

## **ENTIA RESERVOIR-ENCLOSURE WITH HYDRO-AGRICULTURAL FUNCTION FROM THE Umayyad AND EARLY Abbasid Periods in Azraq Oasis: First Archaeological Results of the Azraq Ayn Sawda Reservoir Project**

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From 2013 to 2016, the Azraq ‘Ayn Sawdā Reservoir Project (Ifpo) undertook topographical plan, excavation, architectural study, and preservation assessment of a long wall previously interpreted as a huge water reservoir and not clearly dated. An inventory of the basalt blocks with mortise and tenon joints carved with figurative representations in bas and high reliefs was also completed. The site is located at the centre of the Azraq oasis, in the Eastern Desert of Jordan, and related to the category of the Umayyad “desert castles”. The research results suggest a multipurpose agricultural enclosure including water facilities built in the Umayyad period and probably reconfigured at the beginning of the Abbasid times. Excavation also revealed original and various building techniques, designed for a very specific environment.

## **Symbolism, Spirituality and Cult of the Ghassanians: Discovery of a Unique Late PPNB Ritual Installation Dedicated to “Desert Kites”**

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Recent investigations of the South Eastern Badia Archaeological project focused on the study of “desert kites” and also associated occupation remains dated to the Late PPNB, in the area of Jibal al-Khashabiyeh on the eastern rim of the al-Jafr Basin. As our previous work showed, strong evidence supports the relationship of these occupation sites with the mass hunting strategies

practiced using the “desert kites” structures. This occupation that we defined as the “Ghassanian techno-complex”, showed to be distinctive in many aspects, including mass harvesting of gazelles, a rich and diverse material culture, architecture, as well as a specific symbolic and artistic expression.

The last season of the South Eastern Badia Archaeological Project, during 2021 autumn, led to the major discovery of a complex ritual installation at the center of one of the Ghassanian occupation sites. The structure features several distinct interconnected components, with a strong symbolic dimension. Its characteristics and its extraordinary state of preservation makes this installation unique in its kind within the context of the Near Eastern Neolithic.

While our previous work mainly emphasized the socio-economic implications of the Ghassanian occupation and use of associated kites, the new discoveries shed an unprecedented light on the symbolic and ritual dimension previously unknown in these collective mass-hunting strategies and architectural prowess.

**Keywords:** Desert kites, Ghassanian, Neolithic, Symbolism, Ritual activity.

## **FROM CANE TO SUGAR PRODUCTION AND TECHNOLOGY IN ARCHAEOLOGICAL FIELDWORK AT JORDAN VALLEY**

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This paper is an update of previous study published in 2015 article (The Story of Sugar production in Eastern Jordan Valley).

The paper will address the contemporary technology of Sugar production and refinement that has been documented and studied across a range of archaeological work, carried out by the various missions in Jordan Valley, in the Islamic periods in general, with particular emphasis on the period between the 12th-14th centuries A.D.

In addition, the technical illustrations in this paper are prepared based on the results of archaeological excavations, focused on the recent archaeological discoveries at Ghor as-safi by K.D.Politis, which provide more evidence of the development of sugar production on an industrial scale, and the results that have been obtained through the field work performed by the author in several sites especially Tell al- Sukkar in the Ghor area in the Jordan valley.

The present article provides new aspects and issues in production line and manufacturing process from Cane to Sugar.

**Keywords:** Sugar Mill, Tawaheen es-Sukkar, Sugar Cane, Jordan Valley, Refinement, Production.

## **GRAFFITI FROM PHOTOGRAPHS: THE UNKNOWN ARCHIVE OF VISITORS TO PETRA IN THE 19<sup>th</sup> AND EARLY 20<sup>th</sup> CENTURIES.**

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This paper presents evidence about anonymous people visited Petra in the 19<sup>th</sup> and early 20<sup>th</sup> centuries from graffiti recorded, mostly undeliberately, in photographs taken by some travelers and some expeditions to Petra in the first half of the last century. The majority of these graffiti do not exist anymore, or cannot be carefully traced on the rocks. Most of the graffiti were scratched or inscribed on the rocks of the major facades at Petra, particularly the Khasneh, the monastery

and some other monuments. The graffiti were written in different languages including Arabic, Ottoman Turkish, and some European languages.

**Keywords:** graffiti – photographs – Petra – visitors – monuments.

## **FIELDWORK PROJECTS AND LOCAL COMMUNITIES: THE UDHRUH ARCHAEOLOGICAL PROJECT AS A CASE STUDY**

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This paper sheds light on how local communities react to and interact with fieldwork projects. In this respect, the paper refers to the Udhruh Archaeological Project (UAP) as a case study after almost ten successive years of fieldwork. It focuses on the factors that increase or limit the involvement of local communities. The paper also investigates, through UAP, the main concerns of local communities whenever a fieldwork project is being conducted, and their perception for the future of the site and their role in any future fieldwork.

**Keywords:** fieldwork – local - communities – Udhruh – project.

## **FROM DOCUMENTATION TO RECONSTRUCTION OF LATE BRONZE AGE TEMPLES IN JORDAN: THE CASE OF AMMAN AIRPORT AND ELMABRAK**

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The archaeological excavations in the South Levant revealed many temples dated to the Late Bronze Age. These temples were allocated according to their architectural typology, to their layout (square and rectangular), and based on the central “courtyard” conceptual approach. Recent studies have proven the excellence of architecture temples of Amman Airport temple and El Mabrak temple in design and construction methods.

This paper attempts to present, analyse and discuss the architectural concept of Amman Airport temple and El Mabrak temple; concerning their: orientation, accessibility, indoor and outdoor spaces, and their typological design analogy. Furthermore, based on analysing and reinterpreting these temples’ remains plans, the paper compares the archaeological and architectural particularity with the counterpart’s temples in Palestine. It aims to show the significance of these edifices’ authentic architecture, accuracy and characteristics. It practices Graphic (AutoCAD and Sketch-up) and Photographic (Agisoft PhotoScan) tools and techniques to present and illustrate the process from documentation to reconstruction of the Amman Airport temple and El Mabrak temple applying 2D plans and 3D models.

**Keywords:** Documentation, 3D\ 2D Reconstruction, Analysis, Assessment, Architectural Drawings, Photogrammetry, Late Bronze A.

## **EDUCATION IS THE FIRST STEP OF PROTECTION BEFORE ARCHAEOLOGICAL EXCAVATION KHURAYBIT ES-SOOQ SITE AS A CHALLENGE EXAMPLE**

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Until recently archaeological excavations in Jordan focused on well studies, publishing and produced beautiful magnificent articles and reorganized sites like Greco-Roman city (Jerash). Khuraybet es-Sooq is one of the fastest growing populations in the southeast portion of Amman. It is impossible for archaeologists to keep up exposing sites under this pressure. Nothing did after excavations, and then the sites turned into unclean areas. So local authorities including Department of Antiquities cannot be out of this major problem . They must work with the local people, neighbors to solve this risk (daily life of population, their roads, buildings and rubbish materials; human-made treats, developments, ecology and environment).

Therefore, now today they used to build right on the top of the ancient remains, so in this rate exposed remains mean damaged it. Moreover, this increasing risk and need to protect this forgotten monument, the archaeological-architectural remains. Now a day's Roman architecture will transfer from its suite Mausoleum??

The UNESCO, Council of Europe, and other international organizations have adopted conventions for cultural heritage preservation that set the common rules and standards of the member states to address these issues. Debates concerning archaeological research, heritage preservation, and heritage management have increased in recent years, often as an effect of such organizations, and their rules and standards. After decades of such processes, it is time for evaluation of their implementation.

So a new national strategy must achieved to protect these sites before disappeared, until that open message will be the first attention to the importance of Heritage to those whom they sleep with the site each night, see it daily, so this need raising awareness between the inhabitants of the town, neighbors, pupils and local authorities.

A requirement to preserve and restore the architectural elements is necessary. Therefore, my goal is to give more awareness to the public on their Heritage including field workshop in the Archaeological site. However, this will examine their traditional way of education about history and antiquity.

Field workshop:

- 1- In schools first step, teachers then students from all school ages, local authorities society, department of the Local mayor, and representative of Ministry of Education in this region.
- 2- Any women parties, social societies folklore representative and so
- 3- Neighbors of the site, Mukhtar and any local Associations(families)

## **DOCUMENTATION, RE-ASSESSMENT AND RE-INTERPRETATION FOR KHIRBET EZ-ZERAQOUN'S RELIGIOUS COMPLEX, AND A SUGGESTED 3D RECONSTRUCTION DURING THE EARLY BRONZE AGE**

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The chronology of the Early Bronze Age in the southern Levant recently went through some significant changes. Based on these changes, the re-assessment of the Early Bronze Age's archaeological sites and its excavations results became a necessary step. This study aims to re-assess the excavations results of Khirbet ez-Zeraqoun's religious complex in light of the new chronology and the architectural typology. It also seeks to provide an architectural analysis for it, so that a 3D reconstruction could be made. This analysis will test the study hypothesis, which states that the religious complex had two constructional phases, and the temples in antis of Khirbet ez-Zeraqoun were the earliest of its type in the Levant. Through the revision of The Early Bronze Age in the southern Levant and Khirbet ez-Zeraqoun's literature of the major publication related to it, a comparative study was created between the temples of Khirbet ez-Zeraqoun and the other temples of the Early Bronze Age in the southern Levant. This revision also led to the creation of the religious complex's 3D reconstruction by using sketch up software. The results demonstrate that Khirbet ez-Zeraqoun was occupied firstly by the Temple B0.1 since the Early Bronze Age I, and the temples B0.4 and B0.5 were constructed in the Early Bronze Age II. Also, Temples B0.4 and B0.5 are the earliest examples of the temples in antis in the entire Levant. According to these statements, the outcomes suggest that Khirbet ez-Zeraqoun was one of the earliest urban center that combined two religious orientations that reflected the society's nature; the first was connected with the village community and the second with the urban community.

**Keywords:** Early Bronze Age, Khirbet ez-Zeraqoun, Religious complex of Khirbet ez-Zeraqoun, 3D reconstruction.

## **REPORT ON THE EXCAVATIONS AT TELL BLEIBIL: RESULTS OF SEASONS 2019 AND 2021**

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Excavations at the site of Tell Bleibil (Tall Bulaybil) located in the southern Jordan Valley near the town of Shuna South have been conducted since 2018 as part of the ongoing Wadi Shu'aib Archaeological Survey Project (WSAS). The work carried out during seasons 2019 and 2021 exposed a part of the site's fortification system, revealing a massive stone substructure and well-preserved mudbrick walls apparently forming a chain of casemate rooms surrounding the settlement, and dating to the Iron Age IIB/C. The fortification system was destroyed in a conflagration event in the course of the Iron Age IIC, which led to the collapse of the roof (or an intermediate floor level) of the casemate walls and the subsequent filling of the rooms with the destruction debris. So far, two casemate rooms belonging to this complex were uncovered. Immediately resting above these layers is a level dating to the Persian Period, which consist of a room with several larger pottery vessels found still in situ. It is not yet clear if the older fortification system was still in use during this period. The paper will present the structures exposed and the material recovered during the last two seasons, but will also discuss questions relating to the site's overall urban layout, its geographical setting, as well as outline historical implications pertaining to the discoveries.

## ABDALLAH AKASHEH, A PATRIOTIC NABATI POET

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Born in 1880, Abdallah was an accomplished Nabati poet. He was known for his bravery, and resistance against tyranny and injustice. His personal ambitions made him study languages and thus he became a guide for tourists who visited Wadi Musa and Petra. His family originally came from the latter region, migrating possibly sometime during the years 1770 to 1800, in an attempt to evade Wahabi raids and persecution. He also self-taught himself Law with his friend Odeh Gsous. He used his talent to instigate against the Ottomans and thus convinced Qadr Al Majali to revolt against the forced conscription and the tyrannical taxes that were levied despite the poverty and starvation of the population. He raised an incognito letter to the As-Sadr Al Atham (Ottoman Grand Wazir) in Istanbul complaining about the local governor and his tyranny. As result, and when discovered, he was banished to Tafileh and that was not the only time he suffered such a punishment. He and many Karaki Christians were also banished to Turkey during World War I.

**Keywords:** Karak Haya, Petra, Ottomans, Sultan Al Atrash, Nabati Poems.

## THE ROMAN ARMY AT UMM AL-JIMĀL: OLD AND NEW DOCUMENTS

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A series of unpublished Greek and Latin inscriptions were recently studied at Umm al-Jimāl within the framework of a close partnership between the Mafrāq Branch of the Department of Antiquities, the Umm al-Jimāl Archaeological Project, and the Jordanian-French team of the ‘Greek and Latin Inscriptions in Jordan’ (‘Inscriptions de la Jordanie’). They provide new information about the soldiers and administrators of the Roman Empire who were present on the site and in the civic territory of Bostra, the capital of Provincia Arabia. Of special interest are a Greek dedication to Zeus Keraunios by an attendant (beneficiarius) in the service of the governor of Provincia Arabia in the time of the Severi, and a Latin inscription dealing with the building of a tower under the authority of Count Flavius Maximinus in the second half of the fourth century CE. This paper will be an opportunity to present both documents for the first time and to contrast them with the archaeological and epigraphic material relating with the presence of the Roman army at Umm al-Jimāl between the creation of Provincia Arabia (106 CE) and the reign of Emperor Justinian (527–565 CE) .

**Keywords:** Umm al-Jimal, Bostra, Byzantine, Roman, Military, Provincia Arabia, Greek, Latin, epigraphy

## MADABA INSTITUTE FOR MOSAIC ART & RESTORATION AND ITS ROLE IN SPREADING CULTURAL HERITAGE THROUGH CORONA PANDEMIC

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The purpose of this paper is to introduce Madaba Institute for Mosaic art and Restoration (MIMAR) which established in 2007 as a result of joint collaboration between Jordanian department of antiquities and the Italian government and the USAID.

MIMAR is considered the only institute in the region that offers a diploma program specialized in scientific methods of production and restoration of mosaic art in the region.

This paper will introduce the pioneering role for (MIMAR) in training and teaching students to qualify them to work in this field. The paper will highlight the role of the Institute in spreading cultural heritage through corona pandemic.

**Keywords:** cultural heritage

## **DIGITAL LIBRARY OF LIVING TRADITIONS. A PROPOSAL FOR THE INTANGIBLE CULTURAL HERITAGE IN JORDAN**

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Politecnico di Milano is conducting a project to enhance the Roman Theatre in Amman, the Folklore Museum and Museum of Popular Traditions, funded by the Italian Agency for Development Cooperation. A specific focus is dedicated to the Digital Library of Living Traditions (henceforth DL), a tool for the survey and visualization of Jordanian Intangible Cultural Heritage, particularly Handicraft. Traditional knowledge is part of living heritage and belongs to the Cultural Landscape of Jordan, in line with the 2003 UNESCO Convention for the safeguarding of Intangible Cultural Heritage (ICH). The present paper intends to represent an essential momentum to focus on best practices that showcase the link between museums' collections, handicraft activities, and the cultural space in which they live.

The DL is designed as a digital toolkit where handicraft activities are described accurately through documentation and survey about traditional Jordanian handicrafts, based on the 2002 National Law for the protection of the handicraft Made in Jordan, and the involvement of local facilitators. Artisans' life, Handicraft techniques, and the knowledge transmission will be documented by interviews that will be available to the public in a dedicated section of the DL. Specific workshops online and on-site, and scientific papers will be available to disseminate the information and collected data. This research also aims to produce a stronger awareness of the items exposed in the two museums and the link between them and the Jordanian Landscape. As a virtuous circle, the final goal of the DL is to generate continuous development of awareness of Jordan's immense living heritage.

**Keywords:** Handicraft, Traditions, Cultural Landscape, Data Visualization, Digital Toolkit.

## **EARLY AND MIDDLE BRONZE AGE MURAYGHAT: CHARACTERISTIC VESSEL TYPES FROM THE CERAMIC ASSEMBLAGE (POSTER)**

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The survey and excavations of University of Copenhagen (2015-2019, 2022) at the site of Murayghat, in the Madaba region, has examined remains of stone structures on a central knoll and a large number of dolmens on the hills surrounding the site. The survey and excavations has produced a sizeable amount of pottery from the Early (EBA) and Middle Bronze Age (MBA). During the EBA, Murayghat was likely a ceremonial site with a large ritual landscape related to burial ceremonies. The site was resettled in the MBA period, possibly in relation to a reuse of the EBA ritual landscape. The ceramic assemblage from Murayghat offers a rare insight into the ceramic tradition of the EBA and the MBA of the Madaba Plain, as these periods are otherwise poorly represented by excavations in the region. Distinctive vessel types and decorative features of the EBA ceramic assemblage places part of the assemblage in the EB IA, while other vessel types are clearly of MB IIA date. This poster presents a number of distinctive EBA and MBA ceramic vessels from the excavations and consider their function in the relation to the ritual nature of Murayghat.

**Keywords:** Murayghat, Early Bronze Age, Middle Bronze Age, Ceramics, Ritual Landscape.

### **CAN SCHRÖDINGER'S CAT HELP US UNDERSTAND THE KHAZNEH? APPLYING THE THEORY OF QUANTUM SUPERPOSITION TO NABATAEAN IDENTITY.**

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In this paper I argue that quantum superposition can be used to explain the nature of cultural identity. Superposition, the physics principle that a system exists in multiple states until it is observed, is best known through the example of Schrödinger's Cat. In this classic though experiment, a cat in a box may be either alive or dead until the box is opened and is thus in both states simultaneously; the act of observation defines the cat's condition as one or the other. Identity is interpreted and defined through both memory and the lived experience, and the cultural markers (style, taste, influence, etc.) embedded in objects often serve as the key metrics. Nabataea was situated between Orient and Occident in historical, geographic, and cultural terms. I suggest that East and West were simultaneously and completely active components in the formation and development of a broadly conceived "Nabataean" identity. Nabataea was not "Hellenized", "Romanized", or "Arabized"; rather it was a combination of all these possible states and more. It is the act of observation, whether by the Nabataeans themselves or by modern scholars, that results in the collapse of this fluid and multivalent system into simpler and often misleading terms. It is hoped that this paper's assessment of Nabataean art and archaeology will demonstrate the utility of the basic principles of superposition to the study of identity.

### **ANALYSIS AND REASSESSMENT OF THE BYZANTINE CHURCHES OF ST. MARY, S. JOHN THE BAPTIST AND BISHOPS PROBUS AND SERGIUS AT RIHAB, IN THE TRANSITION FROM BYZANTINE TO Umayyad PERIOD**

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The aim of this paper is to present the results of the analysis and research conducted on the Byzantine Churches of St. Mary, S. John the Baptist, and Bishops Probus and Sergius' Church at Rihab in the transitional period from Byzantine to Umayyad Period.

The combined use of Stratigraphic, Chrono-typological and Instrumental analyses that constitute the three main pillars of Archaeology of Architecture, together with the contextual urban analysis of these buildings, and their mosaics (including their iconographic program), has offered relevant results regarding their physical transformation and change of use in the transitional period between the Byzantine and Islamic period. The most relevant events and transformations detected would be the refurbishment to adapt some of these churches into monastic venues, and latter (at least in one case) into a mosque and dwelling houses. The pattern of transformation that emerges from these and similar cases in the area would reflect a paradigm in the transformation of these Churches in the mentioned period.

**Keywords:** Byzantine and Umayyad period; Churches; Monasteries; Archaeology of Architecture

## **THE CONSERVATION OF THE MOSAIC FLOOR OF THE MARTYRS CHURCH , MADABA ,JORDAN**

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The Church of the Martyrs is located on the south side of the Roman Street, west of the Church of the Prophet Elijah and opposite the Burning Palace. It was discovered by Father Manfredi. The church dates back to the second half of the Sixth century AD .

Archaeological excavations began in the church in 1966 AD by the Jerusalem Evangelical Institute under the administration of Lux, and in 2012 AD, the Greek Orthodox Patriarchate / Madaba has established a protective cover (Shelter).

This paper will highlights the deterioration forms that the mosaic floors in Martyrs church exposed to such as lacunae, incrustation, depressions, swelling, detachment between preparatory layers, salt efflorescence, and biological activity , and this paper will highlights the conservation& restoration techniques carried out on the mosaic floor included documenting the mosaic by photographs and drawings, replacement the cement from lacunae and filling lime mortar, consolidating the mosaic edges and the preparatory layers with lime mortar.

## **PRESERVING THE PAST TO DEVELOP THE FUTURE: RETHINKING COMMUNITIES AND LANDSCAPES RELATIONSHIPS STARTING FROM THE MADABA MAP**

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The Madaba Mosaic Map is a representation of the Holy Land and was made both for the local community and for pilgrims. The mosaic is a geographical and historical document created with all the knowledge and cartographical techniques that had evolved over the centuries.

The territory represented in the mosaic underwent in the course of time and is currently experiencing changes in its landscape with consequences for its heritage, resulting in the loss of perception of their past significance or of continuity of their value.

The project carried out by the Italian Geographic Society, is developing a reusable methodology to reconstruct the landscape of the Madaba region and the Dead Sea East Coast, to create immersive scenarios using virtual landscaping and a digital archive to make available georeferenced data, bibliographic resources and other contents.

This interdisciplinary strategy is part of the broad context of the Spatial Humanities, in the awareness of the importance of reconstructing spatial contexts and relationships for understanding historical dynamics.

The project has also a pivotal impact as the reconstruction of past territorial assets has a fundamental role in designing future actions for the preservation, restoration and valorisation, since it allows us to recreate the complex and multicultural territorial plot highlighting elements still present even if de-contextualized, fragmented, dispersed.

The project will also contribute to increase the sense of belonging and the involvement of local communities, the historical memory of places, promoting the understanding of historical dynamics, indispensable conditions for the activation of sustainable and durable cultural and tourist development processes.

**Keywords:** Cultural Heritage, Historical Cartography, Historical Landscapes, Sustainable CH Valorisation, Spatial Humanities.

## **OBJECTS OF TIME AND MEANING: EXAMINING POLISHED FLINT NODULES FROM THE NEOLITHIC SITE OF WADI SHU'EIB**

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Wadi Shu'eib is a Neolithic site located in west-central Jordan. It appears to have been occupied from the Pre-Pottery Neolithic B until the Pottery Neolithic. The areas excavated in 1988 and 1989, produced evidence of painted plaster floors, stone walls, abundant chipped stone, pottery, and human and faunal remains. A technological analysis of tools, cores, and debitage carried out in 2019, showed general similarities between Wadi Shu'eib and other contemporaneous sites, but also some differences in the frequency and types of tools. Of particular interest from the assemblage are two flint nodules that have been ground and polished, one to a high shine. Additionally, several flakes in the debitage assemblage display a high-shine polish on their dorsal surface, suggesting that other similar objects exist at the site. They do not appear to have been used as tools, but given the probable investment of time, they surely were important objects, perhaps like the very long or miniature axes identified at some Levantine Neolithic sites, which are proposed by some to be symbolic and sacred items (e.g., Barkai 2005). Although we can only speculate about their meaning, we can get an idea of the investment of time and energy that went into the making of these unique objects with a mirror-like shine. Therefore, this poster presents the results of a grinding and polishing experiment intended to gain an understanding of the potential time investment and production methods, with the goal of obtaining more insight into their possible role in this community.

**Keywords:** Neolithic, lithics, experiment, replication, Wadi Shu'eib

## **GENERATIONAL GAP VS. MODERNITY IN THE CONTEXT OF NON-PHYSICAL CULTURAL HERITAGE PRACTICES IN JORDAN**

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We cannot fill the enduring differentiations, but we can minimize it. Cultural heritage (C-H) with its physical and non-physical assets link the trajectory between the past and future through the present. The concept to sustain these assets is based on complementarity and continuity which falls on the new generations (NGs as Z and Y Generations) to safeguard what inherited from old generations (OGs as Baby Boomers and X Generations). This study examines the effectiveness in the conceptual and behavioral transmitted knowledge in the scene of modern communication platforms case social Media platform (SMP). A deformed engagement patterns represented by generation as "online NGs" vs. "offline OGs" leads to deviation from the substantial assets's core that endangered any cultural sustainable development plan. Starting from the base is a necessity here; access the mind sets of generations to locate their perception of mission and vision of (C-H) to comprehend their role in the concept of cohesion and inclusion on the socio-sphere for societies as well as nations. A mixed methodology approach was conducted, representing Amman community. Both qualitative and quantitative data were collected from 200 open-ended questionnaires, analyzed by SPSS. The preliminary results showed significant differences across generations to the limit of consideration (NGs) as "culture immigrants" due to the "semi-approval" of (OGs) in the name of "modernity". Fostering the connections and communications between generations to maintain our authentic history is a necessity. Investment in new generation's mind set means investing in our future.

**Keywords:** Generational gap; Sustainable Development; modernity; Social Media; Jordan

## **PRELIMINARY REPORT ON THE EXCAVATION ON THE LOWER TERRACE OF THE TEMPLE OF ZEUS (GERASA/JERASH)**

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From September 4th until October 10th 2021 a Jordanian-German team, with the speaker Dr. Stefanie Becht as the field director, excavated a small square inside the porticus surrounding the lower terrace of the Temple of Zeus in Gerasa. The excavation lay right next to the former northern entrance to the area. There the French mission had uncovered, among other things, parts of a Roman bronzecasting workshop in their campaigns, in the years 1993, 2012 and 2014.

The new, ongoing mission of the Katholische Universität Eichstätt-Ingolstadt (KU), funded by the German Research Foundation (DFG) has been started at Prof. Jacques Seignes suggestion, who had been field director of the French mission for a long time. The purpose of the ongoing campaign is to uncover more of the bronzecasting workshop, while also thoroughly documenting and studying the later remains in the area. The 2021 excavation uncovered several phases of Byzantine and early Islamic housing inside the former Roman porticus. For the first time, we also put a focus on those after Roman uses of the area.

The lecture will first present the research project as such, including the known features of the bronzecasting workshop. It will, in a second part, concentrate on the preliminary results of the past campaign in 2021 and present the new insights into the secondary use of the Roman building.

## HOMININ OCCUPATION AT A LEVANTINE DESERT REFUGIUM DURING THE MIDDLE PLEISTOCENE: A REPORT FROM EXCAVATIONS IN THE SHISHAN MARSH IN AZRAQ, JORDAN

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The endorheic Azraq Basin in eastern Jordan contains the former Druze and rehabilitated Shishan marshlands at its center. Collectively, these spring-fed wetlands are an ecologically fragile feature and a modern remnant of a landscape that experienced dramatic fluctuations in water availability over the past 300,000 years, including a probable paleolake prior to 270 ka. Moreover, the drying of the wetlands in the early 1990s led to the exposure of artifact-bearing sediments and permitted the exploration of numerous Paleolithic sites. Recent excavations in the Shishan Marsh uncovered evidence of hominin occupation during the late Middle Pleistocene (260-120 ka). Evaluation of the sediments and microfossils indicate that warm and arid conditions were increasing in the Azraq Basin and the paleolake had receded, leaving behind spring-fed marshlands during this period. Analyses of the material culture suggest some similar strategies of survival to historical hunter-gatherers under water-stressed conditions. Hominins and other fauna in the region contracted around the perennial marshlands for subsistence. A growing body of evidence now indicates that the marshlands operated as an oasis complex or refugium in an otherwise desert environment for millennia. This interdisciplinary research highlights the role that climate change plays in hominin demography and interaction between humans and the landscape. The current Azraq Wetland Reserve, established by the Royal Society for the Conservation of Nature, serves to educate us on importance of the wetlands for the sustainability of local communities, both past and present.

**Keywords:** Azraq, Paleolithic, Acheulean, refugium, hominins, water

## CONNECTED BY DEATH - THE LATE PPNB BURIALS OF BA`JA, SOUTHERN JORDAN

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In the frame of the DFG „Household and Death in Ba`ja” Project, between 2016 and 2021, eleven new burials were excavated at the late Pre-Pottery Neolithic B site of Ba`ja including a collective burial with at least three major phases of interment. Additionally, it was possible to assess one of the formerly excavated collective burials. According to the holistic transdisciplinary approach of the project we evaluated these new data on the handling of corpses from an archaeothanatological perspective including neurobiological, ethological and taphonomic considerations. The results of our studies show that despite an increasing differentiation mirrored by the elaboration of burial constructions and objects associated to the dead, there were basic aspects recurring in almost all burial rituals at different degrees. Additionally, some burials were clearly related to each other, possibly underlining close social relations. We suggest that the common ritual concepts, synchronization, as well as emotionally arousing activities appealing to different senses led, on the one hand, to strong automatized traditions enhancing procedural memories, but on the other hand, also to strong moments of episodic memories. Burying the dead thus became an important aspect of early farming communities at Ba`ja by creating strong relations between living and dead. What appears as a mean to circumscribe and keep communities together, on the long run, contributed to their fundamental transformation in the 7<sup>th</sup> millennium cal BCE.

## **TELL USHAYER – A LATE BRONZE-IRON AGE FORTRESS ON THE EDGES OF IRBID**

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Recent excavations of the Freie Universität Berlin at Tell Ushayer, located only 3 km to the west of Irbid, have started to expose the impressive remains of a heavily fortified settlement founded in the Late Bronze Age and occupied well into the Iron Age. Erected on a prominent and partly artificially raised mound, the massive stone fortifications enclose a circular area of 0.6 ha. Despite this rather modest settlement size, the complex defensive system consisted of a wide double stone walls reinforced with projecting bastions at regular intervals as well as towers in front of the city-gate. This imposing structure is indicative of an intentionally planned fortress that obviously had the potential to protect its inhabitants and the stored goods, as well as to control the surrounding area. In this respect, the geostrategic salient location of the site at the border to the north of the Jordan Plateau and along an important caravan route that connected the Jordan Valley with Damascus has to be discussed. The paper, therefore, provides a comprehensive summary of the new excavation results from Tell Ushayer accompanied by a discourse on the socio-political landscape of the Late Bronze-Iron Age in the southern Levant from which such an outstanding monument arose.

**Keywords:** Tell Ushayer, excavation, Late Bronze Age, Iron Age, fortress

## **FIRST RESULTS OF THE NEW EASTERN JARASH PROJECT**

Julie Bonnéric

*(Ifpo)*

The Eastern Jarash Project (Ifpo) aims to better understand the evolution of this major ancient city from late Antiquity to the end of the Abbasid period and to study, on the *longue durée*, economic, religious and social transformations under a new political power. The location of Jarash in a fertile area, at the crossroads of trade routes, its proximity to centers of power such as Damascus and Mecca as well as its exceptional preservation and its long history of the archaeological excavation make it an exemplary case study of this period of transition characterized by development of the region during the Umayyad period and then by a progressive marginalization. The western part of the city has been extensively excavated and the organization of the western part of the city partly revealed. The Eastern Jarash Project would like to determine the urban extent of Jarash during the Umayyad era to understand how the Umayyad city developed, but also to identify the nature of this occupation to understand the economic functioning and the political role of the area. The first excavation, in spring 2022, will focus on an area to the east of the *cardo*, located between the northern and southern *decumani*.

### **GADARA. SETTLEMENT DYNAMICS BETWEEN HELLENISTIC AND EARLY ISLAMIC PERIOD**

Claudia Bührig  
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Luna Watkins  
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The German investigations in the ancient city of Gadara (modern-day Umm Qays) and its surrounding hinterland focus primarily on the use of the settlement area, along with settlement dynamics, planning and transformation until today. Settlement sites are influenced by processes of integration, appropriation, expansion or fragmentation that often only end when the site is abandoned. These will be examined in the specific case of Gadara.

The ongoing archaeological research at Gadara, focuses on the top of the ancient settlement hill. The paper deals with the urbanization process of Gadara, beginning with the construction of a massive fortification on the exposed hilltop. The processes occurring during the transition from the Hellenistic Period to the Roman Imperial Era will be presented along with the settlement dynamics as well as the fragmentation during the transition from Late Antiquity to the Early Islamic Period and at least the decline of the city. The paper presents an overview of the activities conducted in the last years with focus on one building complex, probably destroyed by the earthquake in 749 CE. Its integration into a larger architectural ensemble provides a first insight into the settlement development inside the fortress ring on the hilltop. It shows the potential of an area that was abandoned in Umayyad times and only resettled once again more than thousand years later, when families started building their houses here.

**Keywords:** 1. Gadara, 2 Settlement Dynamics, 3 Urbanization, 4 Fragmentation, 5 Resources

### **FIRST A CLOSER LOOK! INVESTIGATION AND BUILDING CONSERVATION IN THE OLD VILLAGE OF UMM QAYS**

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The architectural investigation at the historic site of Umm Qays conducted in cooperation with the Department of Antiquities of Jordan, has set its focus on rehabilitating one of the historic courtyard houses in the historic upper village of Umm Qays, known locally as the Hara Foqa. As part of the training program 'Stonemason Apprenticeship and Building Preservation' (since 2016), the building complex will be restored in accordance with conservation standards. The aim of the program is to develop and establish a training center and workshop for craftsmen in the field of building preservation and archaeological find processing. The plan for the building is to become a base for the preservation and consolidation of historic buildings (in German as a Werkhof), with an impact throughout the region.

The work at the Werkhof is the product of reciprocal research methods. First, the extensive investigation of the village architecture is a goal: the history of construction and use of the buildings and specific building techniques is essential to understand the building and the spatial setting. Second, unknown practical aspects of the historic building techniques are experimentally tested, investigated, and redeveloped during the construction work.

The paper will discuss and present the interplay and interaction between the preceding scientific investigation and the subsequent practical implementation within the framework of the training program. All decisions on site are based on the detailed architectural-historical investigations at the object and at other courtyard houses of the village.

**Keywords:** Umm Qays; late 19<sup>th</sup> / early 20<sup>th</sup>; vernacular architecture; rehabilitation; historical building constructions and techniques; experiment

## **JORDAN CULTURAL LANDSCAPE THE MAKING OF SIGNIFICANT EXPERIENCE FOR THE MUSEUM OF FOLKLORE IN AMMAN**

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In 2020, a collaboration between the Department of the Antiquities of Jordan, AICS Amman, and Politecnico of Milan started. Part of the resources fosters the renewal of the Museum of Folklore located at the Roman Theatre as the place of cultural experience. As recommended in the Carta di Siena 2.0 (ICOM, 2015), "museums must contribute to becoming an open place where the flows of people, generations, ideas, and experiences are manifested and crossed."

In this scenario, the ongoing project proposes the installation of the Bedouin Gallery as a reflection on the cultural landscape as a territorial woven and a cross-section of the Jordan habitat.

The purpose cannot be a frozen-in-time archive overloaded with material contents as the current set-up. However, it becomes an open, permanently evolving exhibition attracting, educating, and maintaining a dialogue with Bedouin's Intangible Heritage.

The workflow provides the design of multilayered experience within the digitalization of museum contents that makes the visitors able to switch from passive perception to an active reading of the Bedouin traditions and way of living, rethinking involvement, and hidden narrations.

The project also introduces visitors into an immersive space, designed as an alter ego of the black tent, where different interactive storytelling tools engage people regarding Bedouin's traditions,

habits, and ceremonies. The digital environment is a space where visitors can focus on the intensity of information and its meaning by integrating physical collections with videogames and AR/VR solutions for creating interactive fruitions.

The final goal is to foster an innovative and participatory museum strategy, analyzing user preferences and adjusting the contents based on omnichannel strategies connected with visitors inside and outside the exhibit.

**Keywords:** Cultural landscape, Intangible Heritage, Digital Interaction, Traditions, Smart Museum.

## THE FOOD PRODUCTION ACTIVITIES IN THE EBI SITE OF JEBEL AL-MUTAWWAQ: EVIDENCES FROM THE SETTLEMENT AND FROM THE NECROPOLIS

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The site of Jebel al-Mutawwaq is characterized by the presence of a walled settlement where also a sacred area was settled, and a huge megalithic necropolis outside the fence. During the 2019 campaign, a stone bench with an associated cupmark was discovered in connection with Dolmen 11 and the standing stone S.1200 close to the Southern portion of the settlement wall. Several grinding stones were found in this context. Few meters toward South, in 2021, a new building was discovered in Area EE where two working benches with associated grinding stones and a cupmark were found close to the Northern apse of the structure. These contexts seem to be associated to food production activities, probably regarding the cereal processing. In 2019 a survey was conducted on the site with the aim to catalogue all the cupmarks. During this campaign it was possible to distinguish several typologies of this feature, probably linked to their function. It is interesting to notice that cupmarks similar to those found in Area EE were identified in Area C, inside Building 131, where they were in association with two large circular installation, and also in the Temple of the Serpents, inside House 76. This data will be compared with the archaeological evidences in the production areas of the settlement to understand if in this site it is possible to recognize and distinguish the different tipologies of food production.

**Keywords:** Jebel al-Mutawwaq, Early Bronze Age I, wadi az-Zarqa, food production, cupmarks.

## TOKENS AND COUNTERS FROM EBA JORDAN: THE STUDY-CASE OF KHIRBET AL-BATRAWY

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The recent studies about the materials from the Early Bronze III-IV levels of Khirbet al-Batrawy has given a new light also about an uncommon topic in academical research: the use of counting tools (tokens and counters) after the V millennium B.C. Proves of their use still during the Early Bronze Age have been attested in several sites of the rest of Ancient Near East and Egypt, but no studies have been carried on the Southern Levant and specifically on Jordan, except for the famous case of Tell es-Sa'idiyeh.

The reexamination of contexts from Khirbet al-Batrawy, revealed that the use of particular tools like the hammered pottery disks can be interpreted as counting tools, revealing a new immaterial aspect of the socio-economical life of the ancient Jordan almost unknown until now.

Comparisons with other sites as Khirbet ez-Zeraqon and Tell el-'Umeiri, attest a use of this kind of tools in the rest of the Jordan of the Bronze Age.

**Keywords:** Khirbet al-Batrawy, Early Bronze Age, tokens, counting tools, context.

## **SUPPORT TO LIVELIHOODS THROUGH CULTURAL HERITAGE DEVELOPMENT**

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The UNESCO Jordan Office is implementing a project that engages local communities and Syrian refugees in the preservation of six cultural heritage sites in the northern districts of Jordan (Irbid and Mafraq) and their development for tourism purposes. The project, financed through the European Union, Regional Trust Fund for the Syria crisis, contributes to build economic resilience among refugees and host communities through the application of Employment Intensive schemes for safeguarding and rehabilitation of cultural heritage sites, an approach developed by the International Labour Organization to ensure the provision of employment that respects the fundamental rights of the human person as well as the rights of the workers.

The present paper intends to present the innovative project methodology by focusing on the role of culture as a vector for socio-economic development and detailing how the active involvement of communities in heritage preservation and site presentation can be both a driver to social cohesion and an asset to sites preservation. Skills development also represents an essential component of the project as the local skilled and unskilled labour are trained on the job while young graduates receive a more structured in advance of their field experience. Examples of the heritage conservation and site presentation interventions undertaken at the sites of Umm Qais and Um es-Surab in collaboration with the German Protestant Institute of Archaeology and the Institut Français du Proche Orient will be presented as best practices for further replication at other sites in Jordan or within the region.

**Keywords:** Livelihoods, Heritage, Communities, Resilience, Social Cohesion.

## **AN OVERVIEW OF PROGRESS AND PROJECTIONS OF THE MADABA REGIONAL ARCHAEOLOGICAL MUSEUM PROJECT (MRAMP)**

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This presentation provides an overview of recent efforts to preserve the cultural heritage of the Madaba region with a focus on the Madaba Regional Archaeological Museum Project (MRAMP), reviewing progress over the past three years and laying out projections for the near future. Built on partnerships with varied stakeholder groups in Madaba, the Madaba Governorate, and national and international arenas, MRAMP and its partners can lay claim to numerous important accomplishments since ICHAJ 14, even if affected dramatically by the long reach of COVID over the past two-plus years. These include enlarging the scope of community engagement and stakeholder development; expanded initiatives in publicity, interpretive platforms, website appeal, and regional narrative themes; several workshops and training courses; enhancements in architectural concept design; production of Jordanian museum manuals; repurposing of the current museum for storage, research, and display; continued excavation in parts of the region and in Madaba; renovations in the Madaba Archaeological Park West; and the development of 3D videos and interactive virtual tours of Madaba and the proposed new museum.

With the recent announcement that Madaba was selected by the Arab Tourism Organization as the Arab Tourism Capital for 2022, the profile of MRAMP and the region has risen significantly, along with pressure to move deliberately and quickly through fundraising and construction phases. This translates into the need for ongoing stakeholder development and fundraising, as well as the completion of pre-construction tasks on the ground, continued development of the architectural plans, and consultations with contractors.

**Keywords:** Madaba, MRAMP, museum, cultural heritage preservation, community engagement

### **ADVANTAGES AND PERFORMANCES OF DIFFERENT UAV TYPES FOR THE SURVEY AND MODELLING OF PARTICULARLY RUGGED AREAS IN THE PETRA ARCHEOLOGICAL SITE (JORDAN)**

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*Chairman of Hydroconseil (France)*

Aerial photogrammetry by drone now makes it possible to rapidly survey archaeological areas on a large scale and with very high resolution. The type of vector is chosen according to the objective of the study: fixed-wing UAVs are well suited to horizontal surveys, whereas multirotor UAVs are better suited to vertical surveys.

In Petra, we carried out a horizontal survey of a large area in a mountainous zone (the Jabal Khubthah) using an eBee X fixed-wing UAV. Three days of surveying were sufficient to cover

280 hectares and to produce an orthophoto modelling the very rugged topography of the mountain. The photogrammetric processing was used as the basis for a 3D reconstruction and a very detailed mapping of the watersheds.

Thanks to the very high resolution of the image produced (3 cm/pixel), this ortho-plan also allowed us to identify artefacts such as small dams, canals, reservoirs, etc. that were not recorded because they are located in areas that are difficult to access. Coupled with a GNSS station (RTK mode), the accuracy of the planimetry and altimetry is 5 cm over the whole area.

To model the monuments located at the foot of the Jabal (the Royal Tombs), we used a multirotor UAV. A 3D digital model of each façade was built from ultra-high resolution (5 to 6 mm/pixel) surveys. The 3D interfacing via a point cloud highlights the state of all the architectural elements and their alteration (cracks, erosion, flaking). Such surveys provide a sound basis for planning conservation work.

**Keywords:** Petra Archeological Park, survey, Unmanned aerial vehicle, Jabal Khubthah

## ON PILGRIMAGE TO MECCA WITH THE FIRST CALIPHS: THE Umayyad DURUB AL-HAJJ AL-SHAMI ACROSS JORDAN

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The Umayyads had a major role in shaping the Hajj. Caliph Mu'awiya ibn Abi Sufyan (r. 661-680), founder of the Umayyad dynasty, ordered the Egyptian pilgrims to meet him travelling from Damascus, at Aqaba, and follow the eastern bank of the Red Sea to Mecca, rather than entering Hijaz by Ma'an. This negates the assumption of Hajj scholars that the Umayyad Hajj road was identical to the Mediaeval road. For our chrono-spatial GIS study of the Darb al-Hajj al-Shami, finding this route was crucial.

The search for the pilgrim camps led us to twelve Big Circles (diam. ca 400 m) spotted in the 1920s and recorded by the Aerial Photographic Archive for Archaeology in the Middle East (APAAME). Scrutiny on satellite imagery of the landscape around these Circles linked by a desert track, and beduin oral tradition, converged to identify the Umayyad Darb al-Hajj and its camps.

The Circles fall into two groups, indicating two Umayyad Hajj roads: a northern W-E road from Mafraq through Wadi Sirhan to Mecca, and a N-S road to Aqaba, with an eastern branch from 'Udruh to Ma'an. Both the roads and the circles which enclosed the camps' tents were field-checked in the Spring of 2022.

Mapping the Umayyad road and the results of the GIS analysis revealed the complexity of the movement of the Hajj caravan as it crossed, within the restricted space of the Jordanian central ridge, the secular caravans of the spice trade from the Red Sea to the Mediterranean.

**Keywords:** Umayyad, Durub al-Haj al-Shami, GIS mapping, pilgrim camps

## THE NABATAEAN CAPITAL – NEW EVIDENCE ON THE TYPOLOGY AND CHRONOLOGICAL DEVELOPMENT

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The Nabataean capital is considered to be the characteristic feature of Nabataean architecture. So far, it is known mainly as a decorative element on a large number of the facades of Petra and Hegra. Further findings from the free-standing architecture in Petra and other Nabataean settlements prove the great importance of this decorative element for Nabataean architecture. The capital appears in several types, each of which is executed in two different forms: First, as blocked-out or plain-faced capitals, the typical Nabataean capital, and second, as floral capitals, with an elaborate sculpturally decorated calathos.

New research on these capitals in the context of the North Eastern Petra Project and at the Temple of the Winged Lions now allows us to take a renewed look at the two forms of the Nabataean capital. As J. McKenzie and other authors have noted previously, the two forms are very close and interdependent, which is evident both formally and constructively. Through the analysis of more than 250 capitals in the city center of Petra in recent years, a number of new results on the distribution and significance of this building element can be revealed. In the context of the presentation, new findings on the typology and the chronological development of the different forms of capitals will be presented, as they can be found for example at the Khasneh in the rock-cut architecture, the Qasr al-Bint and the Lion Griffin Temple, but also in various buildings in the northeast in free-standing architecture of the city center.

**Keywords:** Nabataeans, Petra, Capitals, Nabataean architecture, Chronology.

## **A VIRTUAL TOUR IN SHAWBAK: WHERE ARCHAEOLOGICAL KNOWLEDGE MEETS 3D**

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Archaeological sites are complex and evolving systems, where heterogeneous elements coexist in a delicate balance that is constantly challenged by excavation activities and diverse site operations. As the stratigraphic reading process and excavations progress, new information is acquired and enriches and sometimes revises the knowledge base under construction. This complex dynamic requires an appropriate knowledge and information management system, which must meet a number of requirements: (i) deal with heterogeneous data,(ii) be flexible to integrate newly acquired information and update or revise previous knowledge accordingly, (iii) be intelligible,

exploitable and shareable by and between the people involved as well as interested researchers. The link between knowledge bases and visualization tools is very promising and this is definitely the direction we have taken and present in this paper. The developed system is based on two independent back-end blocks and a unique front-end that allows their integration. More precisely, the first backend is a knowledge base based on a domain ontology related to photogrammetry and archaeological concepts concerned with the study of the stratigraphy around the Shawbak castle. The second back-end is used to visualize the geometry of the archaeological site, which can be done using virtual or augmented reality applications. We present two approaches dedicated to visualization. The first one uses virtual reality and proposes a stroll in the site with the help of a 3D model calculated by photogrammetry. This model uses all the photos collected on the site since 2004. Beyond the vision of the 3D model it is possible to visualize the structure of the stratigraphic elements as well as the stratigraphic relationships between the various US. The second one uses an approach based on Augmented Reality. In this case, we do not use AR to bring a pre-computed model into a representation of reality visible through a tablet or smartphone camera that we would have positioned correctly thanks to coded targets, a recognition mechanism or another approach. In this implementation we completely superimpose the computed model on the model seen by the camera. The computed model is a complete substitute of the reality observed by the device, a tablet or a smartphone, and shows the computed model instead of the reality observed. The tablet behaves like a window on the investigated site, showing a virtual space that is superimposed point by point to the real space in which the calculated model is located. In order to be able to move as if one were on the site, a capture of the real space and the tracking of the user's camera are essential. The movement in the virtual world must be perfectly aligned with the real world. It is therefore necessary to accurately estimate the position and orientation of the digital camera. The purpose of the tracking system is to determine the position of the camera in real time. Every time the user moves the camera, the tracking system recalculates the new position in real time and the virtual content must therefore remain consistent with the movement in the real world. The camera pose is calculated using six degrees of freedom, three translation parameters  $x$ ,  $y$  and  $z$ , and three orientation parameters (yaw, pitch and roll). Vision-based tracking is an AR method widely used for camera tracking. This method computes the camera pose from the information read from the camera images. Some methods are based on the detection of coded targets previously positioned in the scene but here we use the detection of natural features in a scene coupled with several sensors present on the camera. The camera and the various sensors present in the device (the smartphone or tablet) are used for SLAM (simultaneous localization and mapping) which allows to evaluate the user's movements and to adjust accordingly the point of view of the device in the 3D model.

## **THE IMPACT OF ENHANCED TOURISM AT THE UMM EL-JIMAL ARCHAEOLOGICAL SITE ON THE SOCIO-ECONOMIC DEVELOPMENT OF THE LOCAL COMMUNITY**

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Since 2014, Umm el-Jimal, the new 2021 Jordanian World Heritage List candidate, has undergone tourism enhancement and site development projects, led by Dr. Bert DeVries and the Umm el-Jimal Archaeological Project. An important example is the Water Project that continues work to preserve and reactivate the site's ancient water delivery and storage system.

This research, derived from the author's MA thesis and initiated to support community archaeology initiatives, documented different types of development projects at Umm el-Jimal and analyzed the residents' responses to these changes over time through a two-stage questionnaire survey in 2017 and 2019. Moreover, it is distinguished from previous studies as it highlights residents' attachment and awareness and analyzes the socio-economic impacts of the early stages of tourism enhancement and development. This study demonstrates that the reactions and evaluations of residents' attitudes and perceptions must be considered by decision-makers and professionals when moving forward with tourism development. A mixed methodology of quantitative and qualitative methods was used, including a survey taken by Umm el-Jimal residents and field observations over 24 months. Results were analyzed through the Statistical Package for the Social Sciences (SPSS) software version 20 using the paired sample T-test and descriptive analysis. This paper presents these results in detail and shows that tourism enhancement has benefited Umm el-Jimal's residents in both social and economic dimensions. However, it is vital to track tourism enhancement, development, residents' responses, and needs over time in order to maximize benefits and minimize negative outcomes on the local community.

**Keywords:** Umm al-Jimal, Community, UNESCO, Survey, Site Management.

## UNVEILING THE MEMORY OF AMMAN: RETRIEVING THE ROMAN HERITAGE OF ALHASHIMI STREET AS PART OF THE 'AMMANI' LIVING URBAN HERITAGE

Leen Fakhoury  
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The last 100 years, after the Establishment of the Hashemite Kingdom of Jordan, Amman the capital witnessed an extensive and celebrated physical growth that probably has grinded the historic memory of Amman. For many, the recent history of Amman consists of the souks, the Husseini Mosque, and the old residential quarters of its different mountains, with remnant landmarks of the Roman theatre, nymphaeum, and the citadel. We owe Amman and its inhabitants more interlinked encounters with its historic legacies and more awareness of its diverse legacy that it deserves.

During the rescue excavations at alHashimi Street in 2020, to extend the culvert to protect downtown Amman from further flooding by the Greater Amman Municipality, the remains of a Roman bath were found. An interdisciplinary committee was formulated to guide the future steps to deal with those remains and the culvert. Additionally, a Geo-radar, survey was undertaken by Dr Bilal Khrisat which confirmed the existence of remains under alHashimi Street. This paper attempts to present the importance of unveiling the remains of the different layers of history and memories of downtown, especially at alHashimi Street. The paper attempts to present and support the need for an integrated urban regeneration plan that takes into consideration the Roman and other relics through adopting an integrated methodology and approach of developing the present Hashimi Street as part of a living urban heritage network for present and future generations. Findings and proposals of studies conducted in two urban design studios at SABE/GJU will also be presented.

**Keywords:** urban heritage, living heritage, urban regeneration plan

## FROM SHAMANS TO PRIESTS: THE REGIONAL ROLE PLAYED BY THE NEOLITHIC IN JORDAN AND THE IDEA OF RELIGION

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One of the key human developments often associated with the Neolithic is that this period is when what we might call ‘religion’ first appears. Such ideas gained currency with Cauvin’s 1994 publication of “Naissance des divinités. Naissance de l’agriculture: la révolution des symboles au Néolithique”, and have grown in influence with Hodder’s Çatalhöyük Research Project’s investigation of the primary role of religion in settled life. Spectacular finds such as the carved stones at Göbekli Tepe have continued to highlight the significance of symbolic life. Jordan was very much part of this wider Neolithic world and plays a role within the network of paths that societies take through the radical transformations of the Neolithic. In this paper I will follow the Jordanian trail of ideas through these regional networks, from the earliest Neolithic, where belief systems were likely based around kinship relations with the world, to the development of what appear to be specialised ritual buildings and more formal structures in the Late PPNB and onwards.

**Keywords:** Neolithic, Religion, Belief, symbolism, networks.

### FINDING THE LATE NEOLITHIC

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The Late Neolithic (c. 6500-5000 BCE) was a key period in Jordan, and in the wider region: it is during this period that farming communities as we imagine them existed for the first time, while it is also in this period where the roots of mobile pastoralism lie. After being underrepresented in research for decades, its study is fortunately gaining somewhat more attention in Jordanian archaeology these days, especially in the badia where Late Neolithic sites are both visible and well preserved. Nonetheless, Late Neolithic sites remain relatively unknown. To counter this imbalance, Banning, Hitchings, and team, successfully set up and applied Bayesian surveying, including predictive modelling and repeat visits, to the Wadi Ziqlab and surrounding areas in northern Jordan. In 2021, we conducted a pilot survey season in the Karak region aiming to apply the same overall method. Our study area lies on the interface of the –current– farming and steppe zones, thereby allowing us to assess the effects of past environmental changes on Late Neolithic communities. While we are still in the stage of gathering the data needed to set up a model, the general survey approach has already been successful. Within a short, 10-day field season we found at least one previously undocumented Neolithic site, with other good candidates to investigate further. In this paper we will present the survey results and discuss how these can be of wider use for finding more Neolithic sites as well as understanding the Late Neolithic better.

**Keywords:** Late Neolithic, survey, Karak, environment.

### THE 3D MODEL FORTIFYING NEBO: THE IRON AGE DEFENSIVE ARCHITECTURE OF KHIRBAT AL-MUKHAYYAT AND ITS REUSE IN THE HELLENISTIC PERIOD

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Khirbat al-Mukhayyat is located northwest of Madaba and has long been associated with the ancient town of Nebo. The Khirbat al-Mukhayyat Archaeological Project (KMAP) was established to explore Mukhayyat's role within the wider landscape and investigate its strategic and ritual importance across multiple cultural and historical periods. This paper will examine the Iron Age defensive architecture at the site and its reuse in the Hellenistic period in order to elucidate the function of the different components, how they changed over time, and how the Hellenistic elements are evidence of a continuous tradition of fortification construction across the southern Levant that began in the Bronze Age.

KMAP has conducted four excavation seasons that have revealed remains dating primarily to the Iron Age (8th-6th centuries BCE) and Hellenistic period (4th-1st centuries BCE). A complex defensive system, including a large rectangular tower, a well-preserved boulder wall, and a possible glacis, has been exposed at the southern end of the site. These fortifications were initially constructed in the Iron Age and reused in the Hellenistic period. This Iron Age architecture is integrated into the system of walls that surrounds the site, while the Hellenistic material seems to be concentrated in the southern area.

By comparing the defensive systems at Mukhayyat to contemporary examples from other sites, we hope to identify common features indicative of wider regional traditions. These characteristics will allow us to place the Iron Age and Hellenistic fortifications of Mukhayyat within the vernacular defensive architecture of Jordan and the southern Levant.

**Keywords:** Iron Age, Hellenistic, fortifications, defensive, Nebo.

## **THE ARCHAEOLOGY OF OLIVE OIL: NEW EXCAVATIONS OF AN EB IV OLIVE OIL "FACTORY" AT KHIRBET UM AL-GHOZLAN, JORDAN**

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*The British Museum*

Caroline Cartwright  
*The British Museum*

The Early Bronze IV period (2600-2000 BCE) in the southern Levant has traditionally been described as a rural interlude between the collapse of the region's first proto-urban centres in the EB II-III and their rejuvenation as a network of city-states in the early MBA. During this period,

populations are thought to have dispersed into village communities that practiced simple forms of agro-pastoral farming. However, these approaches have failed to recognize the significance of several small but well-defended “enclosure” sites. These rural sites were new foundations on the well-drained slopes of the Jordan Rift Valley escarpment, in areas better suited to the cultivation of upland tree crops than the flood-prone Jordan Valley floor.

The Khirbet Ghozlan Excavation Project proposes a model of horticultural specialisation that interprets enclosure sites as processing centres for upland fruit crops such as olive, and suggests they were enclosed to defend caches of seasonally-produced cash-crop commodities such as oil. This model explores how high-value liquid products helped promote a complex rural economy that reconfigured aspects of earlier urban production within smaller-scale exploitation of niche environmental zones. Ultimately, such forms of economic resilience may have underlain the rejuvenation of urban systems in the early 2nd millennium BC. This paper presents the results of the 2017 and 2019 excavations at the 0.4 ha enclosure site of Khirbet Um al-Ghozlan near Kufr Abil in the Wadi Rayyan. It examines the archaeobotanical, architectural, ceramic and lithic evidence for interpreting the site as a specialised olive oil production and storage site.

**Keywords:** Early Bronze Age IV, olive oil, horticulture, urbanism, enclosures.

## **CULTURAL HERITAGE WITHOUT BARRIERS: THE SCIENTIFIC RESEARCH PROJECT FOR THE CONSERVATION AND THE ENHANCEMENT OF UMM AR-RASAS MONUMENTAL SITE (POSTER)**

Roberto Gabrielli  
*ISPC CNR*

Recent studies on the ancient Near East between the end of the 1st and the beginning of the 2nd millennium intend to offer a completely innovative reading of the historical and archaeological data at our disposal. These studies outline a peaceful coexistence between the various religions and the tolerance of the Christian presence by the Umayyad dynasty, of which the Kastron Mefaa context is only the most emblematic and best documented example.

The approach to cultural heritage through new technologies has therefore enriched the notion of accessibility with the concept of virtual fruition: 3D models of objects and monuments obtained with integrated instrumental surveys (e.g. 3D Laser Scanner and digital photogrammetry) make accessible the non-accessible heritage.

The main aim of the project is to transform the visit into a multisensory experience by enriching the enjoyment of the manufactures with additional information and interactive in-depth content. These contents will be easily accessible through smartphones to make the visitor participant and active, literally immersed in a unique virtual context with a high emotional impact.

The innovative aspect of the project lies in expanding the offer of visit to the “invisible” archaeological heritage. The purpose of these interventions is to develop a digital fruition system that focuses on the visitor.

For the enhancement of digital cultural heritage, reference is therefore made to:

- immersive virtual reality and AR
- accessibility also to groups of users who can hardly enjoy this Heritage
- seeing the invisible.

**Keywords:** 3D Printing, Laser scanning, Photogrammetry, Accessibility, Augmented Reality.

## **THE LPPNB MEGA-SITE PHENOMENON REVISITED. RELATIONAL SOCIOSPHERES ON THEIR MOVE**

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*ex oriente, Berlin and Free University of Berlin*

Since the eighties when the understanding of the mega-site phenomenon was developed by the excavations in LPPNB 'Ain Ghazal and Basta, more data and meta-theoretical investment helped to illustrate the complexity and diversity of this unique phenomenon limited to the LPPNB of the Transjordanian Highlands (7500-7000 BCE). However, mega-sites are not an extraordinary phenomenon in the Near Eastern Early Neolithic (cf. Abu Hureyra/ Mureybet or Jericho) once natural conditions and socioeconomic/ cognitive adaptations fostered or triggered progressive dynamics. The same appears true for the recently debated Late Neolithic population of parts of the badia.

After more than three decades of research, the LPPNB Transjordanian mega-site phenomenon turns out to be related to additional factors forming the cooperating reasons for its rise and stability, and finally its instability, collapse and transformation. Recent insights showed that at different times different combinations of different natural, socio-economic and cognitive promoters gained momentum over its preliminarily unsuccessful trajectory towards higher-level social stratification and complex settlement systems. Apart from the known promoters of the Transjordanian mega-site phenomenon, four newly identified promoters for its collapse appear to have been crucial: 1) terrestrial factors (rubble slides and earthquakes); 2) rising social inequality; 3) establishment of highly productive hunter-shepherd societies in the eastern steppes; and 4) a FPPNB/ PPNC geographic shift of the mega-site paradigm to outside the Transjordanian Highlands. While the mega-sites' habitus-type of communities may not have found adaptations in time to cope with the dynamic processes of agglomeration and social inequality in all spheres of life, their strictly relational sociospheres helped the transformation into/ the establishment of the sustainable split of productive lifeways in the Southern Levant, i.e. the steppe pastoralism and the favoured lands' farming from the 7th millennium BCE onwards.

## **THE DEAD SEA SCROLL 4Q158 = 4QRP<sup>A</sup>: LINGUISTIC AFFILIATIONS AND AFTERLIFE**

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Rauf al-Shraifeen

*(Ministry of Education)*

Worood Abu Mahfuz

*(Yarmouk University)*

The project "A Scientific Critical Study of Para-biblical Texts of the Dead Sea Scrolls" funded by the Scientific Research and Innovation Support Fund reinvestigates since early 2021 five Dead Sea Scrolls. Contrary to the prevailing trend in studying the scrolls, this study puts the five texts in their wider linguistic context, analyzing their vocabulary in comparison with other, local, and contemporary languages, especially Arabic, Nabataean and Old North Arabic. The current paper will report about the progress achieved in studying one of these scrolls, i.e. 4Q158 = 4QRP<sup>a</sup>, a Hebrew Text consisting of 15 fragments that build together 88 lines from the Book of Genesis and

Exodus. A further aim of the investigation is to try to trace the “afterlife” of this text in the Arabic and Islamic sources that occasionally utilized Jewish material in their commentaries.

### **NELSON GLUECK’S 1938–1940 EXCAVATIONS AT TELL EL-KHELEIFEH, JORDAN: A FURTHER REAPPRAISAL—QURAYYAH PAINTED WARE (GLUECK’S “MIDIANITE POTTERY”)**

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The American archaeologist Nelson Glueck excavated Tell el-Kheleifeh 1938–1940 but died in 1971 before completing a final report. After Glueck’s death, the Kheleifeh archive was deposited at the Harvard Museum of the Ancient Near East (HAMNE). In the 1980s, Gary Pratico studied selected material—architecture, pottery, metal, inscriptions—for a Harvard dissertation, later published as *Nelson Glueck’s 1938–1940 Excavations at Tell el-Kheleifeh: A Reappraisal* (1993). Other finds from the site—bone, shell, botanical remains, geological specimens—were omitted. Moreover, the Kheleifeh collection at the Smithsonian Institution was not included in Pratico’s Reappraisal.

A further reappraisal of Kheleifeh is needed. The ceramic chronology and settlement history in the Arabah, especially at Feinan and Timna, and in the Hijaz at Qurayyah are now much better known, with important implications for Kheleifeh’s dating and regional connections. Advances in archaeometry offer a host of new approaches to the ceramic, metal, stone, paleobotanical and archaeozoological samples Glueck collected at the site. And the Smithsonian collection is now available for study.

Specifically, recent research on ceramics has focused on clarifying the famous “Midianite Pottery” (Luciani 2018), or as it has more aptly been relabeled, Qurayyah Painted Ware. Relying on the sequence of material culture now accurately established in the six seasons of excavation in the Hijazi site of Qurayyah itself (Luciani 2019), we are now able to propose novel classification and dating for the Tell el-Kheleifeh sherds uncovered by Nelson Glueck over 80 years ago.

**Keywords:** Tell el-Kheleifeh, Aqaba, Qurayyah, Feinan, Timna,

### **A PARADIGM FOR LOCAL ECCLESIASTICAL ARCHITECTURE IN JORDAN: COMPARATIVE STUDY OF THREE CHURCHES AT UMM EL-JIMAL**

Mais Fahmi Haddad

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This paper presents the results of the author's MA thesis, which explored the architecture of churches at Umm el-Jimal by focusing in detail on three case-studies: the West Church, a freestanding building, and the Julianos and Southwest Churches—both built into existing domestic complexes, though only the latter is accessible from the public streets. This research, part of a larger Churches Project directed by Bert de Vries and the Umm el-Jimal Project team, aims to study the site’s sixteen churches archaeologically, architecturally, liturgically, and perhaps most importantly, through a social lens. Detailed architectural content is presented for each church—with architectural drawings of walls, floors, and other details, such as lintels and inscriptions. New,

accurate plans of the churches were also produced, along with three-dimensional drawings of the current state of the churches in 2019, which can be used to assess changes over time. A key research interest was to explore the original state of the churches, particularly the roofing methods, as these were not preserved. Taking into account regional parallels and archaeological evidence, three-dimensional renderings were produced to show the methods and materials that would have been used to roof the structures. Detailed renderings of the original state of the churches show the architectural details lost to time. This research produced an integrated comprehensive architectural framework that may be used in future studies as the Churches Project expands.

**Keywords:** Umm al-Jimal, Rendering, Churches, 3-D, Architecture.

## PHYSICAL IN SITU AND DIGITAL / VIRTUAL RECONSTRUCTIONS AND THE INTERNATIONAL HERITAGE CHARTERS AND CONVENTIONS: A CRITICAL OVERVIEW

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The evolution of heritage concepts was reflected in conservation and reconstruction policies. It is also apparent that reconstruction would not be limited to buildings and infrastructures but would also refer to the social-economic conditions. However, physical in situ reconstruction has been one of the most arguable cultural heritage conservation techniques and methods. Reconstruction of remains, as a dilemma, can have both positive and negative outcomes. On the other hand, in the last two decades, the rapid technological and cultural development has allowed the diffusion of different types of digital applications (involving virtual reality, augmented reality, mixed reality, serious games, etc.) oriented toward the past communication using three-dimensional content. As a result, virtual reconstructions have achieved significant realistic and aesthetic impacts. Today, we must acknowledge that digital and virtual (computer-based visualisation) reconstruction has become an established way of building and dealing with the past. Various international heritage charters and conventions have clarified the issue of physical in situ reconstruction, even emphasised the significant role virtual reconstruction plays in building a comprehensive repository. Furthermore, as a consequence of the systematic argument on virtual reconstruction, several projects and documents aimed at establishing efficient guidelines and good practices in scientific visualisation have been realised recently, such as the London Charter (2009) and Seville Principles (2011). Through a critical overview of the international heritage charters and conventions, this paper attempts to sum up the development of the concepts and practice of physical in situ and digital reconstructions from the very beginning to today and give a glimpse into the future of digital/virtual reconstruction.

**Keywords:** Reconstruction, computer-based visualisation, international heritage charters, policies, past communication, guidelines and good practices.

## TERRACES AS PROXIES FOR ENVIRONMENT CHANGE

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Nabatean Petra could have never survived without complex water and soil management system. The resulting landscape was largely created by constructing terraces. Generally, these structures were associated with agricultural activity, although they were used for flood management as well. Their longevity and durability ensure that they are ideal archives of the change of both topography and climate over the time of their exploitation and abandonment.

During the time period 2016-2021, intensive research was conducted to understand the functionality of the terraces in the area of Petra Jordan. The study included a detailed study of soil deposition strata behind the terrace risers. The combination of soil and carbonate deposits, plant remains, OSL and archaeological dating helps reconstruct the fluctuation of the environment and help explain human settlement patterns in a confined area such as Petra.

This paper will present the results of this multi-disciplinary approach and will demonstrate the fluctuation of the environmental conditions and the adaptations of humans to these changes.

**Keywords:** Paleoenvironment, terraces, Phytoliths, OSL, Soil, Petra,

## **HISTORICAL ISLAMIC ARCHITECTURE IN NORTHWESTERN JORDAN “HERITAGE MOSQUES IN IRBID GOVERNORATE”**

Dua Hani  
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Mosques are Islamic prayer buildings for the communities of Muslims. Such buildings are called “masjid,” “djami’a” or “musalla” This paper discusses “Heritage Mosques” in religious Arabic terminology. The specific term “Heritage mosque” applies to those mosques, which predate the year 1918(Rashidun, Umayyad, Fatimid, Ayubid-Mamluk and Ottoman periods). In the present study, a further limitation of material given by the geographic focus of the study to northwestern Jordan, which is widely congruent with the modern state’s-governorate “muhafaza” of Irbid. The outcome of this paper is a definition of typological and chronological elements, which determine the grades of religious, cultural, and economic value of these buildings.

The researcher and her family originate from this area. Therefore, she is a member of the community who created these buildings. This inspired her to go through such a topic and completing previous work in more detailed manner.

This paper discusses the architectural attributes of several heritage mosques in Irbid Governorate that were established in the early Arabic Islamic ages. It adopted the mixed method by field study approach and the comparative descriptive method approach.

The paper focuses on mosques characterized by the simplicity of form without complexity in the architectural vocabulary, consisting of major components: the praying hall, the mehrab, whereas other mosques also contain other components, such as a Minaret and a place for ablution (wudoo). A comprehensive understanding of heritage mosques is achieved from this study, and a catalogue which provides several information about the types of mosques in Irbid Governorate.

**Keywords:** Islamic, Architecture, Heritage, Mosque, Irbid.

## THE POTTERY OF JORDAN MANUAL

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Pottery is one of the most important archaeological materials that can be relied on for numerous types of analysis, according to many archaeologists, due to the different features that pottery contains in terms of color, technique, shape and other criteria that differ from one era to another. During the past several years, many attempts appeared to outline a classification system and analytical categories for the pottery discovered in Jordan in particular, but there was a problem regarding the integration of pottery discovered in Jordan with the pottery of the Levant or the Holy Land, which was typically linked to Jordan. The goal of the Pottery of Jordan project was to write and illustrate a lab-friendly manual for this pottery. The manual is dedicated primarily to the pottery of Jordan, indeed with parallel examples. A number of well-respected and recognized local and foreign archaeologists contributed to this manual, targeted to students, archaeologists and museum curators. This manual will enhance an understanding of the pottery and its forms, typology and manufacturing techniques. Moreover, we designed an extensive glossary for terms used in pottery analysis and provided a large list of published resources for the pottery of each time period. We intend to publish the manual in Arabic and English.

**Keywords:** Pottery, Chronology, Levant, Manual

## A MARBLE SCULPTURE FRAGMENT FROM THE SITE OF HUMAYMA (ROMAN HAUARRA)

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Over the course of its archaeological investigation, the site of Humayma (Nabataean Hawara, Roman Hauarra) in southern Jordan has produced a range of impressive artwork, including mosaic floors from the Roman fort, carved ivories from the Islamic qasr, and numerous examples of wall paintings from Nabataean, Roman, and Umayyad period structures. In contrast, evidence for large-scale sculpture is conspicuously scarce in Humayma's archaeological record, although not completely absent. The discovery of at least two statue bases and a small fragment of a bronze sculpture from the Roman fort attests to the presence of large-scale statuary. Further evidence comes from a carved marble fragment that was unexpectedly uncovered in the site's Islamic qasr. This fragment displays part of the torso of a statue that likely stood around 60 cm tall. Despite its findspot, the carving technique and the fact that it displays the folds of a girdled chiton convincingly date this sculpture to the Roman Imperial Period. This paper will present this marble fragment and its archaeological context. On the basis of the preserved drapery and available comparanda, this paper will argue for its identification as a small statue of the goddess Artemis, who was venerated throughout the region (although other possible identifications will also be explored). In addition, this paper will place this fragment within the larger sculptural landscape of Humayma and the wider region, and it will consider what its discovery says about the possibility that additional statues once existed at this site.

**Keywords:** Humayma, Hauarra, marble sculpture, Roman art, Artemis

## BRONZE AND IRON AGE PRESTIGE OBJECTS FROM TALL ZAR‘A

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During the excavations on Tall Zirā‘a in northwest Jordan conducted from 2001 to 2011 by the German Protestant Institute of Archaeology and the Biblical Archaeological Institute Wuppertal under the joint directorship of D. Vieweger and J. Häser, an almost unbroken settlement history over 5000 years from the Early Bronze Age to the Ottoman period could be testified. Additional to elaborate architectural features like city walls and temples, a number of prestige objects were excavated from the Bronze and Iron Age strata. The lecture will give an overview of the different kinds of objects which can be interpreted as symbols of status, explain their finding conditions and compare them with finds from other sites in the Eastern Mediterranean. They shed light on the social status of some inhabitants which can be referred to as an elite. They give hints that this elite does not only share the same values and symbols of status in regional but also in international perspective.

**Keywords:** Prestige objects, Bronze Age, Iron Age, Tall Zar‘a, elite.

## NABATAEAN, ANCIENT NORTH ARABIAN, GREEK AND LATIN INSCRIPTIONS FROM BĀYIR (SOUTHEAST JORDAN): A REASSESSMENT

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Pierre-Louis Gatier  
*Université Lumière Lyon 2*

The purpose of this paper is to give a detailed overview of the inscriptions which were discovered in the area of Bāyir during the surveys conducted by the Institute of Archaeology and Anthropology of Yarmouk University and by the Italian ISMEO of Rome in the 1990's. Bāyir, situated in the steppe at the head of Wādī Bāyir leading to Wādī es-Sīrhān, is well-known for its wells. A collection of about 300 inscribed stone blocks and pebbles from the site of Bayir and the surrounding area is kept at Yarmouk University. Some of them, bearing Semitic graffiti, have been published by the late Fawwaz al-Khraysheh and by Hani Hayajneh. Greek and Latin texts are much more rare, evidencing the presence of the Roman army in this part of Provincia Arabia. Two limestone slabs with Latin graffiti and two with Greek ones have been published by Jacqueline Calzini Gysens in 1993 and another Greek inscription was recently published by Pierre-Louis Gatier. The Latin texts will be reassessed and two unpublished Latin inscriptions will be added to this small group.

**Keywords:** inscriptions, Nabataean and ANA, Greek and Latin, Bāyir, Provincia Arabia.

## RAPID TECTONOC EVOLUTION OF THE LEVANT DURING THE PLEISTOCENE AND ITS IMPLICATIONS TO TOPOGRAPHY AND LOCAL LAKES' FORMATION AND DISAPPEARANCE -FACTORS AFFECTING HUMAN MIGRATION AND SETTLEMENT-

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During the Pleistocene human migration and settlement took place in Jordan when the topography and hydrology were very different from their present constellations.

The elevation of the mountains east of the Jordan Rift during Middle Pleistocene has been ~500 masl compared to the present ~1000 masl. On the Plateau, a series of fresh water lakes such as Jafr, Hasa, Qatrana and Swaqa formed and disappeared as a result of the interplay of tectonics and erosion. The existence and disappearance of these lakes seem to have played a major role in human migration from Africa, because these lakes served as water and food provider and settling sites.

The lakes developed a belt of green vegetation attracting animals which were hunted by early men. Tools for hunting and food preparation were produced from flint and assembled next to the former lake shores. The shape of these flint tools allows a coarse dating and documents the arrival of humans hundred thousand years ago and of modern men between 50.000 and 80.000 years ago. But with time these lakes turned into swamps, then drainage channels and lastly dry river beds and that must have had strongly threatened the existence of these humans and caused their migration elsewhere in search for water, food and shelter.

In this article, the topographic and hydrologic evolution of the area during the Pleistocene is discussed and the role of the interplay between tectonics and erosion on the formation and disappearance of lakes and rivers illustrated.

**Keywords:** Highland lakes, tectonics and erosion, human migration and settlement, disappearance of lakes

**THE EARLY NEOLITHIC SITE OF KHARAYSIN (ZARQA, JORDAN): FROM THE LATE PPNA TO THE FINAL PPNB IN THE JORDAN HIGHLANDS.**

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The site of Kharaysin is located in the Zarqa province (Jordan), by the Zarqa River. Seven fieldwork campaigns have been carried out since 2014, in which several archaeological levels dating from the end of the 10<sup>th</sup> millennium to the beginning of the 7<sup>th</sup> millennium cal BC have been documented. This long stratigraphy provides detailed information about the shifts in the environment and in cultural traits in this region of the Jordan highlands during the Pre-Pottery Neolithic. In this communication, we will provide information regarding changes in architecture, agriculture, livestock, funerary customs, technology and symbolism that characterized the transition hunting-gathering to farming in this area.

**Keywords:** Early Neolithic, Zarqa, Kharaysin, PPNA, PPNB

### **FROM JADIS TO MEGA-JORDAN (POSTER)**

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The Middle East Geodatabase for Jordan Antiquities- MEGA- is a national system for the digital documentation and management of the cultural heritage of Jordan. It was built using the Global Positioning System (GPS), and the Geographical Information System (GIS).

MEGA is a joint collaboration project between the Department of Antiquities of Jordan, the Getty Conservation Institute and the World Monuments Fund. It was launched in 2011.

The project aims to build a geographic database of archaeological sites in Jordan, based on an old database known as JADIS, to create an updated registration system of the Jordanian archaeological sites including their boundaries, elements and legal boundaries.

MEGA provides policymakers with assistance in developing tourism plans.

The aim of this poster is to show the differences between JADIS and MEGA through showing variance documentation examples of archaeological sites in Jordan.

Suggestions to improve the system are presented, including the addition of a new layer to improve the data concerning the mega archaeological parks such as Petra.

**Keywords:** Jadis, Mega, cultural Heritage of Jordan, Archaeological Park .

### **WAS SAHAB THE FIRST CAPITAL OF THE AMMONITES?**

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Literary sources indicate that the Ammonites kingdom was established in the second millennium BC east of the Jordan River north of the Moabite kingdom with Rabbat Ammon (present-day Amman) as its capital. It was always assumed that Amman with its present day location (the Citadel and downtown area) was from the beginning the capital of the Ammonites kingdom.

Intensive excavations in Amman and its surroundings including sites on the eastern Jordan Valley have uncovered much material (Archaeological and epigraphic) which throw light on the nature of this kingdom. Much of the work took place in Amman itself (Downtown and on the Amman citadel) and its immediate surroundings. Most of the material culture from these excavations was dated to a later period of the Iron Age and much less evidence of the late bronze and Iron I periods which raise the question where the Ammonites capital was before the 9th century BC.

The major purpose of this study at the DAI-Berlin is to investigate how much of the Ammonite sites including Tell Umeri, Tell Jalul, Tell Safut, Um el-Dananir, Sahab and others, in Jordan Valley (Tell Dier Alla, Tell el-Mazar, Tell es-Saidiyeh, Tell Abu el-Kharaz, Tabaqet Fahil (Pella) relate to the first phases of the Ammonites.

Excavations at Sahab (1972 - 1980), ca. 12 km south East of Amman under the supervision of the present researcher have shown that Sahab was occupied during the second half of the second millennium BC until the end of the first half of the first millennium BC.

**Keywords:** Sahab, Ammonites, Capital, Late Bronze. Iron Age.

## **AL-NAKAB IN THE SHADOW OF ROME AND CONSTANTINOPLE: TIES AND MOVES FROM THE MEDITERRANEAN TO THE EAST (Arabic)**

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In this paper, we interrogate the states apparatus approach in studying Al-Nakab in the Shadow of Rome and Constantinople. We argue that there is a need for a comprehensive discussion to include factors that determine the ties of trade, religion, and political affiliation away from the Mediterranean to the East. These factors are not linked only to empire/state apparatus but should also include other phenomena like the plague, climate change, and the occurrence of earthquakes. Al-Nakab has been given special attention by Western scholars interested in classical periods. This attention has arguably been driven by factors linked to states apparatus with locals, trade, roads, military fortifications, and agriculture. Archaeologists, subsequently, established a dominant interpretation of these factors centered on the rise and fall of Rome and Constantinople in Greater Syria as the central variable of flourishing and decline of local cultures.

A manifestation of such interpretation claims that the disintegration of the Nabataean kingdom is linked to the emergence of the Roman province system of Arabia in 106 A.D., as well as the rise of militarization discourse in this region. These dynamics continued to determine the overall analysis in the period from the 4th to the 6th centuries A.D. This was associated with the flourish of the viticulture and winemaking in this region that was exported via the ancient port of Gaza to the Roman market. The debate was recently renewed following the rise of the environmental paradigm as an attempt to answer, for instance, when and why the Gaza wine' and the associated regional wine trade had collapsed? This question arises following the Arab-Muslim invasion in the 7th century A.D., as the main cause of the collapse.

In our study, we review the current debate over the agricultural resurgence in this region from the Hellenistic period to the rise of the Umayyad dynasty.

**Keywords:** Al-Nakab, state apparatus, Nabataean kingdom, viticulture.

## **AN ARABIAN LIFE COURSE: A VIEW FROM HITHERTO UNPUBLISHED ANCIENT NORTH ARABIAN INSCRIPTIONS FROM WADI BAYIR – SOUTHEASTERN JORDAN**

Sodod Abdel-hakim Al-Jamahneh  
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Inscriptions are considered the most reliable source of ancient cultural history as they are generally devoid of myths and narrate the facts. They often appear as important elements in most social and organizational settings, especially in different parts of the Ancient Near East. They are considered as a mute ‘informant’ and valued for their contents as a reflection of thoughts of their original authors. On the basis of a collection of Ancient North Arabian inscribed stones discovered in Wadi Bayir— Southeastern Jordan—as a yield of epigraphical surveys conducted by the Institute of Archaeology and Anthropology in the late eighties and beginning of the nineties of the last century, the present paper aims to shed light on the socio-ecological spheres that can be gleaned from this epigraphical source to better understand the life course of the populations that utilized Wadi Bayir and its environs during the second half of the 1<sup>st</sup> millennium BC. The texts include direct and indirect references, although scanty, that could be deconstructed, analyzed and reconstructed to serve the goals of the present paper, e.g. trade, as the Wadi served as a caravan route leading to Wadi al-Sirhan; cattle grazing of the settled and mobile tribes, given the richness of water resources and installations at the time; performing rituals; guarding in a military context; grief over the deceased, etc. Words and lexemes indicating the mentioned features will be philologically analyzed within their Semitic tradition of the Arabian and Levantine realms.

**Keywords:** Wadi Bayir, Nomadic / Bedouin life, Inscriptions, Pre-Islamic Arabia, cultural history, Jordan, Ancient North Arabian

## **HELLENISTIC-ROMAN WALL PAINTINGS FROM TALL ZAR‘A**

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During excavations on Tall Zar‘a in 2018 under the direction of Dr. Katharina Schmidt (GPIA), large quantities of painted wall plaster were found in Area II, where building structures from the Iron Age to the Roman period were investigated. The fragments were mostly very small, so it can be assumed that they were relocated during rebuilding and levelling. No pieces were found in situ, nor could they be reliably assigned to a building or room. However, there seem to have been different decorations in painting over a longer period of time. The multi-coloured painting is predominantly imitations of natural stones, achieved with various techniques. Only one piece can be considered part of a figurative painting.

One peculiar decoration with the imitation of stone stands out, for which there are comparisons in Gerasa and Gadara. The finds from Gadara suggest a date in the time around 200 BC and thus into a period from which no wall paintings from Transjordan have yet been published. Thus, the analysis of the fragments from Tall Zar‘a can make an important contribution to the study of wall

painting in Transjordan. In addition, conclusions can be drawn about the development of the settlement on the tell. Obviously, the inhabitants of Area II were familiar with decorations in the Greek-Macedonian tradition.

The proposed lecture will examine the beginnings of the adoption of Greek wall decorations in Transjordan as well as the relationship between the two neighbouring sites on Tall Zar‘a and in Gadara in Hellenistic-early Roman times.

**Keywords:** Tall Zar‘a, Wall Painting, Gadara, Private Architecture, Greek-Macedonian.

## **NEW ASPECTS OF SOCIAL LIFE IN THE HISMA REGION—SOUTHERN JORDAN IN THE LIGHT OF NEWLY DISCOVERED ANCIENT NORTH ARABIAN INSCRIPTIONS**

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The Ancient North Arabian inscriptions are the primary source for studying the societies of Pre-Islamic Northern Arabia. Over the past fifty years, field efforts have joined forces to explore thousands of inscriptions in the border areas between Jordan and Saudi Arabia, especially the Hisma region in southern Jordan. The inhabitants of this region and those migrating through it left thousands of Ancient North Arabian (Hismaic) and Nabataean graffiti, which fall, on the basis of weak conjectures drawn from few cultural and historical references and circumstantial evidence, in a period extending between the 4<sup>th</sup> century BC and the 4<sup>th</sup> century AD. It is not easy to draw a clear picture on the social and religious life of the societies that inhabited or crossed these areas during the aforementioned era, as the inscriptions hitherto known to the scholarly community in this field provide us with very scanty information thereabout. However, the present paper will try to assemble the available evidence from the newly discovered inscriptions in an attempt to reconstruct as much as possible, in the context of the Semitic tradition, some features of the social life that prevailed at the time, e.g. kinship relations and terms, the relationship of the inhabitants to the places and spaces as indicated in the inscriptions, and the rock drawings accompanying the inscriptions. On the other hand, it will tackle words and lexical items that refer to the daily activities and characteristics of the authors, such as hunting, grazing, war, love, illness, and longing. Light will be shed on the divine names the authors invoke and their relationship to the places where the inscriptions are concentrated.

**Keywords:** Ancient North Arabian, Hismaic, Cultural History, Semitic Epigraphy, Pre-Islamic Arabia, Social History

## **THE CONTRIBUTION OF OTTOMAN TURKISH TRAVELOGUES TRANSLATED INTO ARABIC AND ENGLISH FOR DELINEATING AND GIS MAPPING THE DARB AL-HAJJ AL-SHAMI**

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Claudine Dauphin  
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The translation into Arabic by Abdul Qader al-Husan (SHAJ 9, 2012) of the Ottoman Turkish prose narrative, the *Seyâtnâme*, of Awliya Chelebi's Hajj journey to Mecca through Jordan in 1671 C.E., and its recent translation into English by M. Ben Jeddou and C. Dauphin, followed by those of other Ottoman pilgrims, in particular an earlier exceptional poem by Judge Badawi (AH 1061, 1650 C.E.), show, thanks to punctilious GIS mapping, the extent to which the pre-18<sup>th</sup> century Ottoman Hajj route was not standardized.

Not only did the Hajj caravan make *détours* ( unsuspected until now) from the main roads, but long stays in some pilgrim camps (notably ten days at Muzayrib) allowed for the pilgrims to add to their "Hajj passports" the stamps of local pilgrimages to Moslem saints (Awliya Allah). In turn, these sites provide precious textual and archaeological information as to layout and function of various constituents of pre-modern Moslem pilgrim camps.

Moreover, from GIS mapping allied to the historical sources, emerges a fascinating network of roads and paths of local pilgrimages offshooting from and interlocking with the main Hajj pilgrimage routes.

**Keywords:** Ottoman, travelogues, Darb al-Haj al-Shami, GIS mapping, Awliya Allah pilgrimages

### **WHERE DHIBAN MEETS ATARUZ: THE CITIES, SETTLEMENTS, AND ROAD SYSTEMS IN ANCIENT NORTHWEST MOAB**

Chang-ho Ji

*La Sierra University*

Ataruz was an eminent cultic center in central Jordan during the Iron Age II period. The presence of a major temple at Ataruz led to the development of several highways to connect the city with other urban centers in the Dhiban Plateau and the Madaba region. Of these roads, the most important was the highway linking Ataruz with Dhiban in the south, the capital city of the Moabite kingdom. Archeological surveys indicate that this road proceeded northwest from Dhiban to Ataruz across Sayl Haydan, by way of Khirbat Bayda and Khirbat Qariyat. Bayda was a prominent Iron II city formed by a casemate-defense system and many buildings inside the city walls. Equally salient, Qariyat contains numerous ceramic, architectural, and industrial remains, evidence datable to Iron II, in addition to an extensive cemetery with multiple underground rock-cut tombs. Several smaller settlements were also located along the road between Bayda and Qariyat. The Mesha Inscription may suggest the existence of this road, implying the Moabites took this route for their military campaigns against Ataruz. Qariyat may also appear in the inscription as a Moabite town with cultic functions. The goals of this paper are threefold: (1) Reconstruct the course of the ancient Ataruz-Dhiban highway, (2) Present archaeological survey findings from Qariyat, Bayda, and their vicinities, and (3) Consider their connections with Ataruz based on historical records and the recent results of Ataruz excavations.

### **EARLY ISLAMIC AL-ḤUMAYMA: NEW INSIGHTS FROM ANALYSIS OF THE CERAMICS FROM FIELD F103**

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*University of California San Diego*

This paper presents preliminary results of analysis of the ceramics from the 1992-2002 excavations at al-Ḥumayma Field F103, the 'Abbasid family residence. These results provide insight into the

socioeconomic connections the site had to the surrounding region during the ‘Abbasid family’s residence at the site in the early 8<sup>th</sup> century AD/late 1<sup>st</sup>-early 2<sup>nd</sup> century AH and in the period following their revolution and ascent to the Caliphate. Particular attention will be given to the development of the hand-made ceramics typical of the Middle and Late Islamic periods in Jordan, which begin to appear in F103 at the Early-Middle Islamic transition. The paper will situate the ceramics in their broader context in southern Jordan, comparing them both to published ceramics from nearby sites, notably Ayla (al-‘Aqaba), and sites farther to the north, especially in northern Wadi ‘Araba. Ultimately, although still preliminary, analysis of the ceramics from F103 allows for several conclusions to be presented about the ways in which al-Ḥumayma’s sociosphere shifted and changed between the 8<sup>th</sup> and 11<sup>th</sup> centuries AD/late 1<sup>st</sup> and 5<sup>th</sup> centuries AH.

**Keywords:** Early Islamic period, ceramics, southern Jordan, socioeconomics, ‘Abbasid family.

## THE ORIGIN OF THE AMMONITES

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As a result of his intensive survey during the 1930's in Jordan, Glueck came to the conclusion that there was little evidence for settled occupation in the area located to the south of the Zarqa River in the period between 1900 to 1300 BC. On this basis he claimed that the kingdoms of Ammon, Moab and Edom emerged suddenly towards the last phase of the Late Bronze Age. Based on the results of recent archaeological activities in the area under discussion, Glueck's conclusion is not acceptable any more. Anyway, scholars studying the Iron Age in Jordan have raised several questions concerning the origin of the people settled in south of the Wadi az-Zarqa after the Late Bronze Age. One of these questions is whether there were no settled people living in the area to the south of the Zarqa River. If not, one will ask: Where did the Ammonites, Moabites and Edomites come from? And why did they settle in that area at this particular time?

To answer the above questions, scholars proposed several answers such as a new wave of migration or invasion that became known as the Ammonites, Moabites and Edomites. Mendenhall suggested that a peasant revolt happened in Palestine and caused the socio-economic collapse towards the end of the LB and enforced people to escape across the Jordan River. He added that these refugees with others who had migrated from Anatolia and southern Syria were the founders of the kingdoms of Ammon, Moab and Edom. Other proposals have been presented by McGovern who attributed the origin of the Ammonite Kingdom to the collapse of the Late Bronze Age city-states system. Miller, Worschech, Knauf and Bartlett suggested that the origin of the Moabites and Edomites should be sought in the preexisted communities of the highland plateau of Jordan. More discussion about the origin of the Ammonites, Moabites and Edomites were presented by other scholar such as Piotr Bienkowski, Larry Herr, O. LaBianca, Younker, and several others.

This paper aims at restudying all the already published visions about the origin of the Ammonites and to present an alternative opinion based on the results of the archaeological surveys and excavations conducted in the area extending between Wadi az-Zarqa in the north and Wad al-Moujib in the south. In addition, the Late Bronze Age literary sources will be consulted

## TURNING AMMAN DOWNTOWN TO A TOURIST DESTINATION THROUGH THE EXPOSURE OF THE ROMAN BATHS AT AL-HASHEMI STREET

Murad Kalaldeh

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Philadelphia, and later called Amman, has its Roman Theater built (138-161) CE and its Acropolis & Castle set the cornerstone of its development.

The city plan conforms to the lines of the valleys in which it lies (Segal 1981). As a valley city, it received huge amounts of water due its large catchments area. The Romans made use of this topographic to supply their Baths and Secure their needs of drinking water.

By the beginning of the 20<sup>th</sup> century, and with the relocation of settlers in the wadi and with the absence of the state before 1921, construction works went with very little attention to the burred history below the accumulated sediments.

The Nymphaeum dates to the 2<sup>nd</sup> century and was restored in 2018. One year later, Amman witnessed a major flood which urged the Municipality to execute an expansion of the existing culvert to absorb the increasing water quantities running into the culvert. Excavations done 2020 to expand the capacity of the culvert near the library intersection has uncovered a Roman Bath. The Departments of Antiquities demanded the stop of construction works, and later the Municipality cancelled Al-Hashemi Street culvert section, filled the excavation, and paved the road above.

This paper questions the Roman Baths burial done in December 2020 and calls for its disclosure. It also discusses the potential of the revival of Amman downtown through turning Al-Hashemi Street to a pedestrian path from Nymphaeum to Odeon and the refurbishments of its shops to serve its tourist visitors.

**Keywords:** Amman, Roman Baths, Box Culvert, Nymphaeum, Infrastructure.

## **APPLICATION OF GIS DATA IN ARCHAEOLOGICAL SURFACE AND EXCAVATION RESEARCH IN SOUTHERN JORDAN - HLC PROJECT**

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The presentation will discuss the use of GIS tools in research and documentation conducted in Southern Jordan by the HLC project (Heritage-Landscape-Community) carried out by the Institute of Archeology at Jagiellonian University. In our field and research activities, we use GIS system for several different purposes: to maintain a database of surface artifacts location, for field navigation with the use of vector geological maps and maps created by other archaeological projects, to create visualization of SRTM data for the areas covered by the research and to create plans and 3D visualization of excavation areas based on photogrammetry.

Our previous research showed that methods of measuring objects based on 3D models turn out to be particularly useful. They make it possible to create descriptions of various archaeological structures also after the completion of research in a given area. Using data in a 3D environment also allows to confront traditional visibility analyzes with a simulation that makes it possible to

visualize the visibility of objects in the field, taking into account additional factors like atmospheric and lighting conditions.

During the presentation we will also show attempts at visualizing the position of artifacts and calculating the volume of archaeological objects with use of the Boolean algebra. In this rather technical discussion particular attention will be paid to freely available and open source applications.

**Keywords:** GIS in archeology, 3D visualizations, visibility analysis, open source software for archaeologists, Prehistory of southern Jordan.

### **THE PETRA HINTERLAND SOCIAL LANDSCAPES PROJECT: RECENT ATTEMPTS AT INVESTIGATING THE SOCIO-POLITICAL MAKE-UP OF RURAL PETRA**

Will M. Kennedy

*German Archaeological Institute*

Recent research at Petra has identified different social groups that were organized within spatially defined districts. Nabataean Petra's cityscape was thus divided into distinct social spaces. This highlights a social structure that was deeply rooted in family, clan or tribal traditions.

In addition to the extensive explorations in urban Petra, more intensive investigations of rural Petra have now also gained scholarly attention. In this context, important archaeological sites were recently identified as possible markers of distinct social landscapes in Petra's surroundings. These include rural sanctuaries, isolated cultic installations, funerary monuments and rural mansions. Arguably, such sites highlight the complex social structure of Petra's hinterland, which may be described as a patchwork of various social groups - as is assumed for urban Petra.

As the identification and analysis of these sites is so far based almost entirely on preliminary survey results, the Petra Hinterland Social Landscapes Project seeks to amend the record by investigating selected sites more in-depth. The project therefore aims at enhancing our understanding of the socio-political makeup of Petra's hinterland. This paper will discuss selected sites and examine how they might offer new perspectives on the social stratification outside Petra's urban limits in Nabataean-Roman times.

**Keywords:** Petraean hinterland, landscape archaeology, architecture, Nabataean social structure

### **BETWEEN MYTH AND REALITY: THE TEXTS AT THE SERVICE OF ARCHAEOLOGY (POSTER)**

Lamia Kenoussi

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From the 19th century onwards, expeditions by European scholars and explorers to Jordan (Arabia Petraea) increased in number. Spurred on by stories from the Bible, some of these scholars sought to find the sites mentioned in the Old Testament, which gave birth to the field of biblical archaeology. This trend, however, was reversed in the middle of the 20th century, and from the 1960s-70s onwards, archaeological surveys and excavations multiplied and became more specialized, with increasingly rigorous scientific methods. Archaeological science gradually reduced the primacy of texts. Nowadays textual sources are considered a historical source equivalent to archaeological data. The narratives reported by these texts can underline a historically true phenomenon, which collective mentalities will amplify, as in all myths. From the

point of view of these narratives, "sacred texts" are rooted in their history, as they purposefully transmit information from their respective times. As for those who conveyed these texts, they were influenced by the historical contexts in which they lived, such as the customs and habits at the time of writing and/or transmission. Historical criticism and the publication of critical editions have opened a field of possibilities that was not possible in the past, both for the Old Testament and the Qur'an. This poster will review the state of research demonstrating the link between textual sources (such as the Qur'an, Arab-Muslim historiography, the Old Testament, Greek and Latin sources, and Egyptian papyri) and archaeology (including Buseira, Wadi Ramm, Ghor as-Safi, Timna, Midian) and the deity of al-'Uzzā.

**Keywords:** Archaeological data, Qur'an, Old Testament, Arabic historiography, classical texts.

### **TRITUAL AND FEASTING IN EARLY BRONZE AGE MURAYGHAT**

Susanne Kerner

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The EBA I dolmens and structures in Murayghat (central Jordan) mark the site as an important point for ritual activities. The setting of the central knoll (reminiscent of an amphitheatre), which is covered by several structures built from standing stones, surrounded by hills on the northern, western and southern side, established the stage for a wide array of ritual activities. These standing structures measure over 10 m in length or diameter and form open enclosures. The dolmens that are situated on these surrounding hills would have enabled the (secondary?) burial of individuals and groups, possibly from a regional and not just local context .

The recently uncovered large and unusual pottery bowls, having a volume of around 25 l, could have been used in cultic/ritual activities and feasts, which might have had a role in the social web of the EB society. A society that needed restructuring after the end of the Chalcolithic period. The excavation of a large building with over 10 m length and 7 m width, begun in 2019 and hopefully continued in 2022, also indicates a more public character of the architecture at the site.

The lecture will give only a cursory overview of the latest results and deal more with the relation between archaeological evidence and social make-up of the EBA society.

**Keywords:** Early Bronze Age I, Ritual, Feasting, Dolmen, Social Organisation.

### **INTERPRETATION OF NEOLITHIC RUBBLE LAYERS FROM BA'JA AND BASTA SITES USING LUMINESCENCE DATING**

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Murray, A.

*Aarhus University*

Many of the 7<sup>th</sup> millennium settlements in Jordan preserve widespread thick rubble and gravel layers in the occupation areas. Some scholars identify these as "Yarmoukian landslide" and they seem to occur mostly in the time interval 8.6- 8.0 ka. The layers are described as accumulations of

depositional debris covering architectural structures, and consist mainly of angular or rounded stones, larger than fist-sized.

Interpretations have been put forward to explain these layers from an anthropogenic and natural perspective. Previous studies have been based on associating these layers with damage and destruction of Neolithic sites, and in terms of climate change in the Levant and eastern Mediterranean. Factors related to the geomorphological setting of the site, such as flash floods and tectonic events, have been considered.

The most widely accepted explanation relates these layers to the Rapid Climate Change that took place during the Holocene and is associated with torrential episodic rainfall and flash floods in the region. Gebel (2009) has argued that an acceptable interpretation is not necessarily “mono-causal”. To improve our understanding of these widespread layers, an interdisciplinary approach should include an archaeological, chronological and stratigraphical description of the layers, and relate this to a climatic and seismic analysis of the region. In this work, we study the timing of the deposition of the rubble layer at two sites in Southern Jordan: Ba’ja and Basta, using luminescence dating. The new information will be used to identify the correlation between different sites, not only by the composition resemblances, but also by the time of deposition.

**Keywords:** Rubble layers, Neolithic, Ba’ja, Basta, OSL.

## **VALORIZATION AND SITE DEVELOPMENT AT THE IRON AGE SITE OF BUSAYRA**

Hussein Khirfan

*ACOR*

Located in the Tafila Governate, in the Busayra District, a large archeological site is seated on the top of one of the hills in the Wadi Araba Region. The Busayra secondary school is built on the southern-east area of the site.

Excavations on the site began in the 1970’s and continued until 2015. The Department of Antiquities and USAID SCHEP planned to rehabilitate the site to receive visitors and engage the local communities.

There are many Iron Age sites spread throughout Jordan and the challenge is in presenting and managing such sites. In our case, as presented in this paper, we took the challenge through a minimal intervention approach and focused on installing a site trail, information signage and entrance modifications. The site was improved and prepared by local direct involvement, and with the completion, it also afforded an urban park for the community. The park provided a walking pathway with a wide ranging view of Wadi Araba and a nice breeze from the Dead Sea.

With direct supervision from the USAID/SCHEP team, the intervention began with raising awareness among a group of unemployed fresh graduate students where they gained knowledge from their interactions with the site including lessons learned in site development utilizing both national and international regulations and in the use of local materials to improve the site. With this intervention method, the students and community were introduced to the Iron Age site valorization when implementing the project plan.

A mural timeline about Busayra and a shaded area with an interpretive panel was added at the site entrance. The students at the secondary school were engaged by providing them with a “Heritage Lab” adapting and utilizing unused old school rooms into hands-on learning spaces.

The Iron Age site of Busayra is considered a unique model of how to present such challenging sites to the public with the additional benefit of capacity building for students and the community.

**Keywords:** Iron Age site, Busayra, Sustainable development, local community participation.

## **AN IRON AGE II FEMALE CERAMIC FIGURINE FROM UMM SWEIWINEH, CENTRAL JORDAN**

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Taher Al-Gonmeen  
*Department of Antiquities of Jordan*

This paper deals with a typical Ammonite female ceramic figurine discovered during the rescue excavation conducted at Umm Sweiwineh in 2014 in Amman. The paper aims at addressing the iconography, typology, and excavated context of this Iron Age II terracotta figurine. It also discusses its production technique, fabric, Munsell color, prevalence and function. These figurines are usually made of a reddish or pinkish or buff fabric and characterized by the head cover and jewelry such as earrings and pendants around the neck. Manufacturing these figurines required an artistic surface treatment, a careful choice of clay, the mineral ratio of the clay, and additive materials especially lime grits, and most importantly to control the kiln at a suitable firing temperature. We presented it typologically and dated it based on parallel corpus of figurines excavated in well-dated sites and contexts in the southern Levant from the Iron Age II. This distinct type of the anthropomorphic figurines was wide-spread during the first millennium BC since it was unearthed in varied sites and contexts in central Jordan.

**Keywords:** rescue excavation, Umm Sweiwineh, Ammonite figurines, Iron Age, ceramic figurine, central Jordan.

## **SOUTHERN JORDAN IN THE LATE PREHISTORY. NEW DATA FROM POLISH ARCHAEOLOGICAL RESEARCH CONDUCTED IN YEARS 2019-2021**

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The presentation will discuss state of research conducted since 2017 by Jagiellonian University (Poland) team in southern Jordan, with a special attention to the excavations conducted in years 2019-2021.

During this period the polish team tested by excavations three sites located in southern Jordan. New data derived from these works allow us for a new of conclusions to be drawn about the human groups that functioned in the south during late prehistory, or to review some old ones.

Excavated sites (Umm Tuweyrat, Huseinya, Wadi Feynan 101) build a new image of humans presence in this area, show his everyday functioning, but also elements of spiritual culture and attitude to the surrounding landscape. On one site, the field of dolmens with burials was examined, and on the other two sites, settlement and farm structures. A lot of environmental data has been obtained, which allows for in-depth analyzes concerning this important period. In the presentation, we try to interpret these data, describe the methods of functioning of people from Chalcolithic to the Bronze Age, and indicate the gaps in our knowledge, which, however, are filled with each year.

**Keywords:** prehistory, Bronze Age, Chalcolithic, southern Jordan, Wadi Feynan, dolmens.

### **HUMANS AS ECOSYSTEM ENGINEERS : A WAY FORWARD FOR MEETING THE SUSTAINABILITY CHALLENGE**

Oystein S. LaBianca  
*Andrews University*

The frames of reference that have dominated our gaze into the past as archaeologists working on the historical past in Jordan have, till now, tended to be shaped by civilizational, imperial and even denominational lenses. Given our planet on the verge of ecological catastrophe, the status quo will no longer suffice, and may even retard efforts to address the sustainability challenge in a timely manner. To address this challenge, an approach is needed to archaeological interpretation that focuses attention, in the broadest sense, on humans as ecosystem engineers. As a species, humans have surpassed all other living animals in impacting the ecosphere and in reshaping their own sociosphere as well as those of other living creatures. Indeed, our activities as humans have accelerated in recent years to such an extent that they are overwhelming the great forces of nature—climate, sea level rise, species extinctions, and much more. We have thus entered the era of the Great Acceleration and the Anthropocene—when human activity has become the main driver of environmental changes. The story of humans as ecosystem engineers is one that spans all historical eras, from the Paleolithic down to the present while it also engages analytical lenses and perspectives from the natural and social sciences as well as the humanities. The presentation will make the case for the story of humans as ecosystem engineers providing not only a timely, but also a more inclusive approach to narrating the long-term past of Jordan's history and archaeological heritage.

**Keywords:** Ecosystem Engineers, Great Acceleration, Sustainability Challenge, La Longue Durée, Jordan.

### **LIVING IN PETRA: RUPESTRIAN DWELLINGS IN THE WADI AS-SIYYAGH (AND OTHER EXAMPLES)**

Mechthild Ladurner

*Independent Researcher*

The once densely populated ancient residential quarters in the center of the Nabataean capital are little known and have not been comprehensively documented to date. The characteristic Petraean form of housing in these quarters is that of the rock-dwelling, a – as the evidence suggests – hybrid housing form, consisting of rock-cut rooms and build parts. Dwellings of this type occupy large parts of the Wadi as-Siyyagh, the Wadi ed-Deir, the southern side of al-Habis, and Wadi al-M'aysrah ash- Sharqiyya and are represented with numerous examples in western Wadi al-M'aysrah, Wadi Abu 'Ullayqa, the foot of Jabal al-Khubtah, Wadi Farasa, and the southern area of Mghar an-Nasarah. These areas hold great potential for research into the overall urban fabric of the ancient metropolis as their study might add valuable information on the non-elite urban population of Petra and the organization of their habitations. Therefore, detailed and accurate documentation of these areas ultimately contributes to a more conclusive overall picture of the city.

This paper will provide a brief insight into our pilot campaign's aims, methodology, and preliminary results, studying some of the areas mentioned, including the presentation of several important and/or characteristic examples of rupestrian dwellings.

**Keywords:** Petra, Domestic Architecture, Rock-Cut Houses, Urban Fabric, Structure from Motion.

**TYRAS PRELIMINARY RESULTS: CORONA SATELLITE-IMAGERY AND LEAST COST ANALYSIS IN NORTHERN JORDAN**

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This contribution presents the results of the first season of the Tell Ya'moun Regional Archaeological Survey (TYRAS), located in the Northern Jordan. In our pre-survey work we employed different methods of identifying remotely archaeological sites in the area combining the study of historical satellite-imagery (CORONA and HEXAGON), Least Cost Analysis (LCA) and targeted site survey.

Historical high-resolution satellite images have been successfully used in the archaeological research since the declassification of the US intelligence material in 1995. Most of previous research concentrate on the identification of tell sites in the large river valleys and level desert areas. Tell Ya'moun lies in the southern fringes of Irbid plain between the Jordanian highlands in the west and desert steppe in the east. As identification of the archaeological sites on the mountainous landscape is more complicated in satellite-imagery analysis, LCA was used to direct the investigation on most potential areas. LCA is geospatially focused quantitative approach helping to understand how people may have moved across the landscape. A network of Least Cost

Paths (LCP) was built across the survey area and this data was used to guideline in the examination of the satellite-imagery analysis. In geodatabase the identified sites are categorized and delimited based on their probability, type, and preservation to be confirmed during the field survey.

**Keywords:** Archaeological survey, CORONA satellite-imagery, least cost analysis.

## **HERITAGE DEVELOPMENT AND URBEN REVIVAL: AMMAN CITADEL SOUTH SLOPE PROJECT AS A CASE STUDY**

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Nizar Al Adarbeh

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Working toward the sustainability of archaeological sites through continuous rehabilitation and development is considered the first way to preserve historical and cultural identity. With this in mind, the project to develop the southern slope of the Amman Citadel is one of the most important elements in the process of developing and rehabilitating Amman's historic downtown area.

The project aims to create new urban spaces with vibrant environment that magnifies the city center, highlights its historical and heritage status, and enhances the role and position of the archaeological site of Jabal Al Qalaa as an important destination for visitors to the city of Amman by creating an integrated service system that meets the varied needs of the tourist and the local community.

In this paper, attention is directed to the southern slope of Jabal al-Qalaa through the development of a new tourist path linking the archaeological southern gate of the site with the site of the Roman amphitheater in downtown Amman by rehabilitating and utilizing the ancient staircase that connected the upper city to the lower city during the Roman period, uniting ancient and modern Amman. This project represents a good practice in partnership among various stakeholders including the Ministry of Tourism and Antiquities of Jordan, the Department of Antiquities of Jordan, the American Center of Research (ACOR) / Sustainable Cultural Heritage Through Engagement of Local Communities Project (USAID SCHEP), as well as the Greater Municipality of Amman.

**Keywords:** Heritage Development, Urban regeneration, Sustainability, Rehabilitation, Amman Citadel.

## **HOW PEOPLE OF JORDAN USED THEIR LEISURE TIME DURING THE EARLY NEOLITHIC PERIOD?**

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Worldwide entertainment in the ancient times as well as during our present time is part of human social life. It is clear that people through ages had leisure time to win or lose at games of chance or skill. People during the Neolithic Period had ways to spend their leisure time. The excavations at some Neolithic settlements in Jordan revealed several of the oldest game boards yet known. The presence of complete game boards at Beidha, Ain Ghazal, Es-Sifiya, Abu-Tulayha and Hamarash sites in the early Neolithic Period should be taken to represent the earliest evidence of human game playing in Jordan. This paper will shed some light on the Neolithic people of these mega sites

whether they had leisure time to win or lose game during their cultural and social development. These recorded game boards in Jordan resemble to certain degree the design of what is today in some of the Middle East countries called Mangala.

Unfortunately, no clear evidence for game pieces was attested, small semi-translated colorful pebbles 1-2 cm. in diameter found in considerable quantity from various contexts including floor deposits may have substituted for them. We do not know whether the playing pieces were probably worked or not worked pebbles. It is likely that the pebbles and the goat dung were used much like they are today by the Jordanian villagers.

## IT'S ALL GOING ACCORDING TO PLAN: AN INVESTIGATION OF THE CHAÎNE OPÉRATOIRE OF KHARANEH IV

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The multi-component Epipalaeolithic site of Kharaneh IV, located in the Azraq Basin of eastern Jordan, documents just over 1000 years of occupation by hunter-gatherer groups during the end of the Last Glacial Maximum. Multiple lines of geomorphological, faunal, and archaeobotanical evidence indicate that the environs around the site were well-watered, lushly vegetated, and rich in a wide variety of animal species, clearly drawing human populations to the area. Early and Middle Epipalaeolithic groups congregated repeatedly and for prolonged periods in this verdant landscape, perhaps coming as far as the Mediterranean and Red Seas. Focusing on lithic technology, we explore some of the strategies of these eastern Jordanian groups that resulted in particular patterns of settlement, subsistence and interaction, including the re-occupation of Kharaneh IV. This paper will discuss changes in lithic technology at the site from the Early to the Middle Epipalaeolithic. These changes will be examined through the conceptual framework of the chaîne opératoire; where the entire production, use and discard sequence is considered as integral to understanding how stone tools were developed and maintained at such a unique aggregation site. Changes in the chaîne opératoire from the Early to the Middle Epipalaeolithic illuminate the different strategies employed by the inhabitants of Kharaneh IV, and when paired with other aspects of material culture, highlight changes in these communities over time and their adaptations to a dynamic landscape unlike that of today.

**Keywords:** Epipalaeolithic, lithics, chaîne opératoire, Azraq Basin, environment.

## PRE-POTTERY NEOLITHIC A EXCAVATIONS AT SHARARA

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Sharara is located above the deeply incised gorge of the middle Wadi Hasa, largely invisible to passing travelers and located in an extremely rugged landscape. This landscape setting is almost the exact opposite of what would be anticipated of an early Neolithic site, where most PPNA sites appear to be well-placed to exploit a range of resources including areas suitable for cereal cultivation. However, our fieldwork shows that although Sharara may be at the lower range of PPNA site size, it is in no way a marginal site. Excavation has revealed an elaborate built environment that fused together a unique ritual structure with a dedicated mortuary space, set alongside quotidian domestic structures . The site of Sharara suggests that the PPNA landscape was more densely occupied than previously thought and that sites filled a number of different roles in this Neolithic landscape.

**Keywords:** Neolithic, Pre-Pottery Neolithic A, Wadi Hasa,

## CULTURAL HERITAGE AND THE FIGHT AGAINST ILLICIT TRAFFICKING IN JORDAN

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Jordan is rich with its archaeological and natural sites that form an essential part of the history and heritage of various peoples. This cultural heritage constitutes a critical national wealth, and therefore it is necessary to preserve and protect it from the threats, such as illegal excavations and illicit trafficking of cultural items. To support the protection of Jordan's cultural heritage, the American Center of Research (ACOR) initiated a collaborative project to enhance national and international efforts to preserve and protect this heritage and highlight Jordan's role in preventing illicit trafficking across the region. This paper presents an overview of the project and its goals, accomplishments, and future plans to solidify Jordan's efforts to fight against illicit trafficking on the local, regional, and international levels.

**Keywords:** Illicit trafficking, Jordan, cultural heritage, archaeology.

## SUPPLYING THE MEDINA. TRANSFORMATION FACILITIES OF AGRICULTURAL PRODUCTIONS IN SHOBAK DURING THE MIDDLE AGES

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The following paper presents some results of archaeological analyses on a series of productive buildings located in the castle of Shobak and its surroundings (southern Jordan), as well as their discussion in the wider context of the site.

The research, carried out within the scientific framework of the “Medieval Petra/Shobak project” of the University of Florence, has the main objective of identifying stratigraphically the urban setting outside the castle and its rural resources in the centuries 12th to 16th A.D. (Marcotulli 2020; Ponticelli 2021). The survey methodology follows the “Light Archaeology” system, which integrates the Landscape and Building Archaeology procedures to understand the territorial context in its complexity and diachrony.

In particular, the identification of some transformation facilities, as the presence of a water mills district (six mills with penstock tower located half coast in the wadi Al-Raghayia and wadi Al-Ansur) added to the already ascertained olive oil soap production (Vannini, Marcotulli, Ruschi 2013; Marcotulli, Pruno 2018; Pruno, Ranieri, Marcotulli 2020), enrich the interest for the exploitation of agricultural productions at Shobak and appears consistent with the ‘urban’ turn the castle underwent during the Ayyubid and Mamluk periods.

**Keywords:** landscape archaeology, building archaeology, Shobak, Middle Ages, water mills.

## **MADABA ARCHAEOLOGICAL MUSEUM: CHALLENGES AND OPPORTUNITIES**

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As part of the Madaba Regional Archaeological Museum Project (MRAMP) there were several training workshops for the Madaba Museum staff in particular and Department of Antiquities staff in general. The training included handling, transporting, organizing, documenting, conserving, and packing the archaeological and ethnographic museum collections. As well, a manual for handling the artifacts was published. There were reorganizing for the rooms in the current Madaba Archaeological Museum where a new exhibition area and new storerooms were refurbished, and museum collections were transported from old areas to the new ones into an organized and safe environment. The local staff were trained for this work and then applied their knowledge and experiences through the project. They were cooperative with everyone and executed the project as teamwork in spite of some challenges and difficulties they encountered, but they were dedicated to progressing the required objectives of this project. The planning of the project, the cooperation between the consultants and the local staff, and all the processing of transporting, handling, and documenting the collection are well deserving to be recorded and followed by other museums around Jordan. Therefore, the importance of providing opportunities for human resources in museums will be highlighted. The future perspectives for the Madaba Museums and the sustainability of this project are all will be discussed in this paper.

**Keywords:** Madaba, Archaeological Museum, Storage, Handling, Staff.

## **ANALYZING USER GENERATED CONTENT ABOUT KARAK CASTLE ON TRIPADVISOR**

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Information technology plays a major role in tourism now a day through supporting business customer communication channel, E-commerce and virtual reality through commodification and commoditization the destination, enhancing the tourist experience and augmented reality and destination image formation. It makes destination more accessible through using navigation applications and make the resources more available .Its highly involved in destination image formation it changed now from image projection –to image creation.

reviewers opinion have a significant influence on peoples decision process when choosing a destination, site managers have to take in consideration the importance of customer’s generated review . by using content analysis on trip advisor related to karak castle this study aims to find out the factors that stands behind making the visitors to the castle as a good or bad experience. The study find out many reasons and difficulties are facing the visitors on their trip to karak like road signs, traffic jam, parking ,guide and shortage of site presentation.

Although the number of reviews are not much according to the high number of annual visitors to the castle but they give a clear Idea about the visitors need and visitors experience in the site.

It seems that the low rate reviews are corresponding with unpleasant incident or moment such as reaching the castle, finding parking area, the restaurant was bad, or the guide was not qualified and or asked for high amount of money.

Solving these problems need holistic and integrated approach through participating of all the stakeholders and partners in karak city like ,department of antiquities ,ministry of tourism and antiquities ,karak municipality , local community ,traffic department ,ministry of public works and ministry of interior and NGOs through establishing karak tourism committee to solve all the problems that are facing the tourists in the city.

Department of antiquities and ministry of tourism have to establish departments responsible for social media to review all these web sites continuously and to establish webpages to receive complaints from visitors ,address the opening hours and hotlines to contact if they need.

There is necessity to provide the site with Wi-Fi service so that the visitors can post there reviews and photos directly from the site also transport companies can provide this service for tourists during the trip.

## **THE EXCAVATION AT UMM QAIS/GADARA, 2005-2016 IN JORDAN**

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Kokushikan University team conducted the excavation research at Umm Qais archaeological site from 2005 to 2016. The main remarks by the excavation research are as follows:

A Roman house (about 30m x 30m) with a courtyard surrounded by basalt pillars was excavated. The house, which was abandoned in late Roman period, was completely filled with earth and sand with a thickness of about 3 m.

On the top, a huge rectangular building of 45m x 10m was built in the east and west, and the western end of the building was divided into square rooms, and the floor was provided with a mosaic floor consisting of a circular geometric pattern.

An entrance and stairs were installed toward "Decumanus Maximus" on the south side of the center of the building.

A terrace facility was attached on the north side wall of this building.

On the north side of the terrace facility, a building with a width of about 9m and a length of 22m was constructed 4m below. An entrance and an alley were excavated on the east side of the building, and a stage-like facility surrounded by columns of about 10 x 7 m was excavated on the east side.

The huge rectangular building seems to be a Christian church in the early 4th century, and other buildings are considered its annexes.

**Keywords:** Umm Qais, Gadara, Roman, Byzantine, Archaeology.

## **KHIRBAT AS-SAR, A SITE BETWEEN THE AMMONITE AND MAMLUK HISTORY OF JORDAN**

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In 2018 and 2019, the team from the Polish Centre of the Mediterranean Archaeology, University of Warsaw, conducted two seasons of fieldwork at Khirbat as-Sar, in western outskirts of Amman. The aim of the research was to understand the nature and chronology of that spectacular site which, occupying an excellent strategic position, was topped with a monumental architectural complex. Consisting of an "Ammonite tower" re-used in the Roman period as a temple with addition of an arcaded courtyard, this compound is surrounded by unspecified walls of later periods. In 2018, a reconnaissance survey was conducted within the area fenced by the Department of Antiquities, during which a preliminary plan of the site was worked out; it was based both on the electric resistivity method and on mapping of the visible architectural remains. In 2019, test trenches were opened, providing first insight into the stratigraphy of the site. They allowed to identify the Roman-period level with several superimposed floors above it. Those earthen floors demonstrated that the site had been densely inhabited in the Islamic times, when the earlier Roman structures were extensively re-used, starting from the later Abbasid times, but especially in the Ayyubid-Mamluk period. So far, no Byzantine to Umayyad-period architectural remains have been identified, which requires further investigation in the area.

In conclusion: the results of the preliminary fieldwork at Khirbat as-Sar have confirmed considerable scientific potential of the site and strongly suggested that its functional development should be comprehensively studied in diachronic approach.

**Keywords:** Khirbat as-Sar, field research, architecture, stratigraphy, chronology.

## **THE CONSERVATION AND COMMUNITY PARTICIPATION OF PRINCE ALIN AQUEL NASERY PALACE IN HISTORIC CAIRO. APPLICATIONS FOR SIMILAR SITES IN JORDAN**

Khadija Adam Toh Moalem  
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This study deals with an integrated applied model of restoration methodology, reuse and community participation to preserve one of the oldest Mamluk palaces located in one of the oldest neighborhoods in Historic Cairo. The Palace of Prince Al-Naaq Al-Jamdar is located in the Al-Darb Al-Ahmar District close to the Cairo Citadel. The history of the architecture of the palace dates back to the year 693 - 1070 AH (1293 - 1659 AD) of the Mamluk Bahri Dynasty. The project combined the applications of science in the field of building restoration and addressed the decades of neglect that affected the structure. The palace incorporates various architectural elements that distinguishes the structure. Some of these are wood covered with painted canvas, multiple mortar layers on the walls, marble mosaic remnants, inscriptions and stucco stain glass windows with iron grills. In addition, community participation was part of the project. This component focused on the integration of local community individuals with hands-on participation in training relating to restoration and maintenance. Training in handicraft skills associated with the local community also assisted in the preservation of specific local crafts that are an integral part of the heritage environment.

This paper presents a model of the combined techniques used to preserve the palace with applications to the local community combined with adaptive reuse for civic activities. The historic structure can then be added to the tourist map of the region, thus creating a stable income for local individuals. This model has strong applications to similar places in Jordan and other Arab countries.

**Keywords:** Conservation, Preservation, Community Participation, Community Development

## **THE DOCUMENTATION OF AMMAN HERITAGE HOUSES USING EAMENA METHODOLOGY**

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The modern history of Amman began at the end of the 19th century; whereas settlements started in the valley and later expanded towards the mountains; the seven hills of Amman. In the mid-20th century, Amman architecture and typo-morphology flourished significantly.

The builders and architects, who came from neighboring countries in terms of architectural language and materials, had influenced. The houses built during this era have distinct architectural, historical, and socio-economic values. Nevertheless, the rapid urbanization, population growth,

and the lack of documentation had led to the need for proper mapping and documentation of these houses.

Amman Heritage Houses (AHH) a project had funded by the Global Heritage Fund and had implemented by Jordanian experts in 2019. The project aimed to conduct documentation research using EAMENA recording and condition assessment methodology to record and assess Several heritage houses in Jabal Amman and Jabal Al-Weibdeh. This project was the start of a comprehensive record of Amman heritage houses that consist of a condition and threat assessment, and mapping for the location, type, dating, and history.

**Keywords:** Jordan, urban heritage, heritage houses, architecture, EAMENA database, Amman

### ARTIFACT AS ANTIDOTE IN UMM AL-JIMAL: A CASE STUDY FOR CULTURAL HERITAGE AS A GEO-POLITICAL ASSET

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*Umm al-Jimal Archaeological Project*

At first, it was easy to mistake the sounds of bombs dropping a few kilometers away with the usual celebratory early morning reveling at a nearby wedding celebration during the July 2018 field season at Umm al-Jimal. After several explosions, it became clear that the source was Daraa across the border in Syria. This was confirmed by a short drive before sunrise to see the glowing orange flames against the dark sky. That was one year before the opening of the Umm al-Jimal Interpretive and Hospitality Center, the concept for which was being developed in 2014 as refugees streamed across the border into Jordan. Dr. Bert de Vries initiated the project based on the premise that cultural heritage transcends boundaries and therefore, can be engaged to promote peace. Preservation of ancient Umm al-Jimal, an outstanding representation of the Hauran region which extends beyond the border, began in direct juxtaposition to site destruction as an act of war in Syria. The ongoing goal is to combine site preservation, economic development, and education to mitigate challenges caused by proximity to conflict. Umm al-Jimal offers 2000 years of common human narrative—which exists in higher time while being securely grounded in the archaeological record. Umm al-Jimal is a case study for investment in cultural heritage as a prophylactic to conflict to inform development strategies like the United Nations Sustainable Development Goals. Furthermore, this paper suggests that a measure of cultural heritage affect could serve as bellwether of relative stability to inform those strategies.

**Keywords:** Umm al-Jimal, SDG's, Cultural Heritage, UNESCO.

### ANALYZING CULTURAL HERITAGE TRENDS IN HIGHER EDUCATION AT JORDANIAN UNIVERSITIES

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Cultural heritage is considered an important aspect of inter-cultural communication and social cohesion in communities. The available studies on cultural heritage education in Jordan are mainly on primary and secondary school education, while limited resources are found on Higher

Education whether at humanities or engineering faculties. Therefore, this paper will explore if and how cultural heritage in Jordan is visible in study plans at archaeology, architecture, and tourism faculties, and look at the collaboration projects between universities and other institutions, to understand the landscape of cultural heritage pedagogical practices and expected outcomes in higher education in Jordan and better embedding cultural and built heritage values in architectural/archaeological design education.

A mixed-method approach of study plans analysis in certain higher education faculties in Jordan for the past decade and qualitative interviews with university professors in various programs and universities were applied to enable deep insights into the topic. In total 20 study plans from 20 institutions contributed to the research, and 20 interviews were completed.

The study showed that the integration of cultural heritage in higher education in Jordan is under researched, and it requires commitment and institutional support. It is vital to convince the public and private educational sectors about the many benefits implementing cultural heritage in higher education. It is necessary to produce empirical evidence to demonstrate that cultural heritage education is an investment and not a cost. The findings offer recommendations for academics and decision-makers at universities to enhance cultural heritage education on the short and long terms.

**Keywords;** Heritage education, architecture, archaeology, sustainable development.

## **INDUSTRIAL HERITAGE OF MADABA AS A TOOL FOR SUSTAINABLE TOURISM: THE CASE OF BABOOR AL-QISAR**

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Madaba represents a genius example of a modern urban context that incorporates archaeological and heritage sites with significant religious, architectural, historical, socio-economic values physically and non-physically.

The purpose of this paper is to present the modern industrial heritage in Madaba with a focus on wheat milling buildings as a tool for sustainable tourism. The approach to this statement will be through a theoretical investigation into the notion of industrial heritage, a historical overview of wheat milling in Jordan, and a case study to support the theoretical framework following a value-based approach of Baboor Al-Qisar. Baboor Al-Qisar is a wheat milling structure that the Department of Antiquities (DoA) is willing to adaptively reuse as an industrial museum that tells the local narrative of wheat milling and points out the non-physical values associated with the building's original use.

The paper highlights industrial heritage as a new tourism resource to be incorporated into Madaba tourism experience. The findings offer a reflection on approaching similar case studies as a tool for their conservation, management and promotion to create new tourist destinations as a form of sustainable urban regeneration.

No similar studies have been done on wheat milling structures from the 20th-century in the country with local community engagement as an integral part that is carried out within the functionality and future use of the site.

**Keywords;** Adaptive reuse, industrial heritage, Madaba, wheat milling, sustainable tourism.

## THE MADIH CKAN REPOSITORY AS A TOOL TO EXPLORE THE DIVERSITY AND INCLUSIVITY OF JORDAN'S CULTURAL HERITAGE

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The rich and diverse cultural heritage of Jordan has attracted the attention of the research community to explore, study, interpret, protect and present this heritage to the world. Many international, regional and local organisations and individuals have produced data as part of their study of Jordan's heritage, in various forms. The MaDiH: Mapping Digital Cultural Heritage in Jordan project, a cooperation between Jordanian and UK universities and organisations, aimed at collecting the information on the produced data (i.e. the metadata) under one umbrella, at the same time identifying the essential systems, datasets, and standards. This resulted in the MaDiH CKAN data catalogue, which also forms a prototype national data repository of Jordan's cultural heritage. In total 325 datasets on Jordanian cultural heritage were recorded in the MaDiH CKAN catalogue. Those datasets have been created over the past 50 years by archaeological teams, official institutions, museums, research institutions or individuals from Jordan and other countries such as the United Kingdom, United States, Germany, France, Japan and Canada. They vary to cover maintenance and restoration, documentation, archaeological excavations as well as interpretation and presentation of cultural heritage assets, and more.

This paper presents MaDiH as a pilot project of digital infrastructure aligned to local, national, and international frameworks thus contributing to the long-term sustainable development of Jordan's digital cultural heritage. It will highlight the role of the MaDiH CKAN catalogue in discovering the diversity and richness of Jordan's cultural heritage.

**Keywords:** MaDiH, Jordan, Data management, Databases, Digital heritage, CKAN.

## THE 2020 EXCAVATION SEASON RESULTS AT THE NEOLITHIC AYN GHAZAL

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Ayn Ghazal Neolithic Village is located in North-East of Amman, adjacent to Zarqa River. It was continuously occupied from the Middle Pre-Pottery Neolithic B (MPPNB) until the Pottery Neolithic (PN -Yarmoukian) periods. It is one of the mega-sites that exceeds in size 10 ha . Eleven systematic excavation seasons have been conducted at Ayn Ghazal (Rollefson and Kafafi 2013) between the years 1982-1998. Other two rescue excavations were performed at the site in the years 2011 and 2019 because of bulldozing incidents for parts of the site accrued due to development activities of the city (Amman). To continue supporting the efforts of preserving Ayn Ghazal and to encourage interest in prehistoric periods among future generation of archaeologists, the Department of Archaeology at that University of Jordan offered the 2020 field school to be conducted at the site. The excavation of Ayn Ghazal 2020 yielded several important results. They could be summarized by the following: 1) The discovery of the complete burial with its special position; 2) finding the LPPNB and MPPNB structures with panted plaster floors in the central area; 3) Most of the excavated area in the central field revealed Yarmoukian architecture, however, the 2020 season we reached the LPPNB phase and exposed a plaster floor; 4) In this season the western part of the central field was excavated for the first time, and yielded structures that probably related to the PPNC period; 5) Finding what might be Yarmoukian structures in the North Field.

## **CULTURAL GLOBILIZATION: ARABIZI, REALITY AND RECOMMENDATIONS**

Nofa Bint Nasser  
*Jordan*

Globalization has many definitions. The Oxford Languages defines globalization as “the process by which businesses or other organizations develop international influence or start operating on an international scale”. Others define it as the interaction and integration among people, companies and governments. Cultural globalization is one of the impacts of globalization and has many tangible and intangible segments. Language globalization otherwise known in Jordan as “Arabizi” is one of this. “Arabisi” has proved to be increasing tremendously among the young generation due to many reasons; cultural imperialism, socio- economic condition, technological development, prestige and many others. However, the young believe that the sentence spoken or written in both languages with a twist is a correct sentence. For example, “Al- gym full” written in Arabic letters is a normal Arabic sentence for one young man. Yet when you ask him about it, he answers: What’s Wrong with it? The new generation is not aware of the consequences and the pitfalls. They believe that by speaking this new language makes them more globalized.

Recently, studies have pinpointed the reasons, realities, consequences of this new language in many of the Arab countries and in Jordan. However, none has tackled how we can join the efforts in finding solutions for this dilemma.

This research aims to identify some recommendations on how to revive the authentic correct Arabic spoken and written language. It also addresses how can we join the efforts in bring back the admiration of the Arabic language and protect it for future generations.

**Keywords:** INTANGIBLE HERITAGE, LANGUAGE GLOBALISATION, ARABIZI, ARABIC SPOKEN LANGUAGE, ARABIC WRITTEN LANGUAGE.

## **THE PALACE OF THE COPPER AXES AT BATRAWY: ARCHITECTURE, FINDS AND INTERNATIONAL RELATIONSHIPS IN THE 3<sup>RD</sup> MILLENNIUM BC**

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Elisabetta Gallo

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Khirbat al-Batrawy was a fortified city in the 3<sup>rd</sup> millennium BC (the Bronze Age) overlooking the fort across the Upper Zarqa river and ruling over a territory including steppe, the river, and the surrounding hills (also the olive tree groves on the western flanks of the central mountains). 17 seasons of excavations at the site (and two surveys in the surroundings) by Sapienza University of Rome revealed an Early Jordanian City-State with very peculiar dimensions and organization connected to Egypt, Arabia and even Caucasus and Russia. Finds from the Palace enlighten the early history of the region and suggest that what is still unknown is impressively more considerable than what was discovered so far.

**Keywords:** Early Bronze, Batrawy, Urbanism, palace, trade.

### **PROBLEMS OF ANALYSES OF CHIPPED STONE INVENTORIES FROM SITES WITHOUT STRATIGRAPHY OR WITH COMPACT STRATIGRAPHY IN SOUTHERN JORDAN**

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Michał Wasilewski

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The aim of the presentation is to discuss problems of investigations of multicultural, open sites containing numerous chipped stone artefacts that do not occur in stratigraphic arrangements (“palimpsest” sites) or occur within limited, compact stratigraphy. At the beginning, processes of formation of such sites will be briefly discussed. Factors that caused disturbances of the original contexts - both natural and anthropogenic ones - will be scrutinised. The main part of the presentation will be devoted to the methods of analysis of chipped lithics from southern Jordan, discovered during the investigations carried out by the Jagiellonian University team (HLC Project) in recent years (i.a. the sites of Faysaliyya and Munqata’a). These inventories are characterized by a wide chronological range, from the Lower Palaeolithic to the Early Bronze Age. At such sites, the key issue is the chronological and cultural classification of artefacts, in order to determine the main phases of human activity. The basic method in the initial stage of investigations is typology, which allows distinguishing basic forms of cores and tools, diagnostic for particular prehistoric periods and/or archaeological units. However, a significant proportion of the stone materials remains uncharacteristic. (debris, chips, etc.). In their case, the analysis of technological features, and in a measure also classification of raw materials, should be used to evaluate the chronology.

Problems of absolute dating of the “palimpsest” sites in southern Jordan and – comparatively – in central Europe (14C, TL, OSL) will also be discussed.

**Keywords:** chipped lithics; southern Jordan; methods of analysis; Faysaliyya; Munqata’a.

## **FOUNDING (AND ABANDONING) THE STATE IN MEDIEVAL PETRA AND SHOBAK**

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Andrea Vanni Desideri  
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Guido Vannini  
*University of Florence*

The medieval period in the Petra region (including Shobak) can be analysed under a variety of perspectives. In this paper the authors will use a mixed method approach based on historical archaeology, theories of abandonment and global history (particularly Frontier Studies and Empires Theory) applied to the results of excavations and light archaeological research in the medieval sites of Al-Wu’ayra and Shobak, with additional evidence from Al-Habis and the medieval and post-medieval settlement in the Petra valley (area of the Corinthian tomb). Abandonment contexts will be primarily considered.

From a general point of view the medieval period, between the 7th and 16th centuries, witnesses in the considered area a series of transformations in the political, social and economic realms, that drive the ancient capital city of Nabatean and Roman-Byzantine Jordan and its hinterland through a loss of urban status and political role in the Early Islamic period, to a new political and economic centrality in the Crusader and Middle Islamic epoch, until a later dismantling of the material presence of State functions in the Ottoman period.

Reviewing the data related to the abandonment phases at Al-Wu’ayra, with its correlated defunctionalization and repurposing of Ayyubid epoch, a pastoral society appears to have reused (possibly on a seasonal basis) the former Byzantine and Crusader installations; whereas in Shobak (after the medieval Ayyubid-Mamluk urban season) the dramatic settlement changes in Ottoman epoch, when the lower medina is abandoned and its area is transformed into terraced agricultural land, highlighting the rise of a peasant society. What are the differences between the two abandonments? What are their respective relationships with the State? How do they relate to the medieval presence of public State installations vs. the ‘material absence’ of the State in the Ottoman period?

**Keywords:** Medieval Archaeology, Light Archaeology, Abandonment, Settlement transformations, Pastoral Society, Peasant Society.

## **THE JAYA PALACE (SHOBAK). FIRST RESULTS OF THE EXCAVATIONS 2018 AND 2021**

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In 2018, the archaeological mission of Florence University, “Medieval Petra”, excavated a decorated room, likely connected to a much wider monumental complex of the lower medina of Shobak.

Evidence consisted mainly in the upper part of a tripartite façade with three visible arches: a central pointed arch and two round arches.

A beautiful stone slab floor, possibly from the 13th century, was discovered. It is mainly composed of white and red slabs (marble and limestone) with a lavish central fountain in red limestone. At its corners there are four opus sectile square panels, composed of colored stone tesserae cut in geometrical shapes, in red, yellow, blue, black and white marbles/stones. The floor belonged to a courtyard whose perimetral north and south walls consist of the end-wall above mentioned and that 2021 excavation showed to be connected to a second hallway, with limestone slab floor equipped with a low bench showing a central small niche. The excavation area also exposed a third rectangular space with a basin on the western part and a round arch in the northern section. The Jaya palace discovery represents the first archaeological confirmation of the Islamic Medina mentioned by written sources since the Ayyubid period. The presentation will offer a synthesis of the two seasons (2018, 2021) excavation results and a first historic-archaeological contextualization of unearthed architectures and materials.

**Keywords:** Medieval Archaeology, Light Archaeology, Ayyubid period, Mamluk period, Material Culture, Shobak.

## **THE PROGRAMME TO SUPPORT SOCIO-ECONOMIC RECOVERY IN THE PROTECTED AREA OF SHOBAK CASTLE**

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*University of Florence*

Founding (and abandoning) the State in medieval Petra and Shobak.

The project, funded by AICS-Italian Agency of Cooperation for Development, stems from the priority that emerged from consultations with the Ministry of Tourism and Antiquities (and through the Department of Antiquities) to protect and enhance the Cultural Heritage of the archaeological area of Shobak, the redevelopment of which can result in the strengthening and development of the tourism sector, in a sustainable and inclusive way.

The archaeological-monumental area of Shobak, having being so thoroughly documented by Florence University, represents a heritage of great historical value that this project aims to implement making use of a Public Archaeology approach in order:

- To make the site safe for visitors and archaeologists implementing projects of selective structural safety restoration;

- To realize an exhibition area inside the castle, particularly devoted to Islamic epigraphic heritage of Shobak castle

- To set the ground for the inclusion of Shobak and its territory in a tourist system integrated with Petra, its valley, and PDTRA

- To organize training courses - lectures and theoretical and practical seminars and field exercises - with the aim of preparing or refining specific skills targeted to DoA staff and local professionals to be involved in site management, interpretation and restoration.

The overall intervention aims on one hand to redevelop the archaeological area of the Castle and surrounding areas to increase visitor accessibility; on the other hand to train local operators in the relevant fields. In the medium and long terms, the action wants to strengthen the current tourist offer and to create new skills-development so as to integrate the Shobak Castle area into the tourist network of the most important cultural sites in the Country and Internationally.

**Keywords:** Shobak Castle, Capacity Building, Restoration, Museum, Public Archaeology, International Cooperation.

## **APPROACHING ISLAMIC ARCHAEOLOGY OF JORDAN: PROJECTS, OPPORTUNITIES AND CHALLENGES.**

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*Yarmouk University*

Using modern methods in excavation projects in Jordan is necessary to obtain an understanding of the Islamic settlement and history of the region. Jordan has witnessed an active Islamic settlement and urban activity starting with the Islamic conquest of the Levant, and the traces of the Islamic periods are visible from the beginning of the Umayyad, Ayyubid-Mamluk eras to the end of the Ottoman era. These Islamic periods constitute a rich field for research because the Jordanian inhabitants have been affected by many ancient civilizations and religions.

There is a shortage of specialists in Islamic eras in Western institutes, inasmuch as a lack of Jordanian students interested in participating in specialized missions in this period. This may be due to the fact that specialization in Islamic eras is not widely available in Arab and foreign universities and it is often associated with the study of the history of Islamic art, with the exception of the universities of Copenhagen and Chicago, in addition to some scholars in United Kingdom, France and Germany.

The antiquities of the Roman and Byzantine periods are now being studied everywhere; although the geographical expanding of the Roman or Byzantine periods is much less than the geographical expanding of the Islamic civilization.

This paper focuses on the possible opportunities for research in the Islamic period and prominent projects that exist in Jordan. It will discuss challenges facing researchers and scholars, and ways to confront them.

**Keywords:** Archaeology, Jordan, Islamic, Period, Projects.

## UMM AL-JIMAL'S CASTELLUM: LOCAL COMMUNITY CONTINUITY AND ADAPTATION THROUGH IMPERIALISM

Elizabeth A. Osinga

*The Umm al-Jimal Archaeological Project*

The castellum was excavated in the early 1980s, under the direction of the late Dr. Bert de Vries, but only preliminary reports were subsequently published. Aware of the importance of the excavations, particularly given the general paucity of Roman fort publications in the region, de Vries and the author planned an edited volume to disseminate the findings. His sudden passing has only made it more vital to share his research with the scholarly community, and to honor his wishes and see that this, and many other past excavations, are published and made available to all. Analyzing military presence in a rural community, especially from a social perspective, has peppered Bert de Vries' publications over the years and will remain an important aspect of the Umm al-Jimal Project's research. The story of the castellum is less about its military history after its construction c. AD 400, and much more about its civilian transformation, particularly in the Byzantine period. The refurbishment of various rooms, the presence of several "industrial" bread ovens, the unusually high number of coins found, as well as dense dumps containing pottery and other finds all point to the reuse of this space as a marketplace. While rural marketplaces are expected to have existed and to have been an integral part of trade and exchange, they were rarely purpose-built and therefore not as easily identified as their urban counterparts, and so to find one is both rare and exciting.

**Keywords:** Umm al-Jimal, Byzantine, Roman, Military, Trade, Markets, Provincia Arabia

## THE EARLY OLDOWAN OF DAWQARA FORMATION (ZARQA VALLEY) AND THE PRISTINE EXPANSION OF HOMININS.

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*(Universidade Estadual Paulista, Rio Claro, Brazil)*

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*(Universidade de São Paulo, Brazil)*

When did hominin expansion outside Africa occurred? How were their technical capabilities? The lithic assemblage from the Lower Pleistocene outcrops of upper Zarqa valley can contribute to answer these questions. Thousands of flaked chert artefacts dated by K/Ar, U/Pb and Palaeomagnetism between 2.48 and 1.92 Ma have been recovered from exposed sections North of the town of Sukhne and offer a rich sample of Oldowan lithic technology with choppers, cores and flakes, but with no handaxes. These artefacts are among the oldest outside Africa and allow to trace the first hominin expansion shortly after the appearance of Oldowan technocomplex in East Africa. Researches are conducted by an international team composed by Brazilian, French and Jordan Institutions.

**Keywords:** Oldowan, Zarqa valley, Lower Pleistocene, Out of Africa, Geoarchaeology.

## THE NEW RESULTS OF THE 2021 SEASON OF EXCAVATION IN THE CENTRAL SECTOR OF THE EBI SITE OF JEBEL AL-MUTAWWAQ, UPPER WADI AZ-ZARQA VALLEY, JORDAN

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*Perugia University*

Juan Muniz  
*Pontificia Facultad San Esteban de Salamanca*

The paper will present the preliminary results of the excavations performed in Jebel al-Mutawwaq during the 2021 season. In particular, during the last excavation, a new trench was opened in area EE where a new building was discovered and partially excavated outside the settlement wall. The building, as usual at Jebel al-Mutawwaq, has a double-apsed plan and its Northern part is very well preserved, till an height of around 2 meters. Nearby this structure, the cave C. 1210, already discovered in 2019, was completely investigated, and a wide assemblage of objects and pottery sherds pertaining to the EBI horizon was collected. Furthermore, during the last season, also Area C East was continued to be excavated. The old trench, opened in 2019, was enlarged toward East giving new data clarifying the phases of construction of the Great Enclosure, the largest open area structure of the Early Bronze Age I settlement. Few hundred meters north of this area, Area D, already investigated during 2019, was enlarged toward West. The excavations in this area allowed to identify a building which can be interpreted as a production structure, probably linked to the olive oil preparation, and not as a domestic unit. Further analysis on the pottery collected inside the building will be conducted in 2022 to better understand the performed activities.

**Keywords:** Jebel al-Mutawwaq, Early Bronze Age I, wadi az-Zarqa, food production, olive oil.

## ZOARA/ZUGHAR IN THE GHOR AS-SAFI, JORDAN: INTERDISCIPLINARY RESEARCH AND STUDY OF THE DISCOVERIES OF AN EARLY BYZANTINE AND MEDIEVAL ISLAMIC COMMERCIAL CITY IN PALAESTINA TERTIA - SOUTHERN BILAD ASH-SHAM. (PAPER AND POSTER)

Konstantinos D. Politis  
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Zoara (modern Ghor al-Safi in Jordan), situated on the south-eastern Dead Sea littoral in alluvial fan of the biblical Zared River (modern Wadi al-Hasa), was known from Roman and Byzantine sources as an important commercial metropolis based on agricultural products such as wheat, dates and balsam. It also was said to exploit local sources of copper ore, salt, bitumen and sulphur.

During the early Byzantine period (4<sup>th</sup> - 7<sup>th</sup> centuries AD) it was the Seat of a Bishop in Palaestina Tertia represented at Nicaean Councils. The city is accurately located on the 6<sup>th</sup> century AD mosaic floor map in Madaba, in Al-Idris's AD 1154 'map of the world', on the 13<sup>th</sup> century Tabula Peutingeriana and mentioned in other ancient and medieval texts.

Zoara was known as Zughar's during the Abbasid and Ayyubid/Mamluk periods (9<sup>th</sup> – 14<sup>th</sup> centuries AD) in Bilad ash-Sham as an agricultural centre with new farming practices and products being introduced from Asia such as cotton, indigo, sorghum and sugarcane.

From 1997 to 2018 archaeological surveys and excavations were conducted in the Ghor al-Safi, with significant discoveries. They include two churches with decorated and inscribed mosaic pavements; over 500 inscriptions in Greek, Aramaic and Arabic; industrial presses for olives, dates

and sugarcane, indigo processing vats, pottery kilns, glass-making and iron smelts; and an extensive hilltop fortress.

Specialised studies have been conducted by scholars on these finds and now provide evidence-based view of production (both agricultural and industrial) and exchange in this important hub of Byzantine and Medieval Islamic commerce.

**Keywords:** Byzantine 1, Abbasid 2, Ayyubid/Mamluk 3, agricultural 4, industrial 5.

## **EPIGRAPHIC AND ARCHAEOLOGICAL SURVEY IN THE REGION OF QURĀ ZAYNAB, CENTRAL JORDAN (QUZAY): RESULTS OF THE FIRST CAMPAIGN**

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Hussein Sababha

*(Yarmouk University)*

Maher Tarboush

*(Yarmouk University)*

The QUZAY project was funded within the funding scheme “Appel d’offre Jordanie – 2018” of the CNRS, and is coordinated by Alessia Prioletta (CNRS – UMR 8167) and Hani Hayajneh (Yarmouk University). The project aims to make the inventory and the study of the epigraphic texts from the Qurā Zaynab region, located in the central Jordan plateau between the modern cities of al-Jiza and Madaba. The area was explored for the first time in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries (Brünnow and Domaszewki; Musil). In recent years, important archaeological projects have been carried out in the surrounding areas. The Madaba Plains Project, which explores the plateau between Amman and Madaba, has found many sites dating from the Bronze Age to the Byzantine period, if we limit ourselves to pre-Islamic antiquity. The Wadi Ath-Thamad Project focused its research on the sites of Khirbat al-Mudayna and al-Rumayl whose occupation dates back to the Iron Age, when the city occupied the northern border of the kingdom of Moab. Inscriptions in Moabite, Nabataean, Thamudic, Latin and Greek have been discovered in the site and its surroundings. Despite this research, the Qurā Zaynab area remains relatively unexplored and has therefore been chosen by the project coordinators for its potential in terms of epigraphic richness and continuity of occupation. This paper will present the results of the first survey, which was conducted by the QUZAY team in September 2021.

**Keywords:** Surveys, Epigraphy, Archaeology, Madaba, Ancient North Arabian inscriptions.

## **THE CIRCULATION OF ISLAMIC CERAMIC BETWEEN THE CAUCASUS AND BILAD AL-SHAM IN THE MIDDLE AGE: THE GLAZED POTTERY**

Elisa Pruno

*University of Florence*

The glazed pottery is a quite widespread production all over the Bilad al Sham, but it is also a production of the area of Caucasus, Anatolia and Mesopotamia. The Chair of Medieval Archaeology of Florence University is conducting two important projects in of these areas (Shobak

Castle, Jordan; Dvin, Armenia) and I'm involved in both of them, especially studying the material contexts. I would like to propose some reflections about the circulation in a large area of the glazed pottery, in particular for the 12-14 centuries. It is not unknown that the development of glazed pottery was closely related to progress in the ceramic production of the centers of Mediterranean and Black Sea basins, and of Near Eastern, Middle Eastern, Central Asian and Transcaucasian countries. Following the traditions of these ceramic centers, new types of glazed pottery were created in Armenian craft centers, like Ani and Dvin. Also in Shobak castle we have some evidences of consumption and maybe local production of glazed ware. But in all of our main cases-study (Dvin and Shobak) there are many pieces of imported pottery, the so-called fritware (also known as stoneware), mainly coming from Syria, Egypt and Iran. The goal is to aim at these productions, to highlight their main provenience area, their chronology and, above all, try to understand what kind of informations we can reach with their presence and their circulation concerning market and economic point of view.

**Keywords:** Medieval Archaeology, Eurasia, Pottery, Fritware, Markets.

### **MAPPING FOR TRACKING NETWORKS OF SKULL REMOVAL MORTUARY REMAINS AN ANALYTICAL APPROACH OF CHRONOLOGICAL AND SPATIAL DISTRIBUTIONS TO THE MORTUARY OF REMOVED SKULLS THE MATERIALS DURING THE NEOLITHIC PERIOD**

Aven Qatameen  
*University of Jordan*

The purpose of this research focuses on three pillars: The practice of removing skulls and appearing in certain places in the Levant, The locations of the removed skulls geographically and archaeologically, their spread patterns, and how they are affected under the factors and conditions of connections, and the prevalent types of communication in the Neolithic period, their patterns, distribution, spread, and effects, especially in funeral rites of removed skulls. This study aims to recognize the interrelationship between these three pillars as the removed skulls contribute in this stage by demonstrating and clarifying the network patterns for them and the connections, and the relationship between them. The purpose of linking network patterns of removed skulls with network patterns of connections is to reflect the social reaction on the practice and method of the spatial distribution of the removed skulls.

Particularly, the research will conduct a systematic and relational approach on the mortuary remains and materials of (removed skulls) to help us understand the relationship with connections of relevant sites, to define the network patterns of the spatial distribution of removed skulls archaeological data within funerary practices to explore and construct digital mapping by "using social network analysis" for tracking the removed skull network and connections by formulation of "mortuary model" for the practice of skull removal.

**Keywords:** Removed skull, Neolithic, Network patterns, spatial distributions, Social Network Analysis (SNA).

### **REDEFINING SOCIETAL TRANSFORMATION IN THE EARLY BRONZE AGE OF JORDAN: RECENT DISCOVERIES AND CHRONOLOGICAL MODELING AT KHIRBAT ISKANDAR**

Suzanne Richard

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Marta D'Andrea

*Sapienza, University of Rome, Rome, Italy*

This paper will re-evaluate the long-debated issue of the nature of the Early Bronze Age in the second half of the third millennium, BC. That view traditionally held that there was a “collapse” in the EB III followed by what was thought to be a “dark age” in EB IV. What has changed today? In the intervening period, excavation in Jordan has documented significant cultural continuity, particularly on the mounded sites in EB III-IV. The discovery of permanent, substantial, and multiphase EB IV settlement sites—exceptional for the southern Levant—has likewise raised serious questions about the so-called “dark age.” And the new dates for the EB IV, in the higher chronology (2500-1950 CAL BC), demand a realignment of periodization with both Egypt and Syria. Methodologically, this paper will re-evaluate the question of “collapse” in the context of current theoretical constructs redefining processes at work in a collapse/post-collapse trajectory, including recovery and resilience. It will also contextualize a new radiometric and Bayesian modeled dataset of 7 stratified phases at the site of Khirbat Iskandar within the newer theoretical platform of societal transformation. As for tentative conclusions and interpretation of the site's history at the EB III/IV nexus, the hypothesis to test next season is that the stratified profile offers clues as to the mechanisms operative in the transformation from urban to rural organizational strategies at the site. This paper may offer perspective on Jordan's distinct patterns of mound occupation in the Early Bronze Age.

**Keywords:** Early Bronze Age, Khirbat Iskandar, collapse, resilience, societal transformation

**[SYNTHETIC PANAMUWA]: AUTOMATIC DATA GENERATION FOR LETTER RECOGNITION IN EPIGRAPHY (Paper and Poster)**

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*University of Strasbourg*

Andrei Aioanei

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Around the mid-8th century BC, a thirty-four-line Aramaic inscription in raised script was applied on a monumental statue of the god Hadad. Due to surface damage, the text has sections where the characters are destroyed, eroded, or blurred. Therefore, depending on the visualization techniques used, large reading differences remain between existing transliterations and translations. Drawing on recent progress in Deep Learning, we train artificial neural networks to classify and recognize characters. We have developed a synthetic data-generation pipeline for Aramaic letters to address the lack of images in training these networks. Our goal is to demonstrate that data-driven methods such as synthetic data generation and Deep Learning provide researchers with high-performance tools for more accurate letter recognition, reconstruction, and classification. The method has the potential to be applied to inscriptions of any type, period, and state of preservation. It can replace the subjective and error-prone method of tracing in practical epigraphy.

**Keywords:** Ancient inscriptions, Deep Learning, Neural networks, Letter recognition, Synthetic data generation.

## MAPPING UMM AL-JIMAL, FROM THE PRINCETON EXPEDITION TO THE PRESENT

Darrell J. Rohl  
Calvin University

In 1905, Howard Crosby Butler and the Princeton University Archaeological Expedition to Syria visited Umm al-Jimal, producing the first substantial plan of this ancient town's surviving ruins. More than 60 years later, Bert de Vries established the Umm el-Jimal Archaeological Project and began a systematic survey and targeted stratigraphic excavation, adding more than 110 buildings to the known plan for the main site and expanding knowledge of Nabataean and Early Roman use of areas outside the Late Antique town walls. The basic plan has, thus, been known since the 1970s, with incremental changes deriving from subsequent periodic fieldwork. This paper presents a narrative of how the site's plan has developed over the past 120 years, focusing on particular researchers and their methods, the knowledge acquired via these methods, and new insights being gained from current digital mapping efforts and remote sensing data analysis.

**Keywords:** Umm al-Jimal, Byzantine, Maps, GIS, Digital, Survey.

## EVALUATING TYPOLOGIES OF CHURCHES AT UMM AL-JIMAL

Darrell J. Rohl  
*Calvin University*

Umm al-Jimal is the best-preserved ancient town in the Southern Hauran and the site's exceptional preservation, especially for the period c. 400–800 CE, offers a unique window on the daily lives and behaviors of small-town communities during periods of extraordinary regional transformation. The visible ruins that give the site its dramatic and distinctive character represent a combination of domestic and religious structures that are nestled within and around the remains of earlier Nabataean and Roman civil/military architecture. All constructed in a vernacular style that is characteristic of the Hauran, around 150 houses and a total of sixteen churches belong to this period. This paper focuses on the site's churches and evaluates the analytical value of various typologies that can be used to organize them. How and why does it matter if a church is of the hall or basilica type, located inside or outside of the town's walls, stand-alone or embedded within a domestic neighborhood, or of monastic, mortuary, military, private, or public use? Multiple typologies are presented, each church is categorized within each typological system and in comparison with other churches across the Late Roman/Byzantine periods, and key insights and limitations of each typology are highlighted. The paper concludes that no single typology offers the best way to view the role of Umm al-Jimal's churches within the life of its ancient community and demonstrates how multiple typologies considered together offer the greatest insights.

**Keywords:** Umm al-Jimal, Byzantine, churches, Christianity, religion.

## ARCHITECTURAL HOMOGENEITY AND DIVERSITY AT WADI AL-QATTAFI AND WISAD POOLS, BLACK DESERT

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The Wadi al-Qattafi mesas and both sides of the Wadi Wisad in the Black Desert of eastern Jordan are characterized by the large size of the sites and the concentration of structures: we estimate that excluding animal enclosures, there are a minimum of 800 buildings at the bases of the mesas and approximately 400 structures at Wisad Pools. Both sites have certain kinds of buildings in common. The architectural plans in the Wadi al-Qattafi have a high degree of similarity in structural geometry and size, but Wisad Pools displays marked differences in building morphology and distribution of physical types. The differences between the sites are examined in terms of chronology, possible seasonality, functional variability, and social organization and identity.

**Key Words:** Late Neolithic, Architecture, Black Desert, Wadi Qattafi, Wisad Pools

### **EMPLOYMENT THROUGH HERITAGE PROJECT – EHP (POSTER)**

Maria Elena Ronza

*Independent scholar*

With the support of the Swiss Drosos Foundation and in collaboration with the Department of Antiquities of Jordan, Sela for Training and Protection of Heritage, a Jordanian non for profit company, launched in 2018 the Employment through Heritage Project – EHP aiming at building a legal framework for CRM workers in Jordan and at forming qualified CRM jobseekers to enter the newly established market. For long time, host communities' involvement in CRM in Jordan has been limited to minimum wage, seasonal jobs which improve or build local capacities only at the most menial level. This project created an enabling environment for host communities to become active partners in the sustainable preservation of their heritage.

The proposed poster will showcase the project strategy and accomplishments.

**Keywords:** Community engagement, Community empowerment, Formal employment, Community archaeology, Vocational training.

### **INVESTING IN HOST COMMUNITIES' SOCIAL CAPITAL AS A MEAN TOWARD THE DECOLONIZATION OF JORDAN'S ARCHAEOLOGY**

Maria Elena Ronza

*independent scholar*

Colonial relations are yet shaping the contemporary world with new modalities, which represent the transformation and perpetuation of these relations. What emerges as a constant within these transformed relations of power is the existence of a vulnerable other in need of guidance and support. Archaeology and cultural heritage projects in Jordan, and generally in the MENA region, are not exempted from this rhetoric that fosters a patronizing attitude towards the host communities and that was marked, in recent years, by the passage from colonial archaeological exploitation to the contemporary rhetoric of development projects that are nested in the larger patronage system of the aid industry. Freire's definition of false charity (that is nourished by an unjust social order) well represents the status quo aiming at perpetuating economic and cultural dependency without empowering local residents either to advocate for themselves or to build sustainable income. This

practice deepens the gap between “donors” and “beneficiaries,” resulting in a situation in which no one acts as a genuine stakeholder and in which beneficiaries have a need-based rather than an asset-based approach to the donors.

This paper aims at presenting a new model proposed by Sela for Training and Protection of Heritage and its sister company Alraqeem, two relatively new Jordanian companies operating in the CRM sector and promoting asset-based and community-based participatory research (CBPR) approaches that aim at redefining the role of the researcher and challenging the identification of the community as the vulnerable other by pursuing power sharing in the decision-making process.

**Keywords:** Community engagement, Decolonialization, Community empowerment, Community archaeology, Social capital theory.

### 3D VIRTUALIZATION OF THE ROMAN AQUEDUCT OF GADARA, THE ANCIENT WORLD'S LONGEST WATER AQUEDUCT

Ziad Al Saad  
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Qais Al Momani  
*Department of Antiquities of Jordan*

Archaeological and hydrological field work and studies have proved that the Roman aqueduct of Gadara is the ancient world's longest water Aqueduct. This unique and amazing archaeological feature has been recently conserved and rehabilitated by a project conducted by the Department of Conservation and Management of Cultural Resources at Yarmouk University. After the completion of the conservation works, a comprehensive interpretation and presentation plan for the Aqueduct is under preparation to enable its utilization as a tourism attraction. As part of this research project, this paper focuses on revealing the archaeological, and technological values and significances of this unique feature and using the virtualization technology for the effective communication of these values and meanings to the visitors. . 3D modelling and computer animation techniques have been utilized to produce a multimedia video animation of Gadara Aqueduct and its surrounding. The video animation is arranged as a walk through virtual reconstruction with information provided about historical, technological and artistic aspects of the aqueduct.

**Keywords:** Gadara; Decapolis; aqueduct; 3D Modelling, virtualization; virtual tour

### BA'JA PPNB SITE JAMILA'S GRAVE CR36.1.44: FROM GLOOMY SOIL TO MUSEUM LIGHTS

Hussein Al-Sababha  
*(Yarmouk University)*

The exceptional discovery of 2018 excavation campaign at Ba'ja was one of the main objectives of 2019 campaign. During the 2019 dismantling Jamila's stones grave in a systematic documented scientific method was the main aim. Post taking off each durable stone, it was packed using Bubble wrap foil and stretch foil then transported. While the three relatively heavy and considerably fragile slabs of the chamber pose an utterly different challenge. Therefore; different measurements were conducted to complete the procedures without harming them. Light wooden frames and polyurethane foam were utilized to ensure stability during transportation. The site steep access

reachable by walk that includes some climbing section had to be taken into account. At the end mission was completed as planned. All the grave stones were stored at the store room of the old Petra museum.

During the 2021 campaign the intention was to reconstruct the grave cist at the new Petra museum. Despite the tight schedule work was conducted and done just in time. Different local and imported materials were utilized to Jamil's grave see the light. Paleosoil from the surrounding of the site, a consolidator called Rammer from Germany and a local cellulose base adhesive were all used to ensure the stability and durability of the reconstruction. An old show case from the new Petra museum was renovated and reused for the reconstruction. Now the grave is considered as one of the master pieces of the Neolithic hall at the new Petra Museum.

**Keywords:** PPNB, Ba'ja, Jamila Grave, lifting, Reconstruction, consolidator.

## **CURATIVE WATER IN JORDAN -THERAPY, TOURISM AND ARCHAEOLOGY**

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Jordan is generally a country with scarce water resources but it is blessed by the abundant presence of thermal and mineral waters distributed all over its territories, especially along the Jordan Rift Valley.

Historically, these waters were used as therapeutic agents (gained by experience), for many diseases such as, rheumatism, disturbances of blood circulation, as tranquilizing agent, sterility and gynaecology, and respiratory system diseases

Also around the thermal springs in Jordan, archaeological sites are present witnessing the use of the thermal springs' sites for human settlement and for curative purposes.

The analyzed physical and chemical properties of the thermal mineralized springs have been compared with similar sources in the world to indicate their potential uses in curative purposes and to illustrate the economic relevance of these sources when correctly exploited as spas.

In addition, the sites of thermal waters along the Jordan Rift Valley enjoy special climatic conditions with long dry summers and cool wet winters. Air pressure is around 5% higher than at sea level, air oxygen concentrations increase from the high mountains towards the Dead Sea by around 10% and the Sun radiation, especially the UV-waves, attenuate, disperse and decrease by about 12% at the Dead Sea shores compared with the highlands. All these unique realities add to the curative properties of the thermal mineralized water and the Dead Sea unique composition.

Developing these resources to meet advanced international curative spas standards can increase therapeutic tourism, improve health of visitors, and enhance the economy by creating new job opportunities.

**Keywords:** Thermal mineralized water, Curative agents, Tourism, Historic sites.

## **STUDY AND VIRTUAL REASSEMBLAGE OF BYZANTINE MOSAIC PAVEMENTS FROM DARAA IN SYRIA**

Khuzama Al Saleh  
*PhD Student*

Some mosaic pavements were discovered in Daraa in Syria during the excavations in 1991-1992 and quarried in non-systematic ways. They were preserved in pieces in the depository of the

Museum of the City of Daraa and have not been studied yet by the researchers. The representations on these pavements vary among animal scenes, geometric patterns, and ornamental scenes. In addition, there are very important Greek inscriptions. As a part of the author's master's thesis (Damascus University), these mosaic pavements were studied by describing and analyzing their motifs and by comparing them with panels from inside and outside of Syria. During this research, the approximate dates were suggested for these panels, and the recollection of the parts was also performed to reach a perception of the initial state of the pavement before the lifting process.

**Keywords:** Mosaic, Byzantine Period, Syria, Animal scenes, birds, Symbolism.

## **AL-MALIK AL-NASIR AHMAD, THE UNFIT MAMLUK SULTAN, AND HIS TIME IN JORDAN**

Robert Schick

*American Center of Research*

Al-Malik al-Nasir Shihab al-Din Ahmad was born in 1316 or 1317 and was the oldest surviving son of the Mamluk Sultan al-Malik al-Nasir Muhammad. He became sultan in late January 1342. However, he was clearly unfit to rule and was soon deposed just over four months later in June 1342.

Al-Malik al-Nasir Ahmad is of interest because he spent most of his life in Karak. He was first sent to Karak in 1324 as an eight-year-old for training in horsemanship and hunting, much as al-Malik al-Nasir Muhammad himself had been, and in 1337 he was appointed governor of Karak and Shawbak, perhaps until 1339.

When al-Malik al-Nasir Ahmad became sultan, he soon moved the seat of government from Cairo to Karak, which led to him being replaced as sultan in Cairo by his half-brother al-Salih Isma'il. But al-Malik al-Nasir Ahmad remained in Karak, until after a series of sieges, Mamluks from Cairo eventually took Karak in July 1344, and he was captured and executed.

Al-Malik al-Nasir Ahmad's legacy lies in the construction of the tomb shrine of Harun on Jabal Harun, west of Petra, most likely in July 1338 when he was governor, and perhaps the construction of the shrine of Nebi Yusha' in the village of Abu Makhtoub, near Shawbak.

**Keywords:** Mamluk Sultanate, al-Nasir Ahmad, Jordan, Karak

## **BRONZE AGE FORTIFICATION, IRON AGE DWELLINGS, AND HELLENISTIC SIEGE: NEW RESEARCH AT TALL ZAR'A IN NORTHERN JORDAN**

Katharina Schmidt

*German Protestant Institute for Archaeology Amman*

Tall Zar'a is located in the Wādī al-ʿArab in northwestern Jordan, near the ancient Decapolis city of Gadara. From 2018 to 2021, excavations at Tall Zar'a were resumed by a team from the German Protestant Institute of Archaeology (GPIA) Amman, funded by the German Archaeological Institute (DAI).

The 2018 to 2021 campaigns show interesting results with regard to the history and settlement structure in the Middle Bronze Age, Iron Age, and Hellenistic periods. Iron Age IIB dwellings and parts of the city wall were excavated on the northern edge of the Tall. Of these houses, the entire inventory of pottery and tools as well as a stamp seal has been preserved in situ, providing valuable insights into the living conditions of this period at the site. In the Hellenistic period, massive

reconstruction work was carried out on the Tall; therefore a massive defensive wall, still standing up to 4 meters high and up to 35 meters long, was rebuilt. Until now the date of the foundation of the wall was still unsolved, but the excavations in 2021 could shed some light on this question. Numerous coins from the time of Alexander Jannaeus show that there must have been a military post in Tall Zar'a during this period, possibly related to the siege of Gadara. The results of the excavations from 2018 to 2021 will allow further detailed conclusions to be drawn about the history of the settlement of Tall Zar'a and the region which will be presented in the paper.

**Keywords:** Iron Age II, Bronze Age, Hellenistic Fortification, Northern Jordan, Gadara

## THE NEWLY DISCOVERED HIGH PLACE OF DUSHARA IN PETRA

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(Frankfurt)

Mahmoud Mohammed al-Faqeer  
BA (Petra)

A few years ago, a Beduin from Petra discovered a Nabataean High Place in the region of Mahafir above Petra. The High Place consists of an altar (stone block) approx. 5m high that is free-standing on three sides. The front bears a Nabataean inscription that reads "Dushara Ilah Qaumana" (Dushara, God of our Nation), accompanied by a typical eye-idol. This is the first High Place in Petra with an inscription that refers directly to Dushara, the supreme god of the Nabataeans. The new High Place shows an alignment with the well-known High Place on Jabal Atuf.

This discovery is a significant addition to our knowledge about the cult practices of the Nabataeans in their capital Petra. It is tentatively dated to the 1st cent. AD (by paleography).

## FOUNDING KING PALACE IN MA'AN: REHABILITATION AND CONSERVATION OF THE PAINTED ROOMS AND THE STEAM BOILER ROOM

Franco Sciorilli  
Jordan

The history of the Hashemite Kingdom of Jordan has its roots in what is now called The Royal Palace of King Abdallah I in Ma'an.

Originally the building was called The National Defense Headquarters, the renovations will transform the complex into a National Museum that will cover an important historical phase, from the Great Arab Revolt to the establishment of the Jordanian state. It is in this context that this paper will retrace the restoration of some painted rooms and the building with annex the steam boiler. The restoration project saw the participation of restorers specializing in mural paintings and students of the Suor Orsola Benincasa University of Naples, Restorers of the DoA of Amman, restorers with degrees at the Mimar of Madaba, and restorers of the Memorial of Moses Mount Nebo. The experience for Jordanian restorers was of significant importance, collaborating side by side with experts from other schools and philosophies of thought, techniques and materials applied to conservation, gave the opportunity to increase the cultural and technical background.

**Keywords:** Royal Palace King Abdallah I, Conservation of mural painting, Rehabilitation and Musealization, Public Education, Heritage Training.

## THE IMPACT OF THE CORONA PANDEMIC IN THE INCREASE IN SMUGGLING OF MOVABLE ANTIQUITIES AND THE DESTRUCTION OF ARCHAEOLOGICAL SITES DURING THE YEARS 2020-2021 IN JORDAN

Ahmad, J. Al Shami

*Department of Antiquities of Jordan*

vable artifacts and archaeological sites scattered in Jordan have been subjected to a major vandalism in the past years, the most severe of which was with the emergence of the Corona pandemic and the subsequent bans and lockdowns which impacted negatively on the economic situation.

This has led to an increase in number of vandalism cases and illegal antiquities trade that are seized through security and border departments. Cases of vandalism and destruction of archaeological sites have increased, and the number of stolen and smuggling pieces of artifacts has increased for several reasons, including greed, poverty and ignorance from different authorities

In this paper I'll shed light on the sites that were vandalized and to link the stolen artifacts with those sites, classify artifacts and their importance, and link them geographically with the locations of security centers, border crossings and customs centers, and prepare statistics and tables that classify those artifacts and sites.

The government's role in compensating citizens for the disruption of their commercial interests during the pandemic and closure period will be addressed. However, these measures did not limit the vandalism on sites and the crime of the ongoing antiquities trade, as well as talk about the preventive role of the Department in the national employment project and the numbers that were employed at the expense of temporary projects, as well as the role of security authorities and customs in controlling and limiting smuggling and the role of the affiliated citizen in preserving the cultural heritage.

**Keywords:** The impact of the Corona pandemic, the increase in smuggling of movable antiquities, the destruction of archaeological sites, the crime of antiquities trade, the types of artifacts seized.

## THE CRIME OF EXCAVATION IN THE JORDANIAN ANTIQUITIES LAW COMPARATIVE STUDY

Ahmad J. Al Shami

*Department of Antiquities of Jordan*

Tamara A. Al Khateeb

*Department of Antiquities of Jordan*

The crime of searching for antiquities is one of the most common crimes facing the antiquities sector in Jordan, which contributes greatly to the destruction of antiquities and the obliteration of the national identity. It is necessary to search for the reasons that made many people take up this work due to the lack of awareness of realizing the importance of antiquities, and we will talk about the role of antiquities The General Department of Antiquities in protecting archaeological sites and the problems they face to limit the spread of this crime, and then talk about the legal nature, characteristics and pillars of the crime of searching for antiquities and treasures, and when the crime of searching for antiquities is an impossible crime and what is the legal effect of that which leads to Escaping from the Punishment.

It will also talk about the measures taken to investigate this crime and how to file a criminal case, and then explaining how to activate the complementary role of the Public Prosecution and the Jordanian Department of Antiquities to initiate a lawsuit for the crime of searching for antiquities. We will also discuss the limitations that limit the authority of the judicial police officials and the prohibitions of criminal responsibility when searching for antiquities, in addition to talking about the competent court to consider this crime and the punishment prescribed for it in Jordanian law and comparative legislation to address legislative and punitive shortcomings in the Jordanian Antiquities Law.

**Keywords:** The crime of searching for antiquities, the crime is impossible, the criminal case for the crime of searching for antiquities, the judicial police, the competent court, the penalty

## **TELL EL-YAHUDIYEH WARE IN JORDAN: IS IT SYRIAN, PALESTINIAN, OR LOCAL?**

Samar Shammas

*Columbia Global Centers | Amman*

Tell el-Yahudiyeh Ware, which embraces dark burnished juglets with incised decoration, dates to the Middle Bronze Age and is distributed in numerous sites in the Levant and along the Nile Valley. Vessels of this ware were also found in many sites in the Jordan Valley and Transjordan, such as in Jericho, Amman, Tell es-Sa'idiyeh, Irbid, Tell Deir 'Alla, and Tell Abou al-Kharaz, and recently several vessels were unearthed at Pella.

However, this significant Jordanian material of Tell el-Yahudiyeh Ware has never been intensively investigated. The typology, chronology, and contexts to which these vessels belong as well as their distribution and the position of this pottery class within the Jordanian Middle Bronze Age traditions and, more importantly, in the general repertory and classification of Tell el-Yahudiyeh Ware need to be analysed.

This paper gives an introduction to the study of Tell el-Yahudiyeh Ware material found in Jordanian sites and the significance of this material for answering many questions related to the emergence and distribution of the Syro-Palestinian branches of the ware. Moreover, it discusses the role played by Jordan in the exchange networks during the second Millennium BCE.

## **CAPACITY BUILDING FOR SUSTAINABLE PRESERVATION**

John Shearman

*American Center of Research (ACOR)*

Worldwide it has been shown that government departments in charge of historic sites make every effort to implement a successful site management system, but there is always room to strengthen activities relating to established international standards. These include, but are not limited to, Archaeology, Conservation, and Heritage Management. Extensive, multi-year training has been shown to not only build the capacity of a generation, but the trained generation has proven to provide the sustainable education and experience via management and mentoring to the next generation; creating a system that is passed down through succeeding generations. Learning how to document the elements of the work is one of the keys of success. This is not only important for recording, archiving and understanding the context of the area of focus, but it is equally important in generating publications. Creating a program based upon the culture and constraints of the host country is extremely important in assuring a successful systems continuation. The results of the

training also has a large impact in preservation and tourist attraction. The author will review past successful training programs, disseminating the results and conclusions and how it can be applied in Jordan.

**Keywords:** Program Development, Training, Documentation, Management, Preservation.

## THE ANALYSIS OF HUMAN SKELETAL REMAINS FROM BYZANTINE PERIOD IN UDRUH (UDHRUH) ARCHAEOLOGICAL SITE FROM SOUTHERN JORDAN: A PRELIMINARY REPORT

Abdel Halim Ahmad Al-Shiyab  
*Yarmouk University*

Udruh recovered five human skeletal bones, two adult males, one adult female, and two young. The development of both osteophytes and Schmorl's node on the spine of this skeleton strongly indicate that the adult male (44-46 years) lived a very hard life, in which he carried heavy loads on his back. As a result of imposing biomechanical stress on these boney structures, these hard tissues responded by adding more bones and generated these extra lipping on the rim of the vertebrae to adapt with the stress. Moreover, episodes of catastrophic load may be the primary cause of the existence of multiple Schmorl's nodes on the superior or/and inferior surface (s) of thoracic vertebra but lumbar ones too.

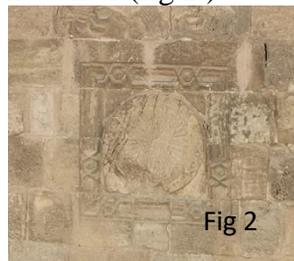
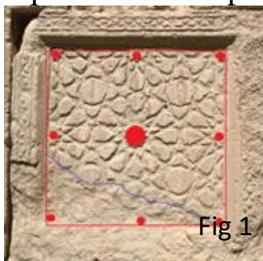
## ISLAMIC GEOMETRIC RATIOS OF DECORATIONS AT AL-KARAK AND AL-AQABA CASTLES

Sereen Al Shoubaki  
*(German Protestant Institute of Archaeology)*

The method of geometric drawing can be used in proper restoration and reconstruction of these patterns and it also help in enriching the modern arts and preservation and revival of heritage through modern works, the use of traditional methods to draw these decorations preserves this aspect of human heritage. This makes possible their digitization with an eye on enlargement while keeping their geometric ratio.

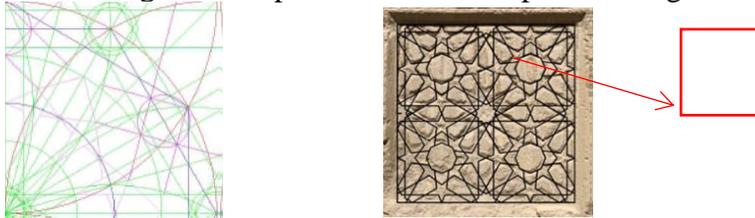
Application of geometric analysis:

The geometric decorations in Al-Karak Castle are distinguished by their 12 point stars which regularly recur to create a red square that emanate from the centers of these stars as shown by red circles ( fig 1), while the pattern from Al-Aqaba Castle represents a geometric form surrounded by a square with a 22 point stars at the center (fig 2 ):



The lower part is not well preserved and difficult to draw, by studying this pattern and realizing the design basics; one can find out the mathematics repetition method and thus be able to fill in the missing parts, Islamic geometry doesn't accept repetition using modern software that contain the commands: mirror, rotate, etc. but should be done through a sequence of steps that are based

on setting of coordinates on the basis of which the form is accurately and proportionately made, the drawing below represents the last step in drawing:



**Keywords:** Patterns, ratio, Geometry.

## THE LORDSHIP OF TRANSJORDAN: SOCIETY, ECONOMY AND LANDSCAPE IN THE CRUSADER PERIOD.

Micaela Sinibaldi

*University of Warsaw and Cardiff University*

This paper presents recent developments of an ongoing study on the Crusader period in Transjordan, based on research carried out as a PhD project at Cardiff University, completed in 2014. The subject of the Crusader Lordship of Transjordan (1100-1189), part of the Kingdom of Jerusalem, has been largely underexplored in the past. At the same time, several commonly held notions have prevailed for a long time. One was that the Crusader period in Transjordan consisted of a phase of revival, following a period of settlement crisis and depopulation; another was that this region's main function was essentially to be a frontier of the kingdom, from which it was rather isolated.

The recent research presented here, however, has concluded that the Lordship was both very closely connected to the rest of the Kingdom of Jerusalem and of crucial importance to it, from the economic, social, political and strategic points of view. Moreover, attributing to this region the function of frontier is not only a limiting, but also an incorrect concept. Settlement in Transjordan had complex and diversified patterns according to different areas, was characterized by a variety of socio-economic elements and was planned to be permanent. Finally, the Petra case study has clarified that the former interpretation that the Crusader period had a deep impact on the local socio-economic landscape needs revising, and has instead highlighted patterns of continuity and adaptation. Specifically characteristic of the Lordship of Transjordan was the relationship of the Franks with the local Christian and Bedouin population.

**Keywords:** Crusader period; Lordship of Transjordan; Latin Kingdom of Jerusalem; Frankish settlement patterns; Medieval society in Jordan; Petra.

## SUSTAINING GOOD PRACTICE IN JORDANIAN MUSEUM EDUCATION

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Shatha Abu Khafajah

*Hashemite University*

Mohammad Al-Qaisi

*The Jordan Museum*

Falalah Al Sharaiah

*The Jordan Museum*

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Fatima Marii  
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Arwa Masa'deh  
*Department of Antiquities of Jordan*

Maria Elena Ronza  
*Sela for Training and Protection of Cultural Heritage*

Ross Wilkinson  
*Durham University*

This paper reports on the results of a recently completed Newton-Khalidi funded research project designed to identify and experiment with good practice in Jordanian museum education, and on current efforts to extend the impact of this initiative. The problem this project sought to understand and overcome is that young people in Jordan are (with a few exceptions) poorly engaged with their heritage(s), both in formal education and at touristic heritage sites and museums that contribute to the Jordanian economy but do less for the development of local communities. Our collaborative project successfully brought together an expansive team drawn from Jordanian and British universities, heritage agencies, museums and schools. Building on a training programme for museum professionals and university students hosted by Jordanian museums, partners developed a range of museum educational events, activities and learning resources, highlighting Jordan's rich archaeological and cultural heritage. Using social science experimental and evaluation methods, these innovative practices were trialed with groups of schoolchildren and their teachers, within and beyond museum spaces, both in-person and digitally. Key research findings underline the value and potential of: Jordan's museum educational resources (collections and staff); connecting these to the National Curriculum; effective museum communication; partnership working (including public/private); reflexive staff training; informal sharing of good principles and practice; outreach; acknowledging the diversity of publics; and actively engaging with decision-makers. Our paper, then, reflects on these lessons learnt for the benefit of Jordanian museum education, and on how—despite the Covid-19 pandemic—colleagues are currently sustaining this good practice.

**Keywords:** Museum, Heritage, Education, Good practice, Partnership working.

## **A SUNDIAL OR TRADITIONAL GAME: A COMPARATIVE STUDY**

Sahar Talat Al-Smadi  
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Youssef Al-HiLo

## *Jordan*

The research paper responds to a carved diagram which was found at Umm Qeis "Gadara" archaeological site. The diagram was photographed and included in the ADAJ report no. 46 in 2002 and the author referred to it as a sun clock (Mazwala) "that was used to show prayer times was found carved on the pavement" in the middle of the sanctuary of the revealed Umayyad mosque. The objective of this research is to analyze the carved diagram and compare it to other similar carved diagrams found at different areas in the eastern Badeyah of Jordan.

The design of the research was divided in two parts (A) providing a discussion about the definition of the sundials, its history and distribution in other cultures whether in the far east or in ancient Egypt and north Africa or in Europe, and (B) provides another discussion on the Kitar game, its history, terminologies and how it was played. The research finally provides a comparison between the sun clock and the Qitar game to conclude that the carved diagram, the research problem, is the Qitar game, not a sun clock.

**Keywords:** Sundial, Cultural Heritage games, Kitar game, Umm Qais "Gadara".

## **TRACKING PILGRIMS IN JORDAN DURING LATE ANTIQUITY: OBSERVATIONS FROM ABILA/ QUWAYLIBA**

Robert W. Smith

*Mid-Atlantic Christian University*

Abila at Quwayliba, Jordan provides a case study in tracking pilgrims of late antiquity. There are no reliable ancient or medieval historical accounts of pilgrimage to Abila, but there are significant indicators and definitive artifactual evidence that are instructive for researches at other sites. Large signs predicting pilgrimages to Abila exist in the ecological context of the site. The verdant valley in the heart of the site and the expansive vista of the mountains to the north were conducive in creating hierotopy. Fertile surrounding fields provided ample food for the local population, with an excess for visitors. Perennial water supplies from Ain Quwayliba provided for hydration and ritual bathing. The sociological context provides other large signs suggesting pilgrimage. Abila is geographically located on the margin of the "Holy Land" where religiously significant events had taken place. Culturally, the local population in the fifth through eighth centuries widely believed there were spiritual and physical benefits derived from visiting holy places. Medium signs of pilgrimage at Abila include the construction of specialized structures like multi-aisled church buildings, martyria, xenodochia, and unique water-ritual structures. Small signs that indicate the personal presence and movement of pilgrims include reliquaries, icons, screening, religious symbols, eulogia, inscriptions, graves, wear on flooring, the width of passages and the opening direction of doorways. Late Antique pilgrimage followed a predictable trail to Abila/ Quwayliba and left traces, allowing the movements and devotional activities of pilgrims to be reconstructed. Such signs are instructive in tracking pilgrims to and at other sites.

**Keywords:** Pilgrimage, Jordan, Byzantine, Umayyad, Evidence.

## **UNRAVELING THE INVISIBLE PALIMPSEST OF A LANDSCAPE OF SURVIVAL: NEW CHRONOMETRIC DATING IN THE "BLACK DESERT"**

Stefan L. Smith

*University of Helsinki*

Marie-Laure Chambrade  
*University of Lyon*

Dimitri Vandenberghe  
*University of Gent*

The Harra, or “Black Desert”, of north-eastern Jordan, has been characterised as a ‘landscape of survival’ due to its low taphonomic processes which have resulted in a wealth of preserved structural remains of varying types from several millennia of human occupation. While this corpus immensely benefits studies of the region’s past, it presents a problem for holistic landscape analyses, as it is difficult to disentangle this palimpsest based on the time periods of sites’ construction and/or occupation. While some advances have been made in dating structure types like “desert kites”, “wheels” and “pendants” based on material remains, these results have a low temporal resolution and are often reliant on surface finds. Chronometric dating, as was conducted first at Wisad Pools and more recently at other locations in the region, produces a more detailed view. Therefore, the “Western Harra Survey”, co-directed by the authors of this paper, has since 2017 been taking samples for OSL dating from a variety of structures, using the method of Athanassas et al (2015)<sup>1</sup>. These produce not only precise dates, but also allow chronological relationships to be established between sites and between sections within sites, creating an accurate picture of both the archaeological landscape and site morphology. The most recent results will be presented here in their regional context.

**Keywords:** Black Desert, survey, settlement chronology, chronometric dating, optically-stimulated luminescence

## AGRICULTURE OF ANCIENT ABILA/QWAILIBAH

Timothy C. Snow  
*The Catholic University of America*

Since the advent of humankind, food has been a necessity for life. Therefore, human beings hunted, gathered, and later grew their own food to sustain themselves. The focus of this paper is on agriculture as it was practiced in ancient Abila (Qwaylibah) combined with what these ancient peoples ate. First, I will examine agricultural methods that would likely have been employed in ancient Abila. To this end, I will survey the necessary elements including soil conditions, climate, and agricultural methods in ancient Mesopotamia and the Levant. Second, the focus will turn to data found in northern Jordan including soil and climate conditions and what is typically grown for food. Last, the focus turns to what was grown in ancient Abila, that is, what the people of ancient Abila eat. For this exercise, I will consult results from archaeological excavations in the area. Last, I will focus specifically in the seeds found at Abila, a site with a long history from Early Bronze Age through the Islamic periods.

Given that the land has the requisite soil needed to grow successful crops, the necessary rainfall—the rainfall itself and the correct timing—is crucial for crop success. If both conditions are met, the farmer’s skill in enhancing and maximizing soil nutrients as well as performing the plowing,

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Athanassas, C. D., G. O. Rollefson, A. Kadereit, D. Kennedy, K. Theodorakopoulou, Y. M. Rowan, and A. Wasse. <sup>1</sup> 2015. Optically stimulated luminescence (OSL) dating and spatial analysis of geometric lines in the Northern Arabian Desert. *JAS* 64: 1-11.

tilling, weeding (if feasible), harvesting, processing, and storing of the crop makes the difference between crop success and crop failure.

**Keywords:** Agriculture, Abila, Decapolis, Foodways, Dry Farming.

### **‘SEA PEOPLES’ ON TALL ZIRĀ‘A IN NORTHERN JORDAN – MATERIAL CULTURE, CULT AND POLITICAL POWER FAR AWAY FROM THE MEDITERRANEAN CITIES**

Katja Soennecken

*German Protestant Institute of Archaeology*

At the end of the Late Bronze Age massive architectural and cultural changes are visible on Tall Zirā‘a in Northern Jordan: A new sanctuary was built, houses re-organized and the material culture shows signs of cultural interchange. Some of the architectural features, animal bones, pottery and small finds point to a group of people not indigenous of Transjordan, but the Mediterranean. Could “Sea Peoples” have settled in the highlands of Transjordan? This paper will present results of the excavations of the German Protestant Institute on Tall Zirā‘a, compare them with other excavations in the Jordan Valley and beyond and argue for a cultural flow not only of artifacts, but peoples at the end of the Late Bronze Age.

**Keywords:** Sea Peoples, Transjordan, Tall Zirā‘a, Material Culture, Cultural Contact.

### **THE TECHNICAL SCHOOL OF THE CENTRAL NABATAEANS TEMPLES**

Zeena Sultan

*Iraq*

The research is about “The Technical School of The Central Nabataeans Temples”. The Nabataean architect took from the Mesopotamia, Egypt, Greek, and Roman civilization in the meantime he tried maintain the local Nabataean character in architecture by and decorations, among those influences that dominated the architecture represent each school had a prominent role in enriching Nabataean architecture specially the central Nabataean temples, which it is considered as one of the attractions and polarization for the visitors to the vital facility in the life of the social community at that time, the effects of religious, social and economic of daily life.

It may seem obvious the desire of the local community to give great importance in the temple architecture and decoration which they took this from the cultural heritage of the nation before them in terms of architecture, the Nabataean architecture has been expressed this through the direction building of the temple, as well as the outside design of the temple, as the appropriateness with the inside design of the temple such as the Holy of Holies. These temples served as a place for the pilgrimage especially The Nabataeans, these places considered as a radiation center of the religious culture of pilgrims who come to visit one temple than the other and at certain times and certain season of worship.

### **OTTOMAN ISLAMIC ARCHITECTURAL MONUMENTS IN JORDAN DURING THE TANZIMAT II. ABDUL HAMID PERIOD**

Khaled Tadmori

*The Lebanese University*

Between the sixteenth and nineteenth centuries, Transjordan was a marginal province of the Ottoman Empire with a local mode of governance. For years, the main concern of the Ottoman Porte in Transjordan was to ensure the safety of the Hajj caravan by paying the Bedouin tribes of the regions it passed through.

The two major reforms of Tanzimat (reorganization of the Ottoman Empire) in Transjordan were the law of vilayets (provinces) and the land code.

After centuries of neglect, the advent of a permanent Ottoman presence in the region led to the construction of governmental serails, administrative buildings and lines of communication. The creation of administrative centres allowed the extension of the State's security apparatus (police stations, guard posts etc.).

The Ottomans invested little on roads. The development of settlements led to the construction of many roads.

Construction of the Hijaz Railway began in 1900 and reached Medina in 1908. Sultan Abdul Hamid II had emphasized the religious aspect of the project. The creation of the Hijaz railway line allowed the extensive development of the towns it passed through. The extension of communication links to Palestine opened Jordan up to the regional market.

Starting from 1866, Protestant and Roman Catholic missionaries developed the infrastructure for health and education.

This study will try to define and describe the different types of Ottoman – Islamic Architectural Monuments in Jordan, in reference to “The Sultan Abdul Hamid II. Photograph Albums Collection” in Yildiz Palace, and the “Yildiz Defterleri” Ottoman Documents in the Ottoman Archives Directorate in Istanbul.

**Keywords:** Ottoman-Islamic Monuments, Architecture, Intangible Heritage, Sultan Abdul Hamid II., Pilgrimage Train Railways, Serails & Castles.

## TOWARDS SUSTAINABLE CHR PRESERVATION, MANAGEMENT, AND DEVELOPMENT

Hanadi Al Taher

*SCHEP Deputy Chief of Party*

Jordan hosts a vast number of archaeological sites that are important cultural heritage resources (CHRs) for the country. This large number of sites is considered a great challenge for CHR related entities to manage and preserve. This huge mandate requires highly skilled staff members and advanced capacities and resources.

Initiatives over the past years have attempted to build sustainable preservation and management capacities for Jordan's CHRs through working with CHR institutions, universities. These initiatives have, with some exceptions, unfortunately made little progress.

In this paper, I will present approach of the American Center of Research (ACOR) through its project USAID Sustainable Cultural Heritage Through Engagement of Local Communities (USAID SCHEP) during the past eight years in developing an enabling environment that has fostered community engagement, and strengthened the CHR's institutional performance through human resources development, relying on customized training programs based on HR needs assessment to ensure sustainable results and effective outcomes. Building and strengthening a collaborative community of practice with different stakeholder focus among heritage, academic, government, and tourism professionals. Formulating the Jordan Archaeological Heritage Strategy that aimed to establish long-term frameworks for enhancing the sustainability of CHRs of Jordan.

And expanding shared resources, and sharing of skills and knowledge through conferences, workshops, scholarships and internships.

**Keywords:** CHR, enabling environment, sustainability, preservation, local communities

### ROME'S LEGACY IN PETRA: NEW DATA FROM THE PETRA DOWNTOWN

Laurent Tholbecq  
*Université Libre de Bruxelles*

Jacqueline Dentzer-Feydy  
*Université Libre de Bruxelles*

Thibaud Fournet  
*Université Libre de Bruxelles*

François Renel  
*Université Libre de Bruxelles*

Recent research on the Qasr al-Bint esplanade in Petra has produced a chronological sequence of building events, spanning the period of almost a millennium. The remains visible today reflect an architectural arrangement strongly marked by Rome's takeover of the religio-political centre of the ancient Nabataean capital. Soon after the annexation, a new gate was built at the end of the refurbished colonnaded street, a large Nabataean courtyard and associated structures east of the Qasr al-Bint were levelled, a temple to the imperial cult was built in the immediate vicinity, and the Qasr al-Bint and its surroundings were given a new marble decoration. Last but not least, the temenos was closed off on its western side by a spectacular Roman imperial monument dedicated to the emperors Marcus Aurelius and Lucius Verus. Scattered elements of Roman architectural decoration found in the city's centre will be presented here for the first time in order to better understand the Roman impact on the urbanism of Petra.

**Keywords:** Petra, Provincia Arabia, Qasr al-Bint, Roman Arabia.

### THE WADI SABRA AND ITS THEATRE RECONSIDERED.

Laurent Tholbecq  
*Université Libre de Bruxelles*

Located south of Petra, Wadi Sabra was one of the main access routes to the Nabataean capital. A sanctuary developed there during the Nabataean and Roman periods. It is one of the few sanctuaries in the Near East, that includes a theatre designed to accommodate large crowds, probably on the occasion of religious festivals. Like the theatre of Petra, it combines a rock-cut cavea and several masonry-built structures; the latter enclose the theater's orchestra. A caravanserai built in the immediate vicinity of the theatre is dated to the 2nd c. AD. It seems to belong to the major development phase of the sanctuary, associating a huge temenos, a second temple, a bath complex and likely the theatre itself. It was partially destroyed in the 2nd half of the 3rd c., then restored and finally abandoned a century later. Possible connections between the caravanserai, the theater, and an aqueduct dated to the 2nd c AD will be presented and their historical ramifications discussed.

**Keywords:** Petra, Nabataean temple, Theatre, Caravanserai, Fortlet.

## NEW LIGHT ON TRANSJORDANIAN COOKING WARE FROM THE ROMAN TO THE Umayyad PERIODS

Laura Vié

*Research associate at APOHR*

"Cooking ware" is a special category of pottery which is characterised by its particular function: heating and cooking. Easily recognizable, it is found very frequently in excavations and on all types of sites. Paradoxically, for the whole of the southern Levant, including Jordan, it has never been the subject of major works and remains little known. Our knowledge of this pottery is very incomplete in terms of its forms, its production and even its trade. In order to try to remedy this gap in our knowledge, we propose to focus on the cooking ware of the Roman, Byzantine and Umayyad periods, which are found in the Transjordanian regions. For this, we are basing ourselves on the establishment of a first major cooking ware typology embracing the territories of Jordan, Palestine, and Israel (1st century BC - 8th century AD). From this, we can look at other new issues such as the production methods (the "chaîne opératoire") of certain forms showing shaping other than the potter's wheel. Contrary to popular belief, cooking ware has been traded, sometimes extensively. As early as the Roman period, it can be seen that some types (cooking pots, casseroles, cooking bowls) were widely distributed, sometimes on a large scale. This study, based on direct observation of material from the sites of Kh. ed-Dharih and Kh. es-Samra, and on the bibliography, highlights a hitherto unknown aspect of ancient Jordanian ceramics and its links with neighbouring regions.

**Keywords:** Pottery, Cooking ware, Byzantine, Production, Trade.

## UNITY IN DIVERSITY: THE PAGAN, JEWISH, CHRISTIAN AND MUSLIM PRESENCE AT ABILA OF THE DECAPOLIS

David Vila

*John Brown University*

This paper will consider the various expressions of religious faith found in the Area E Church at Abila of the Decapolis. Evidence considered will include inscriptions of Pagan, Christian, and Muslim origin, architectural remains of Jewish, Christian, and Muslim origin, and the remains of small finds and pottery, which also give significant insight into the religious diversity present over the centuries of occupation in the area now identified as the Area E Church.

**Keywords:** Diversity, Religion, Roman, Judaism, Islam.

## CHRISTIAN COMMUNITIES IN RIHAB AND ITS SURROUNDINGS DURING THE FIRST PHASE OF ISLAMIC DOMINATION THROUGH EPIGRAPHIC SOURCES **ert** (poster)

Valentina Virgili

*Pontificio Istituto di Archeologia Cristiana*

The topic of the proposed speech is part of my PhD thesis, that analyzes Christian communities in Israel, Palestine and Jordan from epigraphic data between the 630 and 840 A.D.

In this timespan in Jordan, center of this speech, we identify evidences relating the restoration and construction of religious buildings. It is the case of six churches belonging to the first period of the Islamic conquest in the village of Rihab and in the hilly area of Tell Rahiba (both in the region of Bostra).

Two churches dedicated to Mena and Isaiah were built in Rihab, both in 634 A.D., right before Muslim conquest of Bostra. In two epigraphs is mentioned the Archbishop and Metropolitan Theodore of Bostra; he is also mentioned in the so-called Syriac church (ca. 637 A.D.). Another building, belonging to the monastery of Saint Constantine Nicephorus, was restored around 832 A.D. In Tell Rahiba instead a large ecclesiastical complex with the church of St. Sergius and the chapel of Philemon was built in 661-663 A.D.

These data have never been examined as a whole until now, therefore this speech will present these cases through an in-depth analysis of the texts, containing various elements that helped to understand the life of local communities and to reconstruct the events that affected the area since the advent of Islamic domination. The inscriptions will serve to significantly demonstrate the tolerance of Muslims towards conquered populations, which did not cause any definitive crisis in the religious structure of Christian communities.

**Keywords:** Christian communities, epigraphy, mosaics, surviving, Islamic period.

### **PONTIFICAL GOLD MEDAL OF POPE FRANCIS FROM THE VATICAN FOR THE MACHAERUS ARCHAEOLOGICAL EXCAVATIONS OF THE HUNGARIAN ACADEMY OF ARTS (2009-2019)**

Győző Vörös

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There is a narrative account in the Gospels that is confirmed in a consistent and complementary way by a first-century historian outside the Bible: the imprisonment and beheading of Saint John the Baptist in Machaerus (Josephus, *Antiquitates Judaicae* XVIII. 5, 2). This is the only Gospel passage for which we have a parallel narrative in a non-Christian work of the same era. The authenticity of this textual evidence, as a genuine historical reference for Machaerus, was confirmed by Eusebius Pamphili (*Historia Ecclesiastica* I. 11, 4–6). There is yet another unique characteristic of the historical and archaeological place: Machaerus survived the last two millennia as a time capsule! After its destruction by the Legio X Fretensis of the Roman Army, the ancient city was completely abandoned. The surviving ruins remained hidden under the mass of the destroyed walls, and Machaerus was never ever inhabited again in history. More than a decade of studying the archaeological legacy of the sacred site and its well over one hundred thousand architectural fragments held a third unexpected surprise: we have enough archaeological information to reconstruct the historical architectural legacy of the dead monuments and thus expose the original structure – both the exterior and interior – of the once magnificent Herodian palace and city of Machaerus! The author won the 2020 Vatican Prize of the Pontifical Academies for his Machaerus archaeological excavations and *Edizioni Terra Santa* final report publications (Milan 2013, 2015, 2019), and Pope Francis awarded him the Gold Medal of the Pontificate in 2021.

**Keywords:** Machaerus, Gospels, John the Baptist, Herodian, Fretensis,

**DUST, SAND, GRAVELS – THE COMPLEX ENVIRONMENTAL HISTORY WRITTEN IN THE „SIMPLE” SEDIMENTS OF THE FAYSALLIAH ARCHAEOLOGICAL SITE, SHAWBAK DISTRICT, S JORDAN (POSTER)**

Michał Wasilewski  
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Reconstruction of the environmental conditions in which the Prehistoric societies operated allows for a better understanding of their behavior and survival strategies. Excavations at the Faysalliah archaeological site, Shawbak District, S Jordan (HLC South Jordan project, Jagiellonian University Kraków (NCN UMO-2016/22/E/HS3/00141) allowed for a detailed sedimentological analysis of fluvial sediments formed at this site in a period of over 120 ka.

The R. J. Folk's and W. C. Ward's graphic method was used to reconstruct the fluvial regime. Thanks to the OSL dating, the described sedimentation cycle was related to the absolute dates.

Despite the almost complete lack of archaeobotanical record, the sediment granulometric analysis allows for the reconstruction of at least several periods with variable precipitation and fluvial dynamics. In combination with OSL dating and the analysis of artifacts found in the studied sediments, this provides a solid basis for understanding the landscape changes from the Palaeolithic to the Bronze Age of the Faysalliah archaeological site.

**Keywords:** Landscape studies, prehistoric environment, sedimentological studies.

**NOT ONLY YELLOW – THE LIMONITE (ARCHAEOLOGICAL OCHRA) OCCURANCES IN THE SOUTH JORDAN ARCHAEOLOGICAL REALM (POSTER)**

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The use of red and yellow rocks (called ocher in archeology) was common in prehistory. The areas of southern Jordan, which are of interest to Polish researchers as part of the HLC South Jordan project, Jagiellonian University Kraków (NCN UMO-2016/22/E/HS3/00141), also brought evidence of the use of these substances, not only in funeral contexts.

This paper presents the results of laboratory tests of a number of rocks with colors from the red and yellow spectrum that occur around archaeological sites in the Shawbak and Tafileh departments. The performed XRF analyzes and field geological prospection allow for a detailed characterization of the outcrops and their raw materials.

Thanks to the analyzes of the obtained archaeological samples, it is also possible to conclude on the degree of use of individual geological outcrops.

**Keywords:** archaeological pigments, Levant, geological prospection, archaeometry.

## CHERT SOURCES FOR PREHISTORIC EXPLORATION AND USE IN THE CONTEMPORARY DISTRICTS OF TAFILEH AND SHAWBAK (SOUTH JORDAN) AS SEEN FROM THE GEOARCHAEOLOGICAL PERSPECTIVE

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Geoarchaeological and archaeological research conducted as part of the HLC South Jordan project, Jagiellonian University Kraków (NCN UMO-2016/22/E/HS3/00141), was executed in five regions located in the departments of Shawbak and Tafileh. This allowed for the identification and description of a relatively complete sequence of geological layers (from Permian to Tertiary sediments), exposed in the vicinity of archaeological sites. Particular attention was paid to siliceous rocks as the basic raw material used by prehistoric communities. The presented analysis together with the geological background shows quite clearly that the area of southern Jordan is an area extremely rich in various siliceous rocks.

As the result the detailed macroscopic and microscopic characteristics of silica raw materials was proposed. This description, in confrontation with the archaeological material from surveys and excavations conducted by Polish researchers, made it possible to assign individual rock materials to specific geological sources / outcrops.

The analyzes performed significantly extend the knowledge on the management of silicates resources in southern Jordan in the periods from the Palaeolithic to the early Bronze Age.

**Keywords:** siliceous rocks, raw materials, outcrops attribution, archaeometry.

## ISLAMIC HERITAGE SITES IN JORDAN

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Hussein al-Aza`at  
*SCHEP/ACOR*

Nader Atiyeh  
*Jordan*

During the academic years from 2017 to 2020, students of the German-Jordanian University, School of Architecture and Built Environment, Amman, undertook a seven-term field course in architectural documentation held by Thomas M. Weber-Karyotakis, in cooperation with Ammar Khammash and Nader Atiyeh. The aim was to document places of prayer and general commemoration of the Islamic religion: mainly mosques, tombs of martyrs, sheikhs and scholars, but also memorials of Islamic history. The time span covered is the period from the early phase

of the spread of Islam from the rule of the Rashidun caliphs to the end of the Ottoman Empire and the beginning of the Hashemite Kingdom.

The outcome of the course was a book published in 2020 which compiles almost 450 sites in Jordan with partly little known architectural and natural monuments of Islamic heritage (<https://elharf.com/products/book-islamic-heritage-sites-in-jordan>). In 2022 an improved and enlarged electronic edition will be published in the net with open access on the EDIT-publication platform of the Gerda Henkel Foundation, Düsseldorf, Germany (<https://www.gerda-henkel-stiftung.de/en/edit-eng>).

## **NELSON GLUECK'S 1938–1940 EXCAVATIONS AT TELL EL-KHELEIFEH, JORDAN: A FURTHER REAPPRAISAL—THE PALEOBOTANICAL REMAINS**

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Nelson Glueck excavated Tell el-Kheleifeh 1938–1940 but died before completing a final report. After his death, the Kheleifeh archive was deposited at the Harvard Museum of the Ancient Near East (HAMNE). In the 1980s, Gary Pratico studied selected materials—architecture, pottery, metal, inscriptions—which were later published in Nelson Glueck's 1938–1940 Excavations at Tell el-Kheleifeh: A Reappraisal (1993). Other finds from the site—bone, shell, botanical remains, geological specimens—were omitted. Moreover, the Kheleifeh collection at the Smithsonian Institution was also omitted from Pratico's Reappraisal. A further reappraisal of Kheleifeh is thus needed.

Specifically, the wide range of paleobotanical material collected by Glueck but not studied until now opens a new window onto Tell el-Kheleifeh. Barley, the principal grain, was probably not grown locally but imported from outside the Gulf of Aqaba. It was baked into flatbread in the numerous ovens Glueck found at the site and possibly also cooked as porridge or brewed into beer. Date palms provided fruit for food, wood for building, and fiber for cordage. Doum palms supplied the same, along with vegetable ivory from its large seeds, suitable for carving into beads and spindle whorls. The abundance of spindle whorls along with well preserved lengths of cordage and hanks of spun fibers indicate production aimed at more than a local market. Tell el-Kheleifeh, located at the junction of major networks connecting Arabia, Egypt, Greater Syria and the Mediterranean, was an essential stop for caravans on these routes.

**Keywords:** Tell el-Kheleifeh, Aqaba, Qurayyah, Feinan, Timna,

## **GREEK INSCRIPTIONS FROM AL-TOURA AND THE RAMTHA REGION**

Jean-Baptiste Yon

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Nabil Bader

*Yarmouk University*

During fieldwork done in and around the village of al-Toura in the Ramtha region in north-east Jordan, the team of the Inscriptions de la Jordanie (collaboration between Yarmouk University, Prof. Nabil Bader, and CNRS–Université de Lyon, Jean-Baptiste Yon) has discovered several new

Greek funerary inscriptions of the Roman period, in thkhuzamae meanwhile locating other previously known texts. Together, they make up fascinating evidence on the life in a rural area, where according to onomastics Roman influence was strong.

**Keywords:** Ancient Jordan, Greek epigraphy, Roman Empire, Onomastics, Al-Toura village

## **THE BENI SAKHR TRIBE (AND ITS SUB-TRIBE—AL-ZABEN OF JALUL): A LOOK AT 19<sup>TH</sup> CENTURY TRIBALISM AND HOW IT ILLUMINATES OUR UNDERSTANDING OF IRON AGE SOCIETIES**

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*Jordan*

A review of the relevant literature reveals that there has been considerable discussion and debate about the origin and nature of the Late Bronze and Iron Age societies in Syro-Palestine. This includes the sub-region of Transjordan or Jordan, and specifically the area known as the Madaba Plains region in the center of the country. While much is still unknown, archaeological excavations, surveys and ancient literary sources suggest that the Late Bronze Age society was largely nomadic while the Iron Age witnessed a period of sedentarization.

As it happens, the nineteenth and twentieth centuries CE in Transjordan witnessed a similar transition of the Beni Sakhr tribe (and sub-tribe al-Zaben ) from a nomadic society to a sedentary village society. Since this transition happened in recent times, in the same geographic area (the Madaba Plains region), and faced similar environmental and political conditions, this recent transition might provide a good “ethnographic” parallel that can help explain the processes that contributed to this same type of transition during the earlier Late Bronze and Iron Ages. Thus, the recent transition might provide a good “ethnographic” parallel that can help us understand possible processes that contributed to this same type of transition during the earlier Late Bronze and Iron Ages. Although the picture that emerges is far from complete, it can provide a useful perspective on the how such a social transition can take place.

This paper, therefore, will describe the nineteenth centuries tribalism of the Beni Sakhr and the Zaben family group in the Madaba Plains area. I will conclude by suggesting how the understanding of the recent Zabens of Jalul can illuminate our understanding of the Bronze and Iron Age cultures of Jalul that preceded them.

## **RESULT OF ARCHAEOLOGICAL EXCAVATIONS AT TELL SHIEKH IS A BYZANTINE CHURCH ASTONISHING DISCOVERIES 2019.**

Mohammed Al-Zahran

*Head Office of Antiquities, Southern Ghawrs*

The site of Khirbet esh-Sheikh ‘Isa (KSI) is located in the Ghawr es-Safi region of the southern Jordan Valley. Previous surveys over this area have shown it was one of the most heavily settled areas in the land of Jordan in Antiquity. The site and the surrounding area have been identified as Biblical Zoar, the Byzantine city of Zoora (Zoara) as depicted on the Madaba Mosaic Map, and Ayyubid-Mamluk Zughar, famed for its sugar factory (the nearby site of Tawaheen es-Sukkar). Not far to the northeast is the site of Deir ‘Ain ‘Abata which features a Byzantine church known as the Sanctuary of Prophet Lot.

Until now, the extent of the site of KSI has been contained within a plot of land owned by the Department of Antiquities of Jordan. Surveys of this site and related areas nearby were conducted

by Konstantinos Politis of the Hellenic Society of Near Eastern Studies, and others, in the late 90s and early 2000s. Archaeological excavations of the site were commenced by Politis and others in 2002 and continued under the direction of Politis in 2004, 2007, 2008 and from 2012 until 2017 (Photos-Jones et al 2002, Politis et al. 2005, 2007, 2009, Politis 2013, 2016, 2017, 2018). In July 2019, Rescue excavation was carried out on the plot of farmland directly east of the main KSI site, some 150m from the trenches opened by Politis. Later that month, Mohammad Alzahran, Head of the Office of Antiquities of the Southern Ghawrs, commenced formal excavations. These excavations have revealed parts of a large church, including a baptistery and a connecting room, paved with geometric mosaics and flagstones.

**Keywords:** Tell Sheikh Isa, Southern Ghawrs, Byzantine, Umayyad, Abbasid and Ayubid-Mamluk Settlement.

## **‘AIN GHAZAL STATUE AT LOUVRE ABU DHABI: EXPLORING STORIES OF CULTURAL CONNECTIONS**

Amna Rashed Al Zaabi  
*Louvre Abu Dhabi*

In 2017, the Department of Culture and Tourism signed a loan agreement with the Department of Antiquities of Jordan regarding a five-year loan of a two-headed statue of 'Ain Ghazal to the Louvre Abu Dhabi Museum. Since its installation in November 2017, the plaster statue continues to be one of the striking pieces that welcome visitors to the permanent galleries.

Displayed in the first gallery titled “First Villages”, the statue of 'Ain Ghazal sparks our interest not only for the unknown identity of the two-headed bust but also for the fabrication techniques including the highly developed lime-plaster technology, which predates the invention of ceramics. The careful display of the almost life-sized statue in our galleries shed light on the possible interpretations of its function and importance to the communities that populated the Neolithic village of 'Ain Ghazal, within the universal narrative of the museum where it illustrates, among statuettes from other cultures, one of the earliest developments of human figuration.

As a counterpart, Louvre Abu Dhabi is committed to further developing a scientific cooperation program, which was launched in 2018 with the restoration of an 'Ain Ghazal statue called Heifah (JMA 217), housed in the National Museum of Jordan. The restoration took place in the laboratory of the Jordan Museum to consolidate a significant artefact that was displayed and loaned several times for temporary exhibitions.

Following the recent renewal of the loan agreement for five additional years, we aim to present at the ICHAJ 15 conference, the key moments of our partnership with the Department of Antiquities of Jordan that are manifested through the restoration project carried out and educational tools created to promote Jordan’s rich heritage to the widest public.