 'Law for Preserving Cultural and Architectural Heritage' and would offer several advantages that are increasingly being recognized and acknowledged by the local community. Not only would it encourage interaction and cross-cultural understanding between the local community and tourists, but also provide much needed, income-generating employment. This in turn would foster, in locals, appreciation towards their cultural heritage and identity - driving them to conserve rather than desert or destroy it.

The Effect of Salts on the Performance of Sandstone Consolidation Treatment

Yazan Abu Al-Hasan
Supervisor: Mustafa Al-Naddaf

Salts play a direct role on the deterioration of porous stone through their volumetric expansion caused by crystallization-recrystallization and hydration-dehydration processes, and the chemical effects when salts dissolve some constituents of stone. Salts also play a part in the deterioration process of stone materials by affecting the behavior of the consolidation treatment used for preservation.

This study was aimed at determining the effect of salts on the performance of sandstone consolidation treatment.

125 desalinated sandstone cubic samples from Petra were used for the study. The physical and mechanical properties of the samples were determined. Samples with similar physical and mechanical properties were taken for further experimental work. Three types of salts (NaCl, KCl and $Na_2SO_4.10H_2O$), which have high solubility and consequently are the most dangerous to monument stones, were introduced into the samples and their contents were measured and some samples were left without salt to be used as control samples. After salination, the samples were treated with different types of commercially available consolidants: Wacker OH, Wacker H, Befix and Paraloid B-72. Then the physical and mechanical properties were measured again and the results obtained from the tests can be summarized as follows:

Physical properties (water uptake under atmospheric pressure and under vacuum, porosity and density) for samples injected with NaCl and KCl and treated with Wacker OH, Wacker H, Befix and Paraloid B-72 highly decreased compared to the others injected with $Na_2SO_4.10H_2O$ and treated with the same consolidants. Capillary water uptake value for samples injected with KCl and treated with Wacker OH, Befix and Paraloid B-72 highly decreased compared to other samples injected with NaCl and $Na_2SO_4.10H_2O$, and samples injected with different salts and treated with Wacker H gave negative W-value.

Concerning the salt encapsulation test, samples treated with B-72 seemed to inhibit to some extent the removal of salts, except when the $Na_2SO_4.10H_2O$ was present in the stone samples, which seemed not to have any effect on the immobilization of salts. Salt crystallization tests determined that the most durability was evident in samples treated with Wacker H while the lowest durability was detected in samples treated with Befix.

The compressive strength test proved to be low on samples injected with KCl and treated with Wacker OH, Wacker H and Paraloid B-72 compared to others treated with Befix. In samples injected with NaCl and treated with Paraloid B-72 and Wacker H, this property is slightly affected compared to the others treated with Wacker OH and Befix. Samples injected with $Na_2SO_4.10H_2O$ and treated with different consolidants showed compressive strength affected in varying rates, especially with Befix.

New Issues

The Water Engineering and Irrigation System of the Nabataeans

Author: Zeidoun al-Muheisen
Publisher: Faculty of Archaeology and Anthropology
2009, 200 pp.

The book, sponsored by the Jordanian Ministry of Culture, consists of five chapters, each dealing with a specific aspect of the Nabataean water irrigation system which is admired to this day for its ingenuity and effectiveness. The first chapter touches on the geographical and climatic background of the area. It presents information on the Petra water supply, the spring-water networks and rainwater harvesting in Petra and its vicinity. The second discusses the hydraulic installations at other Nabataean sites in southern Jordan, such as at-Tafileh and Wadi Araba. The third chapter explains the technical features of Nabataean hydraulic and agricultural installations, such as drainage techniques and canal use. Comparative examples from sites in and near Petra are given in the fourth chapter, including al-Naqab, Umm al-Jimal, Qumran and others. The final chapter throws light on the relevance and importance of Nabataean hydrological techniques in modern times.

What are the Dead Sea Scrolls and Why Do They Matter?

Author: D.N. Freedman and P.F. Kuhlken
I.K. al-Qanaweh (trans.), O. al-Ghul (rev.)
Publisher: Faculty of Archaeology and Anthropology
2009, 9 + 159 pp.

This book is the first of three translations planned for publication by the Jordanian Dead Sea Scrolls Project, in collaboration with the Publications Office of the Faculty of Archaeology and Anthropology (*see Newsletter* 29). It was selected for translation because of the direct and simple answers it provides to questions posed by Kuhlken on the discovery, study and publication of the scrolls. Many important aspects of the scrolls are discussed and explained such as theological questions about the relationship of the scrolls to Judaism and Christianity, allusions to historical personages and events, the importance of the scrolls to the followers of Judaism, Christianity and Islam, and the future of scholarly and scientific studies on the Dead Sea Scrolls.

In an effort to raise awareness and enhance knowledge of the Dead Sea Scrolls in Jordan and the Arab World, the book is being distributed free-of-charge to school libraries and educational institutions. However, it is available for purchase by individual readers at cost price.

The Dead Sea Scrolls [Makhtutat al-Bahr al-Mayyit]

Author: Mahmoud Abidi
Second revised edition with an introduction by Omar al-Ghul
Publisher: Faculty of Archaeology and Anthropology
2010, 20 + 299 pp.

The first edition of this book appeared in 1967 and was based on Millar Burrows' book of the same title. Abidi was aware that some chapters in Burrows' book were too detailed for the average Arab reader not familiar with questions of Jewish and Christian theology. He therefore decided, apparently after consultation with Burrows, to exclude some chapters of Burrows' book from his translation, and replace them with others.

In his version, Abidi adds four chapters, one about the "Copper Scroll" in which he provides details of the procedure of "opening" the scroll in Manchester in 1955. In the other three chapters he explains efforts by the Jordanian government to excavate, purchase, and organize the study of the

scrolls. A chapter is dedicated to the smuggling of the scrolls to the USA and another to the tour organized for the scrolls in the 1960's, when they were sent to museums in the USA, Canada and Europe. In all four chapters, Abidi supports his exposition with documents that were at his disposal as Deputy Director General of Antiquities in Jordan.

This second edition has been updated by Omar al-Ghul, Director of the Jordanian Dead Sea Scrolls Project. In a 20-page introduction al-Ghul sums up major developments that have taken place in publishing and studying the Dead Sea Scrolls since the first edition was produced. Almost 100 footnotes, updates, and explanatory notes are given.

Inscriptions de la Jordanie t. 5: La Jordanie du Nord-Est fasicule 1. Inscriptions grecques et latines de la Syrie XXI,

Author: Nabil Bader
Publisher: Ifpo, Beyrouth
2009, 380 pp.

This book presents the results of a survey and a collection of Greek and Latin inscriptions from the northeast area of Jordan and is the fifth volume of the *Corpus of Greek and Latin inscriptions in Jordan*. The study consists of 747 inscriptions collected from previous publications, and also those discovered during field work in eighteen different sites, the most important of which is Umm al-Jimal, with 537 inscriptions.

The introduction is followed by a historical overview, general remarks about the inscriptions, notes about travelers and explorers, inscribed stones, and contents of the inscriptions, and finally the corpus, which represents the largest part of the study.

The inscriptions in the corpus are organized in geographical order from west to east. Thereafter, inscriptions from each site are arranged according to their subject matter and date, in ascending order, i.e. the oldest, first. The subjects of the inscriptions are numerous: Pagan, Christian, honorific, emperors' edicts, sport teams' inscriptions, those commemorating constructions, and funerary inscriptions, which are the most numerous. Most of the inscriptions are Greek, and some Latin. Only two are bilingual. A fact worth noting is that some of the stones on which the inscriptions were engraved were moved from their original site either to a new location on the same site, or to a completely different site. The few dated inscriptions cover the period from AD 177 to AD 646.

A Study of Toponyms in Irbid Governorate of Jordan

An Etymological and Grammatical Analysis in the Light of Near Eastern Languages

Author: Mohammad A. Ababneh
Publisher: Shaker Verlag, Germany
2009, 453 pp.

Place names may be likened to a museum where the most divergent historical influences of thousands of years have been preserved. Unfortunately, there are only very few toponymic works covering the regions of the Orient, where today many older place names are facing the threat of falling into oblivion.

This study investigates for the first time place names – including those of mountains, fields and waters – in 65 boroughs of the Irbid governorate in Northern Jordan. Altogether 3100 names have been compiled. A new aspect has also been introduced by including relevant dialectal names which sometimes differ significantly from standard Arabic.

In the etymological section, names have been studied within the framework of the Semitic place name, and nomenclature. Three main linguistic layers emerge: Canaanite, Aramaic, and Arabic. However, elements from other languages, such as Turkish, are rarely encounterd.

News of the Faculty of Archaeology and Anthropology

Faculty Administration 2009/2010

- Prof. Dr. Zeidan Kafafi, Dean of the Faculty.
- Dr. Abdel-Halim al-Shiyab, Vice Dean.
- Dr. Khaled Bashaireh, Chairman of the Department of Archaeology.
- Dr. Mohammad al-Tarawneh, Chairman of the Department of Anthropology.
- Prof. Dr. Nabil Bader, Chairman of the Department of Epigraphy.
- Dr. Hany Abdelhamied, Chairman of the Department of Tourism.
- Dr. Mustafa al-Naddaf, Chairman of the Department of Conservation and Management of Cultural Resources.

New Colleagues

Department of Cultural Resources Management

- Dr. Wassef al-Sekhaneh
Cultural Anthropology
Münster University

- Dr. Nihad Shabbar
Museum Studies
George Washington University

Department of Anthropology

- Dr. Ahmad Abu Dalou
Physical Anthropology
University of Missouri, Columbia

- Dr. Ali Khwaileh
Physical Anthropology
University of Arkansas, Fayetteville

- Dr. Mohammad al-Rousan
Physical Anthropology
University of Barcelona

Department of Archaeology

- Dr. Ahmad al-Shorman
Applied Sciences in Archaeology
Ruhr University/ Bochum

Department of Tourism

- Dr. Ahmad al-Makhadmeh
Tourism and Hotel Management
Rajestan University

Visitors to the Museum of Jordanian Heritage

Her Excellency, the French Ambassador

Delegation from the Alexander von Humboldt Foundation