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System of Transliteration from Arabic

Consonents

ء	' (except where initial)	ض	ḍ
ب	b	ط	ṭ
ت	t	ظ	ẓ
ث	th	ع	‘
ج	j	غ	gh
ح	ḥ	ف	f
خ	kh	ق	q
د	d	ك	k
ذ	dh	ل	l
ر	r	م	m
ز	z	ن	n
س	s	هـ	h
ش	sh	و	w
ص	ṣ	ي	y
ة ـة	a or at	ـه ه	a or ah

Long Vowels

ا،ى	ā
و	ū
ي	ī

Short Vowels

ـَ	a
ـُ	u
ـِ	i

Common Nouns

تل	Tall	دير	Dayr
جبل	Jabal	عين	‘Ayn
خربة	Khirbat	وادي	Wādī

List of Abbreviations

AA	Archäologischer Anzeiger
AAAS	Les Annales Archéologiques Arabes Syriennes
AASOR	Annual of the American Schools of Oriental Research
ADAJ	Annual of the Department of Antiquities of Jordan
AfO	Archiv für Orientforschung
AJA	American Journal of Archaeology
AUSS	Andrews University Seminary Studies
BA	Biblical Archaeologist
BAR	British Archaeological Reports
BASOR	Bulletin of the American Schools of Oriental Research
CRAI	Comptes Rendus de l'Académie des Inscriptions et Belles Lettres
JAOS	Journal of the American Oriental Society
JMA	Journal of Mediterranean Archaeology
JNES	Journal of Near Eastern Studies
JPOS	Journal of the Palestine Oriental Society
JRA	Journal of Roman Archaeology
JRS	Journal of Roman Studies
LA	Liber Annuus
LIMC	Lexicon Iconographicum Mythologiae Classicae
MA	Mediterranean Archaeology
PEFQS	Palestine Exploration Fund Quarterly Statement
PEQ	Palestine Exploration Quarterly
QDAP	Quarterly of the Department of Antiquities in Palestine
RB	Revue Biblique
SHAJ	Studies in the History and Archaeology of Jordan
WA	World Archaeology
ZDPV	Zeitschrift des Deutschen Palästina-Vereins

Table of Contents

In Memoriam Henk Franken (1917-2005)
Gerrit van der Kooij 11
Obituary: Giorgio Gullini
Roberto Parapetti 15
Wadi Burma North, Tal'at 'Ubyda, and Wadi al-Qusayr: A Preliminary Report of the Jafr Basin Prehistoric Project, 2004
Sumio Fujii 17
Harrat al-Juhayra Pseudo-Settlement: A Preliminary Report of the Jafr Basin Prehistoric Project, 2004
Sumio Fujii 57
The International Wadi Farasa Project (IWFP) Preliminary Report on the 2004 Season
Stephan G. Schmid 71
A Late Roman Tomb Near Qasr ar-Rabba
Megan A. Perry and Atef M. Al-Shiyab 81
Dayr 'Alla Regional Project: Settling the Steppe (First Campaign 2004)
Eva Kaptijn, Lucas Petit, Ellis Grootveld, Fuad Hourani, Gerrit van der Kooij and Omar al-Ghul 89
Recent Excavations at the Middle Epipalaeolithic Encampment of 'Uyun al-Hammam, Northern Jordan
Lisa A. Maher 101
Preliminary Report on the Excavations at Shakarat al-Musay'id, 1999-2004
C. H. Jensen, B.D. Hermansen, M. Bille Petersen, M. Kinzel, M.M. Hald, P. Bangsgaard, N. Lynnerup and I. Thuesen 115
Preliminary Report on the Archaeological Investigations of the Wadi al-'Arab and the Tall Zar'a, 2003 and 2004
Jutta Häser and Dieter Vieweger 135
Brown University Archaeological Research at the Petra Great Temple
Martha S. Joukowsky 147
The Hermit Life on al-Lisan Peninsula — Results of the Swedish Dead Sea Expedition: A Preliminary Report
Richard Holmgren and Anders Kaliff 167
The Gadara-Region-Project: Preliminary Report of The Sondage on Tall Zar'a (2001-2002) and The Identification of Late Bronze Age Gadara
Jan Dijkstra, Meindert Dijkstra and Karel J.H. Vriezen 177
The First Preliminary Report of the Wadi ar-Rayyan Archaeological Project: the Survey of al-Khawarij
J. L. Lovell, T. Richter, P. B. McLaren, I. K. McRae and Adeib Abu-Shmeis 189
Tall Dhiban 2004 Pilot Season: Prospection, Preservation, and Planning
Benjamin Porter, Bruce Routledge, Danielle Steen, Carla Parlsow, Lidewijde de Jong, and William Zimmer 201
Early Bronze Age Umm Saysaban Excavation Continued in 2001: Insights and Conjectures
M. Lindner, E. Schreyer and E. Gunsam 217

Excavations at Late Neolithic al-Basatin, in Wadi Ziqlab, Northern Jordan
E. B. Banning, Kevin Gibbs and Seiji Kadowaki 229
Madaba Plains Project: Excavations at Tall al-'Umayri, 2004
Larry G. Herr and Douglas R. Clark 245
Three Seasons Of Excavations At Khirbat Iskandar, 1997, 2000, 2004
Suzanne Richard and Jesse C. Long, Jr. 261
The Ayl to Ras an-Naqb Archaeological Survey, Southern Jordan - Phase 1 (2005): Preliminary Report
Burton MacDonald, Larry G. Herr, Geoffrey A. Clark, Andrew Bradshaw, Joey Corbett 277
A Nabataean Rock-cut Sanctuary in Petra: Preliminary Report on Three Excavation Seasons at The "Obodas Chapel", Jabal Numayr (2002-2004)
Laurent Tholbecq and Caroline Durand 299
Survey and Excavations in the Ghawr as-Safi 2004
Konstantinos D. Politis, Amanda Kelly, Daniel Hull and Rebecca Foote 313
Survey and Excavations at Khirbat Kazun 2004
Konstantinos D. Politis, Amanda M. Kelly and Lisa Usman 327
Bayda Documentation Project
Patricia Maynor Bikai, Chrysanthos Kanellopoulos and Shari Lee Saunders 339
Mosaic Floors in the Baptism Site (Bethany beyond the Jordan)
Mohammad Waheeb 345
The Archaeological Site of Qasr al-Usaykhim
Maysoun Al Khouri and Giuseppe Claudio Infranca 351
Jabal al-Mutawwaq
Juan A. Fernández-Tresguerres Velasco 365
Report on The al-Khazna Courtyard Excavation at Petra (2003 Season)
Suleiman Farajat and Sami Al-Nawafleh 373
Al-Khazna, The Treasury Re-visited a Forgotten Document of Léon de Laborde
Fawzi Zayadine 395
Preliminary Report Rhetorius Monastery Bethany Beyond the Jordan
Rustom Mkhjian 403
Khirbat Marbat Badran / Rujum Abu Nusayr: Industrial and Agricultural Production Centre Preliminary Study of the Excavations During 2003-2005
Adeib Abu-Shmais 411
The Hellenistic Petra Project: Excavations in the Civic Center, Preliminary Report of the First Season, 2004
David F. Graf, Leigh-Ann Bedal, Stephan G. Schmid 417
Iron Age Burial in the Lowlands of Edom: The 2004 Excavations at Wadi Fidan 40, Jordan
Thomas E. Levy, Mohammad Najjar, Adolfo Muniz, Sarah Malena, Elizabeth Monroe, Marc Beherec, Neil G. Smith, Thomas Higham, Stefan Munger and Kenneth Maes 443
Archaeological Research at Khirbat adh-Dharih
Zeidoun Al-Muheisen and François Villeneuve 489
New Excavations of the City Wall at Islamic Ayla in 'Aqaba, Jordan
John D. Rucker and Tina M. Niemi 501
A New Discovery at Bayt Ras / Capitolias, Irbid
Ahmad Jum'a al-Shami 509
Abila between the Local Community and Public Awareness
Salameh Fayyad and Wajeh Karasneh 521

Al-Madras — Petra and The Paneion at Banias: *The Operosa Antra*
Zvi Uri Ma'oz *531*
Figurines and Iron Age Objects from 'Amman Citadel
Sahar Mansour *541*

Arabic Section

Jordan Archaeological Museum, as a Prototype for other Museums in Jordan
Aida Naghaway 7
Tall as-Sakhina /Northern al-Aghwar
Jihad Harun 11
The Archaeological Excavations at Khirbat Shuwayka, Eighth Season 2004
Marwan Abu Khalaf 15
Kufic Inscriptions from ad-Disa and Ramm
Suleiman al-Farajat and Sami al-Nawafleh 29
The Theatre of Bayt Ras
Wajih Karasneh and Salama Fayyad 39
The Political History of al-Yemen in the First Abbasid Period
Saleh Khalaf al-Hamarneh 47
The Western Basilica Church at Khirbat Yajuz
Lutfi Khalil 53
The Ayyubid Mosques in the North of Jordan, Comparison Study
Abdel Aziz Salah Salem 65

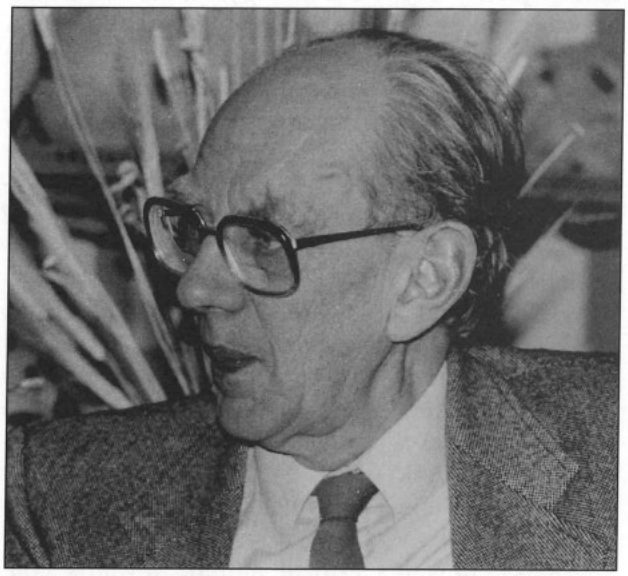
IN MEMORIAM
HENK FRANKEN (1917-2005)

Professor Henk Franken passed away in the Netherlands on January 18. 2005, aged 87, after a vivid life and being active till the end. He is known in Jordan because of his work at Tall Dayr 'Allā — with far reaching influence — and because of his advise in many archaeological matters. He had clear ideas about archaeological developments and clear opinions about political connections of archaeology in this part of the Near East.

Hendricus Jacobus Franken studied Theology and Ancient Hebrew at Amsterdam University and added Anthropology to become missionary for a Protestant Church on Bali. Apart from his activities during the German occupation of The Netherlands, this has been a very formative period for him, being strongly involved in a specific non-western Indonesian society with its own original religious thinking, about which he also published. Upon his return to Holland he joined the Faculty of Theology at Leiden University for a PhD study with a thesis about "The mystical communion with JHWH in the book of Psalms"(1954), and was subsequently attracted by the Old Testament scholar Prof Piet de Boer to be employed at this Faculty for "Palestinian Antiquities" and teach the *"realia"* of the Old Testament. He acquainted himself with the state of the art by spelling out archaeological reports, such as that of Megiddo and Albright's Tall Bayt Marsim, which he then considered as the most adequate introduction to site archaeology. Most influential was the fieldwork training he received at Kenyon's Jericho excavations from 1955-1958.

This background, including his appreciation of the German Historic Critical approach of the Old Testament, and of the Phenomenological approach of religion, together with his interest in the natural sciences, and in combination with his sceptic or critical attitude to some established authorities and opinions made him a creative archaeologist.

Franken experienced a fast breakthrough in the archaeological world, during one decade, the 1960s. This was partly due to his excavations at



Dayr Alla — the first Dutch excavations in the region — that attracted so many visiting famous scholars (archaeologists and Old Testament specialists). It was also due to his international publications about the value of archaeology for Old Testament studies, including the critical introductory textbook *A Primer of Old Testament Archaeology* (1963), written together with his wife Ann Franken-Battershill, a Jericho archaeologist who also joined the Dayr 'Allā excavations (cf. ADAJ 41(1997): 112). This book, together with his lectures and a pottery workgroup, was in fact my first acquaintance with this archaeology as a first-year student at Leiden University in 1964. Franken's questioning of the quality of the current character of archaeology in Palestine and his own goals were also very clear in his first public lecture as a professor at Leiden University *Heilig-Land en Heilige Huisjes* (1962). He explained that for him "biblical archaeology … would consist of capita selecta from the archaeology of greater Syria, not chosen to throw light upon passages from the Bible, but chosen to get an image of the cultures

from biblical times". At that time he also took care of the Dutch public by numerous articles and a book — being an archaeological journey through the "land of the Bible" (1962), and international (British) public by articles in the Illustrated London News. Apart from critically assessing the existing archaeological practice, theory and results, he also developed or practised approaches that would — he hoped — cure the existing drawbacks, namely a correct stratigraphic approach in fieldwork for relative chronology and an independent type of pottery study to understand the changes and thus be able to justify a typo-chronology. At the same time he was looking for "man behind the artefact" — a rather new approach in archaeology. Apart from his background, interest and training he was influenced here by European Prehistoric archaeological approaches and by Anna Shepard's comprehensive pottery approach. His first major publication *Excavations at Tall Dayr 'Alla I: A Stratigraphical and Analytical Study of the Early Iron Age Pottery* of 1969 witnessed this eloquently, including contributions by the potter Jan Kalsbeek. The reactions made clear that much work was to be done to convince people at that time. Spectacular discoveries — enigmatic clay tablets with unknown writing in a temple context, and esp. the Balaam text — brought his work under the attention of a wider scholarly public, and all related archaeology scholars had to deal with Franken's work.

Henk Franken's critical attitude towards conservative biblical approaches and the political impact of it and justification for it, became stronger when the social effects of this approach became visible in the Palestinian drama during and after the 1967 war. This became not only apparent in some rather private activities, but also in some publications dealing the search for standards and procedures of scholarly reasoning, such as "The other side of the Jordan" in *ADAJ* 15 (1970): 5-10, and "The problem of identification in Biblical Archaeology" in *PEQ* 108 (1976): 3-11.

Before, but also after his retirement from Leiden University in 1984 Franken continued to work with all these issues. His care for the correct stratigraphic approach was apparent in an action, with Moawiyeh Ibrahim of the Department of Antiquities, to bring four of the foremen and technical men from Jericho, trained by Kathleen Kenyon, to Jordan after 1967 and to have them available for excavation work in Transjordan. "Abu Simon" had a very strong personal connection with one of them, Ali Abdulrasul (cf. *ADAJ* 41 (1997): 11f). But he also contributed on a more theoretical level by his involvement in the Ghent workshop to develop a "Guide to Archaeostratigraphic Classification and Terminology" (see *Stratigraphica Archaeologica* 1 and 2, 1984 and 1987), and practically again with his care for the Ophel part of the Kenyon heritage of the Jerusalem excavations (together with M.L. Steiner): *Jerusalem* II, 1990.

Franken paid much attention to pottery studies as he (convincingly) believed in the value of his approach. This was partly in a regional perspective, especially the Islamic pottery studies (near Dayr 'Allā: Tall Abū Gourdan, with later initiatives at Tall Abū Ṣarbūṭ, e.g. *ADAJ* 36) and the pottery exhibitions in Brussels and Tübingen, with a guide/handbook (with D. Homès-Fredericq) in an attempt to reconcile his approach with the traditional typological approach. Also his publications about Jericho (Iron Age pottery) and Jerusalem (with his last major work soon in press, through efforts of his wife Cees Franken-Burggraaff) contribute to this. However he also had a systematic perspective, with question-oriented research, and activities elsewhere in the Middle East (1972-1975 in N-Syria) and beyond, continued by his successor for pottery studies, A. van As, and with publications in the *Newsletter of the Department of Pottery Technology* (Leiden University), since 1983.

Henk Franken's foci became also clear in his final publication of The Late Bronze Age Sanctuary of Dayr Alla, in 1992, with far reaching economic and social-religious interpretations. His holistic archaeological approach and view of long term processes became apparent in his *Yadoudeh. The history of a land*, based on surface survey of the estate of the Abujaber family, in 1979.

Much of the impact and value of Franken's work for Palestinian Archaeology, but also beyond, has been assessed by Paul Lapp (thoroughly and extensively in his "The Tell Deir 'Alla Challenge to Palestinian Archaeology", *Vetus Testamentum* 20 (1970): 243-256, a review article of Deir 'Alla I), and by Roger Moorey, with a wider historical perspective in his *A Century of Biblical Archaeology,* of 1991, especially pp. 132-135. Gloria London assessed specifically his role in approaches of ceramic typology and technology, with a wider regional perspective, in *The Oxford Encyclopedia of Archaeology in the Near East* (Eric Meyers, editor, 1997), pp. 450-453.

Not reviewed there is Franken's contribution in another field. Stress on independence from a conservative biblical approach in archaeology, also means for him — because of its connection with all sorts of western interests in the region — contributing to the development of an independent national archaeology in Jordan. In practice this in-

cluded setting up, with Moawiyah Ibrahim, a real cooperation in one project (Dayr 'Allā) with the Department of Antiquities in 1976 (cf. *ADAJ* 22: 57ff.), from which also resulted the establishment (1982) of the Dayr Alla Station for Archaeological Studies, together with Yarmouk University. The same interest in promoting a national archaeology was apparent for Palestine, for example with Shaath's "First International Symposium on Palestine Antiquities" in Aleppo (1981), and — more recently — through a donation of many of his archaeological books and journals to the Institute of Archaeology of Birzeit University.

Because of this contribution, combined with his scholarly attitudes, he was an eloquent advisor in Jordanian archaeological matters during several years, and earned not only a visit at his workrooms in Leiden by His Royal Highness Crown Prince Hassan in 1977, but also the Jordanian Independence Medal, granted to him by His Majesty King Hussein, and presented to him by Her Royal Highness Princess Sarvath al-Hassan on the occasion of the opening of the exhibition to his honour about the archaeology of Tall Dayr 'Allā in Leiden at the National Museum of Antiquities, August 24th, 1989.

His friend Paul Lapp called Henk Franken radical in his views and approaches, but he generally had an important issue and an approach that was to become more common some time after. With respect we remember him with his original contributions to the archaeology of Jordan-Palestine and those to pottery studies, and with his teaching, advise and research, that were and are stimulating for so many.

Gerrit van der Kooij
Leiden University

OBITUARY
GIORGIO GULLINI
Rome, August 13th, 1923 – Rome, October 13th, 2004

Giorgio Gullini graduated from Rome University, and worked for a few years at the Antiquities and Art Administration as Inspector and Director.

From 1958 to 1998 he was a Full Professor of Archaeology and History of Greek and Roman Art at the University of Turin.

From 1976 to 1986 he was President of the Archaeological Heritage Committee of the National Council for Cultural Heritage, and from 1979 to 1986 he was also a Member of the National University Council.

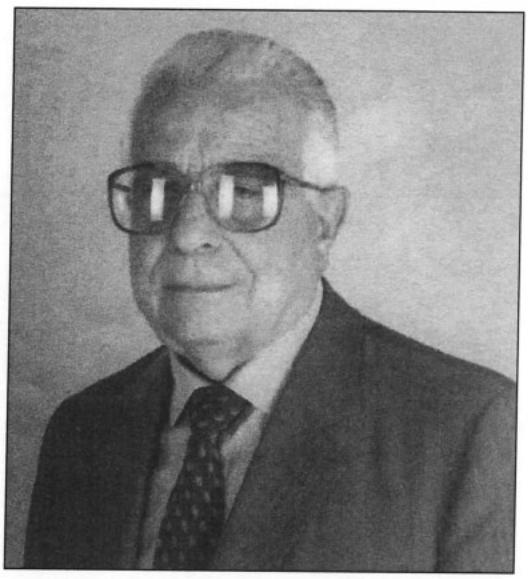
From 1955 to 1961, he was among Giuseppe Tucci's first co-operators in the archaeological missions to Pakistan, Afghanistan and Iran, participating in the exploration in the Swat Valley of the city of Udegram, the ancient Ora founded by Alexander the Great, the Ghazni Palace in Afghanistan, and the Kuh-i-Khwagia Palace in Seistan – Iran.

In 1963 he promoted together with the Piedmont local Authorities, Turin University and Turin Savings Bank, the constitution of Centro Ricerche Archeologiche e Scavi di Torino per il Medio Oriente e l'Asia (Centre of Archaeological Research and Excavations of Turin for the Middle East and Asia), of which he was first Scientific Director, and then President during the later years.

According to such appointments he planned, developed and directed the research of Turin Archaeological School in Iraq, Iran, central Asia, Jordan, Syria, Lebanon, Tunisia, as well as in Italy - Magna Graecia and Sicily.

His research mainly addressed the history of ancient architecture, from the proto-Sumerian to the Byzantine, intended as a complex document of knowledge on the ancient cultures and societies.

The main studies he carried out were focused on the irradiation of the Hellenism in Asia, its consequences on the local cultures and the return towards the West in the late ancient era, the development of the great Mediterranean cultures from the



third millennium BC to the late-ancient era, as phases and aspects of a fundamentally unitary framework, the great Roman architecture in its phases of middle and late republican ages linked to the Hellenism and middle imperial age with the illustration of the Hellenistic-Syrian school, which Apollodorus of Damascus belonged to.

In 1966 he founded Mesopotamia, an annual magazine of archaeology, epigraphy and ancient oriental history.

In 1969 he founded in Baghdad the Iraqi-Italian Institute of Archaeological Sciences and the Iraqi-Italian Centre for the Restoration of Monuments, as innovative tools of a continued parithetic cooperation with the local Authorities through the application of the most advanced technologies for the management of the cultural heritage. In 1985 he planned an important exhibition of art and Mesopotamian archaeology, "The Land between the Two Rivers", held in Turin, Florence and Rome.

With the same aim, he constituted the Jordanian-Italian Institute of Archaeological Sciences in Amman and the Tunisian-Italian Institute of Sci-

ences and Technologies of the Cultural Heritage in Tunis.

In 1995, in cooperation with the Jordanian Department of Antiquities, he organized and hosted in Turin the sixth International Conference "Studies in the History and Archaeology of Jordan".

In Beirut in 1996, he started an intense cooperation with the Direction General of Antiquities of Lebanon for the protection of the archaeological heritage of the historical centre of the city.

From the end of the sixties, he became more and more interested in the contribution of the physical, mathematic and natural sciences to the management of the cultural heritage. In such a context, he theorized a disciplinary integration guided by the centrality of the historical demand.

He was a national associate of Turin Sciences Academy and Rome Lincei Academy.

His wide scientific production includes more than a hundred works and articles on specialized magazines and embraces many fields, from classic to oriental archaeology.

Roberto Parapetti

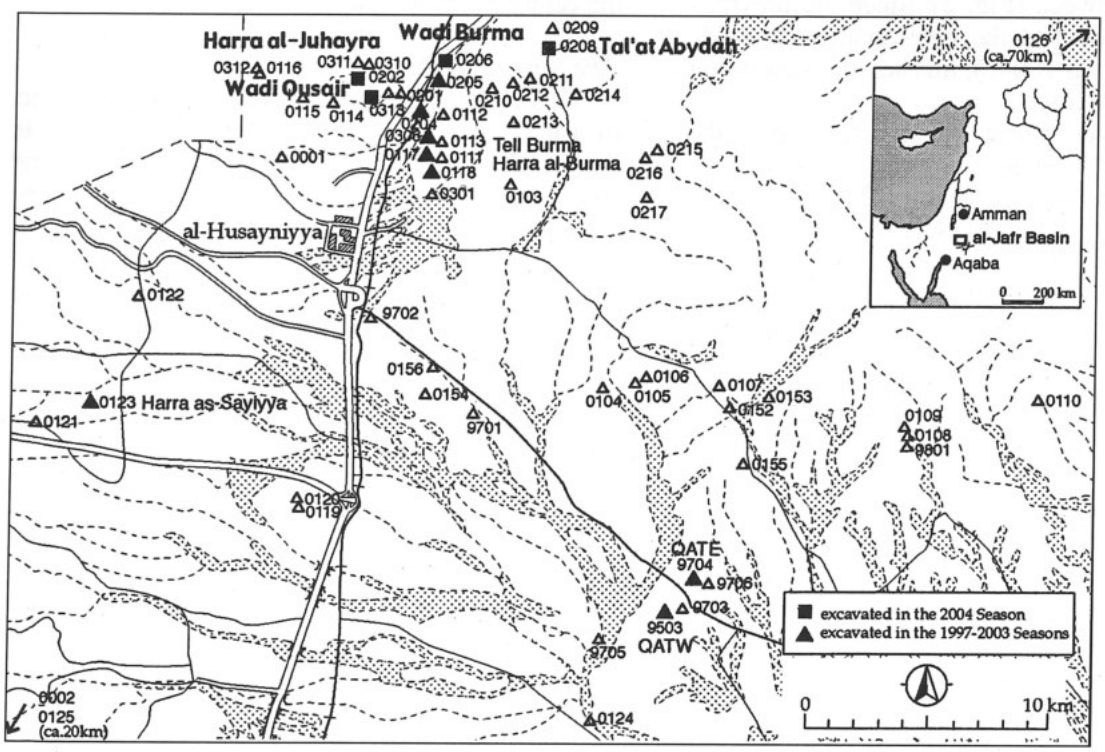
WĀDĪ BURMA NORTH, TAL'AT 'UBAYDA, AND WĀDĪ AL-QUṢAYR
A PRELIMINARY REPORT OF THE JAFR BASIN PREHISTORIC PROJECT, 2004

Sumio Fujii

Introduction

The third excavation season of JBPP/2 (the Jafr Basin Prehistoric Project, Phase 2), headed by the author and cooperated by the Department of Antiquities of Jordan, was conducted from 8 August to 30 September in 2004, focusing on the Wādī Burma drainage area in the northwestern part of the basin. The primary objective of this season was, in common with the preceding two seasons, to complement the chronological sequence established at Qā' Abū Ṭulayḥa West (QATW), the primary concern of the JBPP/1 from 1997 to 2002 (Fujii 1998; 1999; 2000; 2001; 2002a; 2002b; 2003) and, in so doing, to found a reliable base to trace pastoral nomadization in southern Jordan. The focal points were twofold: first, to elucidate the chronological relationship between the Early Bronze Age (EBA, hereafter) pseudo-wall cairn enclosures at QATW and the cist enclosures that was attested for the first time at Wādī Burma South in the last season (Fujii 2004b); second, to fill in the chronological hiatus between the Late Neolithic pseudo-settlement at QATW and a Pre-pottery Neolithic B (PPNB) small settlement at Jabal Ju'ayra that had been identified in our 2001-2002 winter season survey (Fujii 2002b: 41).

For these two goals, the following four sites were investigated: Wādī Burma North Cairn Field, Tal'at 'Ubayda Cairn Field 1, Wādī al-Quṣayr, and Ḥarrat al-Juḥayra Pseudo-settlement (**Fig. 1**). A series of investigations showed that: 1) Wādī Burma North cist enclosures are both smaller in size and deteriorated in techno-typology than Wādī Burma South cist enclosures and, therefore, can be regarded as a subsequent cairn complex of the latter; 2) Tal'at 'Ubayda is characterized by the corridor type cist enclosures and probably postdates Wādī Burma North and South that are marked by the



1. The site map of the investigation area.

forecourt type cist enclosure; 3) Wādī al-Quṣayr is a composite site that contains a wide range of archaeological occurrences from a Natufian small encampment, through an EBA tabular scraper cache, to early Islamic structures, 4) techno-typologically, Ḥarrat al-Juḥayra slightly antedates the pseudo-settlement at QATW, thus bridging the chronological hiatus between QATW and a small PPNB settlement at Jabal Juḥayra.

What follows is a brief summary of the investigations at the first three sites that were chosen in connection with the first goal. Since the fourth site, Ḥarrat al-Juḥayra, was investigated for the second goal and is quite different in nature from the other three, it will be described separately elsewhere in this volume.

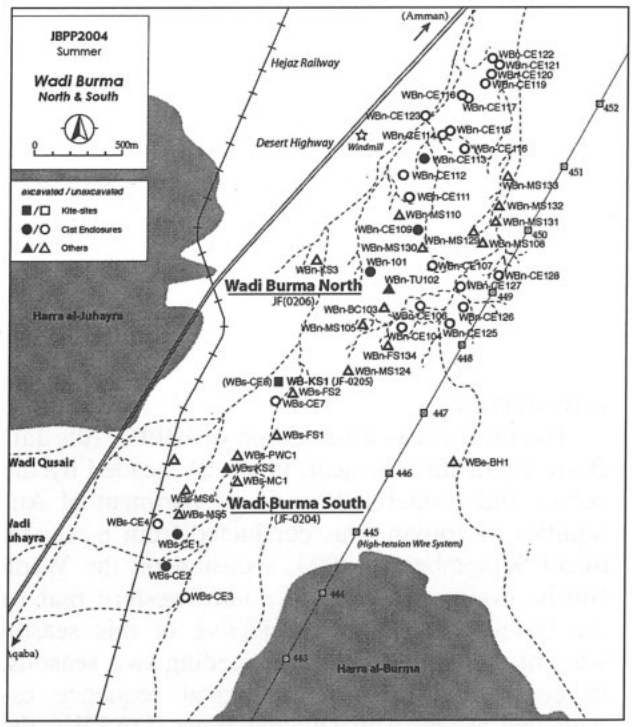
WĀDĪ BURMA NORTH CAIRN FIELD

Wādī Burma is a small drainage system ca. 30km in total length that rises in Tall Burma, a small volcanic hill ca. 5km northeast of al-Ḥusayniyya, and runs northward roughly in parallel with the Desert Highway to merge into the uppermost stream of Wādī al-Ḥasā. A number of structural remains, mostly cist enclosures in our terminology, have been found on its sandbanks, especially along the course between Jurf ad-Darāwīsh to the north and al-Ḥusayniyya to the south. They fall into Wādī Burma North (WBn) and Wādī Burma South (WBs), with a large drive-hunting installation, Wādī Burma Kite-Site 1 (WB-KS1), just in between (**Fig. 2**). Since the previous season was devoted to the investigation of Wādī Burma South (Fujii 2004b), this season focused on its northern counterpart.

The site of Wādī Burma North extends from the SW toward the NE along the main steam of Wādī Burma, covering an area of ca. 100ha. (ca. 2km long and ca. 0.5km wide). Our mapping survey plotted about three dozens structural remains on its sandbanks, twenty-one of which were tentatively identified as cist enclosures. Three of these (CE101, CE109, and CE113) were excavated and two other examples (CE111 and CE116) were drawn after surface cleaning. In addition, though beyond the original scope of our investigation, a two-rowed upright stone wall structure (WBn-TU102) was excavated to trace task-specific land use in the PPNB period.

Cist Enclosure 101

Wādī Burma North Cist Enclosure 101 (WBn-CE101 in our code system) was located at the western part of a large sandbank extending between the two major courses of Wādī Burma, on



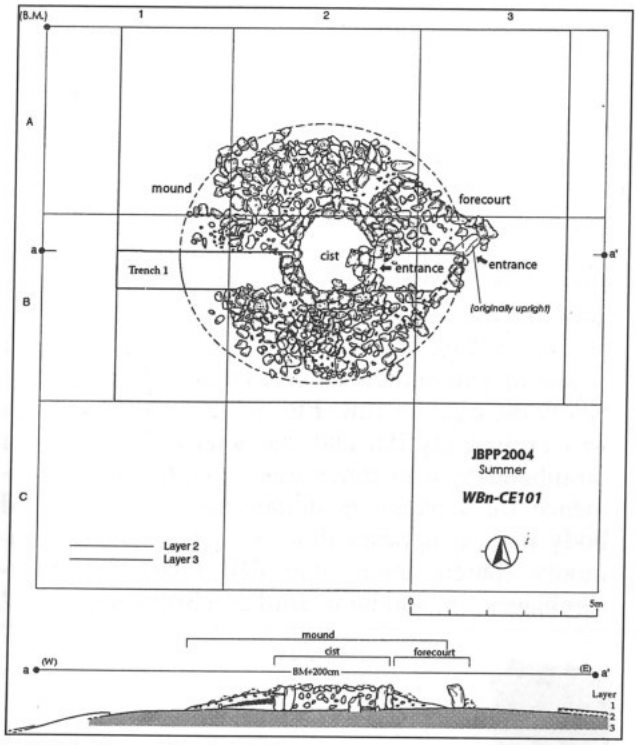
2. Wādī Burma North and South: the site map.

the top of a gentle slope overlooking a small wadi stream. In order to trace techno-typological transition from Wādī Burma South cist enclosures that were investigated in the previous season, it was excavated down to the original surface of the mound and, then, further examined by means of an E-W oriented, 1m wide trench that was opened across the center of the mound.

The Structural Remain

This cist enclosure was relatively small in size, measuring ca. 7-8m in diameter and ca. 0.6m in height (**Figs. 3, 4**). Undressed limestone, flint, and basalt cobbles, mostly ca. 20-50cm long, were used for the main construction material, but the mound, its lower layers in particular, also included a large volume of smaller wadi pebbles and silty sand as filling material. The excavation showed that this cist enclosure was a ground-type structure constructed on the upper surface of Layer 3 of the site stratigraphy (The same is true for the other two excavated cist enclosures in this site).

Two major components — a round cist ca. 3m in outer diameter and a square forecourt ca. 2.5-3m each side — were found underneath the mound which was covered densely with cobbles. The cist had a two-rowed upright stone wall, on which either a single or two courses of fieldstones were put horizontally. A narrow entrance to this cist, flanked with a pair of upright limestone boulders and paved with limestone cobbles, was found at its



3. Wādī Burma North CE101: the plan and section/elevation.



4. Wādī Burma North CE101: the general view (from SE).



5. Wādī Burma North CE101: the close-up view of the cist (from S).

eastern periphery (**Fig. 5**). In addition, an upright stone was placed behind this entrance. Interestingly, some cobbles were packed irregularly into the entrance and, at the same time, a large stone was put over a pair of upright boulders, a suggestion that the cist was sealed after some funerary ritual had been performed. The forecourt was less elaborate in construction quality, being built with a single row and course of cobbles put horizontally on the ground surface in those days. As was the case in the Wādī Burma South cist enclosures, it was attached to the eastern periphery of the cist, making a 45-degree turn with the four corners being oriented to the four cardinal points. An entrance to this forecourt, originally flanked with a pair of upright boulders, was identified at the eastern corner.

This structure resembled Wādī Burma South cist enclosures in that it arranged a round cist to the west and a 45-degree turned, square forecourt to the east. It is also common to both of these that the path of flow from the outside into the cist is slightly refracted. There is no doubt that this cist enclosure was constructed following the same standard as Wādī Burma South cist enclosures. Nevertheless, a few remarkable differences are noticed between the two. Among these is the disappearance of a small, rectangular compartment that had intervened between a cist and a forecourt at the two excavated cist enclosures at Wādī Burma South (WBs-CE1 and -CE2). Suggestive in this respect is WBs-CE4 and -CE7, both of which had already shown a sign of size reduction in this minor component (Fujii 2004b: fig. 12). Taking this into consideration, we may reasonably assume that WBn-CE101 represents a simplified version of Wādī Burma South cist enclosures (Another critical difference was the existence at WBn-CE101 of a narrow entrance to the cist and an upright stone behind it, but the reexamination of WBs-CE1 and -CE2, as briefly referred to below, revealed that both of these cist enclosures were also equipped with similar features).

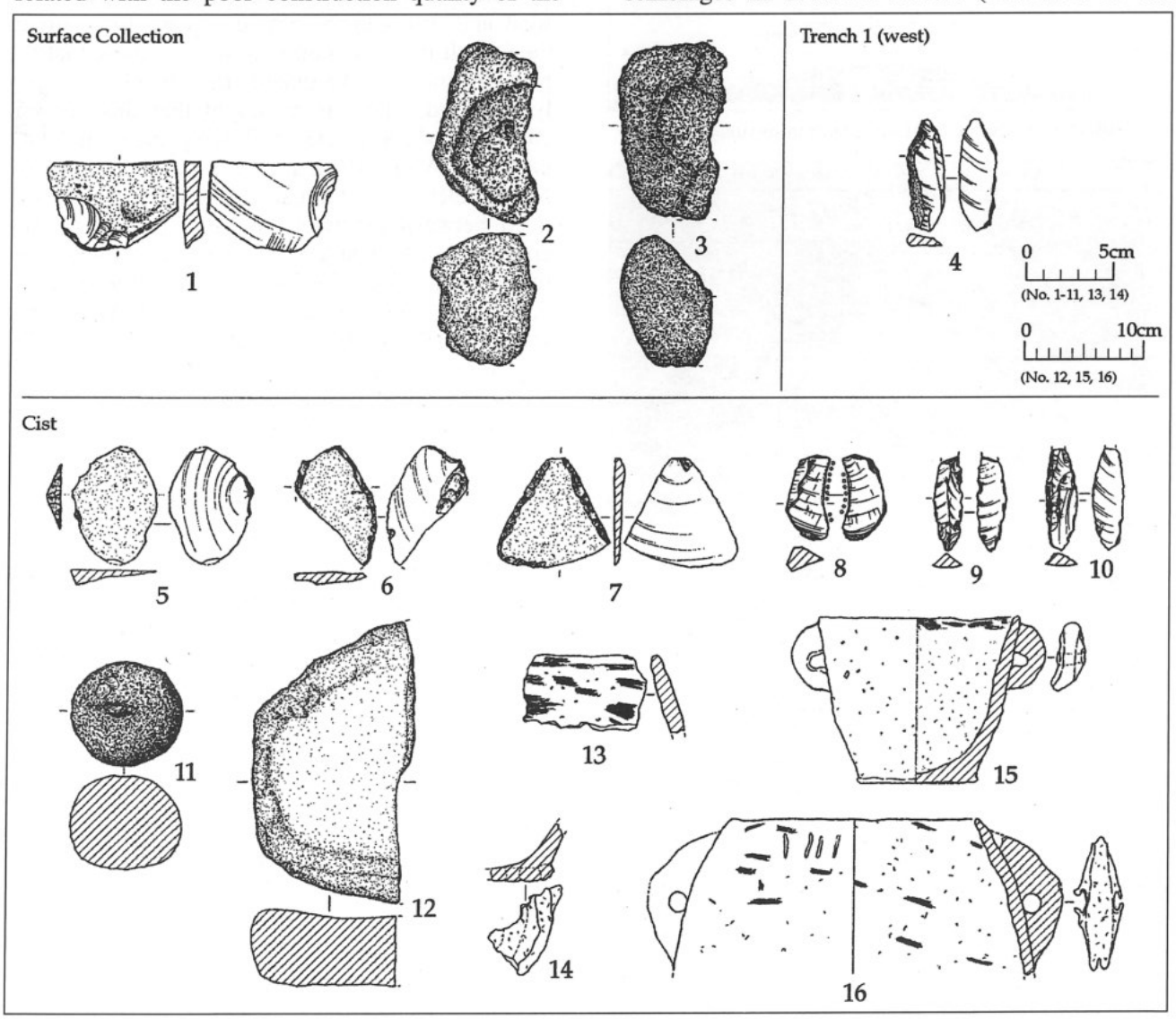
The Finds

The finds from this cist enclosure, though much poorer in both quality and quantity, were similar in general contents to those from Wādī Burma South cist enclosures. They included some dozens of flint artifacts, a few fragments of groundstone artifacts, a few bags of coarse ware sherds, and a handful of animal bone fragments. They occurred from both the cist and the mound (including the forecourt), with the former being the main contextual source especially for groundstone artifacts and pottery

sherds.

The flint artifacts included tabular scrapers (**Fig. 6: 1, 5-7**) and arched or backed sickle blades (**Fig. 6: 4, 8-10**) as two major components. The latter component is diagnostic of the arid periphery of southern Levant in the EBA, its early phases in particular (Rosen 1997: 60, Fig. 3.19). In addition, two hammer stones made of globular flint nodule were included (**Fig. 6: 11**). The groundstone artifacts, a hallmark of Wādī Burma South cist enclosures, were less frequent in this cist enclosure, comprising two basalt vessels from the surface layer (**Fig. 6: 2, 3**) and two large fragments of limestone querns from a fill layer of the cist (**Fig. 6: 12**). Maceheads, another hallmark of Wādī Burma South cist enclosures, were not attested here. It appears that the absence of maceheads and the scarcity of basalt and limestone vessels are correlated with the poor construction quality of the structure itself.

The vast majority of ceramic finds were of grit-tempered, coil-made, thick-walled, poorly fired, dark colored, coarse ware. Nonetheless, finer ware sherds with buff tint and fairly well-fired walls were also present to a lesser extent, suggesting that coarse and fine wares coexisted in this pottery assemblage. A few pottery forms were identified, including holemouth jars with or without a pair of horizontally pierced lug handles just below the exterior rim (**Fig. 6: 13, 16**), a small open bowl with a pair of perpendicular loop handles immediately below the exterior rim (**Fig. 6: 15**). The base form was exclusively flat and characterized by a slight protuberance at its outer edge (**Fig. 6: 14, 15**), evidence for separate manufacturing of a base and body part. It appears that this technique is commonly shared among the EBI coarse ware assemblages in southern Jordan (Brückner *et al.*



6. Wādī Burma North CE101: the finds.

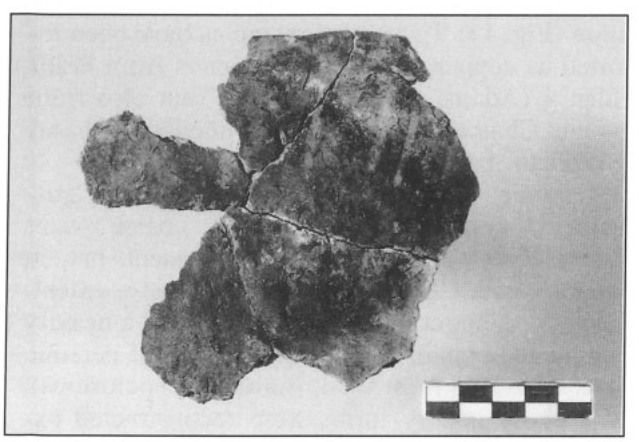
2002: figs. 21, 23-25). No special surface treatment was recognized, with the exception of negative, vertical stripes applied to a few rim sherds of a dark-colored wholemouth jar (**Fig. 6: 16, Fig. 7**). This unique example, most likely, derived from a similar technique referred to below in connection with WBn-CE1 and -CE2.

Cist Enclosure 109

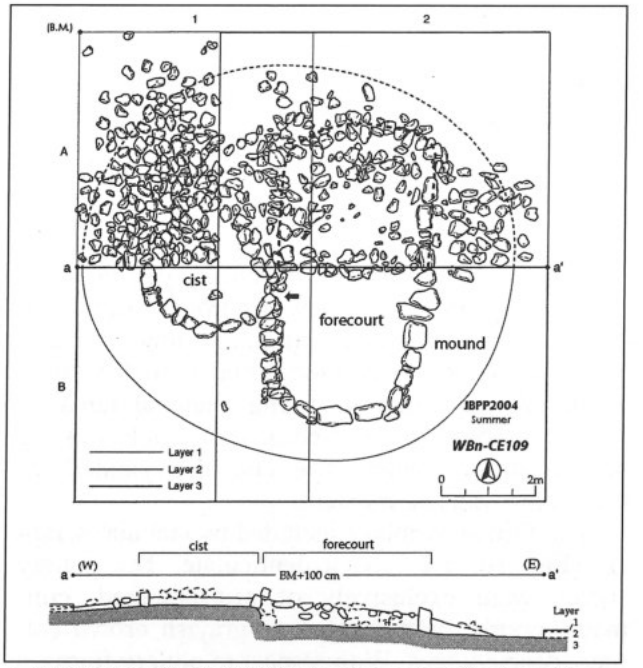
WBn-CE109 was located ca. 350m NE of WBn-CE101 mentioned above, roughly in the center of this site. In common with WBn-CE101, it occupied an edge of a natural rise overlooking a small wadi. In order to trace the construction order, the tripartite excavation system was applied to the excavation, with the center of the cist being the origin of the coordinate axes. First, the northwestern quarter was left intact to show the present state of the mound surface that was covered densely with limestone and flint cobbles. Next, the northeastern quarter was cleaned down to the original surface of the mound underneath the cobble cover. Our excavation was focused on the southern half, where the interior structure underneath the mound was exposed.

The Structural Remain

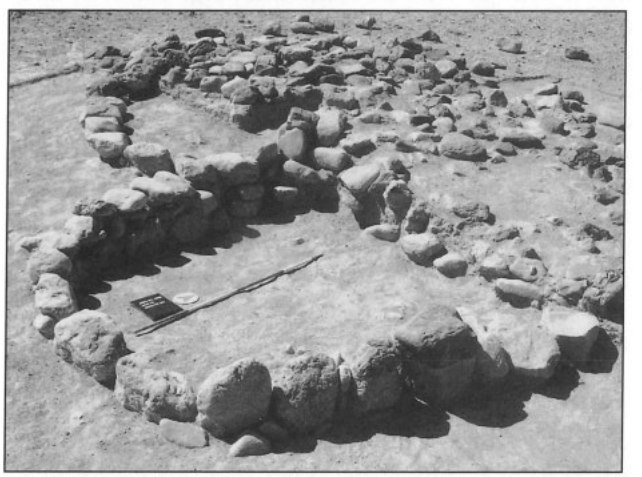
The excavation revealed that a round cist ca. 2.5m in outer diameter and a semi-rectangular forecourt ca. 7m wide and ca. 3.5m deep underlay the cobble-covered mound ca. 8-9m in diameter and ca. 02-0.5m in relative height (**Figs. 8, 9**). In comparison with CE101, the cist was less elaborate in construction and fringed merely with undressed fieldstones put horizontally in a single row and course. We may note, however, that, when viewed from the forecourt, the higher elevation of this cist probably made it more impressive than it was. As was the case with CE101, a narrow entrance was placed at its eastern periphery and crudely sealed with cobbles. A freestanding upright stone behind the entrance was not clearly attested, but it appears that a small limestone cobble put horizontally at the locus in concern substituted for it.



7. Wādī Burma North CE101: sherds with white, negative stripes.



8. Wādī Burma North CE109: the plan and section/elevation.



9. Wādī Burma North CE109: the general view (from SE).

What most interested us was the construction technique of the forecourt, which was built cutting a gentle slope in a semi-circular shape. For this reason, while the western wall of this forecourt was constructed as a terrace wall up to three to four courses or ca. 0.5m high, the eastern wall was formed a normal, single-course high wall standing on the ground surface in those days. Nonetheless, the use of larger upright boulders at the eastern wall compensated for the difference in courses between the two. Of eclectic character was the south-

ern (and probably northern) wall, which constituted a lower protection wall merely at its western part. Unfortunately, an entrance to this forecourt was not clearly attested, probably because the excavation was limited to the southern half of this structure.

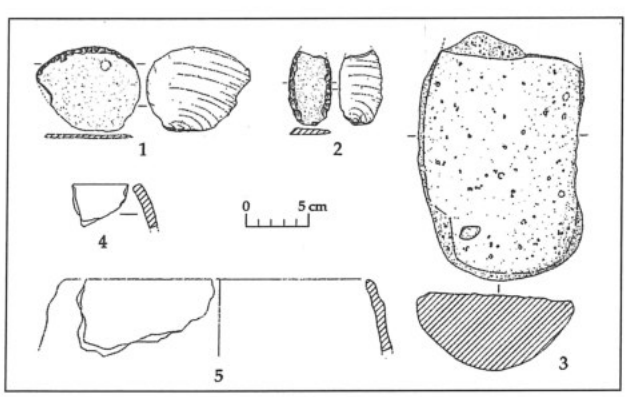
The Finds

The finds from this cist enclosure were exiguous, consisting merely of a dozen chipped stone artifacts, a grinding slab made of porous basalt, (**Fig. 10: 3**), a heavily-burned natural limestone pebble, a few dozen coarse ware sherds, and a small volume of animal bone fragments and charcoal remains. The main contextual source of these finds was the mound and forecourt. The cist also yielded artifacts, but to a lesser extent.

The flint assemblage included two tabular scrapers (**Fig. 10: 1-2**) and a denticulate. The pottery sherds were exclusively of grit-tempered, coil-made, poorly fired, reddish to grayish brown colored, coarse wares. With respect to pottery forms, a holemouth jar with a simple rim (**Fig. 10: 4, 5**) and a flat base with matt impression were attested. The sherds were often found just in front of the cist, and, at the same time, in sooty condition, an indication that funerary ritual including some burning or cooking ceremony had been held there. Nevertheless, the occurrence of a few flint artifacts, two animal bones, and a burned natural pebble within the cist suggests a more extensive scene for the ritual.

Cist Enclosure 113

WBn-CE113, lying ca. 400m NNE of CE109, also occupied an edge of a gentle slope overlooking a small wadi stream. In order to double-check the excavation results at the other two cist enclosures, it was cleaned down to the original mound surface and then, in common with CE101, intensively examined with a 1m wide E-W oriented trench across the mound.



10. Wādī Burma North CE109: the finds.

The Structural Remain

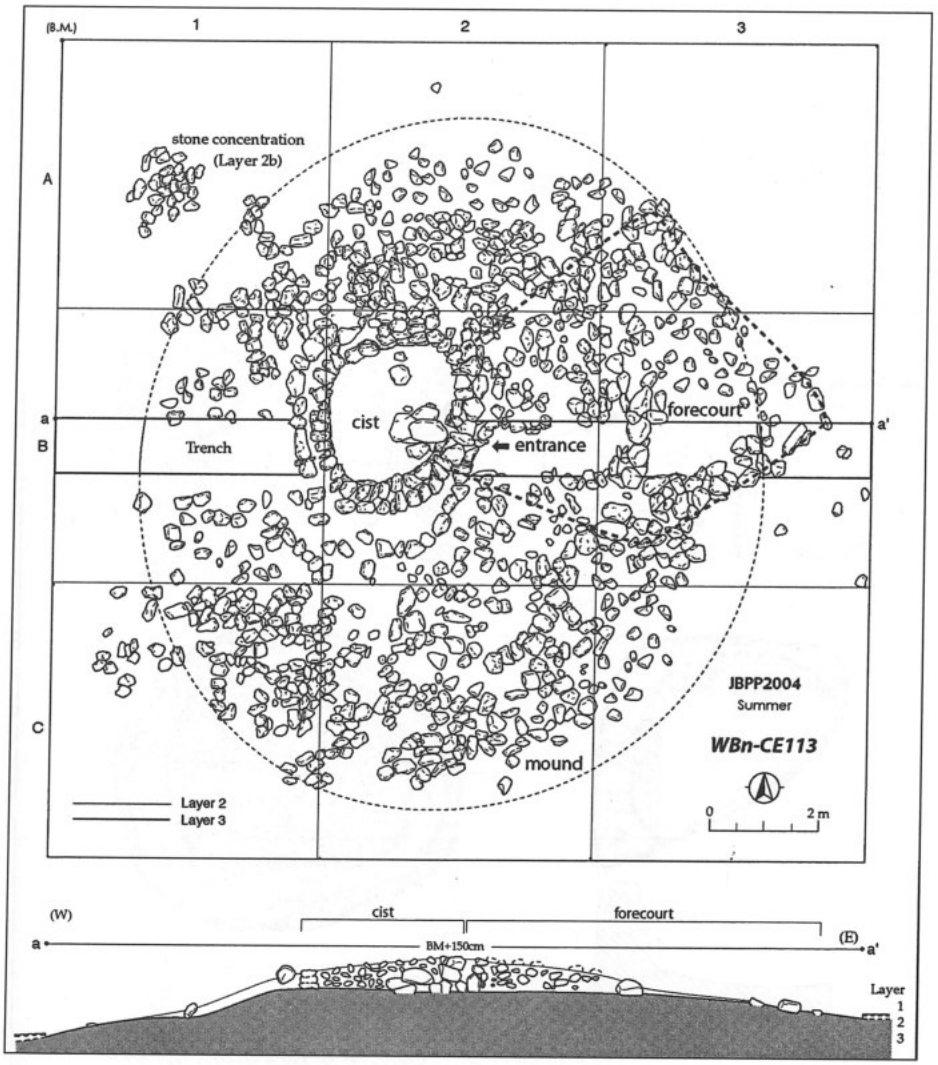
The excavation revealed, here again, a round cist ca. 3-3.5m in outer diameter and a rhomboidal, 45-degree turned forecourt ca. 4-5m each side underneath the cobble-covered mound ca. 12-13m in diameter and ca. 1m in height (**Figs. 11, 12**). This cist enclosure had much in common with CE101, including the basic composition, the general orientation, the 45-degree turning of the forecourt, the existence of a paved (or rather stepped) entrance to the cist, the existence of an upright stone behind the cist entrance, and the sealing of this entrance probably after some funerary ritual. It is apparent that this cist enclosure was constructed following the standards of Wādī Burma cist enclosures.

The Finds

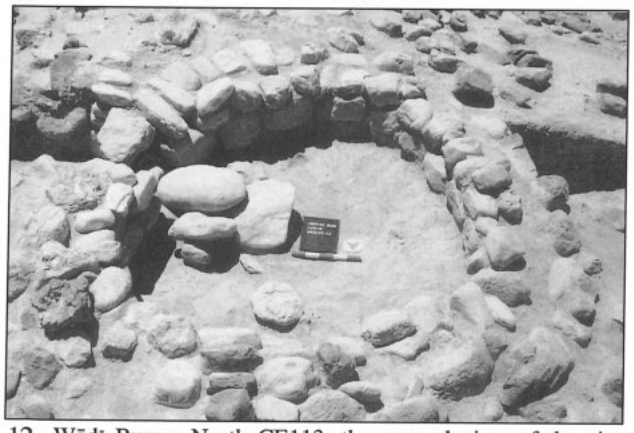
In common with the other two cist enclosures mentioned above, chipped and groundstone artifacts and coarse ware sherds predominated in the finds (**Fig. 13**). Their main contextual source was the cist.

The chipped stone artifacts included tabular scrapers (**Fig. 13: 5, 6**) and backed or arched sickle blades (**Fig. 13: 1, 7**) as two major tool classes. The ground stone artifacts included two limestone vessels (**Fig. 13: 10, 11**), one of which was made of fine-textured chalky limestone and decorated with parallel incisions on the flat rim. Although such stone vessels were well attested at Wādī Burma South cist enclosures (Fujii 2004b), they were much less frequent at Wādī Burma North cist enclosures. Other ground stone artifacts included a few hammer stones made of spherical flint nodules (**Fig. 13: 8**), several querns and grinding slabs made of either porous basalt or coarse limestone (**Fig. 13: 12, 13**). Of particular interest was a heavy-duty digging tool with a shaft hole bi-directionally perforated at a slightly off-center position (**Fig. 13: 9**). Similar examples have been reported as copper ore mining hammers from Wādī Fīdān 4 (Adams 1999: fig. 5. 25) (but also from the late Chalcolithic context of Tulaylāt al-Ghasūl [Blackham 1999: fig. 18: 18]).

Ceramic finds were dominated by grit-tempered, coil-made, dark-faced coarse ware sherds. Fine ware sherds were infrequent, but, in common with CE101, did occur to a lesser extent. Since these pottery sherds were found in a heavily fragmented condition (this is the norm of ceramic finds recovered from Wādī Burma cist enclosures), no specific pottery forms were reconstructed except for a high-necked jar (**Fig. 13: 2, 3**), an open bowl (**Fig. 13: 14**), and a flat base with a slight



11. Wādī Burma North CE113: the plan and section/elevation.

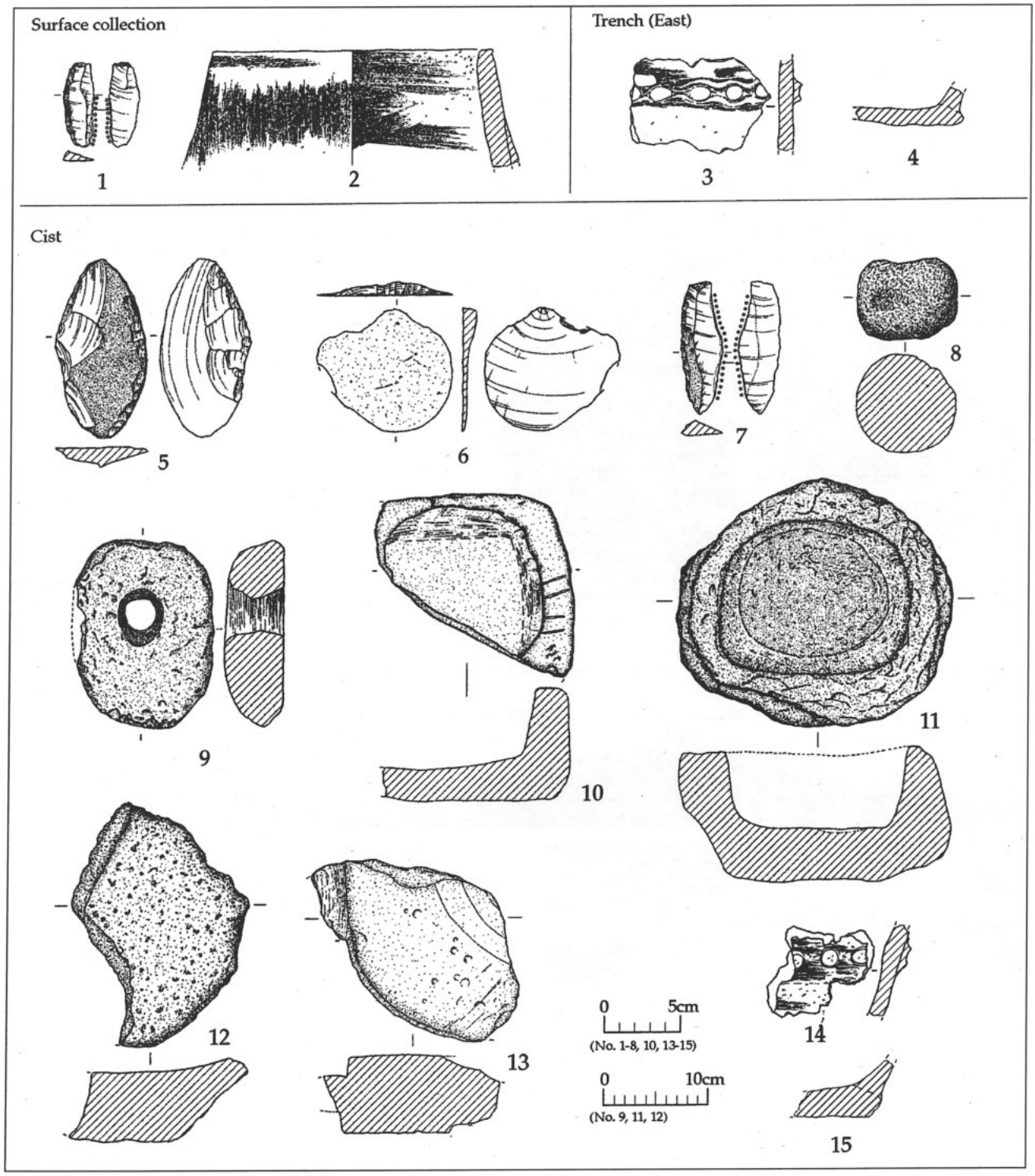


12. Wādī Burma North CE113: the general view of the cist (from N).

protuberance at its outer edge (**Fig. 13: 4, 15**). Decoration was rare, but two sherds with a finger-impressed horizontal band just below the exterior rim were found (**Fig. 13: 3, 14**). Similar examples have been well attested at some EBI sites in southern Jordan, including Wādī Fīdān 4 (Adams 1999: fig. 5.10), Wādī Faynān 100 (Wright *et al.* 1998: fig. 8, no. 1-3) and Ḥujayrat al-Ghuzlān (Khalil and Eichmann 1999: fig. 9, no. 4; Kerner 2003: fig. 18), serving as evidence for the EBI date of this cist enclosure. In addition, the finds included some heavily burned pebbles and a few bags of animal bones and charcoal remains.

Cist Enclosure 111 and 116

These two cist enclosures were merely drawn after surface cleaning (**Fig. 14**). This informal operation suggested, however, that a round cist ca. 2-3m in diameter and a 45-degree turned square forecourt ca. 2-4m each side underlay a cobble-covered mound ca. 5-7m in diameter. Furthermore, CE111 yielded evidence for a narrow entrance flanked with a pair of upright boulders at the northeastern, slightly offset position of the forecourt. There is little doubt that these two examples were constructed following the standard of Wādī Burma cist enclosures. The surface collection included a half-fragment of limestone macehead from CE111 and

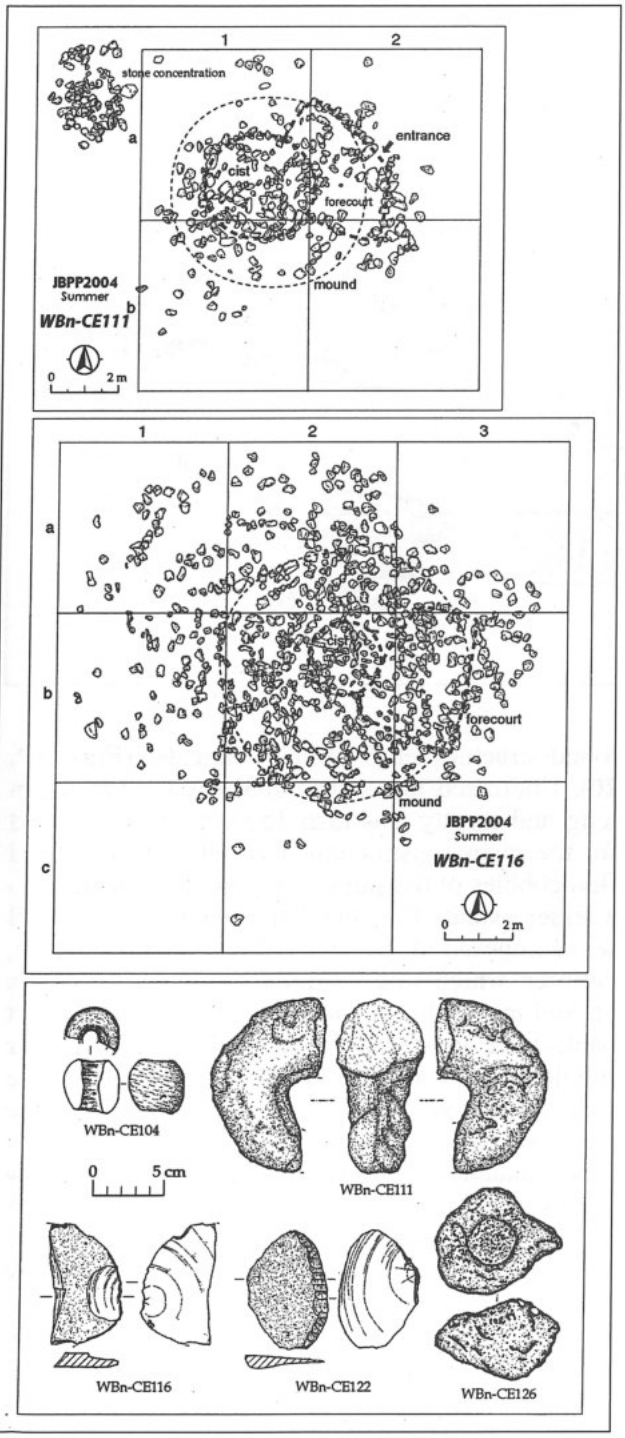


13. Wādī Burma North CE113: the finds.

a tabular scraper blank from CE116 (**Fig. 14**).

Reexamination of Wādī Burma South Cist Enclosure 1 and 2

The investigation results of these cist enclosures required us to reexamine WBs-CE1 and -CE2 that had been excavated in the previous season (Fujii 2004b). As a result, both of these turned out to have been equipped with not only a narrow entrance to a cist but also a freestanding upright stone behind it (**Figs. 15, 17**). Thus, our previous description about these two cist enclosures should partly be revised; the semi-rectangular space within the cists (Fujii 2004b: figs. 5, 8) was not a real



14. Wādī Burma North CE111 and CE116: the plan and the finds.

feature but an accidental hollow that happened to be formed while the cist was covered with rubble mound. It is now obvious that the relatively large, round cist equipped with a narrow entrance and a freestanding upright stone was the norm of Wādī Burma cist enclosures. Incidentally, a large hearth was found at the northwestern part of the cist of WBs-CE1, suggesting that some burning ceremony

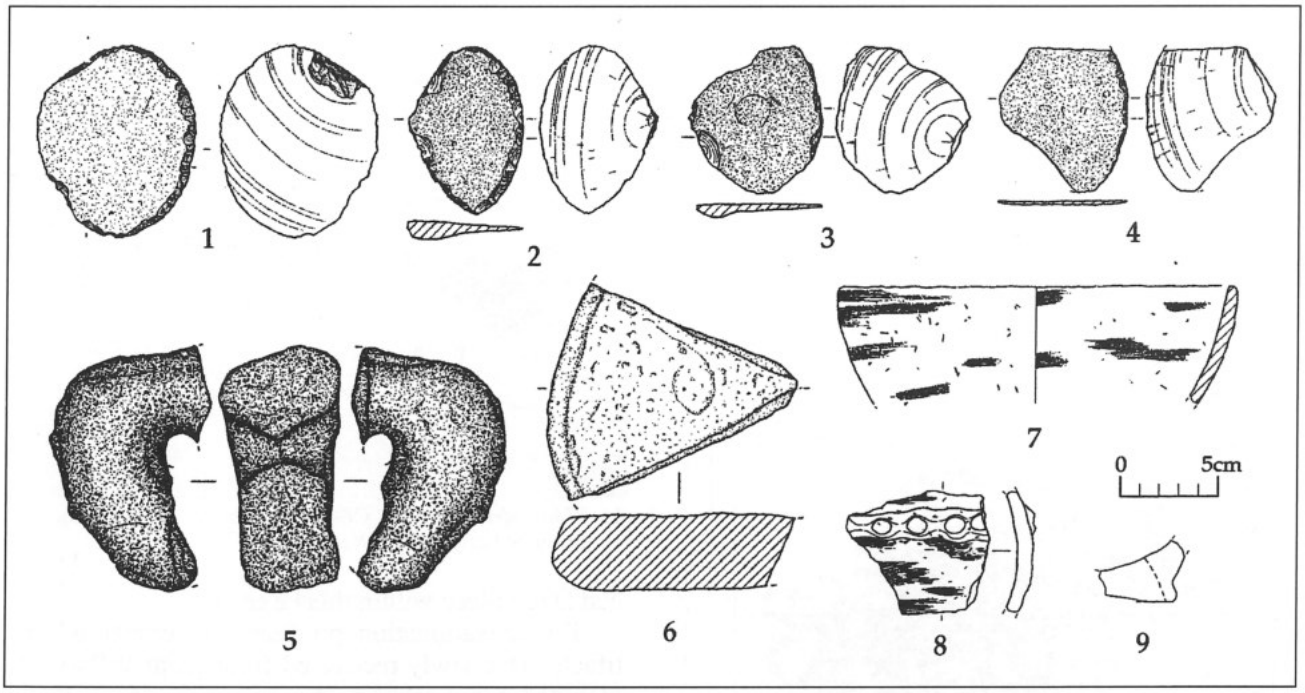


15. Wādī Burma South CE1: the general view of the re-examined cist (from SW).

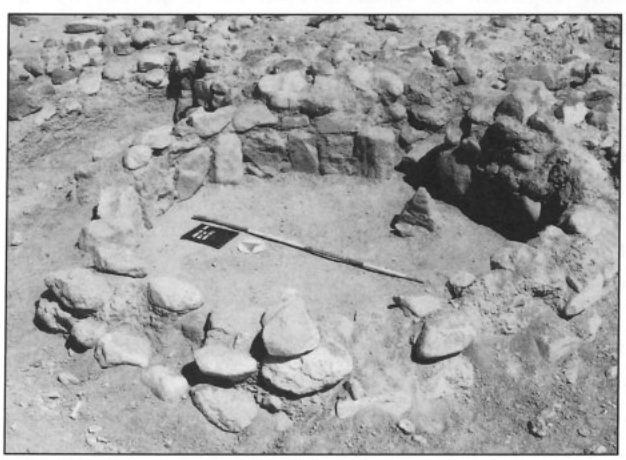
had taken place within this large cist.

The reexamination produced a number of artifacts. The newly recovered finds from WBs-CE1 included some tabular scrapers (**Fig. 16: 1-4**), a half-fragment of basalt macehead (**Fig. 16: 5**), a small fragment of a quern or grinding slab (**Fig. 16: 6**), a handful of coarse ware sherds (**Fig. 16: 7-9**), a bag of animal bones including sooty samples, and a number of charcoal remains. Most noticeable of these was a sherd with a finger-impressed horizontal band below the exterior rim (**Fig. 16: 8**), which, in common with similar samples from CE113, suggests a date of EBI for Wādī Burma cist enclosures.

WBs-CE2 yielded a broader variety of flint artifacts, which included tabular scrapers (**Fig. 18: 18-22**), backed or arched sickle blades (**Fig. 18: 4-6, 11-17**), and a few hammer stones made of spherical flint nodule (**Fig. 18: 23**). Ceramic finds contained some dozens of coarse ware sherds (**Fig. 18: 2, 10, 28-33**). Noticeable was the occurrence of an open bowl with vertical strokes below a horizontally smoothed exterior rim (**Fig. 18: 29**), which is comparable with the 'coming pottery' at Wādī Fīdān 4 (Adams and Genz 1995: fig. 3, no. 3). The finds also included a half fragment of a limestone macehead (**Fig. 18: 3**), several grinding slabs and pestles (**Fig. 18: 1, 8-9, 24-25**), two basalt vessels (**Fig. 18: 26-27**), and a snail pendant. In addition, a handful of animal bones and charcoal remains were recovered. Of particular interest was the occurrence of three bits of red ocher from the cist, which, along with the occurrence of a pair of quern and pestle that still retain evidence of reddish powder on their working surfaces (**Fig. 18: 24, 25**), highlights the fact that this red pigment was ground within the cist for some ritual use.



16. Wādī Burma South CE1: the finds from the reexamined cist.



17. Wādī Burma South CE2: the general view of reexamined cist (from SW).

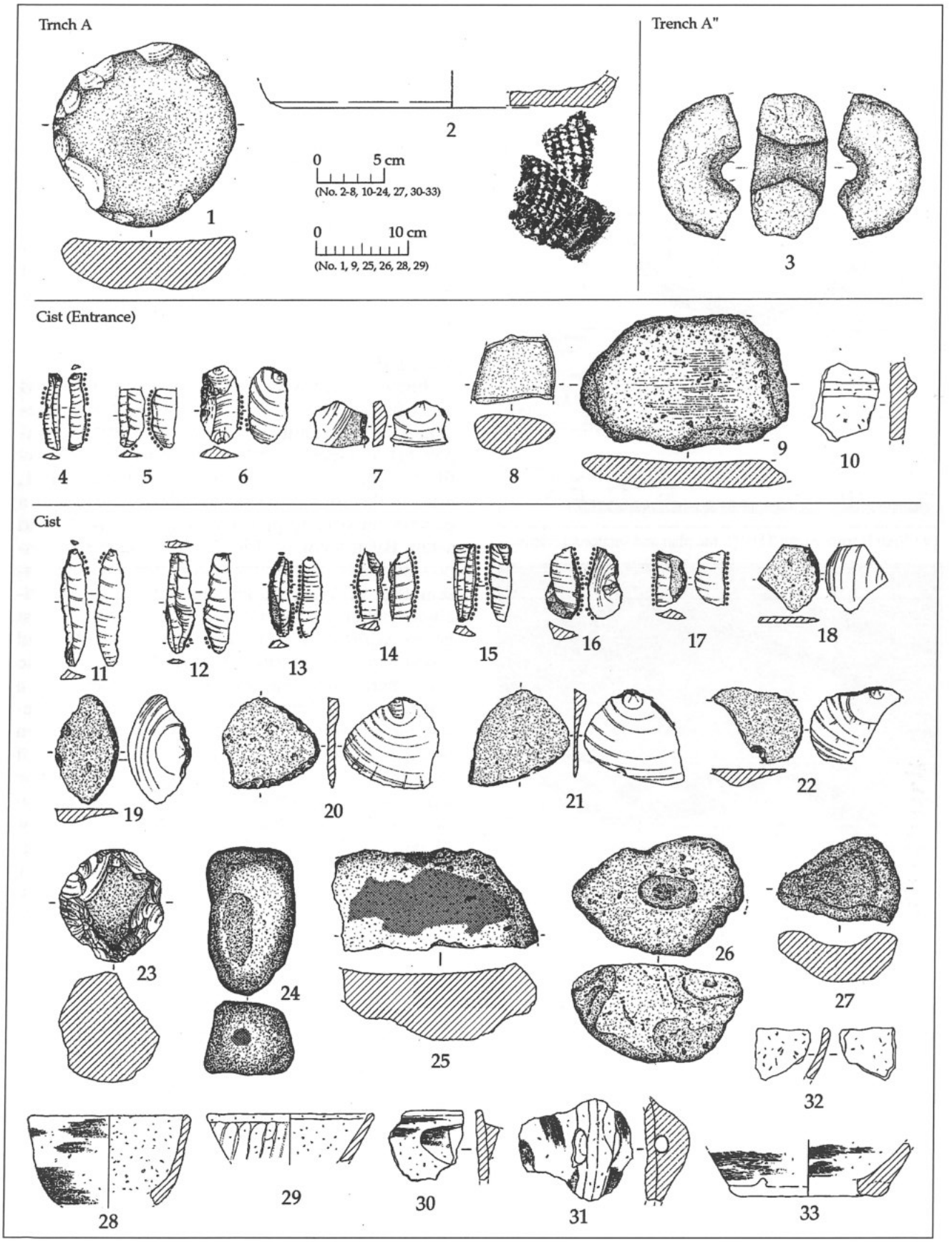
Two-Rowed Upright Stone Wall Structure 102

This unique structure, WBn-TU102 in our code system, was located ca. 150m SW of CE101. Unlike cist enclosures, it occupied a flat terrain roughly in the center of an extensive sandbank between the two major courses of Wādī Burma. Although it was beyond the original scope of our investigation, the partial exposure of two-rowed upright stone walls and the surface scatter of naviform cores and bi-directional blades induced us to examine this structure intensively. The excavation showed that it was built on the upper surface of Layer 3 and, then, reused on the upper surface of Layer 2b.

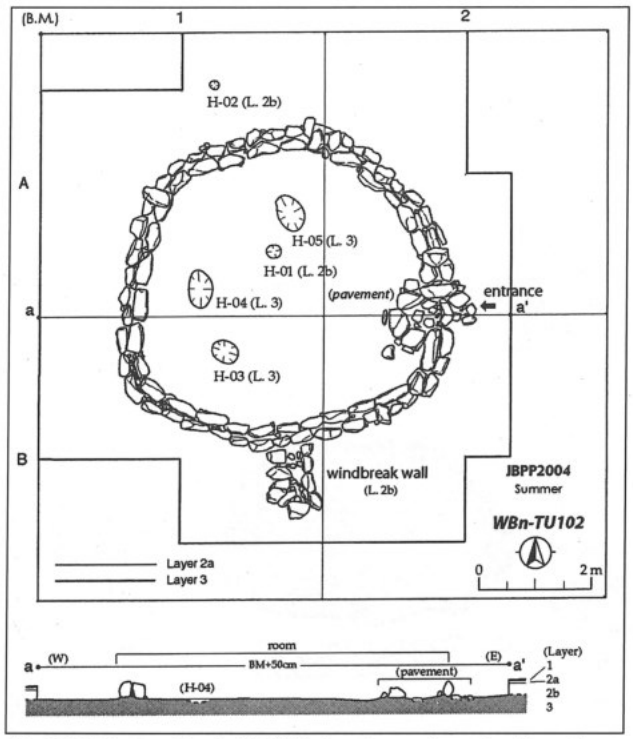
The Structural Remain

WBn-TU102 was a small, stone-built, roughly round structure ca. 5.5-6m in diameter (**Figs. 19, 20**). Undressed limestone cobbles, ca. 30 to 50cm long and mostly less than 15cm thick, were used for the main construction material, but basalt and flint cobbles of the same size were also included to a lesser extent. The foundation course of the wall was composed of two-rows of upright flat cobbles, between which smaller rubble and silty sand was packed in. Neither foundation trenches nor support banks were attested along the wall; instead, smaller rubble was often found driven into the base of the foundation stones as stabilizers. The second course was still preserved at some loci, where a row of less standardized cobbles were put horizontally across the two-rowed upright foundation stones. A series of items of circumstantial evidence — the volume and number of fallen stones around the wall, the unified height of foundation stones, the frequent use of adjustment material for their height — strongly suggested that the wall originally some courses high or ca. 50-70cm in height. Nevertheless, no clear evidence for roofing was found. Neither was special floor treatment confirmed.

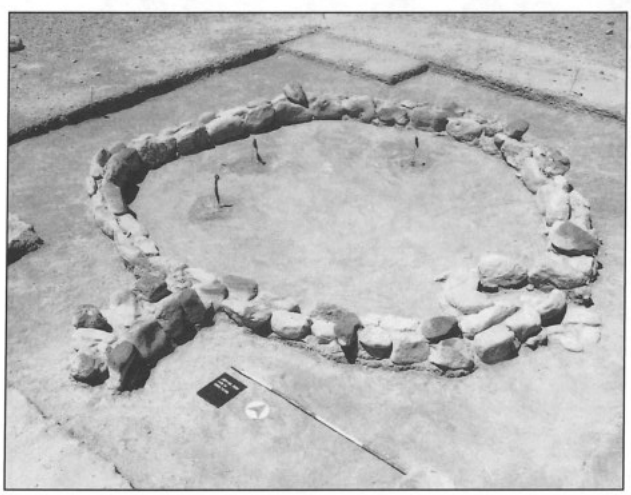
This structure was of single-room type and no partition walls were attested. Instead, three relatively large hearths (H3 to H5), ca. ca. 50-80cm in longer axes and ca. 10-15cm deep, were found on the rear floor. They yielded a large volume of charcoal remains together with ash and burned limestone rubble, but no artifacts were recovered with the exception of a small bone awl from H-03 (**Fig. 21: 48**). In addition, two smaller hearths (H-01 and



18. Wādī Burma South CE2: the finds from the reexamined cist.



19. Wādī Burma North TU102: the plan and section/elevation.



20. Wādī Burma North TU102: the general view (from SE).

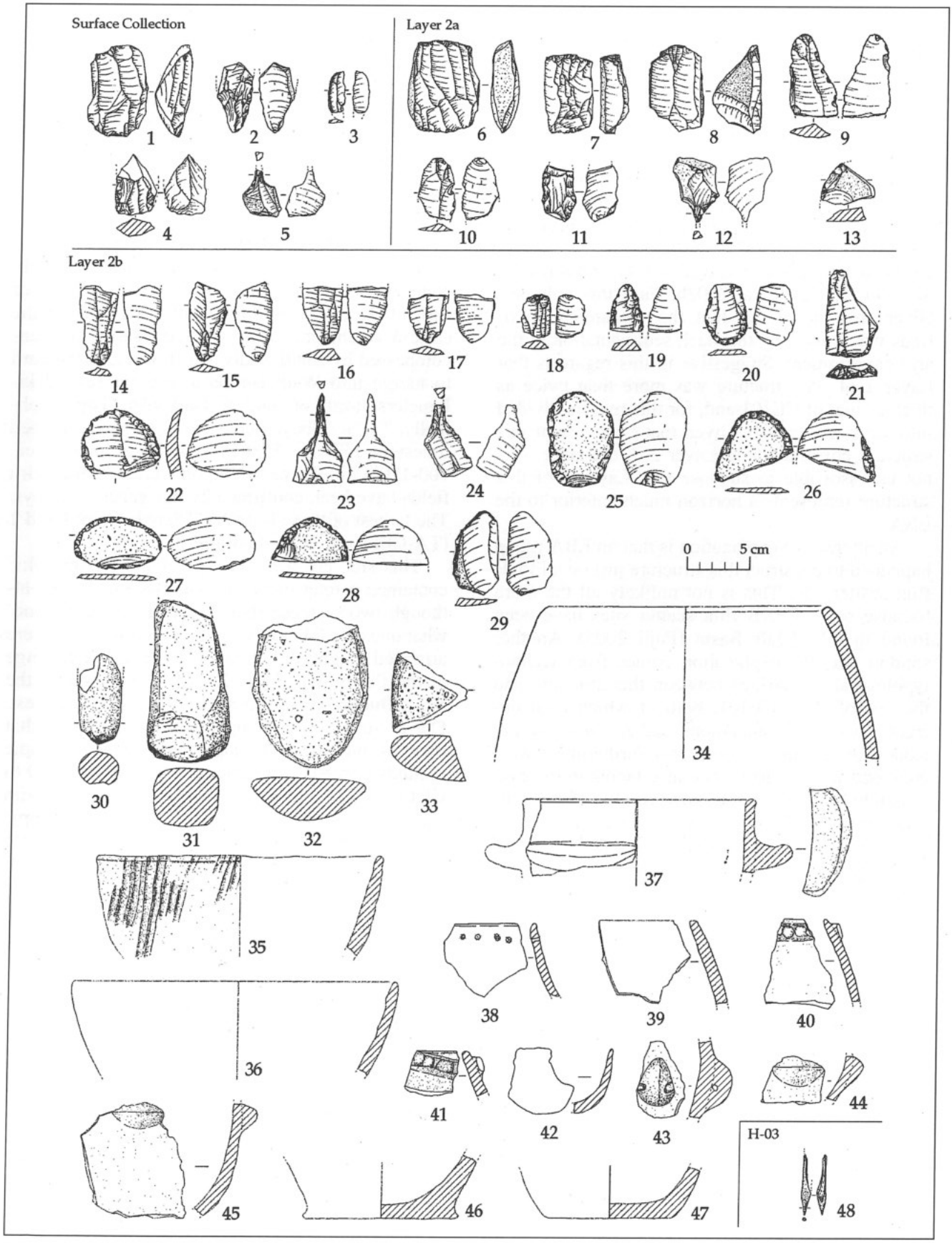
-02) were found on the upper floor level, one inside the room and the other outside. Stratigraphically, both of these belonged to the same level as the short freestanding wall referred to below, suggesting a later reuse of this structure.

A narrow entrance ca. 0.5m wide was found at the eastern extremity of the room. It was paved both inside and outside with smaller limestone slabs, with a low stone threshold in between. Interestingly, the inner pavement was fringed with a semi-circle of lower upright stones, a probable device for protecting the indoor space against flooding and harmful insects. A concentration of fallen stones was found outside the entrance, suggesting that, in common with many prehistoric structures in the arid zone of southern Levant (Fujii 2004c), it was originally flanked with a pair of protruding windbreak walls. Other small features included a short, freestanding wall ca. 1.5m long that protruded from the southern wall. A closer examination showed, however, that it was added when this structure was reused on the upper surface of Layer 2b. The function of this freestanding wall is still unknown, but in light of its arrangement in the lee side of the northerly or northwesterly predominant wind in this region and its slight curvature toward the lee side, the use as a windbreak wall for some task and/or storage seems most likely.

The Finds

Interestingly, this structure yielded both PPNB and EBA artifacts, with the latter being more predominant in quantity (**Fig. 21**). The PPNB components consisted merely of chipped stone artifacts, which included naviform cores (**Fig. 21: 1, 6-8**), bi-directionally detached blades often with a punctiform striking platform (**Fig. 21: 14-19**), and a few Byblos points (**Fig. 21: 2**). The EBA components falls within the norm of the flint assemblage of Wādī Burma cist enclosures and included tabular scrapers (**Fig. 21: 25-29**), robust borers with a long tip (**Fig. 21: 5, 23-24**), and coarse ware sherds (**Fig. 21: 34-47**). The ceramic finds, here again, included holemouth jars with a finger-impressed horizontal band immediately below the exterior rim (**Fig. 21: 40, 41**) and an open bowl with vertical stripes (**Fig. 21: 35**), both of which are among chronological hallmarks of the EBI pottery assemblage in southern Jordan. Another noticeable component was a sherd with a row of punctuations just below the exterior rim (**Fig. 21: 38**). Similar examples have been reported from some EBI sites in southern Jordan, including Bāb adh-Dhrā' (Schaub and Rast 1989: fig. 13, no. 1, 2000: fig. 4.2), Wādī Fīdān 4 (Adams and Genz 1995: fig. 5, no. 1; Adams 1999: fig. 4. 10, no. 5; fig. 5. 11, no. 2), and Wādī Faynān 100 (Wright *et al.* 1998: fig. 8, no. 4). Tall Iktānū (Prag 2000: fig. 5.3) and WBs-CE2 also yielded parallel examples (**Fig. 18: 29**). Other finds included a few dozen miscellaneous retouched tools (**Fig. 21: 3-4, 9-13, 20-22**) and several grinding tools (**Fig. 21: 30-33**), but their chronological attribution still remains uncertain.

What puzzled us was the coexistence of these two distinct assemblages. Strangely enough, both PPNB and EBA components occurred alongside through layers without any clear shift in ratio. A plausible interpretation for this phenomenon is that



21. Wādī Burma North TU102: the finds.

this structure was constructed by a PPNB group as an outpost from a parent settlement probably to the west and, then, after a few millennia blank, reused (with some modifications) as a temporary encampment related to either the construction of cist enclosures or some other purposes. This interpretation fits in well with the general trend that the PPNB-LN desert fringe of southern Levant witnessed the florescence of two-rowed upright slab wall structures, as evidenced in Sinai (Tchernov and Bar-Yosef 1982), Negev (Goring-Morris 1993), al-Azraq (Garrard *et al.* 1994), and Jafr (Fujii 2000, 2001, 2002a, 2002b; Fujii this volume). Given this, it follows that the contamination of finds was caused by the slack sedimentation in the arid environment. Suggestive in this regard is that Layer 2 of this structure was more than twice as thick as that of CE101 and, for this reason, divided into Layer 2a and 2b. Given that Layer 2b of this structure corresponds to Layer 3 of the latter, it is not unreasonable to suppose that Layer 3 of this structure represents a horizon much anterior to the EBA.

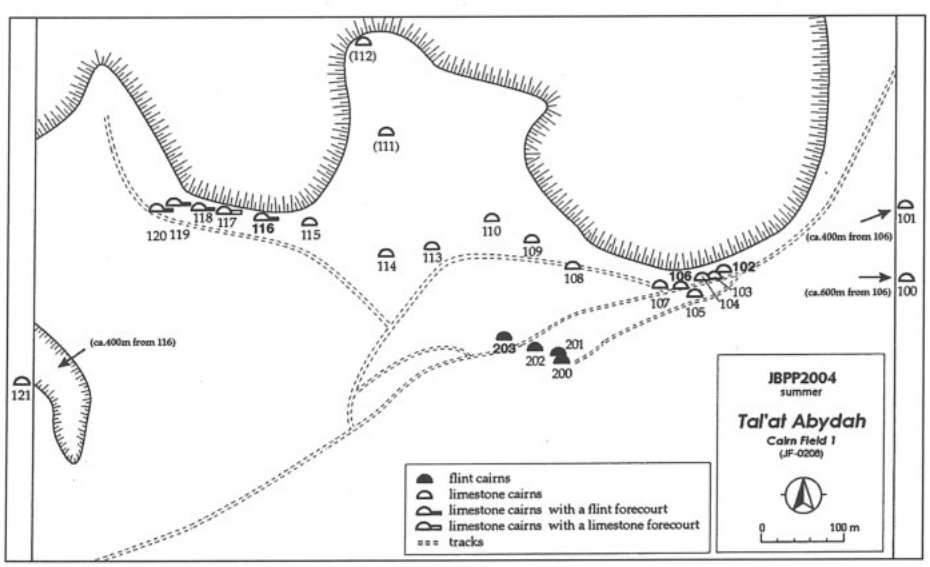
An alternative explanation is that an EBA group happened to construct this structure just on a PPNB flint scatter site. This is not unlikely all the more because some PPNB flint scatter sites have been found in the al-Jafr Basin (Fujii 2005). Another support for this explanation comes from techno-typological similarities between this structure and the cist of WBn-CE101, both of which used upright stones for foundations and horizontally put stones for the upper courses and, furthermore, were equipped with a narrow entrance facing to the east. It should be kept in mind, however, that these traits might be natural consequences of the limitation of raw material and the consistency in the direction of the predominant wind in this region.

However, both of these explanations are still lacking in solid evidence and thus the final conclusion must await further study including radiometric dating now in progress. All we can say at the moment is that a small PPNB outpost, with or without a structure, did exist in this place and an EBA group occupied the same locus after a few millennia blank.

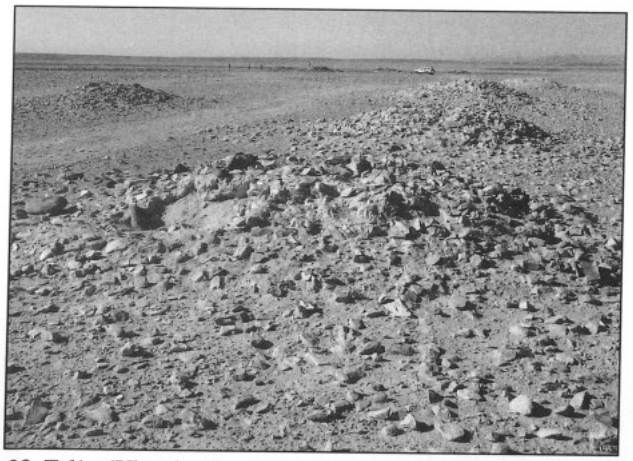
TAL'AT 'UBAYDA CAIRN FIELD 1

Tal'at 'Ubayda is the general name for a hilly country that extends a few kilometers southeast of Jurf ad-Darāwīsh. Hydrologically, it is among the eastern catchment areas of Wādī Burma and encompassed by small wadis that flow northwestward to merge into Wādī Burma at a point several kilometers north of Jurf ad-Darāwīsh. Topographically, Tal'at 'Ubayda consists of some flat-topped limestone hills ca. 1,000-1,100m in altitude or ca. 100-150m in relative height, on which several cairn fields have been confirmed by our general surveys. The largest of these is Tal'at 'Ubayda Cairn Field 1 (TA-CF1), our present concern.

This site, covering an area of more than 20ha, contained a total of twenty-six cist enclosures, although two of these (No. 111 and 112) are somewhat questionable in their identification. They were arranged roughly in a line along the northern fringe of the flat hilltop (**Figs. 22, 23**), commanding the Wādī Burma catchment area to the north and west. Our pre-excavation mapping survey suggested that they fall into the following three groups: 1) simple mounds covered with limestone cobbles (CE100 to CE115), 2) simple, limestone-covered mounds with a paved forecourt (CE116 to CE121), and 3) simple mounds covered with flint cobbles (CE200 to



22. Tal'at 'Ubayda: the site map.



23. Tal'at 'Ubayda: the general view (from E).

CE203). Of the first group, two well-preserved examples (CE102 and CE106) were chosen for a subject of excavation. Of the second, only CE116 was excavated, but the subsequent four cist enclosures (CE117 to CE120) were drawn in order to elucidate the correlation between mounds and paved forecourts. Since the third group was damaged due to illicit diggings, two of the four examples (CE200 and CE203) were merely drawn, after removing disturbed stones and soil.

Cist Enclosure 102

Aside from two isolated examples to the east (CE101 and CE102), this cist enclosure occupied the eastern extremity of the site. Undressed, relatively angular limestone cobbles and boulders up to ca. 1m long were used for the major construction material, but a large volume of limestone rubble and silty sand was also included especially in the mound layers. This structure looked at first like a simple, large cairn covered densely with limestone cobbles. In order to clarify the internal structure, the southern half of the mound was excavated down to the original ground surface. The northern half, on the other hand, was merely surface-cleaned to reveal the original mound surface underneath the cobble cover.

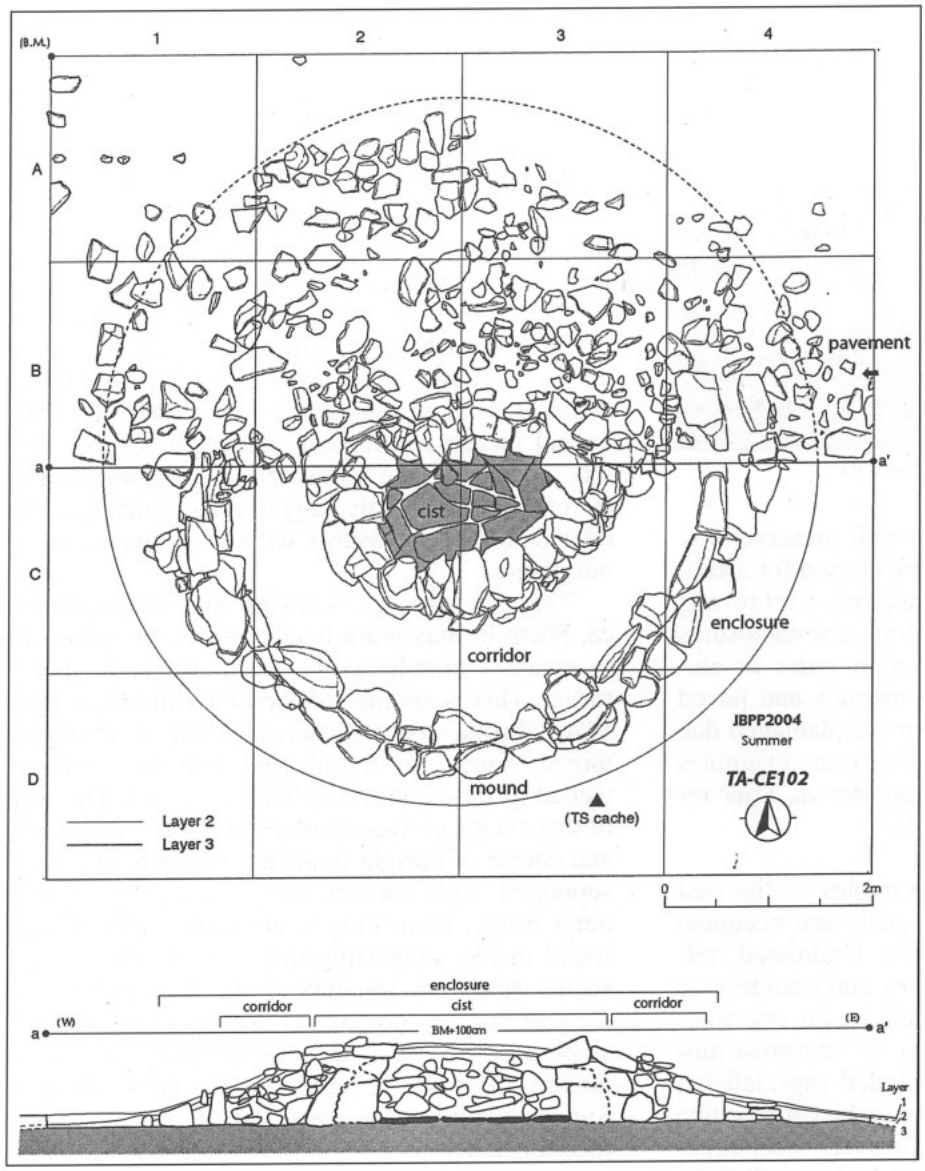
The Structural Remain

The excavation showed that an oblong cist and a round enclosure encompassing it were covered with the rubble mound ca. 6m in diameter and ca. 1m in relative height (**Figs. 24, 25**). The cist, ca. 3m by ca. 2m in area and ca. 0.8m or three to four courses high, occupied the central part of the mound, but its longer axis was slightly turned away from the E-W direction, being oriented to NE-SW. The wall of this cist was semi-corbelled (**Fig. 26**), a critical difference from Wādī Burma cist enclosures (This seems to be the main reason why Tal'at 'Ubayda cist enclosures are, in general, higher than Wādī Burma cist enclosures). Also of interest was the limestone slab pavement at the cist floor, on which, as referred to below, some artifacts and a few bags of disarticulated human skeletal remains were found. The inside space of the cist was filled out with rubble and silty sand and no clear evidence for capstones was confirmed. Neither attested was an entrance to the cist, but this might be a natural consequence of the introduction of the semi-corbelling technique. Alternatively, we may say that this technique was applied because an entrance became unnecessary. In either case, the radical techno-typological change of the key feature, along with the fundamental transformation of the enclosure, strongly suggests that funerary ritual related to cist enclosures witnessed pivotal metamorphosis.

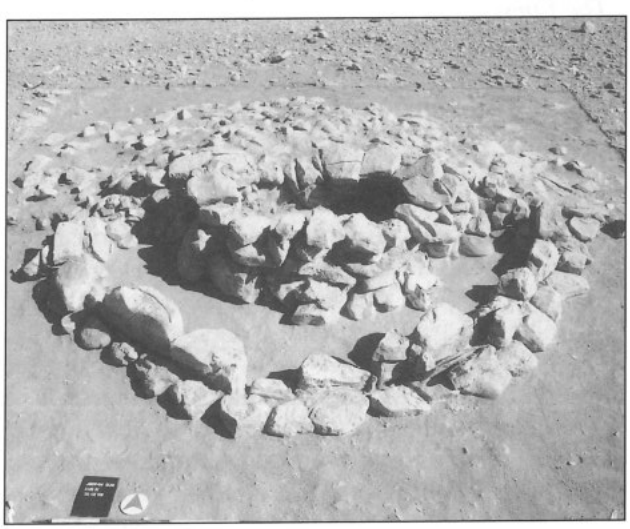
The enclosure, ca. 4.5m in inner diameter and ca. 50cm in maximum height, surrounded this cist to create a circular corridor ca. 1m wide in between. This is another remarkable difference from Wādī Burma cist enclosures, where a 45-degree turned, square to rhomboidal forecourt was attached to the eastern extremity of a cist. The wall of this enclosure was constructed with a single row and course of upright boulders, which in turn were supported with cobbles put horizontally at their outer fringe. Interestingly, no support stones were found inside, suggesting that the corridor was essential space for funerary ritual. The entrance to the corridor was not clearly attested, but a slightly sloping pavement at the eastern periphery of the mound, most likely, represents the approach to it. Similar features were attested at CE106 and CE116 mentioned below.

The Finds

In comparison with Wādī Burma cist enclosures, Tal'at 'Ubayda cist enclosures were both exiguous and monotonous in finds. CE102 was no exception to this, where chipped stone artifacts accounted for the vast majority of the finds and neither pottery sherds nor stone vessels were included. The *in situ* finds are further limited in quantity, consisting only of two tabular scrapers (**Fig. 27: 7-8**), a Jafr blade, a sidescraper made on a discarded Jafr blade (**Fig. 27: 9**), and a shell bead (**Fig. 27: 11**). All of these artifacts were recovered from the lower fill layers of the cist and, therefore, can be regarded as funerary offerings for a few human skeletal remains that were also found on the cist floor. The finds from less reliable contexts included some dozens of flint artifacts, which were dominated by tabular scrapers and their relevant



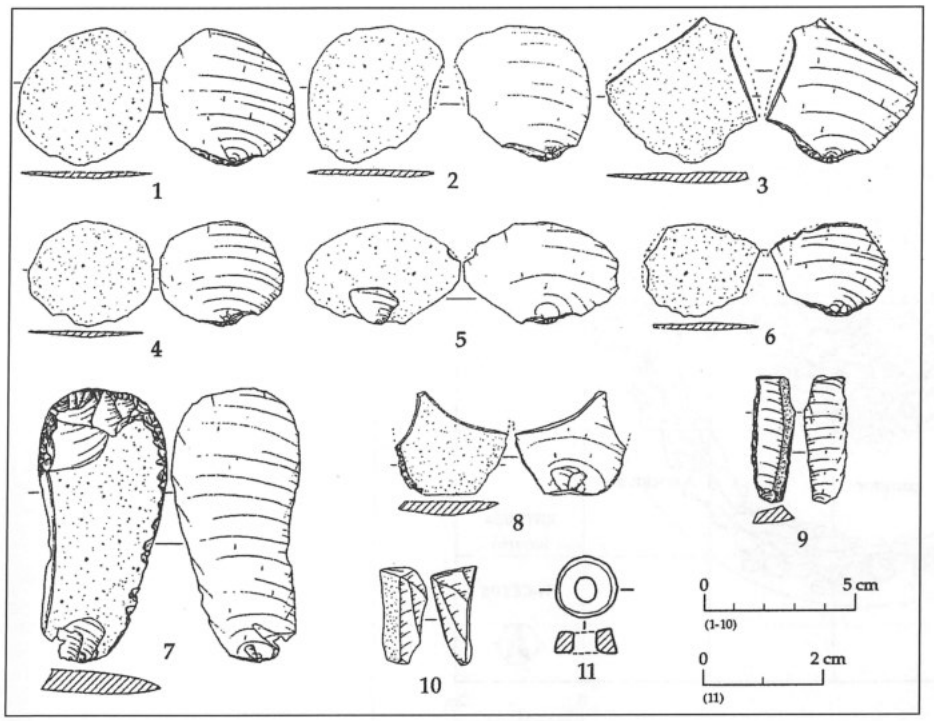
24. Tal'at 'Ubayda CE102: the plan and section/elevation.



25. Tal'at 'Ubayda CE102: the general view (from S).



26. Tal'at 'Ubayda CE102: the close-up view of the semi-corbelled cist (from N).



27. Tal'at 'Ubayda CE102: the finds.

tool blanks. Interestingly, six tabular scraper blanks were found together at square D3, outside the enclosure wall (**Fig. 27: 1-6**). They might represent a small cache or a dedication to funerary ritual. The predominance of larger (or originally larger), very thin tabular scraper components with a prepared striking platform suggests a date of the EBA for this cist enclosure.

Of numerous burial cairns thus far excavated in the al-Jafr Basin, this cist enclosure was the first to yield a substantial volume of human skeletal remains in a reliable archaeological context. Since the anthropological examination is still in progress, no special comments can be made, except that the bone and teeth collection suggests evidence for the secondary interments of at least two adults including one male (according to the preliminary examination by Dr. Hiroko Hashimoto).

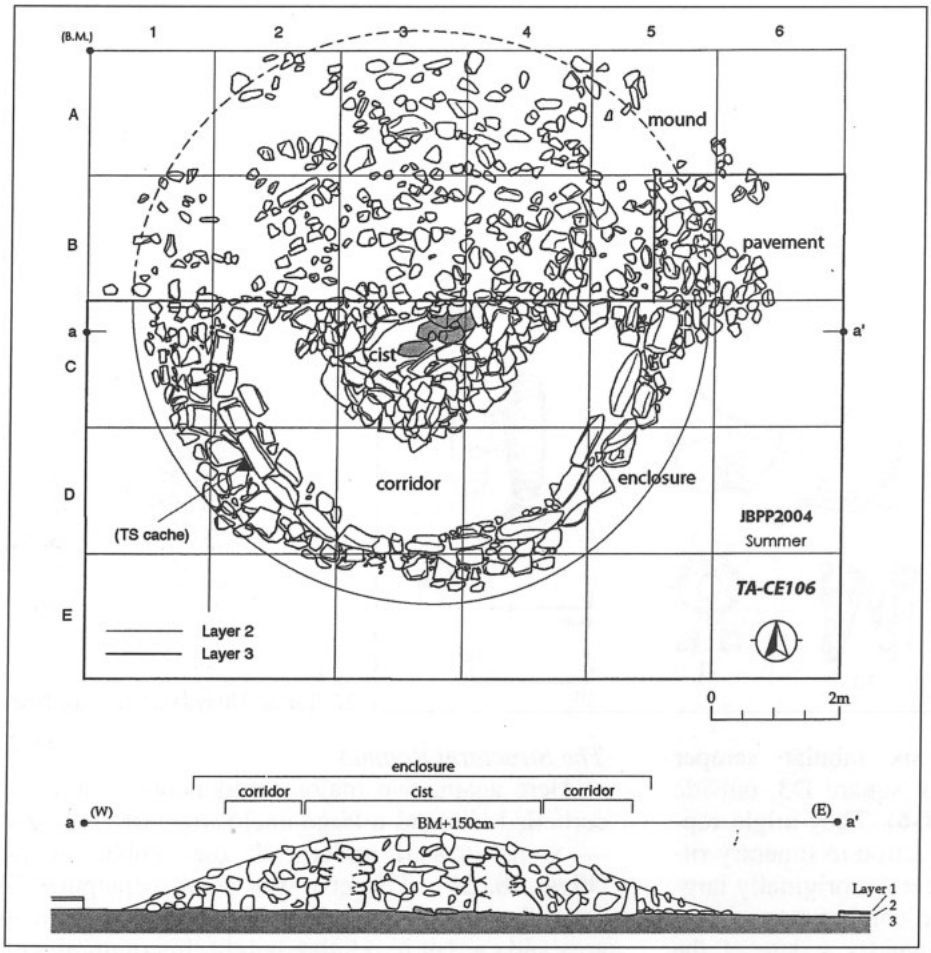
Cist Enclosure 106

This cist enclosure, lying ca. 50m WSW of CE102 mentioned above, was among the largest structures in this site, measuring ca. 9-10m in diameter and ca. 1.5m in relative height. Undressed limestone cobbles and boulders up to ca. 1m long or more were used for the main construction material, but, in common with CE102, the mound included a huge volume of rubble and silty sand as filling material. In order to double-check the excavation result of CE102, it was examined by the same method. The excavation showed that this cist enclosure had much in common with CE102.

The Structural Remain

Here again, two major components — a semi-corbelled cist and a large enclosure surrounding it — were attested underneath the rubble mound (**Figs. 28, 29**). The cist was semi-rectangular in general plan, measuring ca. 3.5m by ca. 2.5m in area and ca. 1m in relative height. In common with CE102, its major axis made a slight turn from the E-W direction, being oriented to the NE-SW. The semi-corbelled wall, much more elaborate in construction quality than that of CE102, consisted of four to five courses of limestone cobbles. The inner surface of the cist was arranged flat to create an interment space (**Fig. 30**), whereas the outer surface was left rugged. The irregularity of the outer wall was further emphasized due to many stones that were added in a disorderly fashion as weights to support the semi-corbelling. The cist floor pavement was ca. 5cm thick and limited to the north-eastern quarter, around which a few bags of disarticulated human skeletal remains were recovered. Together with rubble and silt, a limestone slab was found from the fill layers of the cist. It was large enough to partly roof the cist, but no similar stones occurred alongside. It might be that the roofing was tried out, but soon ended in failure.

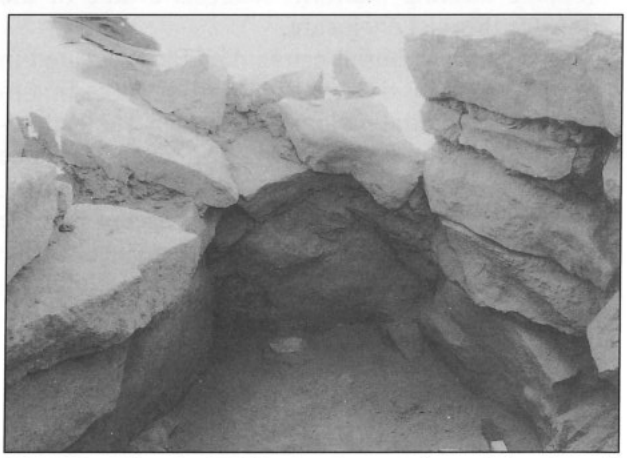
The enclosure was larger in size than that of CE102, measuring ca. 6m in inner diameter and ca. 1m in maximum height. The wall was constructed in a similar way to that of CE102, but the use of larger boulders necessitated heavier support along its outer fringe. The circular corridor between the



28. Tal'at 'Ubayda CE106: the plan and section/elevation.



29. Tal'at 'Ubayda CE106: the general view (from SW).



30. Tal'at 'Ubayda CE102: the close-up view of the cist wall (from NE).

cist and enclosure was ca. 1.5-2m wide, roughly twice the width of that of CE102. A small pavement, probably the only approach to the corridor, was found at the eastern periphery of this enclosure, but the entrance itself was not clearly attested.

The Finds

This cist enclosure yielded a larger number of artifacts than CE102. The *in situ* finds from the cist floor comprised some bags of disarticulated human skeletal remains, seven unprocessed bits of hematite (**Fig. 31**), and a few undiagnostic flakes and blades. A preliminary examination of the human bones and teeth (by Dr. Hiroko Hashimoto) concluded that the cist contained the secondary interments of at least four individuals including three adults and one infant. Also of interest was the oc-



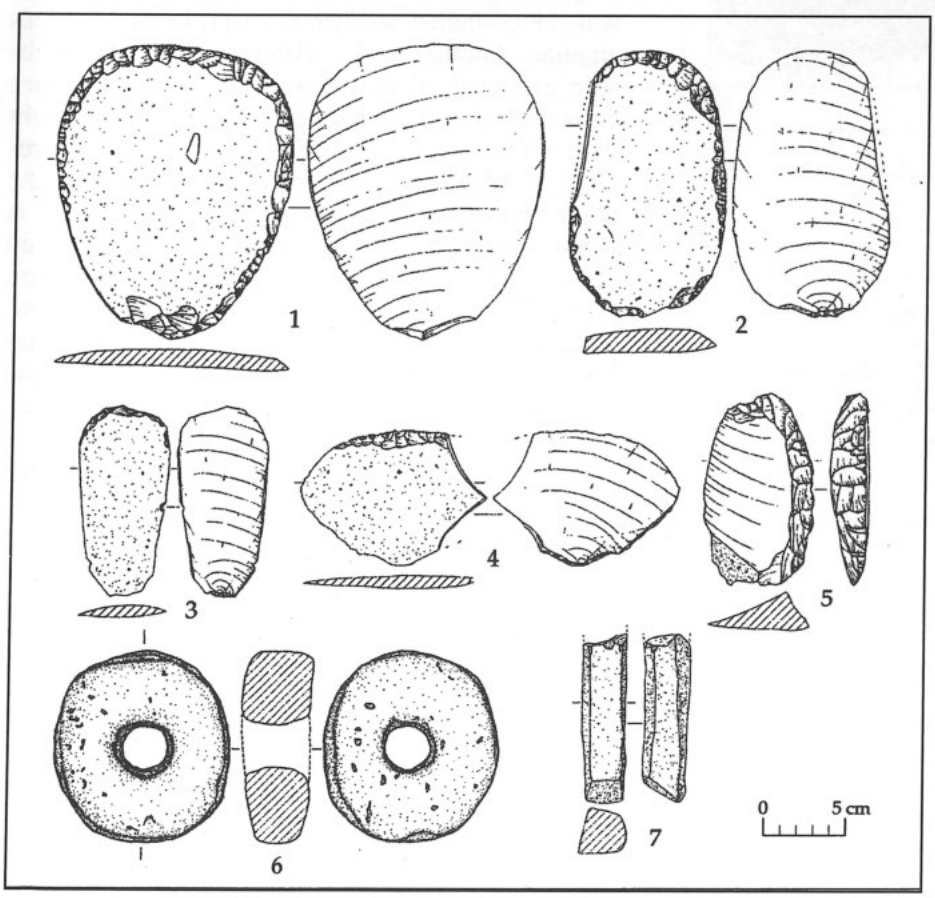
31. Tal'at 'Ubayda CE102: hematite bits.

currence of hematite bits from the cist floor and fill layers probably as funerary offerings (Incidentally, five more hematite bits were found from fill layers). The cist also yielded a polished, prismatic rod made of black stone, the use of which still remains unclear (**Fig. 32: 7**). In addition, a side-scraper was found *in situ* on a wall stone of the cist (**Fig. 32: 5**). Other *in situ* finds included a small cache of three tabular scrapers that occurred at square D2, on a support stone of the enclosure wall (**Fig. 32: 1-3**). It is uncertain whether they derived from funerary offerings or simply represent left behinds, but their large size and elongated morphology probably suggest a date of the EBA for this cist enclosure (Abe 2004; Abe and Fujii 2004).

Apart from these *in situ* finds, a number of artifacts were found from less reliable contexts. They included a few hundreds of flint artifacts, an undatable coarse ware sherd, a limestone rubbing stone, and a large limestone macehead (**Fig. 32: 6**). The flint artifacts consisted largely of tabular scraper (**Fig. 32: 4**) and Jafr blade components. The former components occurred sporadically throughout the excavation sector, whereas the latter were concentrated on square C1 and its surroundings. Also noteworthy is that the former comprised tool blanks and finished products alone but the latter included cores and debitage classes as well. Both contrasts suggest that a small atelier of Jafr blades existed underneath this cist enclosure, around square C1 in particular.

Cist Enclosure 116

As briefly referred to at the beginning, six cist enclosures at the western extremity of this extensive cairn field were characterized by the attachment of a large, unwalled forecourt paved with

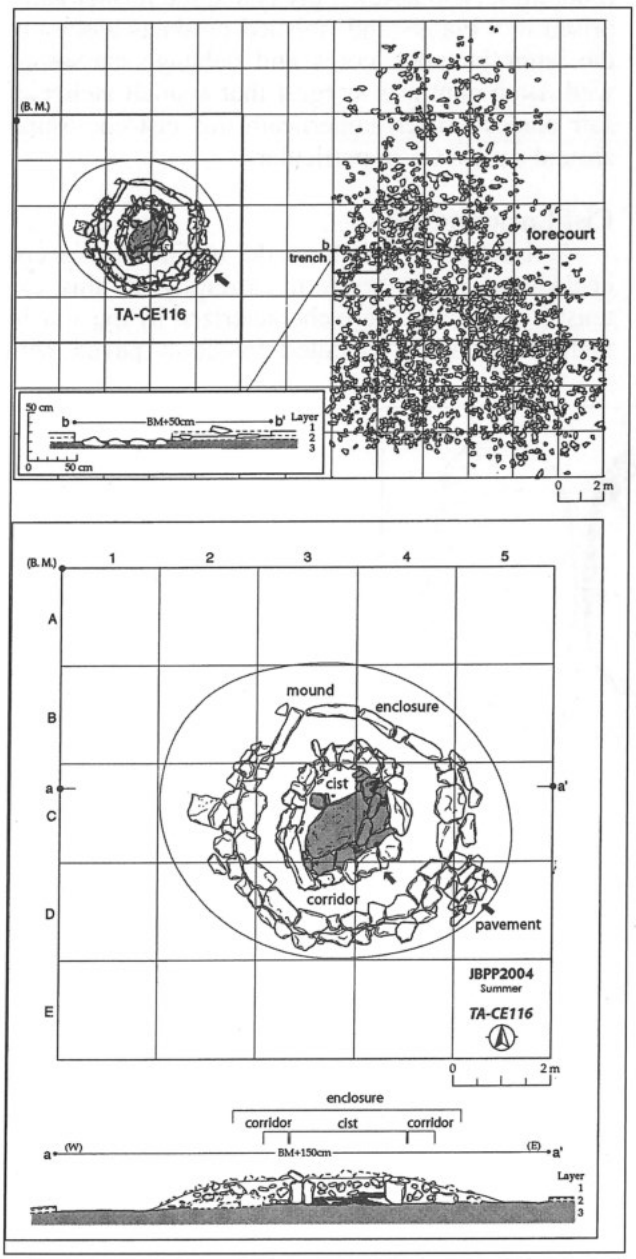


32. Tal'at 'Ubayda CE102: the finds.

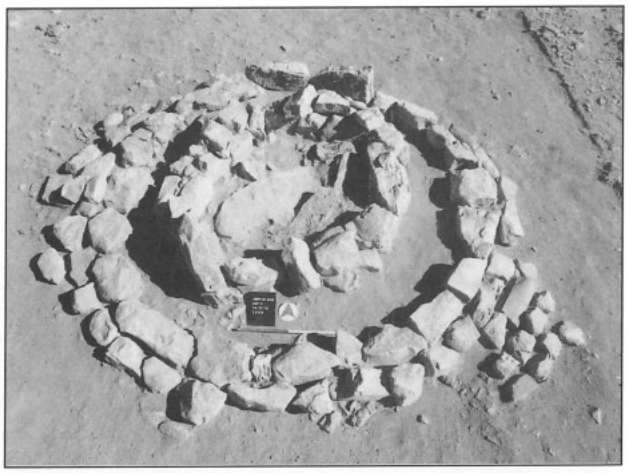
flint and/or limestone slabs. Among these was CE-116, which was relatively well preserved and, for this reason, chosen for a subject of full excavation. The forecourt, lying at a distance of ca. 5m to the east of this cist enclosure, was briefly examined with a small trench that was opened at its western edge.

The Structural Remain

Here again, a cist and enclosure, with a circular corridor in between, were found underlying the cobble mound ca. 7m in diameter and ca. 1m in height (**Figs. 33, 34**). A series of minor traits — the general orientation of the cist, the cist floor pavement with limestone slabs, the construction method of the enclosure, and the existence of a gently sloping paved approach at the southeastern periphery of the corridor — also fit well with the norm of Tal'at 'Ubayda cist enclosures.



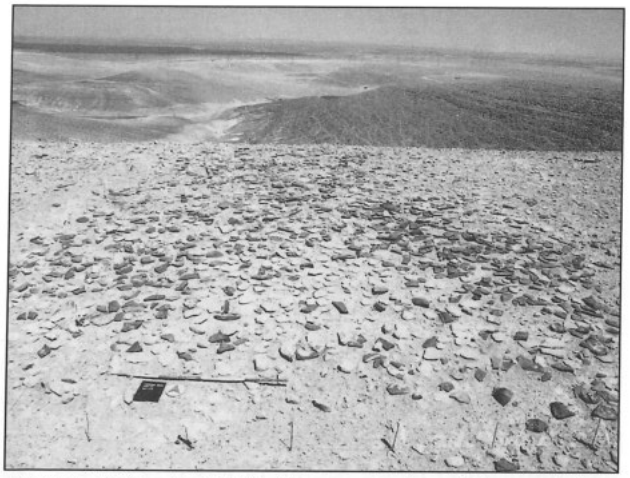
33. Tal'at 'Ubayda CE116: the plan and section/elevation.



34. Tal'at 'Ubayda CE116: the general view (from S).

What differentiated this cist enclosure from the other two excavated examples was the structure of the cist itself. While the cists of CE102 and CE106 were semi-corbelled and, in consequence, relatively larger in height, smaller in size, and more or less angular in general plan, the cist of CE116 was not corbelled and hence lower, larger, and less angular. Another major difference was the probable existence of an entrance at the southeastern corner of the cist. Both of these traits highlight that, with respect to the key feature, CE116 was related to Wādī Burma cist enclosures rather than the other two excavated cist enclosures at this site. It should be kept in mind, however, that, as noted above, this cist enclosure has much in common with CE102 and CE106. Taking together, it is reasonable to conclude that CE116 is of eclectic nature between Wādī Burma cist enclosures, on the one hand, and Tal'at 'Ubayda CE102 and CE106, on the other, and, therefore, can be dated to somewhere between the two. It seems that the absence of a freestanding upright stone behind the entrance is another manifestation of the transitional nature of this cist enclosure.

Of relevance is the addition of an unwalled, paved forecourt to the east of this cist enclosure (**Figs. 33, 35**). The limited sounding at its western extremity showed that this forecourt shares the stratigraphical attribution with its parent structure. We may therefore conclude that both of these features constituted a structural complex. This forecourt (so called in relation to the entrance to the parent cist enclosure) was roughly rectangular in general plan, covering a large area ca. 16m in the



35. Tal'at 'Ubayda CE116: the general view of the paved forecourt (from S).



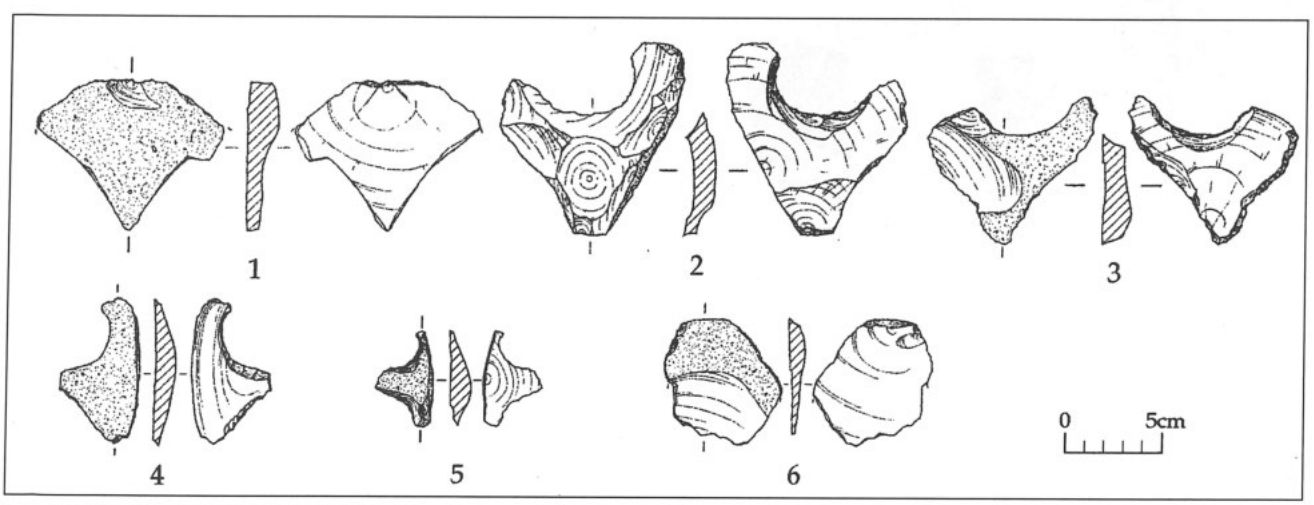
36. Tal'at 'Ubayda CE116: the human skeletal remains piled at the NE corner of the cist (from SW).

N-S longer axis and ca. 12m in the E-W shorter axis. Flint and limestone slabs ca. 20-30cm long were used for the pavement material, with the former being much more predominant. No conspicuous rule for their arrangement was recognized, but it is interesting to note that the southern half, nearer to the corridor entrance, was more densely paved. We may also note that flint artifacts were found largely at its southwestern quarter and the narrow strip between the two, another suggestion that both of these components were functionally correlated with each other. What is important is that the attachment of a forecourt to the east of the key feature is common to Wādī Burma cist enclosures. This provides another line of evidence for the genealogical correlation between this cist enclosure and Wādī Burma cist enclosures.

The Finds

The *in situ* finds from this cist enclosure consisted merely of a tabular scraper (**Fig. 37: 6**) and some bags of disarticulated human skeletal remains including a large number of teeth fragments. The vast majority of the human bones and teeth were found in a pile in the northeastern corner of the cist (**Fig. 36**), but some of them also occurred under the cist pavement. This probably means that some of the bones were at first interred directly on the ground surface and, then, collected together for reburial when an additional interment took place and, at the same time, the cist floor was paved. The skeletal evidence suggests that the interment was secondary in nature and contained at least two male adults and one female adult.

The finds from less reliable contexts included a few dozen flint artifacts, primarily tabular scraper components. Noteworthy was the frequency of robust flake tools with a large notch at their working edge (**Fig. 37: 1-5**). It appears that these unique tools bear some typological affinities with T-shaped tools recovered from Wualian sites (Field 1960: figs. 47, 48). Nonetheless, their contextual



37. Tal'at 'Ubayda CE116: the finds.

ambiguity might cast doubt on the chronological correlation with TA-CE116.

Cist Enclosure 117 to 120

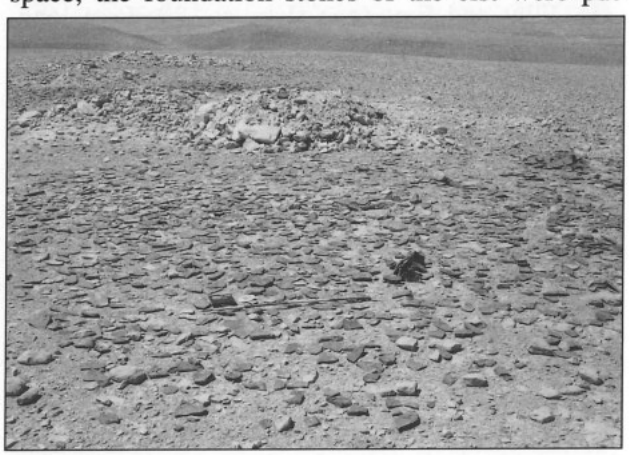
In order to double-check the functional correlation between a cist enclosure and a paved forecourt, four adjacent cist enclosures were briefly surface-examined and drawn (**Figs. 38, 39**). As a result, it turned out that they were always accompanied with a large, unwalled, paved forecourt to the east. It is therefore evident that these four (or six when CE116 and CE121 are also included) cist enclosures constituted a distinct group in this large cairn field. There is little doubt that, as evidenced at CE116, these six cist enclosures represent transitional forms between the forecourt type cist enclosures at Wādī Burma North and South, on the one hand, and the corridor type semi-corbelled cist enclosures at the eastern part of this site, on the other. Nonetheless, it appears that, in light of a few major differences including the techno-typological transformation of a forecourt, some missing links still intervene between Wādī Burma cist enclosures and these eclectic examples.

Cist Enclosure 200s

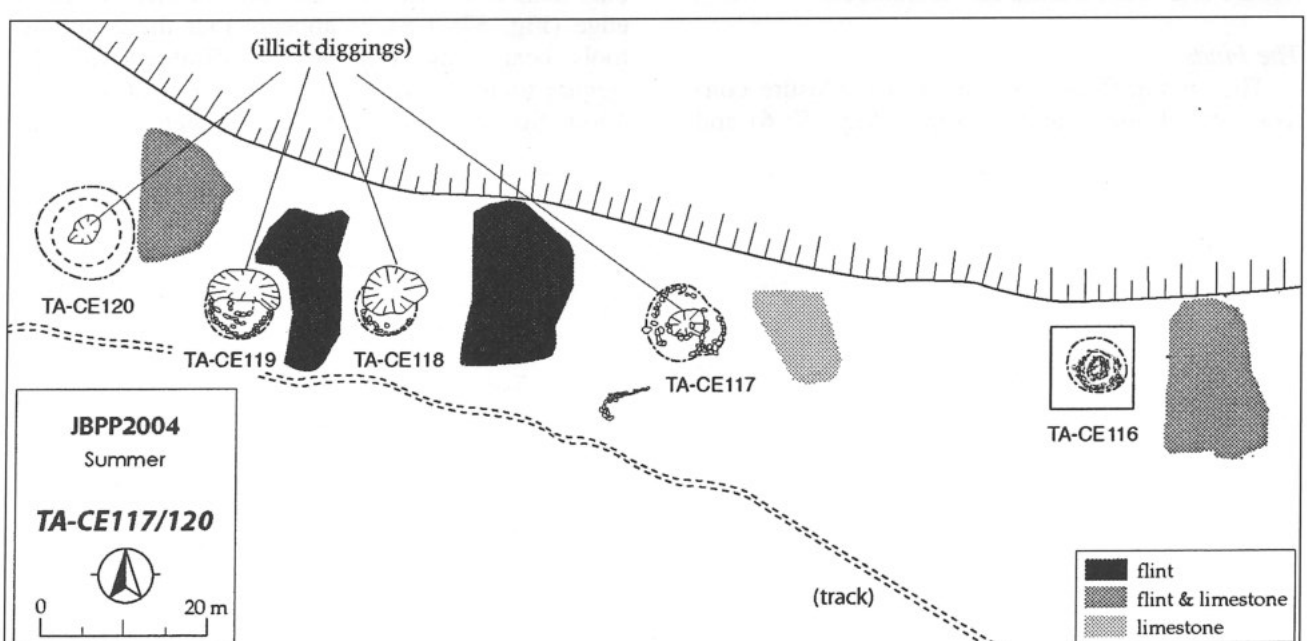
CE200s were located roughly in the middle of the site, ca. 100m south of the major developing axis of CE100s. What characterized them was the exclusive use of flint cobble and boulders for the construction material, which causes their dark yet grave appearance. This happened probably because flint layers were exposed at this area. The limited examination at CE200 and CE203 showed that both of these structures were constructed at the same level as CE100s, namely on the upper surface of Layer 3.

CE200

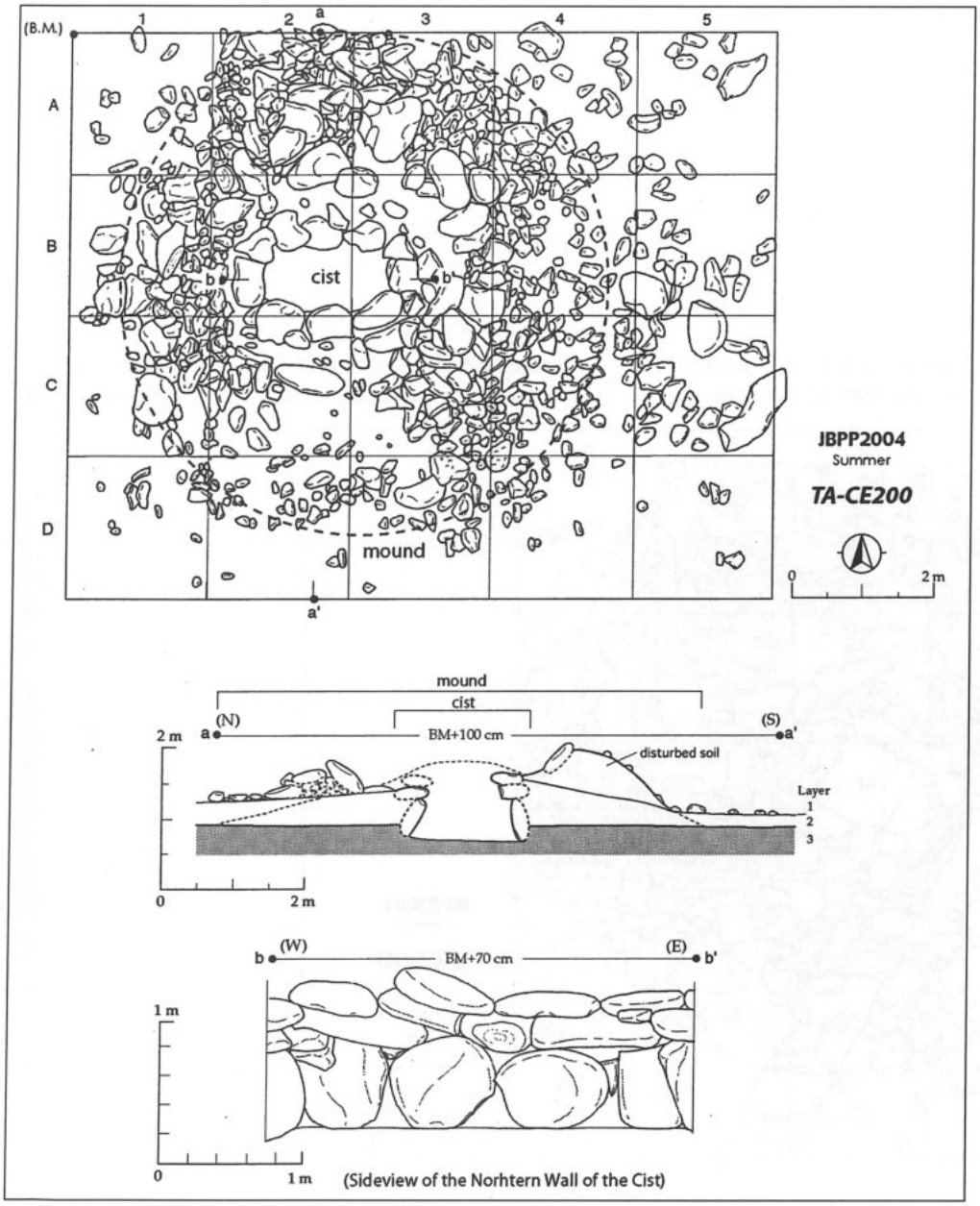
CE200, the easternmost example of this distinct group was relatively small, measuring ca. 7m in diameter and ca. 1m in height (**Figs. 40, 41**). The mound looked at first to be heavily damaged due to illicit digging, but the removal of disturbed rubble and soil revealed, unexpectedly, a well-preserved cist ca. 2m (E-W) by 1m (N-S) and ca. 1m in height. It was roughly rectangular, E-W oriented, and, most importantly, semi-corbelled (**Fig. 42**). A closer examination showed that, in order to save labor and, at the same time, create a large interment space, the foundation stones of the cist were put



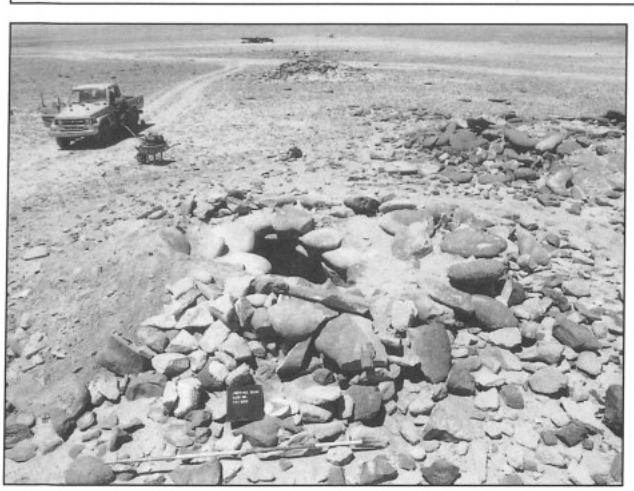
39. Tal'at 'Ubayda CE118-120: the general view (from E).



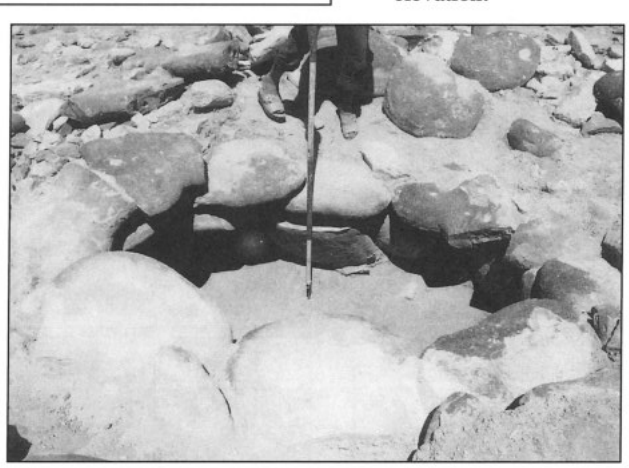
38. Tal'at 'Ubayda CE116-120: the general plan.



40. Tal'at 'Ubayda CE200: the plan and section/ elevation.



41. Tal'at 'Ubayda CE200: the general view (from E).



42. Tal'at 'Ubayda CE200: the close-up view of the semi-corbelled cist (from S).

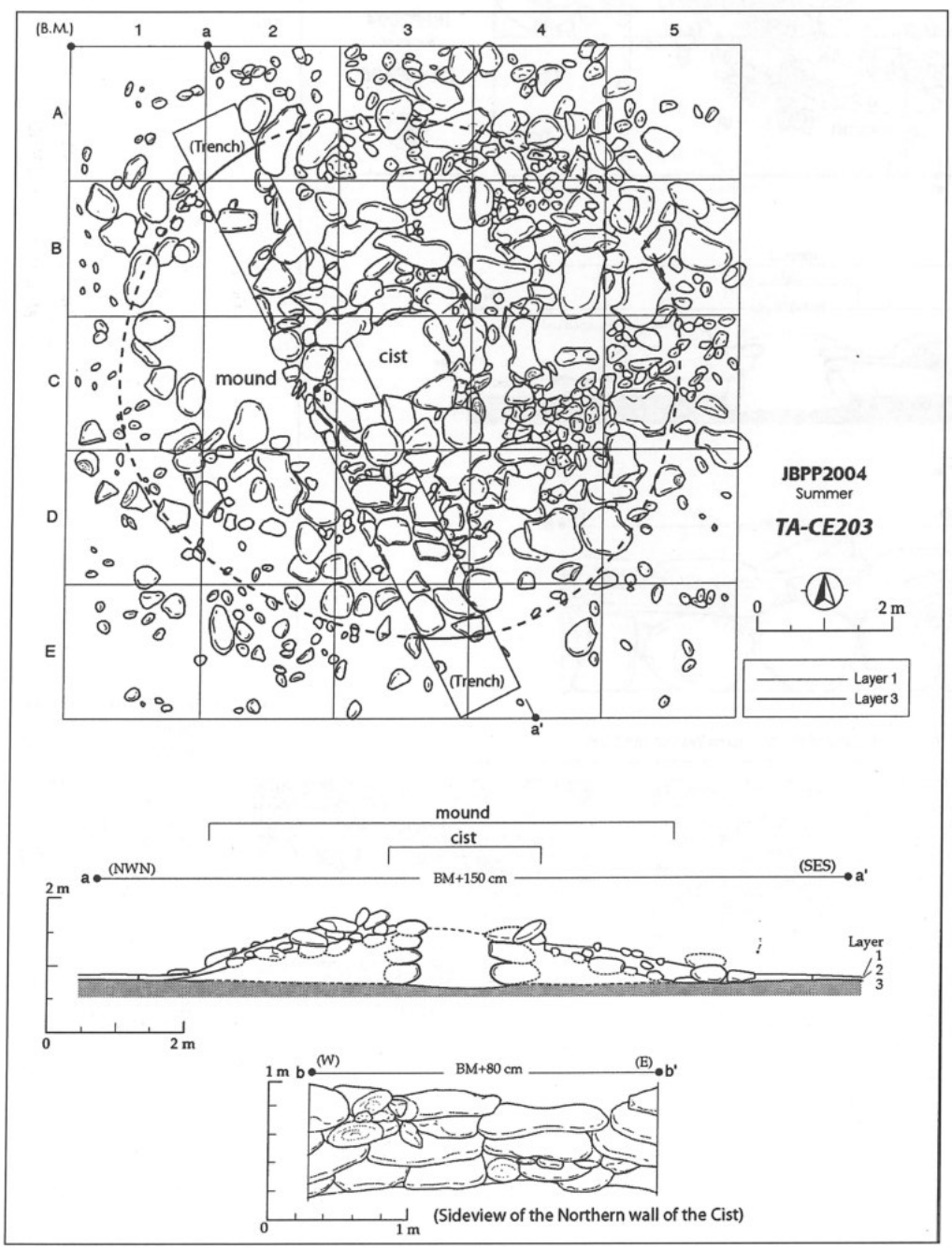
upright (or, more precisely, slightly inclining inward) on a shallow pit that was dug at the cist base. Several boulders, probably capstones for the cist, were scattered on and around the mound. What was unexpected to us was that no clear evidence for an enclosure, the second major component of CE100s, was confirmed. A handful of human skeletal remains and a tabular scraper were recovered from the disturbed soil.

CE203

This cist enclosure resembled CE200, except that the cist was oriented NE-SW (the norm of Tal'at 'Ubayda cist enclosures) and that it was semi-corbelled with boulders piled up horizontally on the ground surface up to four to five courses high (**Figs. 43, 44**). Here again, no clear evidence for an enclosure was attested, despite the intensive examination by means of a long trench across the mound. The finds were limited to a handful of heavily fragmented human skeletal remains and two undiagnostic flint blades.

CE201 and CE202

Though only surface-observed, the remaining two structures (CE201 and CE202) appeared to



43. Tal'at 'Ubayda CE203: the plan and section/ elevation.

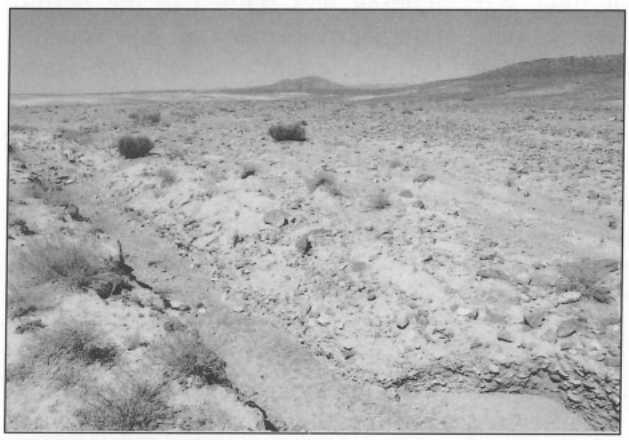


44. Tal'at 'Ubayda CE203: the close-up view of the semi-corbelled cist (from SE).

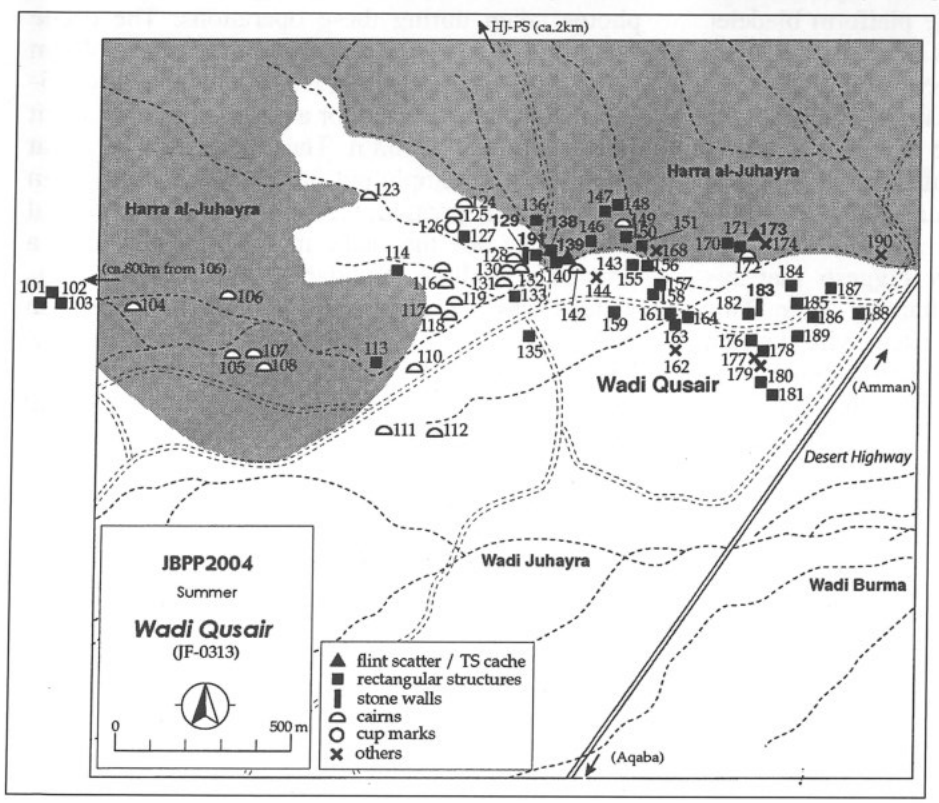
share basic traits with these two sounded examples, including the lack of clear evidence for an enclosure (In this sense, it may be more correct to call them cist tombs rather than cist enclosures). In light of the probable absence of an enclosure and their offset location from the major developing axe of CE100s, it appears that CE200s constituted a distinct group probably later in date than CE100s. Nonetheless, the final conclusion must await further investigation.

WĀDĪ AL-QUṢAYR

Wādī al-Quṣayr is among small tributaries that run eastward to merge into Wādī Burma (**Fig. 2**). It rises in the western skirts of Jabal Juḥayra, an isolated volcanic hill ca. 7km northwest of al-Ḥusayniyya, and joins Wādī Burma just between Wādī Burma North and South (Fujii 2004a). The site of Wādī al-Quṣayr extends along its course for ca. 3km, covering an area of ca. 150ha (**Figs. 45, 46**). Despite its proximity to Wādī Burma North and South, no cist enclosures were confirmed in this site; instead, it turned out to be a composite site containing a few flints scatters, some forty rectangular structures, two freestanding stone walls, and a few dozen simple cairns. Although these archaeological occurrences were beyond the original scope of our investigation, some of them were briefly sounded in order to supplement basic in-



46.Wādī al-Quṣayr: the general view (from NW).



45. Wādī al-Quṣayr: the site map.

formation on the general occupational history of the Wādī Burma drainage basin.

Flint Scatter 139

This flint scatter site (WQ-FS139) was located roughly in the center of the site, at the northern bank of the main stream of Wādī al-Quṣayr (**Figs. 47, 49**). It was relatively large in site size, covering an area of ca. 1,000 square meters. The occurrence of lunates, a hallmark of the Natufian flint industry, induced us to briefly sound it. A small, 5m by 5m square was set up roughly in the center of the flint scatter range, immediately beside an illicit excavation pit that exposed a section of ashy deposits more than 30cm thick. Due to the limitation of time, our sounding was limited to the northeastern and southeastern corners of this square. The excavated soil was entirely sieved with 3mm mesh nets.

The limited sounding showed that a large pit (Pit 1), more than 5m in diameter, was dug from the upper surface of Layer 2, which in turn was partly disturbed by the recent illicit excavation pit dug from the surface layer (Layer 1a). Thousands of flint artifacts and faunal remains were recovered from Pit 1 and its circumference. We deal with them as a single assemblage, firstly because they were homogeneous through layers, and secondly because a close examination is still in progress.

The flint assemblage was exclusively of microlithic nature and included single platform bladelet cores (**Fig. 48: 16-18**), bladelets (**Fig. 48: 8-12**) lunates (**Fig. 48: 1-7**), endscrapers (**Fig. 48: 13**), notches (**Fig. 48: 14**), and drills (**Fig. 48: 15**). Of importance is the predominance of minute, abrupt/bipolar retouched lunates, a hallmark of the Late Natufian flint assemblage (Henry 1989: 110-111, 1995: 323-326). This, coupled with the total absence of sickle blades, strongly suggests that this site served as a Late Natufian hunting camp. This functional identification is consistent with the rich occurrence of faunal remains, which contained gazelles as a major component but also included larger ungulates to a lesser extent (pres. comm. from Dr. Hitomi Hongo, who saw relevant photos) (**Fig. 50**). Nonetheless, the occurrence of a few basalt pestles (**Fig. 48: 19**) implies that the activities at this site were not necessarily limited to hunting alone. This is likely all the more because this site is large enough in site size (ca. 1,000 square meters) to fall within the category of smaller base camp (Bar-Yosef 1991: 401).

The identification of a Late Natufian site along Wādī al-Quṣayr is highly important, not only because it supplements the paucity of basic information on the Natufian cultural entity in the southern Jordanian plateau, but also because it provides comparative material with Tabaqa/WHS895, an Early Natufian base camp located along the upper stream of Wādī al-Ḥasā (Byrd and Rollefson 1984; Byrd and Colledge 1990; Sellars 1998: 87). The probable existence of a Palaeo-lake around Jurf ad-Darāwīsh is highly suggestive in this regard (Neerly 2004).

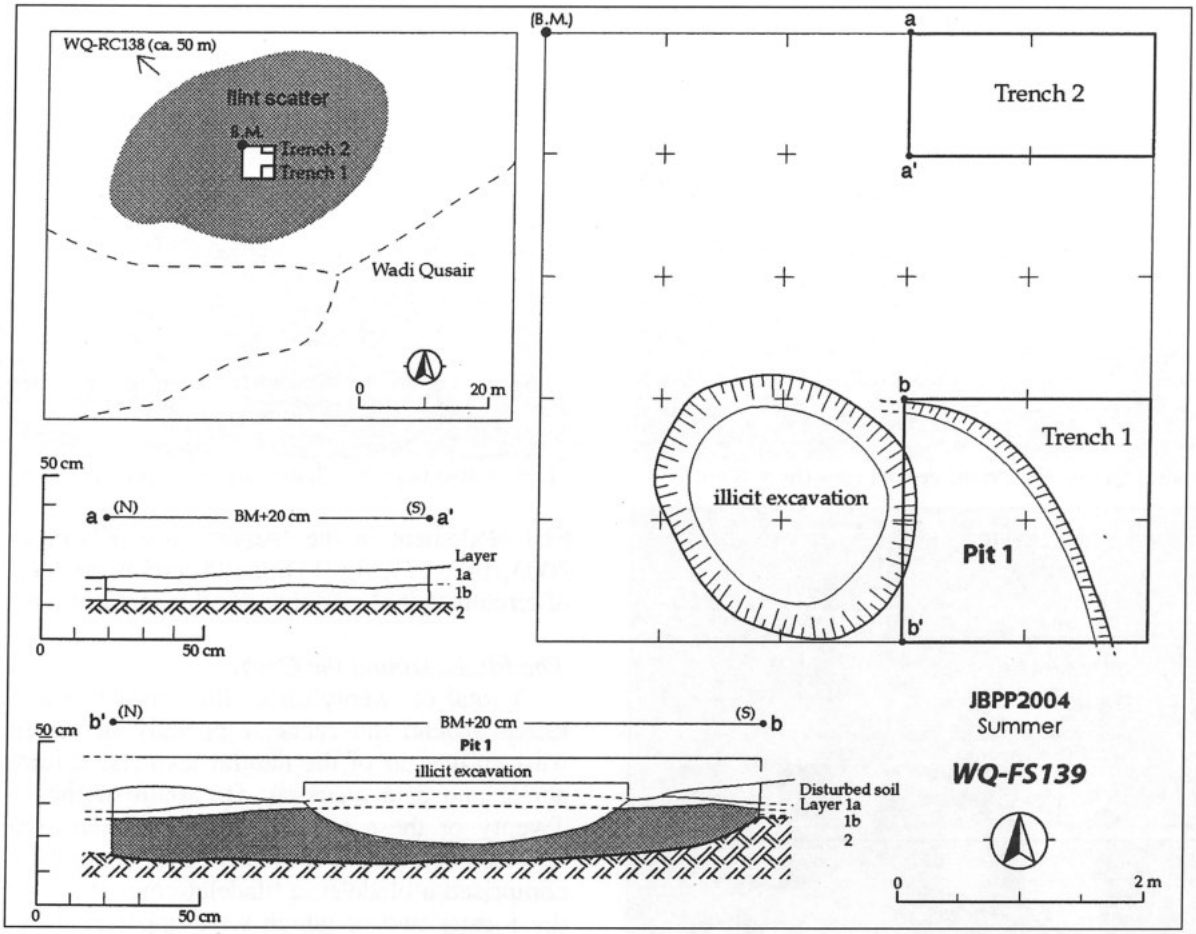
Tabular Scraper Cache 173

The pre-excavation mapping survey confirmed by chance a small cache of tabular scrapers (WQ-TC173) on the southern slope of Ḥarrat al-Juḥayra, an extensive basalt hill that forms the northern watershed of the Wādī al-Quṣayr drainage system (**Fig. 51**). What we noticed first was a concentration of five tabular scrapers on the present ground surface. We photographed them and, then, picked them up giving each sample a serial number. However, when we sounded the locus to make sure of it, we found another two pieces still underlying. Then we repeated the same procedure as the first group, but this cycle was not completed even when the collection amounted to nine in total. Thus we stopped the operation and resumed it on the next day. As a result, six flint artifacts, primarily tabular scrapers, were found anew.

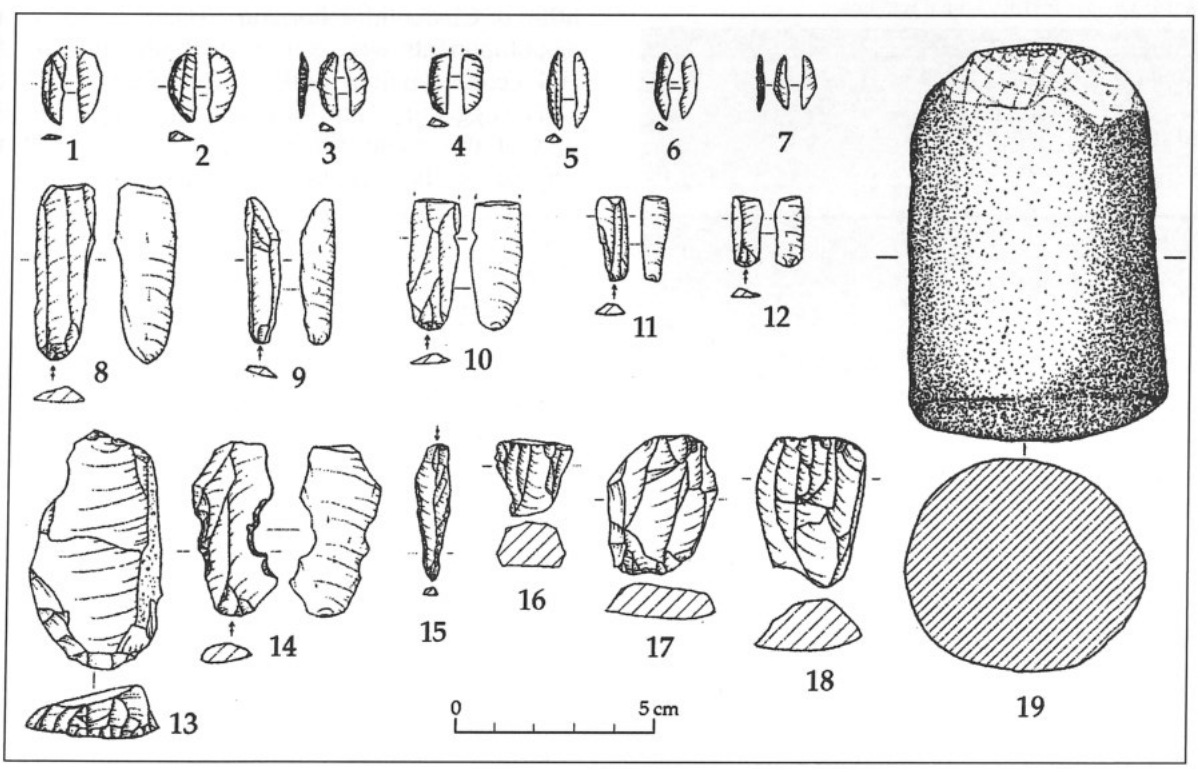
Figure 52 shows the original state of the cache that was reconstructed referring to the notes and photos taken during these operations. The cache was limited in extent, covering an area of ca. 40cm by ca. 20cm and reaching a depth merely of ca. 5-7cm. No clear evidence for a pit or stone alignment was confirmed around it. Thus, it seems likely that the cache was simply put on the ground surface in those days (If pressed, we would say that a natural lava rise beside the cache might have served as a protection wall or landmark). What interested us instead was that every sample, with the exception of No. 4, occurred with a turned-up ventral surface. The reason for this unique phenomenon is still unknown, but a likely explanation is that they had originally been kept in order in a single bag.

The Contents of the Cache

The cache, 15 pieces in total, consisted of ten tabular scrapers (**Fig. 53: 1-3, 5-6, 9-12, 15**), four tabular scraper blanks (**Fig. 53: 4, 7-8, 14**), and a single robust blade fragment (**Fig. 53: 13**). The overwhelming predominance of tabular scraper components (93.3 percent in total) allows us to call this assemblage a tabular scraper cache. All samples were homogeneous in raw material, using grayish, mat, fine-textured, Eocene flint probably



47. Wādī al-Quṣayr FS139: the plan and section of Pit 1.



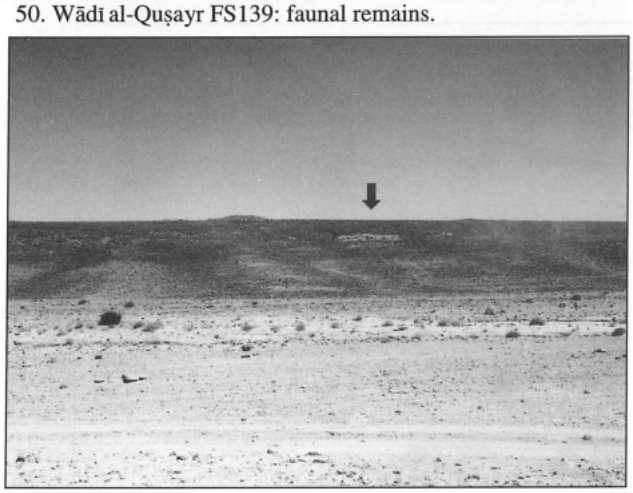
48. Wādī al-Quṣayr FS139: the finds.



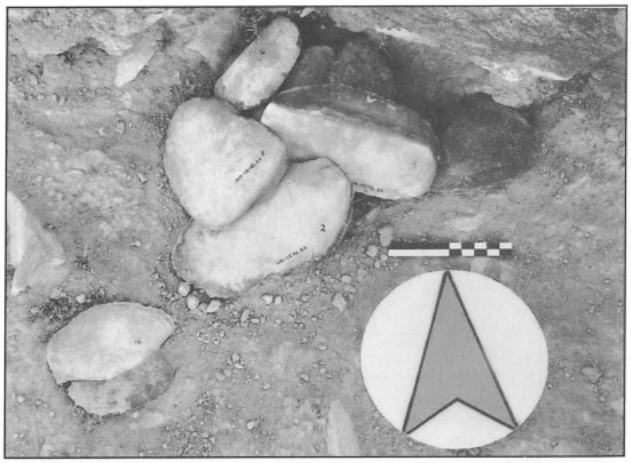
49. Wādī al-Quṣayr FS139: the general view (from NW).



50. Wādī al-Quṣayr FS139: faunal remains.



51. Wādī al-Quṣayr FS173: the distant view (from S).



52. Wādī al-Quṣayr FS173: the tabular scraper cache (from S).

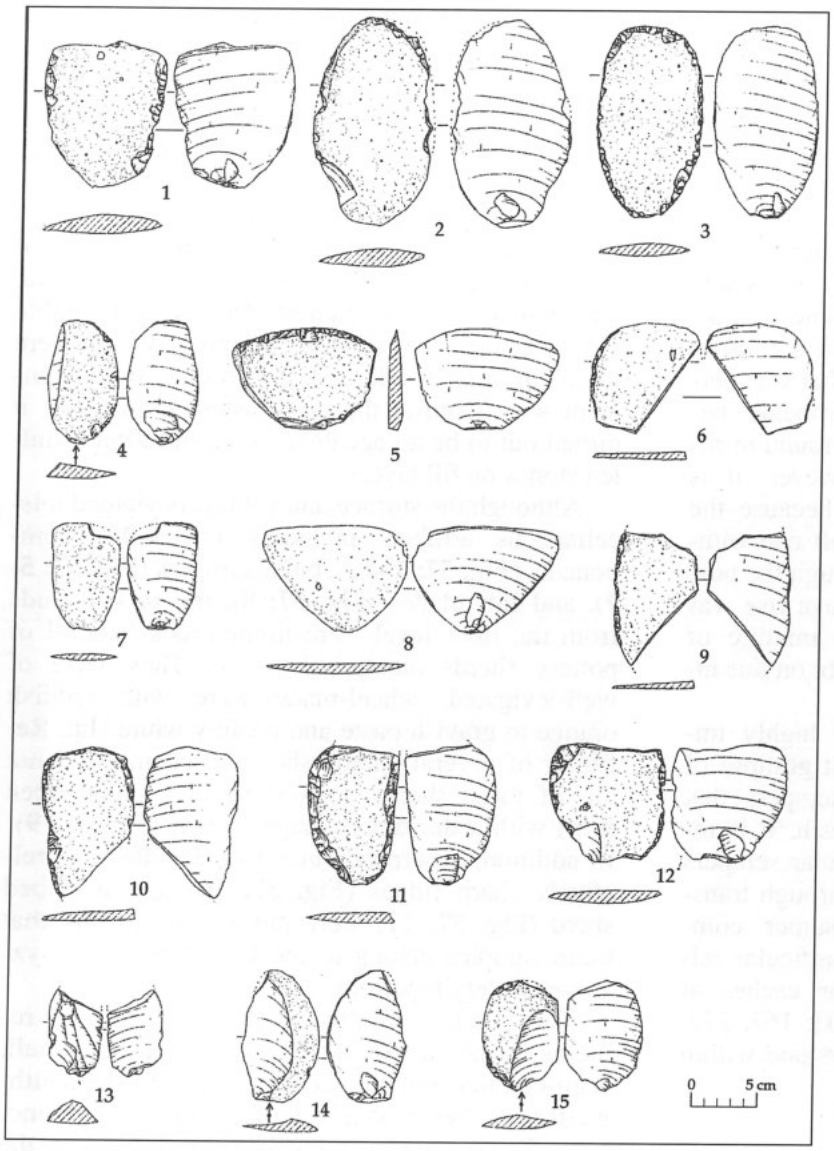
mined at hilly countries to the east. They included a few large, oblong samples (**Fig. 53: 1-3**), which probably fall techno-typologically within the time range of the EBA (Abe 2004; Abe and Fujii 2004). Another support for this dating comes from the two smaller caches confirmed at Tal'at 'Ubayda, which also included parallel examples (Fujii this volume). A similar cache found at Ḥujayrat al-Ghuzlān, an EBI settlement in the 'Aqaba area (Khalil *et al.* 2003: 167, 173, fig. 11), may serve as another line of circumstantial evidence for this tentative dating.

The Finds Around the Cache

A total of twenty-three flint artifacts were collected around the cache, especially in the northwestern quarter of the natural lava rise referred to above and at a locus ca. 5m south of the cache. Twenty of these (=90.9%) were tabular scrapers and their relevant tool blanks (The remaining three comprised a bladelet, a bladelet core, and a chisel, the former two of which were apparently of Epipalaeolithic date and the last probably of the Neolithic or Chalcolithic horizon). These tabular scraper components were similar in both raw material and techno-typology to the cache components, possibly suggesting that they originally constituted a part of the cache. Given this, it follows that the original cache amounted to thirty-five pieces, a quantity consistent roughly with our tentative assessment that one EBA flint knapper in the al-Jafr Basin brought back a few dozens products (Fujii 2003: 219).

Archaeological Implications

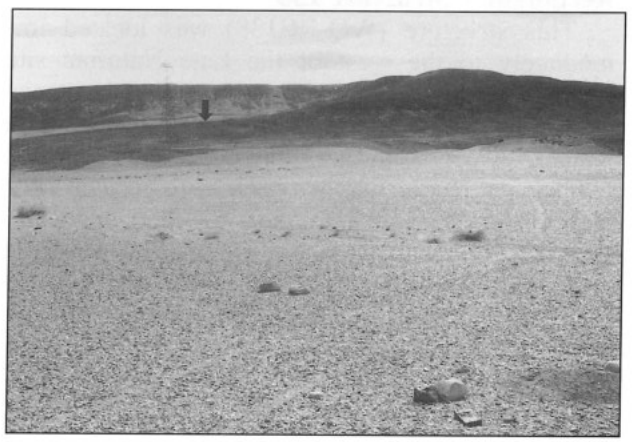
What archeological implications does this tabular scraper cache have? Before entering a brief discussion, it is useful to note that no clear evidence for tabular scraper production has so far been confirmed in the Wādī al-Quṣayr area. We may therefore reasonably disregard the possibility that this cache represents a depot related to a production site. Likewise, it is most unlikely that this cache was a hoard or cache in a strict sense of the word such as the finds at Nahal Mishmar (or The Cave of Treasure) (Bar-Adon 1980), not only because flint implements were, in general, much less valuable in nature, but also because neither coeval settlements nor



53. Wādī al-Quṣayr FS173: the components of the tabular scraper cache.

shrines have been attested in this area.

Thus the following three interpretations can be suggested. The first and most plausible interpretation is that the cache represents things left behind probably on someone's way back from a production site to the east toward a market or mother settlement to the west (and, possibly, to the south). Suggestive in this regard is the identification of many tabular scraper mining and production stations at Tal'at 'Ubayda and beyond (Quintero *et al.* 2001; Fujii 2003: 210-220; Abe 2004; Abe and Fujii 2004), which point to the destination of EBA flint knappers. Of further significance is the surrounding topography; the only way to descend directly from Tal'at 'Ubayda is a gentle slope that protrudes toward the eastern bank of Wādī Burma (**Fig. 54**). It is at the opposite bank that Wādī al-Quṣayr merges into Wādī Burma, a suggestion that the Wādī al-Quṣayr drainage basin was among major lanes for EBA flint artisans in this area. It is not improbable that a few dozens flint artifacts, probably contained in a single bag, happened to be left



54. Wādī al-Quṣayr: Tal'at 'Ubayda (rear) and the only slope descending to Wādī Burma (front).

behind. The absence of any device to conceal them also argues for this interpretation.

The second explanation, though similar in social background to the first one, is that the cache represents a temporary yet intentional storage that was not withdrawn for some reason. The natural basalt rise besides the cache might have served as a good landmark for this depot. Nevertheless, this explanation seems less convincing, because, as noted above, no device to conceal the cache was attested. An alternative possibility is that the cache represents a dedication to some ritual that was performed at this place. This is not improbable, because tabular scrapers have often been found in ritual contexts (Rosen 1997: 74). However, it is questionable in this case, especially because the cache was found beside a natural basalt rise without any clear evidence for ritual. Although the possibility still remains that the natural lava rise was likened to some ritual facilities, the mixture of heavily used tabular scrapers casts doubt on this interpretation.

Whatever the case, this cache is highly important in that it has provided the first glimpse of the distribution system of tabular scrapers that were mass-produced in the al-Jafr Basin. It is intriguing to hypothesize that these tabular scrapers happened to be left behind halfway through transportation toward entrepots or consumer communities to the west and south. Of particular relevance is the occurrence of similar caches at Ḥujayrat al-Ghuzlān (Khalil *et al.* 2003: 167, 173, fig. 11), which can also best be understood within this framework.

Rectangular Structure 138

This structure (WQ-RC138) was located immediately to the west of the Late Natufian site mentioned above. It looked at first like a large cist enclosure that had a mound to the northeast and a square, 45-degree turned forecourt to the southwest (This is the reason why we decided to excavate this structure). Closer examination revealed, however, that the mound-like feature was merely a natural rise and the supposed forecourt was an independent, square structure that happened to be built resting partly on this natural rise. Thus the following description will focus on the latter feature.

The limited excavation showed that this structure, ca. 12-13m each side, was built on the upper surface of Layer 3 of the site stratigraphy. Reflecting the site location between *Ḥarra* and wadi beds, basalt and limestone cobbles and boulders up to 70-80cm long were used for the construction material (**Figs. 55, 56**). The walls were a single row wide and preserved merely to a height of a single course, but the volume of fallen stones around them suggested that they were originally a few courses high. The layout was very simple; neither partition walls nor small features were found inside. The only thing that broke the monotony was a small, semi-circular protrusion at the southwestern corner. The internal space of this small feature ca. 2m in diameter was packed densely with rubble and soil, under which several pottery sherds were found *in situ*. In addition, an obscure wall alignment was found at the northeastern corner, but it turned out to be an accidental concentration of fallen stones on fill layers.

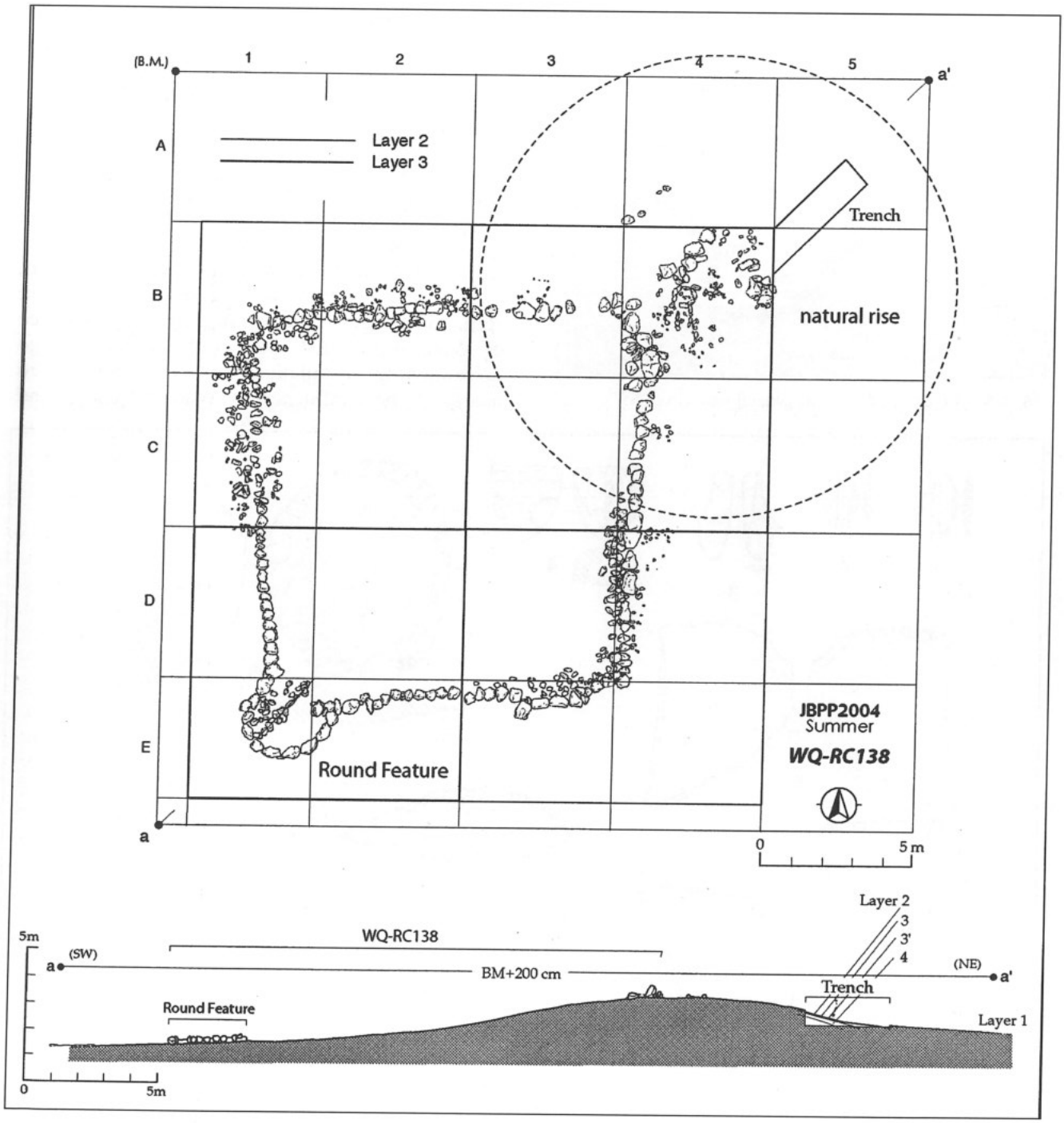
Although the surface and fill layers yielded miscellaneous artifacts including microlithic components (**Fig. 57: 1-4**), tabular scrapers (**Fig. 57: 5-7**), and Jafr blades (**Fig. 57: 8**), the *in situ* finds from the floor level were limited to a handful of pottery sherds mentioned above. They were of well-levigated, wheel-made ware with reddish orange to grayish paste and creamy white slip. Refitting of several sherds showed that most, if not all, of these sherds derived from a single open bowl with a thickened, diagonal rim (**Fig. 57: 9**). In addition, a perpendicular loop handle with relatively sharp ridges (**Fig. 57: 10**) and a ribbed sherd (**Fig. 57: 11**) were present. It appears that these samples belong to the Late Roman to Byzantine pottery repertoire.

The function of this unique structure still remains unknown. All we can say is that the small, semi-circular, cobble-packed feature at the southwestern corner probably holds a key to the function. The extreme scarcity of artifacts and the unique general orientation of the structure may also provide a clue to this question. With respect to the date, the *in situ* finds provide a *terminus a quo*.

Rectangular Structure 191

This stone-built structure (WQ-RC191) was located on a flat terrain ca. 50m west of WQ-RC138 mentioned above, with a small erosion gully just in between. Unlike WQ-RC138, it formed a small complex that consisted of three rectangular structures from Unit 1 to Unit 3 (**Figs. 58, 59**). Due to the proximity to Ḥarrat al-Juḥayra, basalt cobbles, mostly ca. 20-30cm long, were used for the main construction material. Since this complex was heavily disturbed, our excavation was limited to the four key loci shown in the figure.

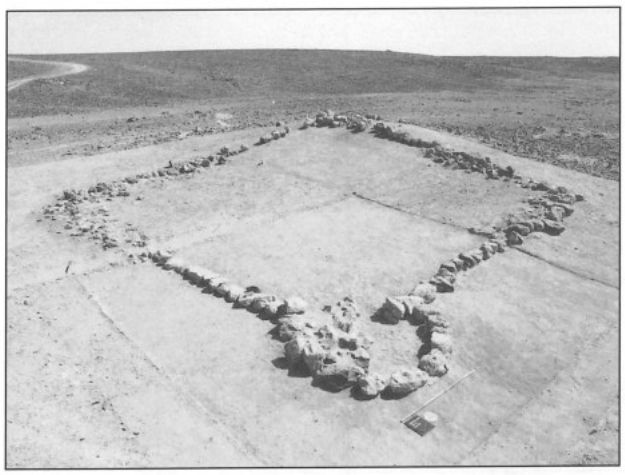
Unit 1 and 2 had much in common with each other. Furthermore, both of these units shared the central wall, constituting a twin structure that was



55. Wādī al-Quṣayr RC138: the plan and section/elevation.

connected side by side. Both of these also resembled WQ-RC138 in many respects including the general orientation, the construction technique, the scarcity of artifacts, and, most importantly, the incorporation of a small stone concentration at the southwestern corner. Unit 3, though similar to these two units in terms of general plan and orientation, was much smaller in size and packed entirely with limestone and basalt rubble. Another critical difference was the absence of a stone concentration at the southwestern corner, although this rubble-packed unit in itself might have served as it.

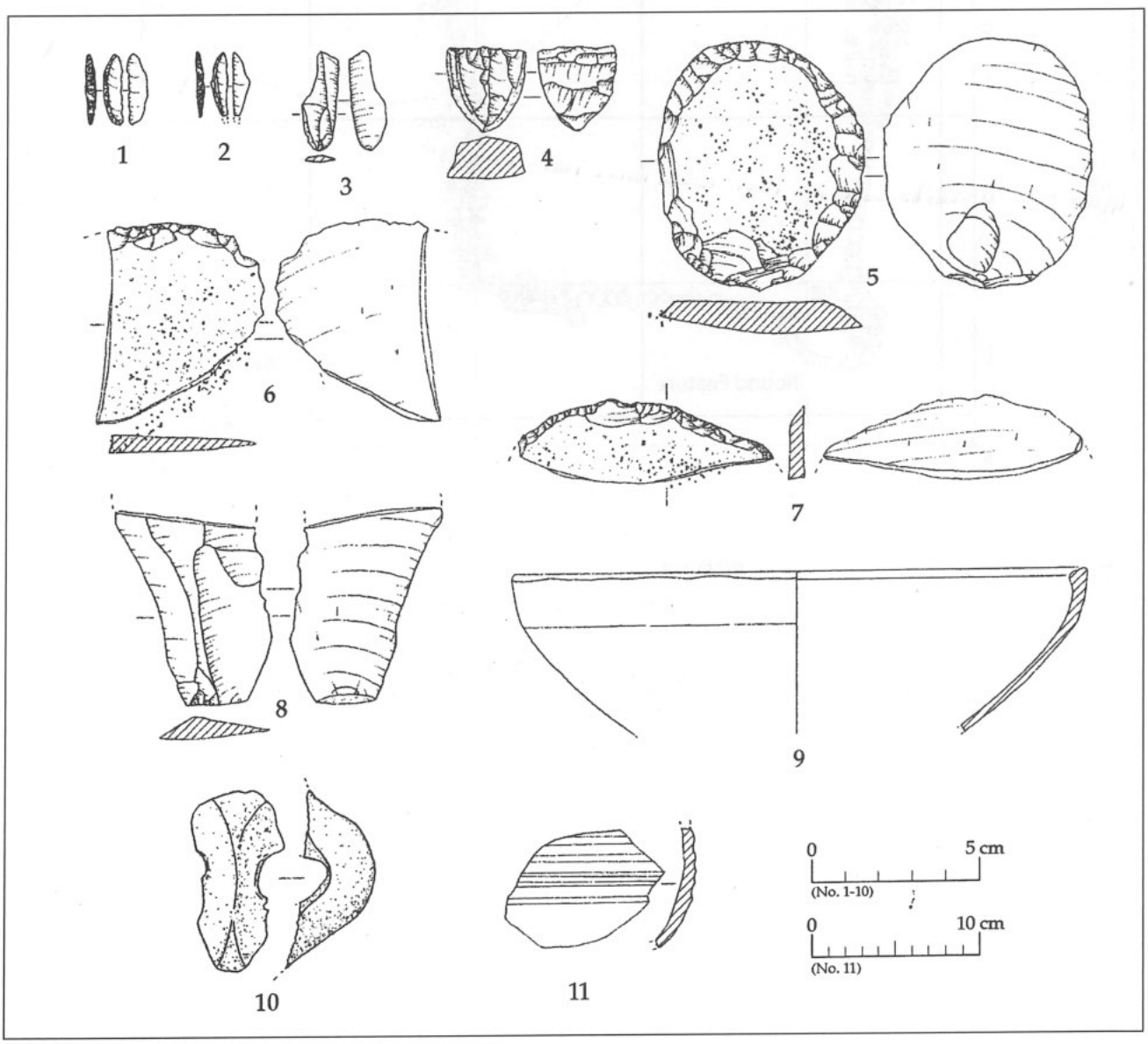
The only clue to the dating of this complex is a handful of pottery sherds that were found *in situ* at two loci beside the eastern wall of Unit 2. They were exclusively of well-levigated, slightly ribbed, fine ware and included a few samples decorated with a single wavy line that suggests a date of the



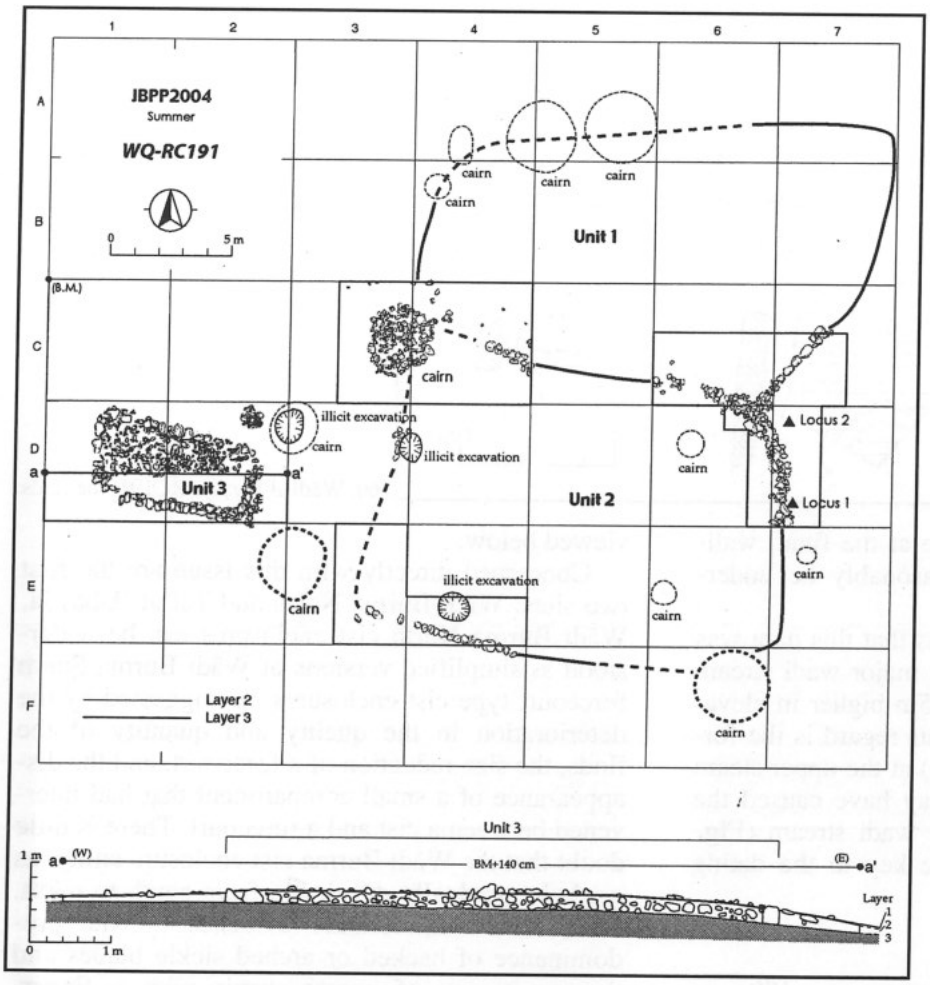
56. Wādī al-Quṣayr RC138: the general view (from SW).

Late Byzantine to Umayyad period (**Fig. 60: 6**) (Hendrix *et al.* 1996: 239; Sauer 1982: 332, 1986: 308). In this light, we may tentatively conclude that this complex was roughly contemporary with WQ-RC138 ca. 50m to the east.

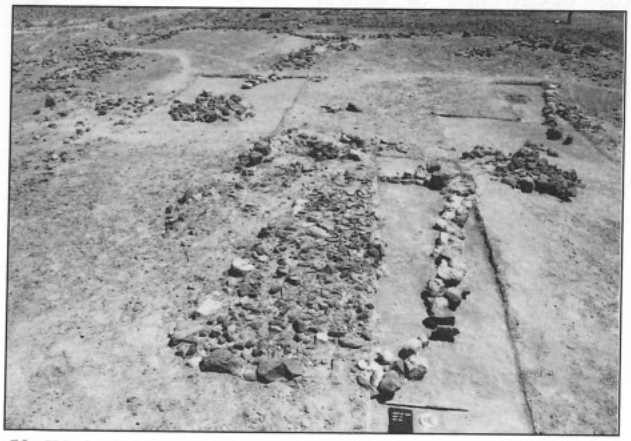
More difficult is the functional identification. All we can say is that this structural complex has much in common with WQ-RC139 and, therefore, probably of the same date and function. We may note here that some forty similar structures are dotted along the main steam of Wādī al-Quṣayr and, as a whole, constitute a large structural complex (**Fig. 45**). Suggestive in this respect is the existence of Wādī Burma Kite-site 1 (WB-KS1), a large drive-hunting installation that was constructed nearly at the confluence of Wādī al-Quṣayr and



57. Wādī al-Quṣayr RC138: the finds.



58. Wādī al-Quṣayr RC191: the plan and section/elevation.

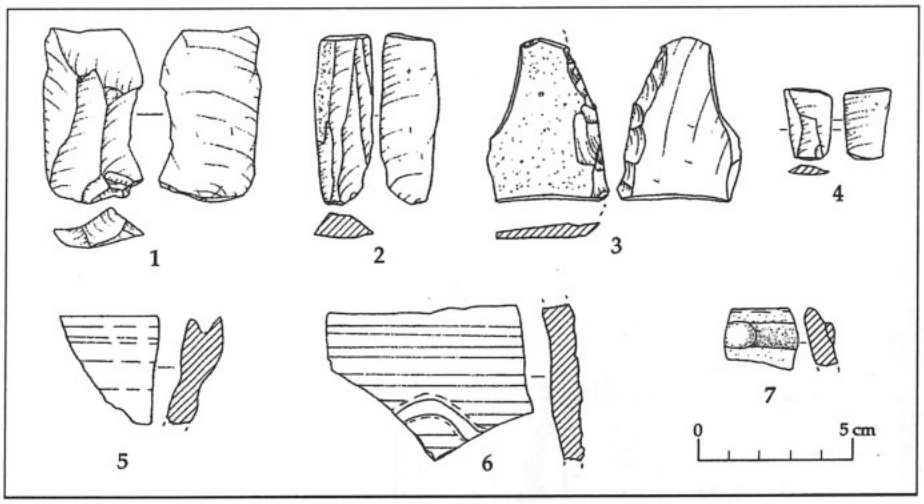


59. Wādī al-Quṣayr RC191: the general view (from W).

Wādī Burma (Fig. 1; Fujii 2004a). In light of the close topographical tie and the rough synchronism between the two, it is not irrational to assume that both of these were functionally correlated with each other. It is our present hypothesis that Wādī al-Quṣayr rectangular structures served as temporary camps for the large-scale drive hunting at WB-KS1. It is suggestive in this respect that the Wādī al-Quṣayr drainage basin is protected from the northwesterly predominant wind in this area and, for this reason, it is often encamped by modern Bedouins from winter to early summer, probably the high season of drive hunting in those days. Nonetheless, evidence is far from adequate and further investigation is needed to test this working hypothesis.

Stone Wall 183

This elongated structure (WQ-SW183), measuring ca. 28m in total length and ca. 1.5-3m in width, was located on a southern, lower terrace of Wādī al-Quṣayr (**Fig. 45**). It was briefly examined, focusing on the northern extremity and middle part. As a result, this stone wall turned out to be a small barrage that consisted of two-rowed upright stone walls protected with rubble filling and a rear additional wall (**Figs. 61-63**) (In this light, we should revise our functional identification of WBs-KS2 that was excavated in the previous season (Fujii 2004a). It is more reasonable to conclude that it was not a drive hunting installation but an installation to converge runoff water into an extensive sandbank slightly higher in elevation. The



60. Wādī al-Quṣayr RC191: the finds.

absence of any trapping device at the final, wall-converging point can now reasonably be understood within this framework).

What puzzled us instead was that this dam was ca. 50m apart from the nearest major wadi stream and, at the same time, ca. 2-2.5m higher in elevation than that. Suggestive in this regard is the formation of a small *qā'* (dry lake) at the upper steam side of this barrage, which may have caused the gradual northward shift of the wadi stream (**Fig. 62**). Unfortunately, no reliable key to the dating was found.

Stone Wall 129

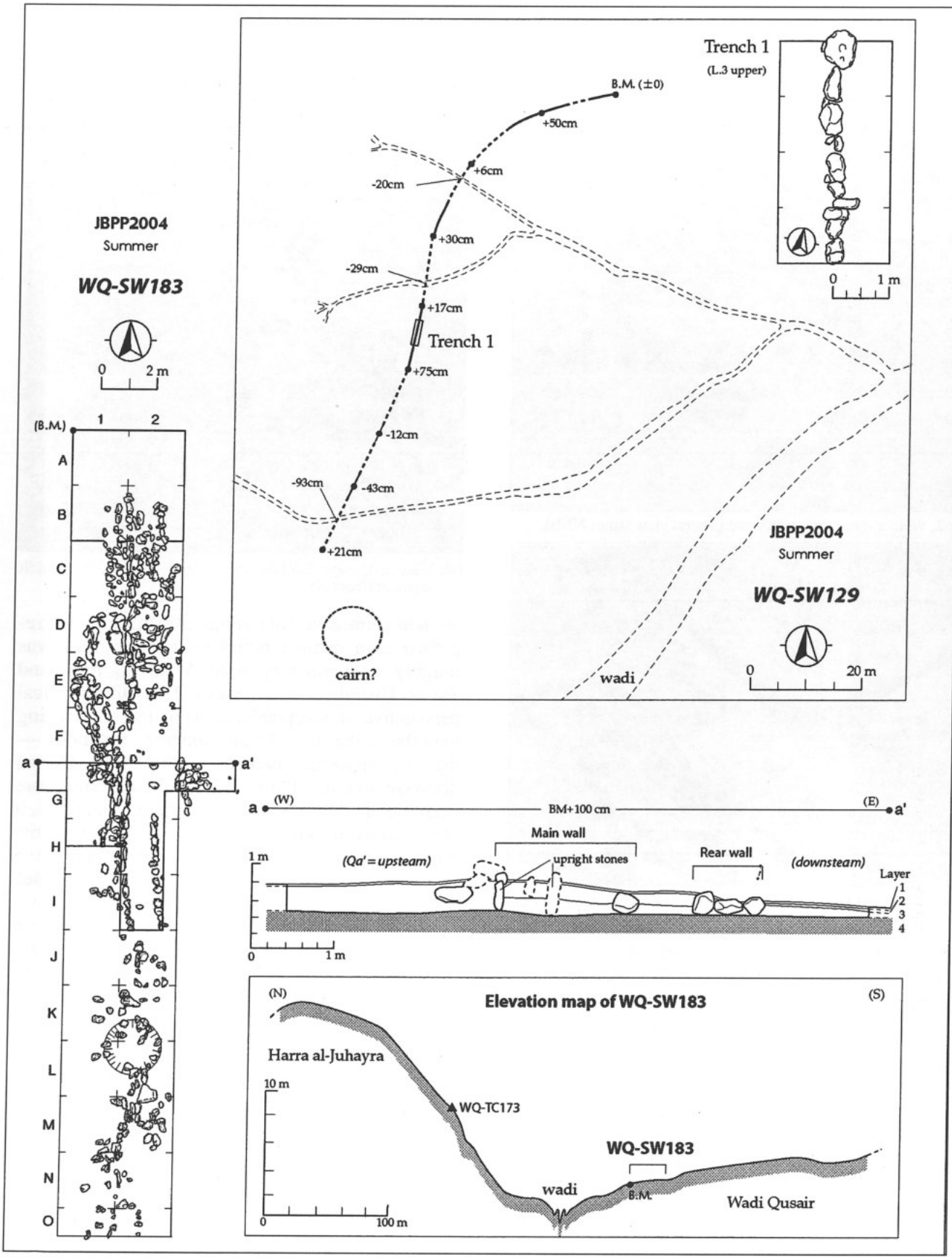
This intermittent wall alignment, ca. 100m in total length, was found on a small sandbank ca. 700m upstream of WQ-SW183 mentioned above (**Figs. 61, 64**). A limited sounding roughly at the middle of the wall alignment showed that it was less elaborate in construction quality and composed merely of a single row and course of upright limestone boulders. It is noticeable, however, that larger pebbles were often driven into the base of these upright stones as stabilizers. What was unexpected to us was that the northern half of this wall alignment was slightly curved upstream rather than downstream. This may cast doubt on the functional identification as a barrage, but it is not unlikely that this dam (or at least its northern segment) served as facilities to sprinkle runoff water over the surrounding terraces. Here again, no *in situ* finds were recovered.

SUMMARY AND DISCUSSION

As referred to at the beginning, the goal of our investigations at these three sites was to establish the chronology of various burial cairn entities thus far known in the al-Jafr Basin. From this point of view, the excavation results will be briefly reviewed below.

Concerned directly with this issue are the first two sites: Wādī Burma North and Tal'at 'Ubayda. Wādī Burma North cist enclosures can be understood as simplified versions of Wādī Burma South forecourt type cist enclosures, as suggested by the deterioration in the quality and quantity of the finds, the size reduction of a forecourt, and the disappearance of a small compartment that had intervened between a cist and a forecourt. There is little doubt that the Wādī Burma cist enclosure entity, as a whole, gradually developed from south to north. Both lithic and ceramic evidence — the predominance of backed or arched sickle blades and the occurrence of coarse wares with a finger-impressed band immediately below the exterior, in particular — clearly shows that, unlike the earlier suggestion (Fujii 2004b), this burial cairn entity can be dated to the EBIA.

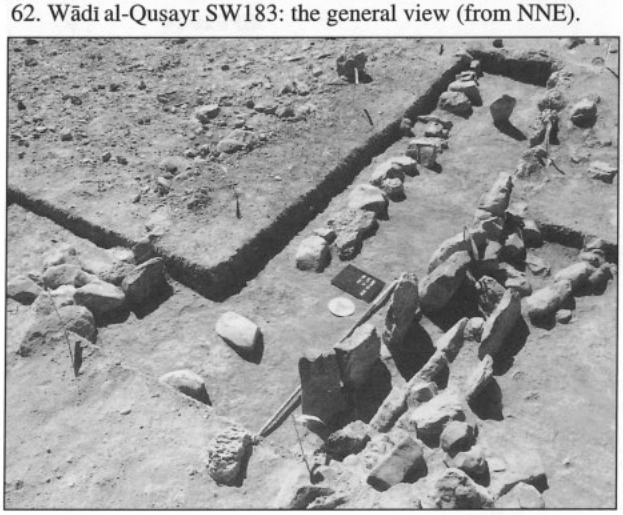
What follows the Wādī Burma North forecourt type cist enclosures is the Tal'at 'Ubayda corridor type non-corbelled cist enclosures that are concentrated on the western extremity of the site. Major similarities between the two included the incorporation of a non-corbelled, round to oblong cist with a narrow entrance and a square to rectangular forecourt to the east of the parent structure. It is most likely that the site of Tal'at 'Ubayda Cairn Field 1 began with these transitional forms and then developed eastward to semi-corbelled, corridor type cist enclosures without a paved forecourt (The chronological attribution of CE200s is still uncertain, but they seem to postdate CE100s). In this light, we may conclude that the cist enclosure entity in the Wādī Burma drainage system developed from Wādī Burma South, through Wādī Burma North, to Tal'at 'Ubayda, although it should be kept in mind that a few missing links, most likely, still intervene between the latter two. Un-



61. Wādī al-Quṣayr SW129 and 183: the plan and section/elevation.



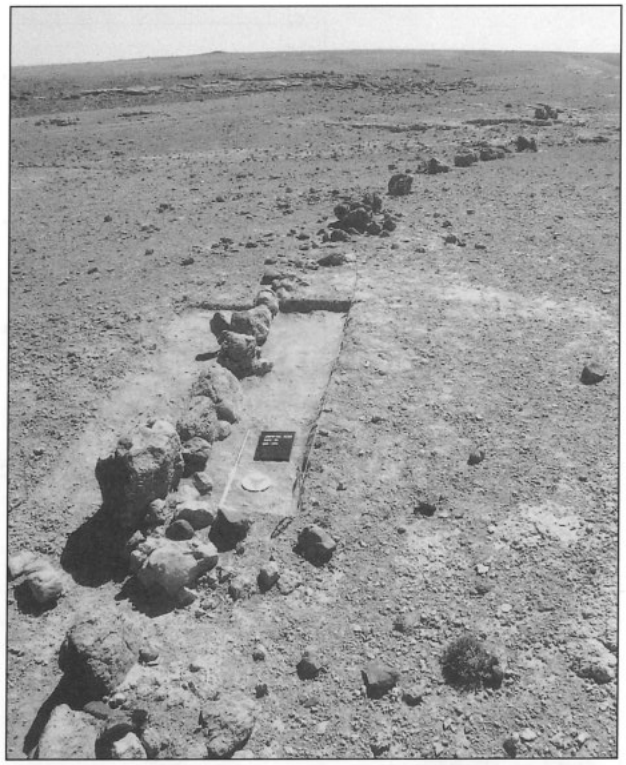
62. Wādī al-Quṣayr SW183: the general view (from NNE).



63. Wādī al-Quṣayr SW183: the close-up view of the middle segment (from NNW).

fortunately, no direct key to the dating of Tal'at 'Ubayda cist enclosures is available, but the chronological perspective suggested above allows us to tentatively date them to a subsequent phase of Wādī Burma North cist enclosures, namely, EBIB or EBII.

The question is the chronological relation between pseudo-wall cairn enclosures at QATW and the Wādī Burma burial cairn entity. Given the chronological sequence suggested above and a series of calibrated radiometric data (1-sigma SD) from QATW (Structure 01: BC 2,902-2,765; Structure 07: BC 3,362-3,102; Structure 51: BC 3,018-2,887, BC 3,102-2,893), QATW pseudo-wall cairn enclosures, as opposed to the previous view based



64. Wādī al-Quṣayr SW129: the general view of the middle segment (from N).

on non-calibrated data (Fujii 2004a), can be regarded as a distinct burial cairn entity that was roughly contemporary with Wādī Burma and Tal'at 'Ubayda cist enclosures. This chronological perspective, if acceptable, leads us to an intriguing hypothesis that two distinct funerary traditions — the cist enclosure tradition in the Wādī Burma drainage area and the pseudo-wall cairn enclosure tradition in the al-Jafr Basin — confronted each other around the upper streams of Wādī Burma, the boundary area between the two. Highly suggestive in this regard is the intra-site chronology of Wādī Burma and Tal'at 'Ubayda, which clearly shows that both sites began with the southern or western frontier confronting the Jafr Basin and, then, gradually retreated either northward or eastward toward the lower steam of Wādī Burma. It appears that the cist enclosures at both sites were constructed as a symbolic declaration of territory.

The confrontation of these two distinct sorts of mortuary ethos finds its expression in the remarkable contrast of finds. The cist enclosure entity at Wādī Burma is marked by the frequency of coarse ware sherds, backed or arched sickle blades, and various grinding tools, while the pseudo-wall cairn enclosure entity in the al-Jafr Basin essentially lacks these components and, instead, converges merely on tabular scrapers and Jafr blades. We may also note that the former funerary entity some-

times yields evidence for human skeletal remains, whereas the latter is lacking it completely. These contrasts, most likely, mirror the difference in subsistence strategy between the two. In light of the predominance of agricultural utensils and the occurrence of interred human skeletal remains, there is a good possibility that the Wādī Burma burial cairn entity was based on a semi-sedentary, agro-pastoral society. It is reasonable to assume that the sudden appearance of this mortuary entity correlated closely with the abrupt florescence of the EBI settlements in southern Jordan, although the parent settlement of the Wādī Burma burial cairn entity has not yet been identified. In contrast, a line of evidence — the essential lack of agricultural components, the absence of interred bodies, and the mass-production of sheep-rearing implements (i.e. tabular scrapers) — strongly suggests that the Jafr burial cairn entity was related to a pastoral nomadic society with higher mobility. The difference in water supply and general vegetation between the two areas may also argue for this interpretation. It should be kept in mind, however, that the later phase of the Wādī Burma burial cairn entity witnessed a radical shift in subsistence, as suggested by the disappearance of agro-sedentary components at Tal'at 'Ubayda corridor type cist enclosures.

With respect to Wādī al-Quṣayr, the tabular scraper cache (WQ-TC173) is partly concerned with our present issue. This cache has provided the first glimpse of the tabular scraper distribution system that links flint-mining and production stations to the east (the al-Jafr Basin in this case) and their entrepots and/or consumer communities to the west and south. The question is which was concerned with the formation of this cache, the Wādī Burma mortuary entity or the Jafr entity. Unfortunately, no clear answer can be made to this question, because both of these yielded similar products. All we can say is that the location of this cache seems to be in favor of the correlation with the former entity.

CONCLUDING REMARKS

The third excavation season of the JBPP/2 has enriched basic information on the EBA burial cairn entity in the al-Jafr Basin to a large extent. As a result, the northwestern hilly country of this basin turned out to have been a frontier where two distinct funerary traditions - the Wādī Burma cist enclosure entity to the north and the Jafr pseudo-wall cairn enclosure entity to the south - confronted each other. Also of importance is the identification of the tabular scraper cache at Wādī al-Quṣayr, which has provided us with a specific insight into the distribution system of tabular scrapers that were mass-produced in this basin. It will not be very long before the dynamics of the EBA pastoral nomadism in this basin comes into sight.

Acknowledgements

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Bibliography

Abe, M.
2004 A Study on the Tabular Scraper Production in the Jafr Basin, Southern Jordan. *The Creation of Symbolic Worlds:* BANEA 2004 Conference (25-27 March 2004, School of Human and Environmental Sciences, The University of Reading).

Abe, M. and Fujii, S.
2004 Archaeological Surveys in the Jafr Basin, Southern Jordan: Two Strategies of Tabular Scraper Production. *Proceedings of the 11th Annual Meeting of Excavations in West Asia* 11: 18-22. Tokyo: Japanese Society for West Asian Archaeology (in Japanese).

Adams, R.B.
1999 *The Development of Copper Metallurgy during the Early Bronze Age of the Southern Levant: Evidence from the Feinan Region, Southern Jordan.* Ph. D. Thesis (University of Sheffield).

Adams, R. and Genz, H.
1995 Excavations at Wadi fidan 4: A Chalcolithic Village Complex in the Copper Ore District of Feinan, Southern Jordan. *PEQ* 127: 8-20.

Bar-Adon, P.
1980 *The Cave of the Treasure: The Finds from the Caves in Nahal Mishmar.* Jerusalem: The Israel Exploration Society (Translation from the Hebrew edition with the same title and published in 1971).

Bar-Yosef, O.
1990 The Epi-palaeolithic Complexes in the Southern Le-

vant. Pp. 389-408 in J. Cauvin and P. Sanlaville (eds.), *Préhistoire du Levant.*

Blackham, M.

1999 Tulaylat Ghassul: An Appraisal of Robert North's Excavations (1959-60). *Levant* 31: 19-64.

Brückner, H., Eichmann, R., Herling, L., Kallweit, H., Kerner, S., Khalil, L. and Miqdadi, R.

2002 Chalcolithic and Early Bronze Age Sites near 'Aqaba, Jordan. Pp. 215-331 in R. Eichmann (ed.), *Ausgrabungen und Surveys im Vorderen Orient I.* Rahdem/Westf: Verlag Marie Leidorg GmbH.

Byrd, B.F. and Colledge, S.M.

1989 Early Natufian Occupation along the Edge of the Southern Jordanian Steppe. Pp. 265-276 in O. Bar-Yosef and F. R. Valla (eds.), *The Natufian Culture in the Levant* (Reprinted in 2000. Pp. 381-391 in N.R. Coinmann (ed.), *The Archaeology of the Wadi al-Hasa, West-Central Jordan, vol. 2: Excavations at Middle, Upper and Epipalaeolithic Sites*).

Byrd, B.F. and Rollefson, G.O.

1983 Natufian Occupation in the Wadi el Hasa, Southern Jordan. *ADAJ* 28: 143-150.

Field, H.

1960 *North Arabian Desert Archaeological Survey, 1925-1950.* Cambridge: The Peabody Museum.

Fujii, S.

1998 Qa' Abu Tulayha West: An Interim Report of the 1997 Season. *ADAJ* 42: 123-140.

1999 Qa' Abu Tulayha West: An Interim Report of the 1998 Season. *ADAJ* 43: 69-89.

2000 Qa' Abu Tulayha West: An Interim Report of the 1999 Season. *ADAJ* 44: 149-171.

2001 Qa' Abu Tulayha West, 2000: An Interim Report of the Fourth Season. *ADAJ* 45: 19-37.

2002a Qa' Abu Tulayha West, 2001: An Interim Report of the Fifth Season. *ADAJ* 46: 15-39.

2002b The Pseudo-Settlement Hypothesis: Evidence from Qa' Abu Tulayha West, Southern Jordan. *Archaeozoology of the Near East* 5: 183-196.

2003 Qa' Abu Tulayha West, 2002: An Interim Report of the Sixth and Final Season. *ADAJ* 47: 195-223.

2004a Harrat al-Burma K-lines and Wādī Burma Kite-site: A Preliminary Report of the 2003 Spring Season of the Jafr Basin Prehistoric Project, Phase 2. *ADAJ* 48: 285-304.

2004b Harra al-Burma Cairn Line, Wadi Burma Cairn Field, and Harra as-Sayiyya K-line: A Preliminary Report of the 2003 Summer Season of the Jafr Basin Prehistoric Project, Phase 2. *ADAJ* 48: 25-50.

2005 Some PPNB Outposts in the al-Jafr Basin, Southern Jordan (in preparation).

Garrard, A., Baird, D., Colledge, S., Martin, L. and Wright, K.

1994 Prehistoric Environment and Settlement in the Azraq Basin: An Interim Report on the 1987 and 1988 Excavation Seasons. *Levant* 26: 73-109.

Goring-Morris, N.

1993 Foraging to Herding in the Negev and Sinai: The Early to Late Neolithic Transition. *Paléorient* 19/1: 65-89.

Hendrix, R.E., Drey, P.R. and Storfjell, J.B.

1996 *Ancient Pottery of Transjordan: An Introduction Unitlizing Published Whole Forms.* Berrien Springs: The Institute of Archaeology and H. Horn Archaeological Museum.

Henry, D.O.

1989 *From Foraging to Agriculture: The Levant at the End of the Ice Age.* Philadelphia: University of Pennsylvania Press.

1995 *Prehistoric Cultural Ecology and Evolution: Insight from Southern Jordan.* New York: Plenum Press.

Kerner, S.

2003 Appendix: The Pottery of Hujayrat al-Ghuzlan 2000 to 2003 – A Preliminary. *ADAJ* 47: 175-182.

Khalil, L. and Eichmann, R.

2001 Archaeological Survey and Excavation at Wadi al-Yutum and Tall al-Magass Area – 'Aqabe (ASEYM): A Preliminary Report of the First Season 1998. *ADAJ* 43: 501-520.

Khalil, L., Eichmann, R.

2001 Archaeogical Survey and Excavations at the Wadi al-Yutum and Magass Area – al-Aqabe (ASEYM): A Preliminary Report of the Second Season in 2000. *ADAJ* 45: 195-204.

Khalil, L., Eichmann, R. and Schmidt, K.

2003 Archaeological Survey and Excavations at the Wadi al-Yutum and al-Magass Area – al-Aqabe (ASEYM): A Preliminary Report of the Third and Fourth Seasons Excavations at Tall Hujayrat al-Ghuzlan in 2002 and 2003 Wadi al-Yutum. *ADAJ* 47: 157-182.

Neerly, M.P.

2004 Exploring Prehistoric Land-use Patterns in the Tafila-Busayra Survey Area. Pp. 35-46 in B. MacDonald, L. G. Herr, M. P. Neerly, T. Gagos, K. Moumani and M. Rockman (eds.), *The Tafila-Busayra Archaeological Survey 1999-2001, West-Central Jordan.* Boston: American Schools of Oriental Research.

Prag, K.

2000 Tell Iktanu, South Jordan Valley: Early Bronze Age I Ceramics. Pp. 91-99 in G. Phillip and D. Baird (eds.), *Ceramics and Change in the Early Bronze Age of the Southern Levant.* Sheffield: Sheffield Academic Press.

Quintero, L.A., Wilke, P.J. and Rollefson, G.O.

2001 From Flint Mine to Fan Scraper: The Late Prehistoric Jafr Industrial Complex. *BASOR* 327: 17-48.

Rosen, S.A.

1997 *Lithics after the Stone Age.* Walnut Creek: Altamira press.

Sauer, J.B.
1982 The Pottery of Jordan in the Early Islamic Periods. *SHAJ* 1: 329-337. Amman: Department of Antiquities.
1986 Umayyad Pottery from Sites in Jordan. Pp. 301-330 in L.T. Geraty and L.G. Herr (eds.), *The Archaeology of Jordan and Other Studies.* Berrien Springs: Andrews University Press.

Schaub, R.T. and Rast, W.E.
1989 *Bab-edh-Dhra: Excavations in the Cemetery Directed by Paul W. Lapp (1965-67).* Winona Lake: Eisenbrauns.
2000 The Early Bronze Age I Stratified Ceramic Sequences from Bab-edh-Dhra. Pp. 73-90 in G. Phillip and D. Baird (eds.), *Ceramics and Change in the Early Bronze Age of the Southern Levant.* Sheffield: Sheffield Academic Press.

Sellars, J.R.
1996 The Natufian of Jordan. Pp. 83-101 in D.O. Henry (ed.), *The Prehistory of Jordan.* Oxford: Archaeopress.

Tchernov, E. and Bar-Yosef, O.
1982 Animal Exploitation in the Pre Pottery Neolithic B Period at Wadi Tbeik, Southern Sinai. *Paléorient* 8: 17-37.

Wright, K., Najjar, M., last, J., Moloney, N., Flender, M., Gower, J., Jackson, N., Kennedy, A. and Shafiq, R.
1998 Wadi Faynan Fourth and Third Millennia Project, 1997: Report of the First Season of Test Excavations at Wadi Faynan 100. *Levant* 30: 33-60.

ḤARRAT AL-JUḤAYRA PSEUDO-SETTLEMENT: A PRELIMINARY REPORT OF THE JAFR BASIN PREHISTORIC PROJECT, 2004

Sumio Fujii

Introduction

As referred to elsewhere in this volume, the other goal of the 2004 summer excavation season of the JBPP/2 (the Jafr Basin Prehistoric Project, Phase 2) was to fill in the chronological gap between the Late Neolithic pseudo-settlement at Qā' Abū Ṭulayḥa West (QATW), the main concern of the JBPP/1 (Fujii 2000, 2001, 2002a, 2003), and the Pre-pottery Neolithic B (PPNB) small settlement at Jabal Juḥayra that was identified during our 2001-2002 winter season survey (Fujii 2002b: 41). Chosen for this issue was Ḥarrat al-Juḥayra Pseudo-settlement (HJ-PS), which had been located during our 2002-2003 winter season survey and tentatively registered as JF-0202. The last three weeks of this season were devoted to the investigation of this site. As a result, it turned out that, techno-typologically, it slightly predates the pseudo-settlement at QATW and, at the same time, probably post-dates the small PPNB settlement at Jabal Juḥayra, thus bridging the chronological hiatus between the two. The following is a brief summary of the investigation of this unique funerary site that holds a key to pastoral nomadization in the al-Jafr basin.

The Site and Site Setting

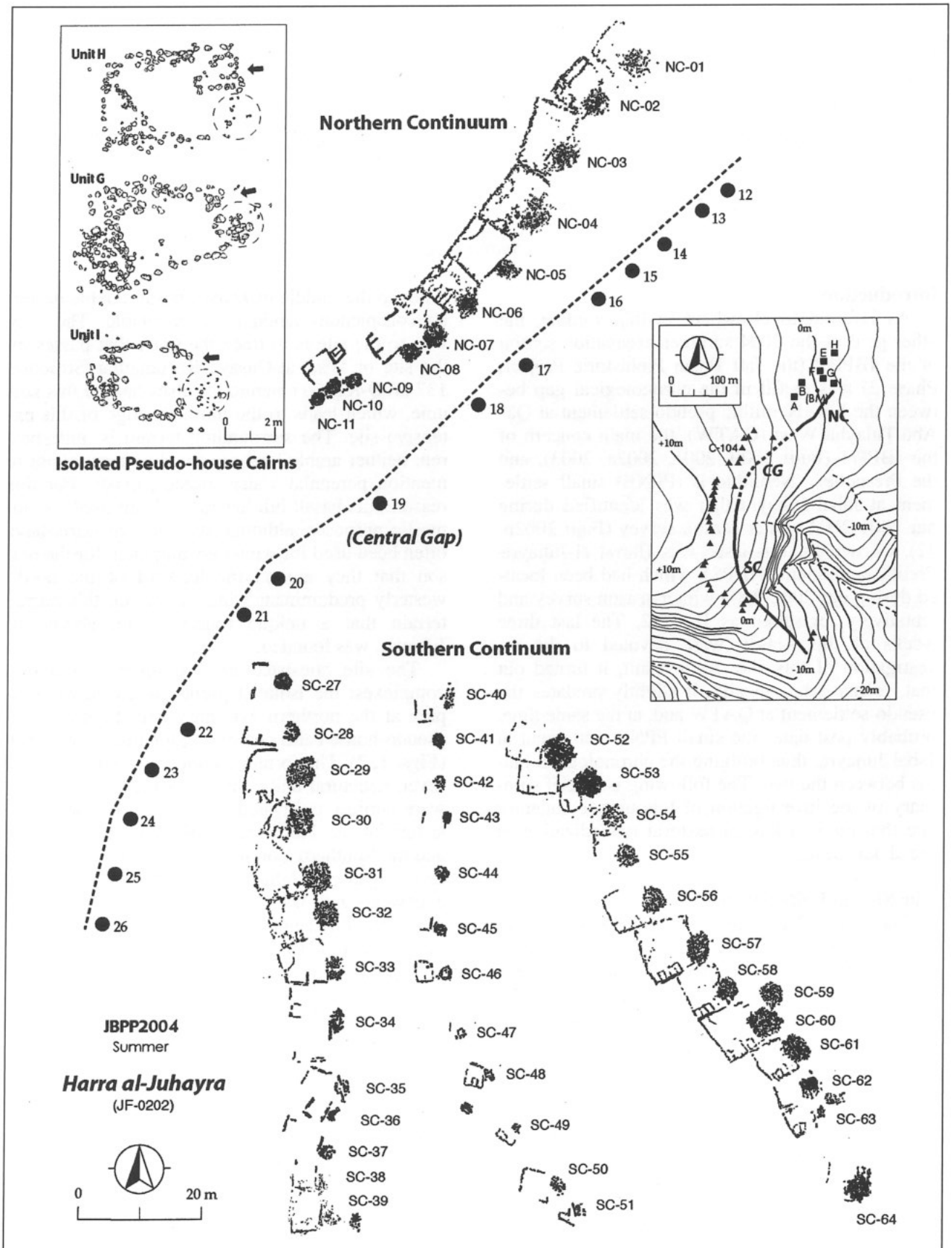
Ḥarrat al-Juḥayra, as a topographical term, refers to a large flat-topped basalt hill that extends eastward from its lava source, Jabal Juḥayra, down to the western bank of Wādī Burma. It has a relative height of ca. 20-50m and covers a wide area ca. 6km (E-W) by ca. 2-3km (N-S), thus forming, together with Ḥarrat al-Burma to the southeast, a natural boundary between Jurf ad-Darāwīsh to the north and al-Ḥusayniyya to the south. Our general surveys thus far conducted have identified a number of stone-built structures on this hill, in its eastern half in particular. Among those is Ḥarrat al-Juḥayra Pseudo-settlement, our present concern.

This site is situated nearly at the southern edge of the basalt hill, overlooking the drainage area of Wādī al-Quṣayr (Fujii this volume: fig. 45). Since it lies in the middle of *Ḥarra*, basalt cobble desert, no conspicuous landmark is available. The only way to the site is to trace the track that passes by the site of Wādī al-Quṣayr Rectangular Structure 137 (WQ-RC137) mentioned elsewhere in this volume, which leads to the northern edge of this extensive site. The surrounding terrain is quite barren; neither arable land nor reliable pasture, not to mention perennial water sources, exists. For this reason, this basalt hill has rarely been used for domestic purposes, although its southern skirts have often been used for winter encampment for the reason that they are on the leeward of the northwesterly predominant wind. It was on this barren terrain that a unique funerary site, Ḥarrat al-Juḥayra, was founded.

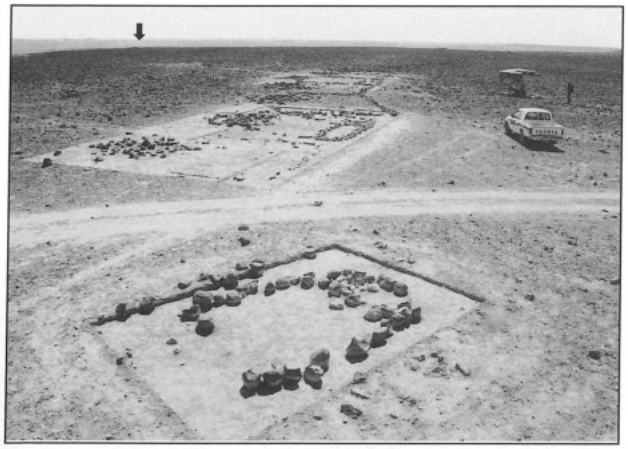
The site consisted of two distinct structural complexes: the isolated pseudo-house cairn complex at the northern extremity and the connected pseudo-house cairn complex extending to the south (**Figs. 1, 2**). The former complex contained at least seven structural units, three of which, Unit G to I, were entirely excavated. The latter complex, consisting of the Northern Continuum ca. 80m long and the Southern Continuum ca. 300m long with a central gap ca. 160m long in between, was partly excavated with the focus on some well-preserved segments. Incidentally, the site also included a series of small, cairn-like stone concentrations to the west, at a distance of ca. 50m from the connected pseudo-house cairn complex. However, since a brief sounding at C-104 revealed that they were not artificial features but, in fact, natural lava rises, they were excluded from the subject of our investigation.

The Isolated Pseudo-House Cairn Complex

The term *pseudo-house cairn* refers to a composite structure that consists of two components: a cairn as a key feature and a pseudo-house as a symbolic annex to it. Interestingly, it is often connected side by side up to forming a long continuum, which seemingly looks like a unique settlement



1. Ḥarrat al-Juḥayra: the site map.



2. Unit I (front) and the Northern Continuum (rear): the general view (from N).

that suddenly appeared in a desert without any substantial contexts. However, since this long structural complex is nothing more than a cumulative picture of pseudo-house cairns that were gradually added over a long time, it is called a pseudo-settlement. The first example of this unique site-form was attested at QATW, where three continua and their subsequent forms were revealed from 1999 to 2002 (Fujii 2000, 2001, 2002a, 2002b). Since then, a few candidates have been found during our general surveys (Fujii 2002c: 41-45), but Ḥarrat al-Juḥayra was the second to be firmly identified and excavated as a pseudo-settlement.

What differentiated these two pseudo-settlements were their components. While the QATW pseudo-settlement comprised of connected pseudo-house cairns only, the Ḥarrat al-Juḥayra pseudo-settlement, as noted above, included isolated pseudo-house cairns as well as connected examples. What we first addressed at this site was these isolated pseudo-house cairns. Our pre-excavation mapping survey had identified twelve examples from Unit A to L, but a later re-examination excluded five of these (Unit C, D, and J-L) because of their ambiguous nature. Thus the remaining seven (Unit A, B, and E-I) were finally plotted on the site map, three of which (Unit G, H, and I) were excavated because of their better preserved state. (Note that the following description will be made in order from north to south, not in the alphabetical order).

Unit H

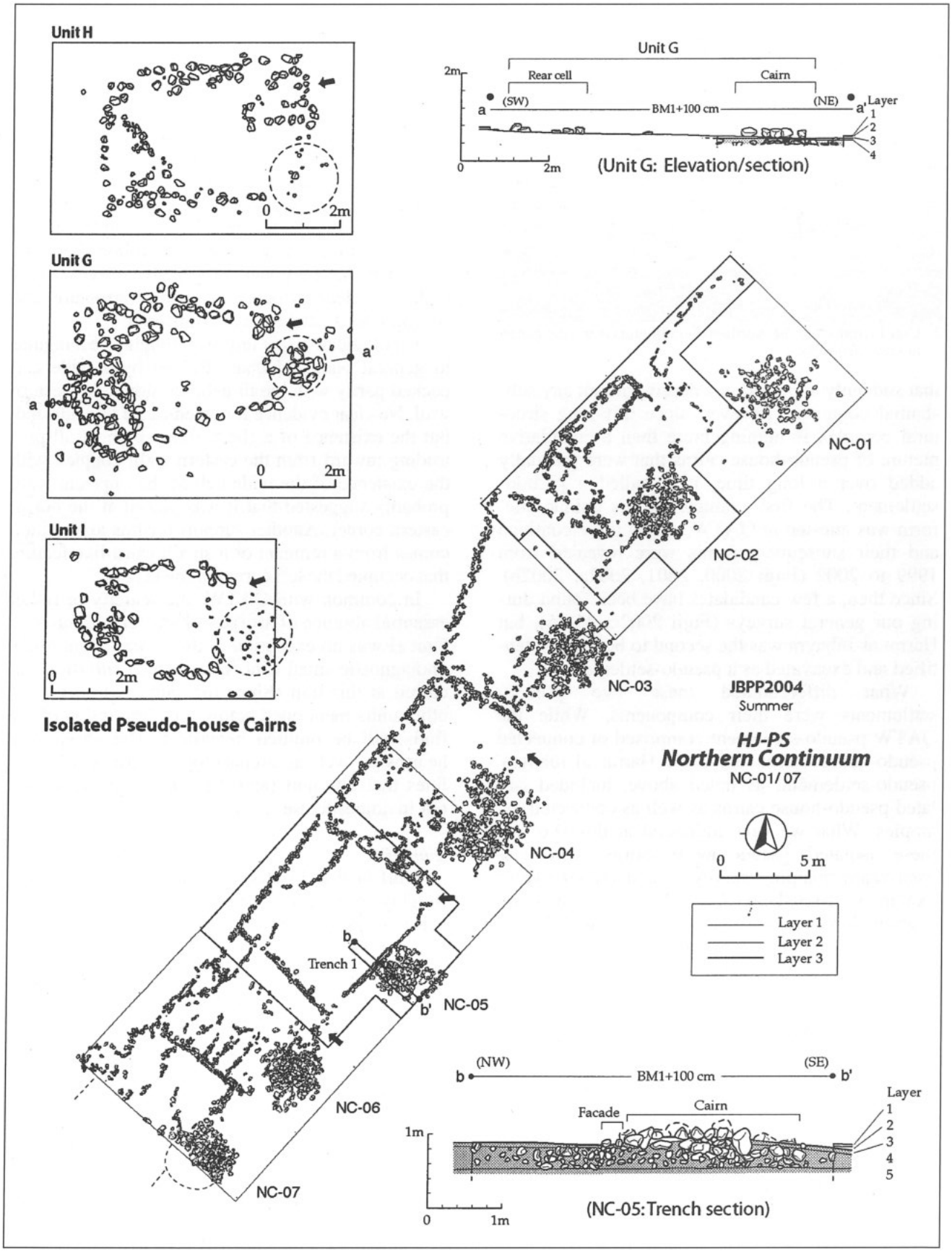
This unit was located at the northern extremity of the site. Reflecting the unique site setting, basalt pebbles and cobbles ca. 20-30cm in maximum length were exclusively used for the construction material. (Unless otherwise stated, the same holds true for the other units mentioned below). The excavation showed that this small structure, measuring ca. 3.5m wide and ca. 5m deep, was built on the upper surface of Layer 3 of the site stratigraphy (**Fig. 3**). (This also applies to the other units). The construction method was very simple; basalt cobbles were simply put horizontally on the ground surface with their longer sides parallel with a wall alignment. Neither foundation trenches nor wall banking was attested. The walls were a single row wide and preserved to single course height, but the volume of fallen stones scattered around the walls suggested that they were originally a few courses high. No clear evidence for upper structure and special floor treatment was confirmed.

Typologically, this unit was roughly rectangular in general plan and characterized by a wide cell packed partly with basalt pebbles along the western wall. No clear evidence for an entrance was attested, but the existence of a short, freestanding wall protruding inward from the eastern wall, coupled with the existence of the wide cell at the opposite wall, probably suggested that it was placed at the north-eastern corner. Another support for this assumption comes from a remnant of a small, cairn-like feature that occupied the left corner of the façade.

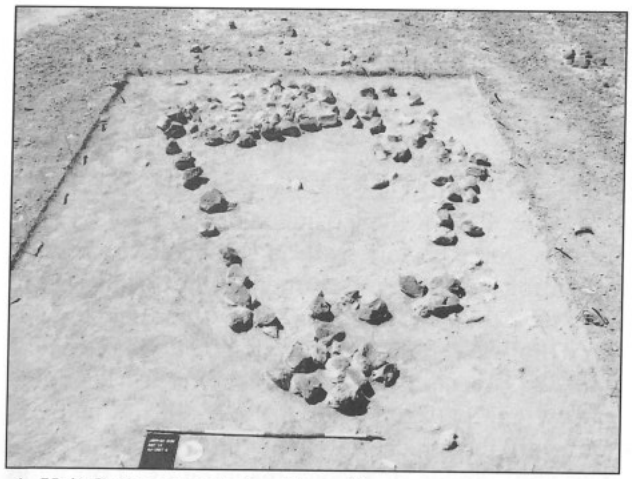
In common with QATW, the scarcity or rather essential absence of artifacts characterized this site. Unit H was no exception to this. Apart from a few undiagnostic small flint flakes, no *in situ* finds occurred at this unit (Since the same is true for the other units mentioned below, the description of the finds will be omitted hereafter). The absence of hearths as well as archaeological artifacts underlines that this unit (and the other units also) was not in domestic use.

Unit G

Unit G was located ca. 50m south of Unit H, roughly in the center of the isolated pseudo-house cairn complex. It had much in common with Unit H, including the stratigraphy, construction material, construction technique, whole size, layout, general orientation, and the contents and arrangement of small features (**Figs. 3, 4**). It is obvious that this unit was constructed following the same standards as Unit H. What most interested us was the nature of a cairn-like stone concentration attached to the left corner of the façade. A test trench across this small feature revealed that it was not an artificial structure but, in fact, a small natural lava rise. It follows that this natural lava rise was likened to a small cairn, the key feature to which a pseudo-house should be annexed. The incorporation of such a natural lava rise into a façade as substitute for a cairn was the norm of pseudo-house cairns in



3. The isolated pseudo-house cairn complex and the Northern Continuum: the plan and section/elevation.



4. Unit G: the general view (from E).

this site, as further evidenced by the other two examples referred to below.

Unit I

This unit, lying ca. 10m southeast of Unit G, can be understood as a smaller version of Unit G and H (**Fig. 3**). No special comment is needed, except that, here again, a wide, pebble-packed cell and a small, cairn-likened, natural lava rise were incorporated into the rear wall and the left corner of the façade, respectively.

The Other Units

Our surface observations suggested that the other four units shared the common traits noted above. There is little doubt that these seven units formed a homogeneous complex. What was noteworthy was that five of these (Unit H, E, F, G, and I, to enumerate from north to south) were arranged in a gentle curve as if they would join the Northern Continuum ca. 20m away to the south. This, along with the stratigraphical simultaneity and typological continuity between the two, strongly suggests that the formation of this site began with the isolated pseudo-house cairns at the northern extremity and, then, was succeeded by the Northern Continuum. Another support for this assumption comes from the gradual decrease in interval between any two examples of the isolated pseudo-house cairns and the gradual southeastward shift in general orientation from Unit H to the first few units of the Northern Continuum. As will be referred to below, the construction order evidenced by the wall-sharing relation between any two units of the connected pseudo-house cairns — NC-04 and NC–05, for example — is also in favor of this intra-site chronology.

The Nothern Continuum

To the south of this isolated pseudo-house cairn complex, an elongated complex of connected pseudo-house cairns stretched intermittently for ca. 550m with the orientation first from NE to SW, then from N to S, and finally from NW to SE. Since the identification of a pseudo-house was often difficult due to the rugged ground surface of *Ḥarra*, we noticed more conspicuous components (namely, cairn-like stone concentrations) and gave them serial numbers in order from north to south. The following description will be based on these serial numbers. Thus, when we refer to a pseudo-house attached to the cairn-like stone concentration No. 01, for example, we call it the pseudo-house 01. When we refer to both of these two features as a composite structure, we call it Unit 01 or NC-01 (i.e. Unit 01 in the Northern Continuum). When we refer to continuous units from Unit 01 to 03, for example, we use the term Segment 01-03 or Units 01-03.

Following this designation system, the long body of connected pseudo-house cairns was divided into the following three major segments: 1) the Northern Continuum ca. 80m long that consisted of ten units from Unit 01 to Unit 10; 2) the Southern Continuum ca. 300m long that comprised a total of thirty-eight units from Unit 27 to Unit 64, 3) the Central Gap ca. 160m long that intervened between the two. As a matter of course, our investigation was focused on the two continua, where the following five sorts of operations were conducted depending on the preservation state of each unit: full excavation and drawing, partial excavation and drawing, full surface-cleaning and drawing, partial surface-cleaning and drawing, and partial surface-cleaning and sketching. The first operation (i.e. full excavation and drawing) was applied to the four units containing NC-02, NC-05, SC-39, and SC-58. The second operation (i.e. partial excavation and drawing) was conducted at NC-01, NC-03, NC-04, NC-06, SC-38, SC-57, and SC-59. The other units, about forty in total number, were treated with any of the third to fifth operation.

With respect to the Northern Continuum, our investigation was focused on the first seven units and two of these, Unit 02 and -05, were entirely excavated in conjunction with some walls of adjacent units. The excavation showed that both of these were built on the upper surface of Layer 3 and, therefore, stratigraphically coeval with the isolated pseudo-house cairns to the north.

Unit 01

Since this unit was poorly preserved, it was partly excavated around the rear and left walls. The excavation showed that it was a relatively small, rectangular structure ca. 7m wide and ca. 5m deep

(**Figs. 3, 5**). Unlike isolated pseudo-house cairns and the other units in this continuum, flint slabs were used for the main construction material of the walls. They were simply put upright in two rows and no clear evidence for foundation trenches and banks was confirmed. An interrupted wall alignment at the rear left corner hinted at the existence of a wide, rectangular cell. This, along with the incorporation of a small cairn-like stone concentration into the façade, pointed to the typological continuation from isolated pseudo-house cairns to the north.

Unit 02

The full excavation showed that this unit, ca. 6-7m wide and ca. 5m deep, could be regarded as a better-preserved version of Unit 01. Here again, a wide cell and a small cairn-like stone concentration were found along the rear wall and near the left corner of the façade, respectively (**Figs. 3, 5**). Unlike isolated pseudo-houses cairns, the rear cell was empty and not packed with pebbles. In addition to these traditional components, a smaller cell was attested along the left wall, another minor typological change from isolated pseudo-house cairns (Of relevance is the second interrupted wall alignment at the rear left corner of Unit 01, which may indicate the existence of a similar cell). The walls of this unit were composed with two-rowed basalt cobbles simply put horizontally on the ground surface, a construction technique that will long be inherited to subsequent units.

This unit, though classified into connected pseudo-house cairns for convenience, was not directly connected with the preceding unit and an interval of ca. 1.5m still intervened between the two. This discontinuity probably means that both of these units did not fully break away from the tradition of isolated pseudo-house cairns. This, in turn, suggests that the Northern Continuum began with these units and then developed southwestward.

Unit 03

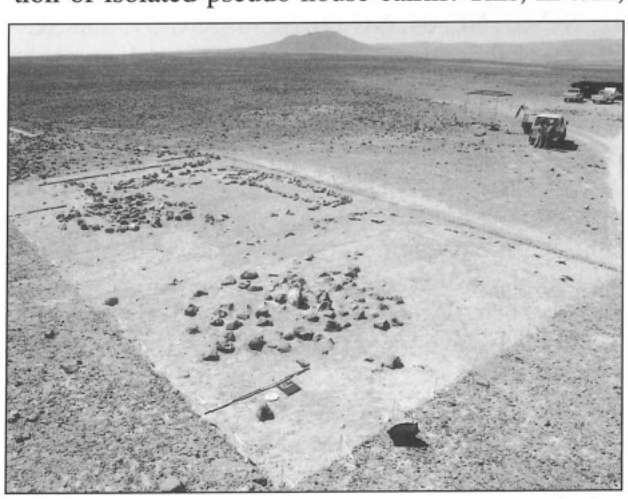
Since this unit was only partly excavated in conjunction with Unit 02, the particulars were unknown except for the existence of a short wall protruding from the left wall and a small stone concentration near the left corner of the façade (**Fig. 3**). Nevertheless, the following two phenomena were noticed. First, it was diagonally connected with the preceding unit, thus leaving a triangular, narrow gap between the two. Second, in comparison with the preceding two units, it became remarkably longer sideways, reaching ca. 11m wide (The reason for these two phenomena will be clarified at Unit 05 mentioned below).

Unit 04

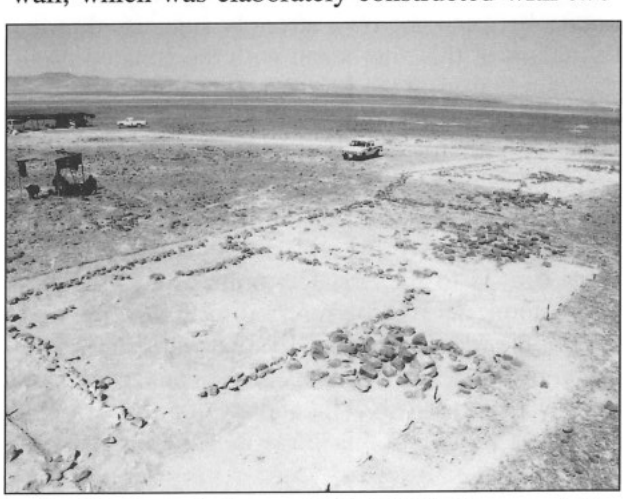
This unit shared common traits with Unit 03, forming twin units. What distinguished this unit was the joint method to the preceding unit, which was diagonal here again but opened toward the opposite direction (**Figs. 3, 6**). Another difference, which might be related to the difference in preservation state, was the existence of a wide cell and a few smaller cells along the rear and left walls, respectively. In addition, a narrow entrance flanked with a short windbreak wall on one side was attested at the right corner of the façade, a typological affinity with pseudo-house cairns at QATW (Fujii 2001: fig. 2, 3, 5, 2004: 54-57).

Unit 05

Unit 05, measuring ca. 9m wide and ca. 8m deep, is the best construction in this continuum (**Figs. 3, 6**). This is especially true of the façade wall, which was elaborately constructed with two-



5. The Northern Continuum (Units 01-03): the general view (from NE).



6. The Northern Continuum (Units 01-05): the general view (from S).

rowed upright basalt slabs. In common with the preceding unit, a narrow entrance flanked with a short windbreak wall on one side was attested at the right corner of the façade.

Three points should be noticed about this unit, the first point is that, unlike the preceding four units, it substituted the left wall of the preceding unit for its own right wall, thus leaving no gap between the two. This is important in that it provides another line of evidence for the southward development of this elongated site. It is the repetition of such conformable connection that led to the formation of a long continuum.

The next point is concerned with a minor yet very significant change in indoor space division. The wide cell along the rear wall was reduced by half in width, thus falling into a small feature around the rear right corner. This northeastward retreat of the rear cell created ample space for the smaller cells to shift up to the rear left corner, a standard layout that will long be inherited down to the last unit of the southern continuum. A sign of this typological change was recognized at Unit 04, but the reduced cell still stuck to the middle range of the rear wall and, for this reason, impeded the backward shift of the smaller cells.

The third point is related to the geological background of the cairn-like stone concentration along the façade. A 5m long test trench across this small feature revealed that, as was the case with Unit G mentioned above, it derived, in fact, from a natural lava rise (**Fig. 7**). It is therefore evident that natural lava rises dotted in this site were likened to core features to which a pseudo-house should be annexed, although it might have happened that additional cobbles were piled up over an original lave rise to make it more conspicuous. In either case, we may conclude that the location of a lava rise determined that of a pseudo-house and not the reverse. This enables us to reasonably understand the typological dichotomy of pseudo-house cairns in this site. The scattered condition of relevant lava rises in the northern extremity of the site was, most likely, responsible for the formation of isolated pseudo-house cairns there. Likewise, the linear, intermittent arrangement of relevant lava rises, most likely, led to the development of connected pseudo-house cairns to the south.



7. Unit 05: the trench across the façade and the cairn-likened natural lava rise (from SW).

A series of odd phenomena noted in connection with Unit 03 can also best be understood within this framework. First, we can conclude that the abrupt increase in width at Unit 03 and Unit 04 was not an intentional device but a natural consequence of the increase in interval of relevant lava rises. We may also conclude that both the coexistence of units with various width/depth ratio within a single continuum and the fluctuation of the relative position of a cairn-likened stone concentration along a façade were the last resort to cope with the inconsistency of the interval of relevant lava rises. Likewise, the unconformable connection between Unit 02 and Unit 03, on one hand, and Unit 03 and 04, on the other, can be regarded as a logical consequence of a slight refraction of the developing axis of relevant lava rises. All these highlight the fact that the formation of this continuum went through a continual series of trials and errors to cope with the irregularities of core features.

Unit 06

This unit is another masterpiece and can be regarded as a smaller yet more refined version of Unit 05. Needless to say, the width reduction of this unit was due to the decrease in interval of relevant lava rises. Conformable connection, which began with the joint between Unit 04 and Unit 05, was inherited to this unit also, leading to the formation of an elegant segment. Another innovation — the rightward retreat of the rear cell and the establishment of plural smaller cells along the left wall — was also succeeded here. A narrow entrance was found at the right corner of the façade, another similarity to the preceding unit.

Unit 07

This unit was surface-cleaned and drawn focusing merely on the northeastern half. No special comment is needed, except that the conformable connection with the preceding unit was recognized here again, and that the minor refraction of the developing axis of relevant lava rises necessitated the slight setback of the façade.

Unit 08 to 10

Since these three units were poorly preserved, they were merely sketched after partial surface-cleaning. This brief operation revealed, however, that further retreat of relevant lava rises caused the gradual setback of rear walls as well as façades. Of further interest is the fact that the lava rise No. 11 was left isolated. This is probably because it was too near to the preceding lava rise to be utilized as a core feature for the attachment of a pseudo-house. This provides another line of evidence that the position and interval of relevant lava rises held the key to the formation of a pseudo-settlement.

The Central Gap

A long blank began with the lava rise No. 11 mentioned above. No clear evidence for pseudo-houses was confirmed for ca. 160m until one reached SC-27, the first unit of the Southern Continuum. The reason why two dozens natural lava rises in this segment were left unutilized for a core feature is still unknown, but one plausible explanation is that the interruption at the lava rise No. 11, along with too long intervals in the middle range of this segment, led to the relinquishment of further extension of the Northern Continuum. The scarcity and poor quality of construction material around this segment may also have contributed to the formation of this long blank. In either case, it is our present observation that the construction of connected pseudo-house cairns was skipped for ca. 160m and resumed with SC-27 (It should be kept in mind, however, that the rugged ground surface of Ḥarra often made the identification of a pseudo-house difficult. Thus, the possibility cannot fully be ruled out that less conspicuous units still remain to be confirmed in this long gap, at both ends in particular).

The Southern Continuum

The Southern Continuum contained about three dozens units from Unit 27 to Unit 64. Starting with the highest elevation point of the site and, first, running roughly in parallel with contour lines and, in the latter half, following the southeastern ridge, it stretched for ca. 300m without any substantial interruption. This continuum, especially its southernmost segment, was characterized by the exclusive use of small, relatively angular flint slabs for construction material, which made the overall appearance clearer in comparison with the Northern Continuum. Our investigation was focused on the following three relatively well-preserved segments: Segment 29-33, 38-39, and 52-64. The other units and segments were drawn or sketched after partial surface-cleaning.

Unit 27 and Unit 28

These two units marked the beginning of this long continuum, but what the surface cleaning revealed was limited to some interrupted wall alignments and two cairn-likened stone concentrations. Nothing noticeable was found, except for a small cell at the rear left corner of Unit 28.

Unit 29 to Unit 33

The surface cleaning showed that this segment consisted of five units of various size and form (**Fig. 8**). Of interest were Unit 30 and Unit 31, both of which were nonstandard either in overall size or general plan. However, the next two units recovered standards in both aspects, being equipped with a larger cell at the rear right corner and a few smaller cells at the rear left corner.

Unit 34 to Unit 37

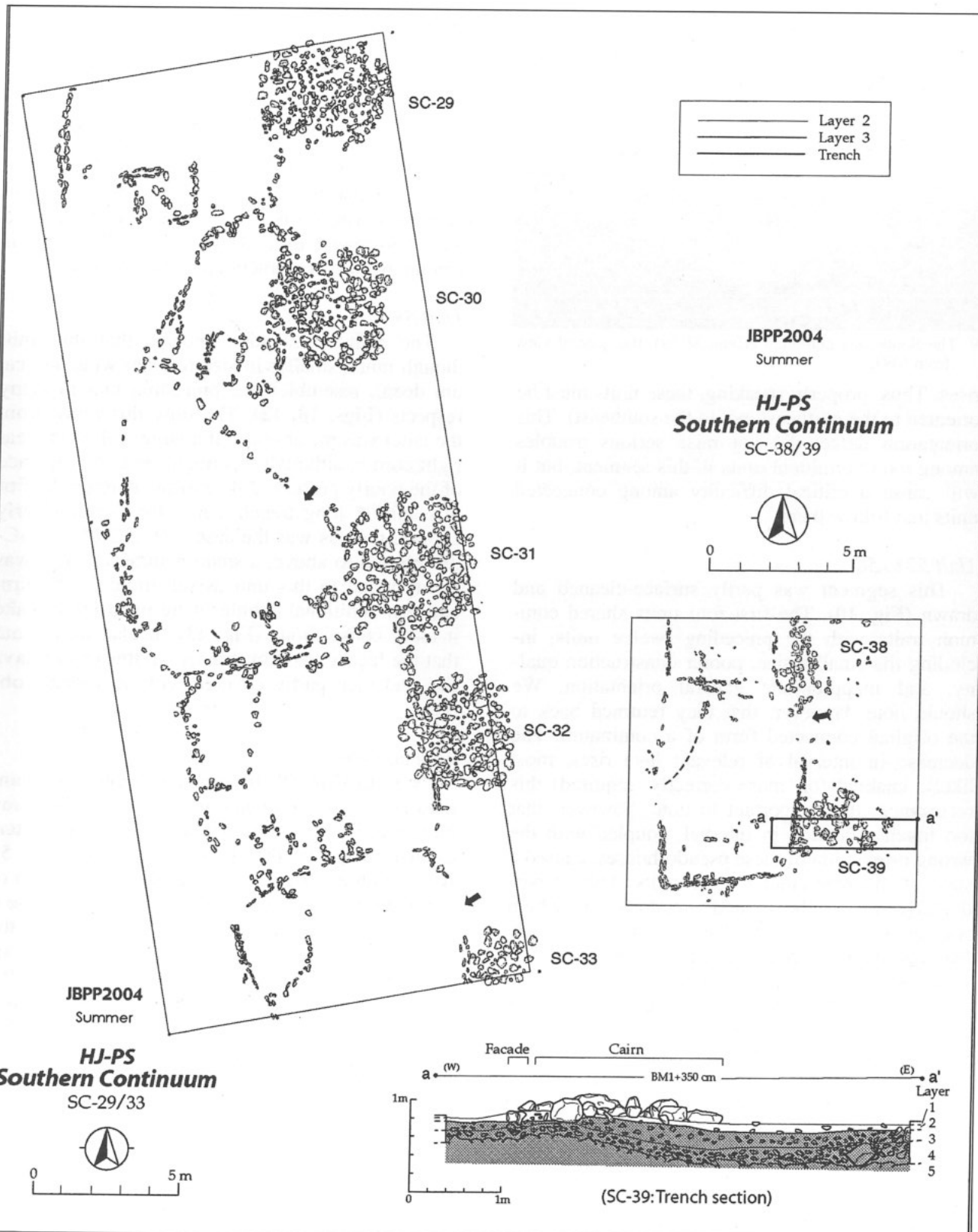
Because of their poor preservation state, these four units were merely sketched after partial surface-cleaning. No special comment is needed, except that, here again, the slight refraction of the developing axis of relevant lava rises caused unconformable connection at both sides of Unit 35.

Unit 38 and Unit 39

Unit 39, measuring ca. 6-7m wide and ca. 5m deep, was entirely excavated in conjunction with the southern half of Unit 38 (**Figs. 8, 9**). The excavation showed that, following the norm of connected pseudo-house cairns in this site, it (and, probably, Unit 39 also) was equipped with a larger cell at the rear right corner, a few smaller cells at the rear left corner, a narrow entrance at the right corner of the façade, and a cairn-likened stone concentration at the left corner of the façade, respectively. A 5m long trench across the façade revealed that, here again, a natural lava rise was incorporated into the façade as substitute for a cairn.

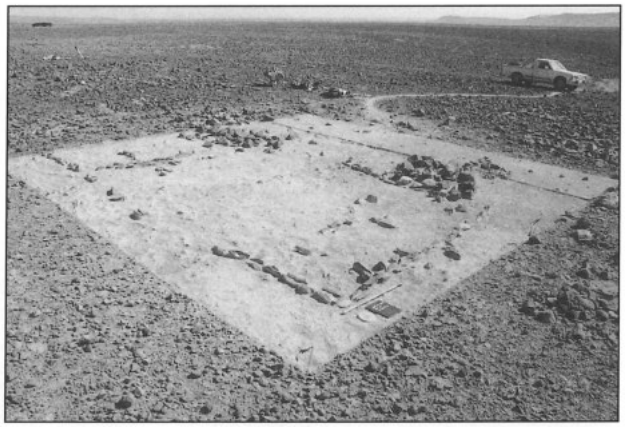
Unit 40 to 51

This segment, containing a dozen units, was only sketched after partial surface-cleaning (**Fig. 1**). What characterized these units were their smaller size, poorer construction quality, and intermittent arrangement, all of which can be understood as a natural consequence of the smaller, less conspicuous, sporadic nature of relevant lava rises. It is noteworthy, however, that, despite these difficulties, a few units including Unit 48 kept the standard layout. Of further significance was the general orientation of the last several units, which



8. The Southern Continuum (Units 29-33, 38-39): the plan and section/elevation.

failed to cope with the southeastward refraction of the developing axis of relevant lava rises, still facing to the east or, wrongly, even to the southeast (For the smooth development of a continuum, it is necessary for every unit to be placed roughly perpendicular to the developing axis of relevant lava



9. The Southern Continuum (Units 38-39): the general view (from SW).

rises. Thus, properly speaking, these units must be oriented to the northeast, not to the southeast). This orientation defect did not raise serious troubles among the intermittent units in this segment, but it will cause a critical difficulty among connected units that follow them.

Unit 52 to 56

This segment was partly surface-cleaned and drawn (**Fig. 10**). The first four units shared common traits with the preceding twelve units, including the smaller size, poorer construction quality, and inappropriate general orientation. We should note, however, that they returned back to the original connected form of a continuum. The decrease in interval of relevant lava rises, most likely, enabled (or, more correctly, required) this recurrence. It is important to note, however, that too much reduction in interval, coupled with the wrong orientation of these pseudo-houses, caused a state of disorder among these units. This is particularly true of the second pseudo-house, which was constructed independently without any key features. Another trouble can be found in Unit 53, which was not only deviated from nonstandard size but was also built abutting the façade, instead of the side wall, of the preceding defective pseudo-house. It was Unit 56 that finally settled these problems by means of a fresh start at a distance of ca. 4m from the preceding unit and, at the same time, the orientation change from the east to the northeast. With this unit being a turning point, next some units recovered the standards to form the best segment in this continuum. It is needless to say that the ideal interval and straight development of relevant lava rises also contributed to the appearance of this clear-cut segment.

Unit 57

The limited excavation revealed that this unit, measuring ca. 8m wide and ca. 9m deep, was equipped with a larger cell and plural smaller cells at the rear right corner and the rear left corner, respectively (**Figs. 10, 11**). We may therefore conclude that the standard layout, which began with NC-05, continued to be kept down to this unit. As suggested above, this unit owed its standard size and layout partly to the ideal interval of relevant lava rises. The walls were elaborately constructed with two-rowed upright flint slabs. This unit is among the best constructions in the whole site.

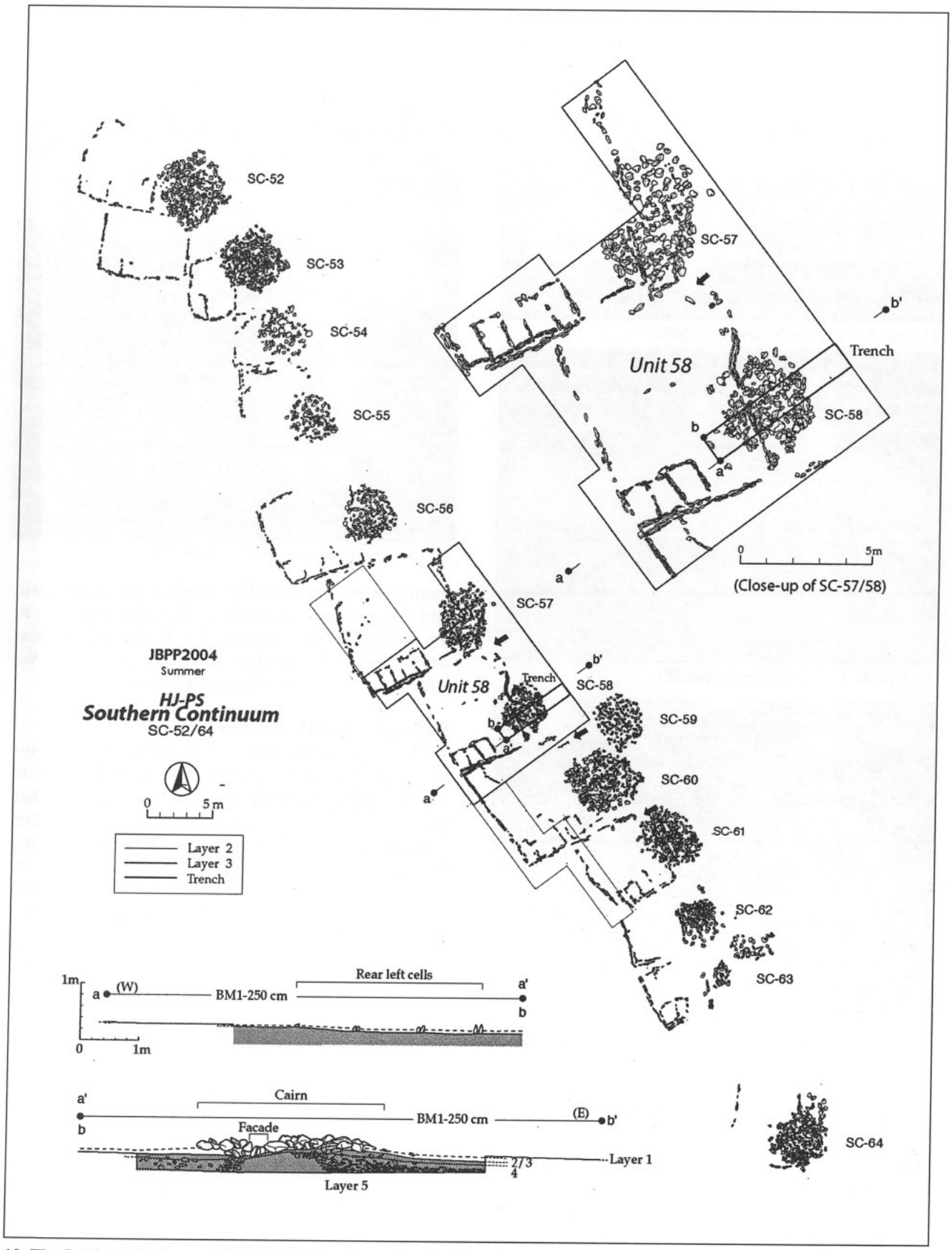
Unit 58

The entire excavation showed that this unit, though much smaller in size (ca. 8m wide and ca. 6m deep), resembled the preceding unit in many respects (**Figs. 10, 12**). The only difference from the latter was the absence of a larger cell at the rear right corner, although this might be a consequence of the poorly preserved state of the northern half of this unit. A long trench across the façade clearly showed that, as was the case with NC-05 and SC-39 referred to above, a small natural lava rise was incorporated to this unit as substitute for a cairn, and that additional cobbles were piled up to make it more conspicuous (**Fig. 13**). It also turned out that the façade was constructed on this natural lava rise and then partly covered with additional cobbles.

Unit 60 to 64

Next to Unit 58, four smaller units with standard layout still continued for ca. 25m without any clear interruption (**Figs. 10, 14**). What most interested us was that the stone concentration No. 59 was left unutilized as a core for the construction of a pseudo-house. This happened probably because it was too close to the adjacent lava rises and, at the same time, slightly offset from the developing axis of lava rises. We can reaffirm our recognition that the disturbance of interval between any two lava rises, whether too long (as seen at the Central Gap) or too short (as seen here and at the stone concentration No. 11), impeded the smooth development of a continuum. It is for this reason that Unit 60, skipping this offset lava rise, was constructed relying on the next lava rise.

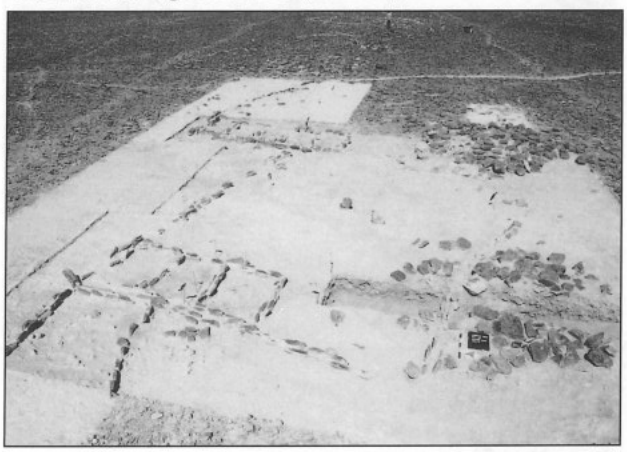
Another problem arose among the subsequent three units. Further decrease in interval of relevant lava rises and the slight refraction of their developing axis brought about the size reduction and unconformable connection among them. The less conspicuous nature of the relevant lava rises also caused the deterioration in their construction quality. Nonetheless, while natural lava rises continue



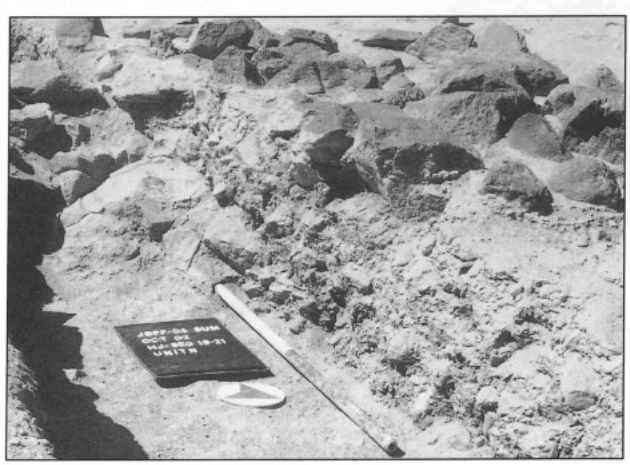
10. The Southern Continuum (Units 52-64): the plan and section/elevation.



11. Unit 57: the general view (from NE).



12. Unit 58: the general view (from SE).



13. Unit 58: the close-up view of the cairn-likened natural lava rise (from E).

to appear above soil, they are less blamable. Eventually, their exposure ended with Unit 64, resulting in the termination of this long continuum.

The Finds

In common with QATW, Ḥarrat al-Juḥayra was characterized by the scarcity of finds. To date, no datable *in situ* finds have been found. To make



14. Unit 57-60: the general view (from SE).

matters worse, no reliable material for radiometric dating have been recovered. Thus the only key to the dating of this unique site is the typological comparisons of structural remains with QATW, which will be briefly discussed below.

Summary and Discussion

As was mentioned at the beginning, our investigation at Ḥarrat al-Juḥayra aimed at filling in the chronological blank between the Late Neolithic pseudo-settlement at QATW and a small PPNB settlement at Jabal Juḥayra. It appears that this goal has almost been achieved. In conclusion, the investigation results will be summarized and, on this base, a brief discussion will be made about the relative chronology of these three sites.

The starting point is our observations that the key to the formation of this unique funerary site lies in the utilization of natural lava rises for pseudo-cairns to which a pseudo-house should be annexed. What is important is that these lava rises varied in arrangement from place to place within the site. They were scattered at the northern extremity, whereas roughly aligned to the south. This geological background enabled us to reasonably understand the locational dichotomy between the isolated pseudo-house cairns and the connected examples. With respect to the construction order between the two, a line of evidence — the typological development from a simple to more complex

layout, the gradual shift from isolated arrangement, through unconformable connection, to conformable connection, and the way of wall-sharing between any two connected units — clearly showed that the formation of this site began with the isolated pseudo-house cairns at the northern extremity and then was succeeded southward to the connected pseudo-house cairns. For the same reason, we may also conclude that, within the latter entity, the Northern Continuum was followed by the Southern Continuum, with the Central Gap in between. The southward development also holds true for the construction order of plural units within a continuum. To summarize, this elongated site was gradually developed from north to south.

Typologically, this pseudo-settlement consisted of the following three types of pseudo-house cairn: to list from north to south, namely, from earlier to later examples in the intra-site chronology, 1) smaller, isolated pseudo-house cairns equipped simply with a wide cell along the rear wall, which were concentrated on the northern fringe of the site; 2) larger, generally connected pseudo-house cairns equipped simply with a wide cell along the rear wall, which were seen from NC-01 to NC-04, 3) larger, generally connected pseudo-house cairns equipped with both a wide yet much deteriorated cell at the rear right corner and plural smaller cells at the rear left corner, which were the norm from NC-05 down to the last unit of the Southern Continuum. There is little doubt that Ḥarrat al-Juḥayra pseudo-settlement was formed following this typological transition.

The question is the chronological correlation between the Ḥarrat al-Juḥayra and QATW pseudo-settlements. However, no clear equivalents to Ḥarrat al-Juḥayra pseudo-house cairns can be found at QATW, where every unit was conformably connected with each other and, more importantly, equipped merely with a few smaller cells at the rear left corner (Fujii 2001: fig. 2). This probably means that QATW was slightly posterior to HJ-PS in both typology and chronology. Suggestive in this regard is the last several units of Ḥarrat al-Juḥayra, which can be regarded as a proto-type of QATW pseudo-house cairns. Of further significance is the existence of a small bank at the rear right corner of the first few units at QATW (i.e. Unit B and Unit C in the Northern Continuum; Fujii 2001: fig. 3), which are most likely remnants of a rear right cell that was the norm of later units at Ḥarrat al-Juḥayra. From these observations, we can conclude that Ḥarrat al-Juḥayra pseudo-settlement slightly antedated QATW and, therefore, can be assigned to the earlier half of the Late Neolithic or a little earlier.

Integrating the suggested date of Jabal Juḥayra (Fujii 2002b: 41) and published information of the Wādī Faynān Neolithic sites (Najjar 1994; Barker 2000: 69-71; Finlayson *et al.* 2000; Mithen *et al.* 2000; Simmons and Najjar 1998, 2003) into this chronological perspective, and, at the same time, referring to some recent syntheses about the origin of the pastoral nomadism in southern Levant (Köhler-Rollefson 1992; Cauvin 1994: 247-259; Garrard *et al.* 1996; Betts 2001; Rosen 2002), an overall picture of pastoral nomadization in the al-Jafr Basin, though still vaguely, will come into sight. Current evidence suggests that initial agro-pastoral settlements from PPNA to Middle PPNB were established first in the Jordan valley, the Wādī Faynān area in this case, and then, at least by the end of the Late PPNB horizon, expanded beyond the watershed up to the Transjordan plateau including the Jabal Juḥayra area. What is important is that the Jabal Juḥayra PPNB settlement appears to be small in site size (ca. 0.5ha), less sedentary in settlement pattern (ca. 0.5m in thickness of a soil deposit), and isolated in site location. This means, most likely, that it was at best a summer pastoral camp derived from a cis-watershed parent settlement. Given this, it follows that an incipient pastoral group at this summer camp soon, probably in the PPNC or Late Neolithic horizon, embarked on the road to pastoral nomadization. What triggered off this gradual transition seems to be the eastward extension of grazing area from the Wādī al-Quṣayr drainage basin encompassing Jabal Juḥayra toward the al-Jafr basin. In this regard, it is highly suggestive that Ḥarrat al-Juḥayra pseudo-settlement, a symbolic cemetery for the initial pastoral nomads, was founded at a point commanding the Wādī al-Quṣayr catchment area. Given the relative chronology suggested above, we may also hypothesize that they further infiltrated the desert fringe by the latter half of the Late Neolithic and founded the second cemetery at QATW. Of relevance is the existence of some PPNB outposts in the al-Jafr Basin, including WBn-TU102 (Fujii in this volume), JF-0106 (Tal'at Abū Ṭulayḥa), JF-0155 (Wādī Abū Ṭulayḥa), and QATW Square N-VI (Fujii 2005). Such task-specific land use at the desert fringe might also have paved the way for the pastoral nomadization in the subsequent periods.

Concluding Remarks

The investigation at Ḥarrat al-Juḥayra pseudo-settlement turned out just as we had expected. There is little doubt that this site fills in partially, if not completely, the chronological hiatus between

the Late Neolithic Pseudo-settlement at QATW and a small PPNB settlement at Jabal Juḥayra. We have now obtained a reliable base to trace the pastoral nomadization in the al-Jafr Basin. The next issue is to explore the reason how and why some PPNB agro-pastoral groups finally shifted to pastoral nomadism in the desert fringe. A series of investigation at Jabal Juḥayra (JF-0116) and Wādī Abū Ṭulayḥa (JF-0155) is scheduled for the next several seasons (For acknowledgements, see the other report in this volume).

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Bibliography

Barker, G.
2000 Farmers, Herders and Miners in the Wadi Faynan, Southern Jordan: A 10,000-year Landscape Archaeology. Pp. 63-85 in G. Barker, and D. Gilbertson (eds.), *The Archaeology of Drylands.*

Betts, A.
2001 Pastoralism. Pp. 615-619 in B. MacDonald, R. Adams and P. Bienkowski (eds.), *The Archeaology of Jordan.* Sheffield: Sheffield Academic Press.

Cauvin, J.
1994 *Naissance des Divinités Naissance de l'Agriculture.* Lyon: CNRS Editions.

Finlayson, B., Mithen, S., Carruthers, D., Kennedy, A., Pirie, A. and Tipping, R.
2000 The Dana-Faynan-Ghuwayr Early Prehistoric Project. *Levant* 32: 1-26.

Fujii, S.
2000 Qa' Abu Tulayha West: An Interim Report of the 1999 Season. *ADAJ* 44: 149-171.
2001 Qa' Abu Tulayha West, 2000: An Interim Report of the Fourth Season. *ADAJ* 45: 19-37.
2002a Qa' Abu Tulayha West, 2001: An Interim Report of the Fifth Season. *ADAJ* 46: 15-39.
2002b The Pseudo-Settlement Hypothesis: Evidence from Qa' Abu Tulayha West, Southern Jordan. *Archaeozoology of the Near East* 5: 183-196.
2002c A Brief Note of the 2001-2002 Winter Season Survey of the Jafr Basin, Southern Jordan. *ADAJ* 46: 41-49.
2003 Qā' Abū Ṭulayḥa West, 2002: An Interim Report of the Sixth and Final Season. *ADAJ* 47: 195-223.
2004 Windbreak Walls and Devices in the Neolithic Near East. *Journal of West Asian Archaeology* 5: 53-78 (in Japanese with English summary).
2005 Some PPNB outposts in the al-Jafr basin, southern Jordan (in preparation).

Garrard, A., Colledge, S. and Martin, L.
1996 The Emergence of Crop Cultivation and Caprine Herding in the "Marginal Zone" of the Southern Levant. Pp. 204-226 in D.R. Harris (ed.), *The Origins and Spread of Agriculture and Pastoralism in Eurasia.* London: UCL Press.

Köhler-Rollefson, I.
1992 A Model for the Development of Nomadic Pastoralism on Transjordanian Plateau. Pp. 11-18 in O. Bar-Yoser and A. Khazanov (eds.), *Pastoralism in the Levant.* Madison, Wisconsin: Prehistory Press.

Mithen, S., Finlayson, B., Pirie, A., Carruthers, D. and Kennedy, A.
1999 New Evidence for Economic and Technological Diversity in Pre-Pottery Neolithic A: Wadi Faynan 16. *Current Anthropology* 41/4: 655-663.

Najjar, M.
1994 Ghwair I, a Neolithic Site in Wadi Feinan. *The Near East in Antiquity* 4: 75-85.

Rosen, S.
2002 The Evolution of Pastoral Nomadic Systems in the Southern Levantine Periphery. Pp. 23-44 in E.C.M. van den Brink and E. Yannai (eds.), *In quest of Ancient Settlements and Landscapes.* Tel Aviv: Ramot Publishing.

Simmons, A.H. and Najjar, M.
1998 Al-Ghuwayr I, A Pre-Pottery Neolithic Village in Wadi Faynan, Southern Jordan: A preliminary Report of the 1996 and 1997/98 Seasons. *ADAJ* 42: 91-101.
2005 Al-Ghuwayr I, A Pre-Pottery Neolithic Village B Settlement in Southern Jordan: Report of the 1996-200 Campaigns. *ADAJ* 47: 407-430.

THE INTERNATIONAL WĀDĪ FARASA PROJECT (IWFP) PRELIMINARY REPORT ON THE 2004 SEASON

Stephan G. Schmid

I. Introduction and Acknowledgments

The field season 2004 of the International Wādī Farasa Project (IWFP) lasted from August 22nd to September 16th. The IWFP 2004 was carried out by the Association for the Understanding of Ancient Cultures (AUAC: www.iwfp.ch.vu), based in Basel (Switzerland) and the Palestine Exploration Fund (PEF, London: www.pef.org.uk), generously sponsored by Ghadeer Mineral Waters, a Nestlé Waters Company, and the University of Montpellier III (France). We would like to thank the director general of the Department of Antiquities, Dr. Fawwaz Al-Khraysheh, for his support and for granting the working permit as well as Dr. Fawzi Zayadine (Amman), Prof. David Graf (Miami) and Dr. Bernhard Kolb (Basel) for their continuous interest in the project.

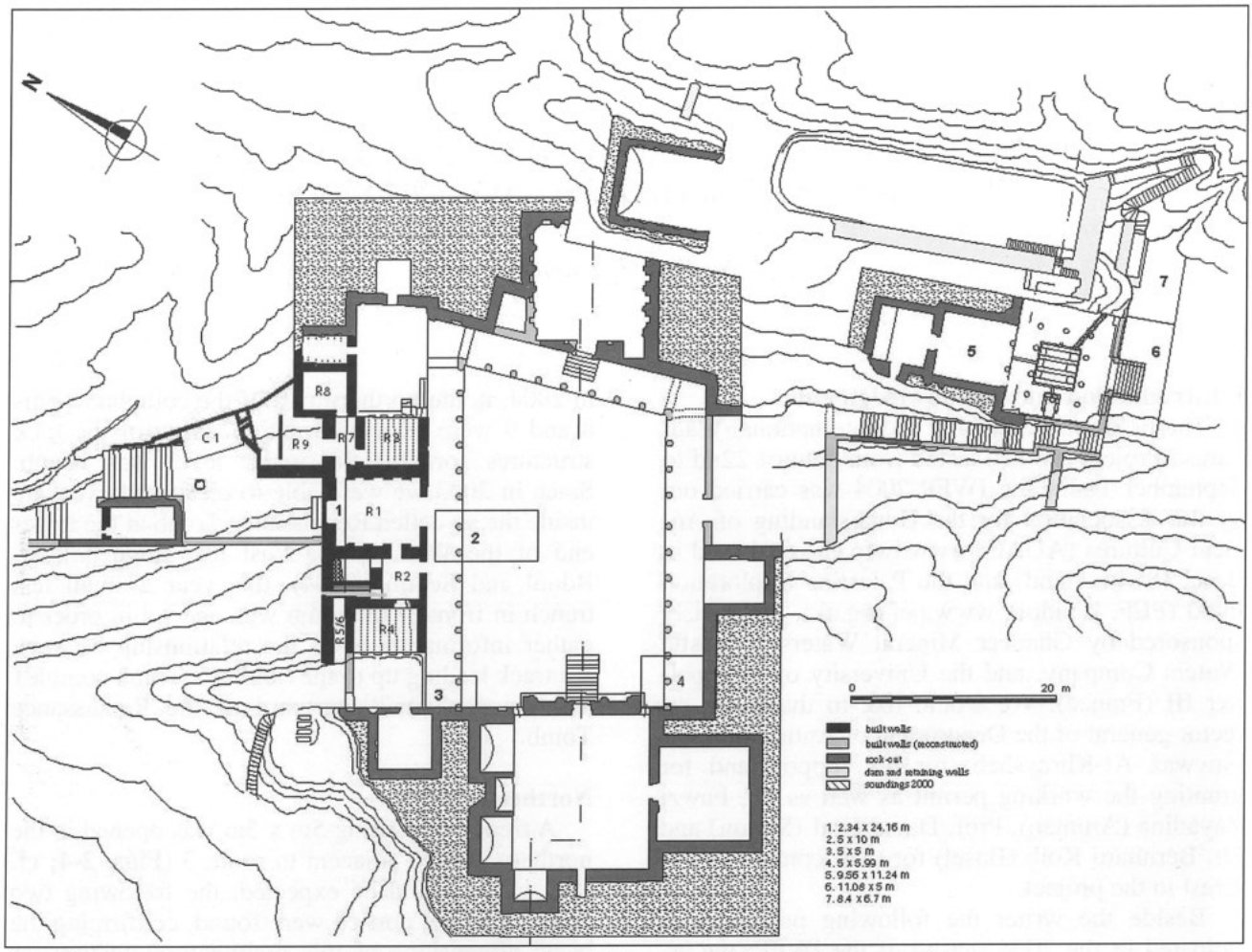
Beside the writer the following persons participated in the 2004 season of the IWFP: the archaeologists André Barmasse, MA (Basel), Caroline Huguenot, MA (Lausanne), Aurélien Amour, BA (Montpellier) and Adeeb Salamin, MA (representative of the Department of Antiquities) whose help and advice were much appreciated, and the anthropologist Sylvie Duchesne, MA (Toulouse). Seventeen workmen and one teawoman from the B'dool and Saydin tribes were employed. We would also like to thank IFPO Amman and especially its director Jean-François Salles for lodging the team during its stay at Amman.

Following the results of the previous campaigns of the project (cf. Schmid and Barmasse 2004 for the results of the previous season as well as for further bibliographical references), the following trenches and soundings were opened (cf. **Fig. 1**): Cistern 1 in front of the Soldier's Tomb complex that was partially excavated last year, was completed in 2004; within the northern portico of the complex a trench measuring 5m x 5m was opened in order to expose the next couple of columns and to follow the rock cut water channel partially excavated in 2003 in the adjacent room 3, room 3 had been partially exposed last year and was completed in 2004, in the northern part of the complex rooms 8 and 9 were excavated and cleaning of the rock structures forming the upper level was begun. Since in 2003 we were able to clean and excavate inside the so-called Renaissance Tomb at the lower end of the Wādī Farasa East (cf. Huguenot, al-Bdool and Schmid 2004), this year a small test trench in front of the tomb was opened in order to gather information as to the relationship between the track leading up to the Soldier's Tomb complex and the presumed courtyard of the Renaissance Tomb.

Northern Portico

A trench measuring 5m x 5m was opened in the northern portico adjacent to room 3 (**Figs. 2-4; cf. Fig. 1**). As could be expected, the following two columns of the portico were found, confirming the basic dimensions of this architectural feature, as known from previous years, that is a standard intercolumnium of 187cm, a bay of 247cm and a width of the portico of 3.65m. As already observed on other occasions, most of the original floor slabs had been taken away, most probably already in antiquity. Since most of the fallen down column drums and other architectural members were standing and lying on several centimeters of earth accumulated directly on the foundations of the slabs, this means that the slabs already had been robbed out when the columns collapsed. As can be seen on center top of figure 2 and is also obvious from the results within room 3 (see below), a rather huge door once connected room 3 to the adjacent portico, but was narrowed and eventually closed in subsequent later phases.

From the architectural members found in the debris, much interesting information can be gained. From one of the columns, according to the position most probably belonging to the central entrance way, the uppermost column drum, the capital and the first block belonging to the roofing construction were found in a row (**Fig. 2** center right; **Fig. 3** bottom center). Surprisingly, the stone just above



1. Wādī Farasa East, general plan (after Bachmann, Watzinger, Wiegand, modified by A. Barmasse).



2. Wādī Farasa East, lower terrace; northern portico with fallen column drums, capital and double arch (S. G. Schmid).

the capital clearly shows the beginning of two arches. When looking closer, one realizes that there are small differences in the degree of inclination of the two arches, and, therefore, either one of them was wider showing the same height or one was higher with both showing equal width. Two basic possible solutions can be proposed at this stage of our investigations. Either the colonnade showed a front of columns crowned by arches, or we have to reckon a second colonnade, at least for the northern part of the complex. Unfortunately, at the present stage no decision can be made. Since the intercolumnium of the two columns forming the entrance indeed is wider than the above mentioned standard of 187cm (224cm), the different inclination of the arches could cause this. On the other hand, one could easily imagine a second colonnade of a slightly smaller height. One rather tempting argument could speak in favor of a second colonnade: With just one colonnade at the northern side of the complex, the façade of the Soldier's Tomb is clearly decentralized, with just 2.45m space between the southern portico and the façade of the tomb, while there is a 6.00m space between the northern portico and the façade. With a second portico at the northern side, measuring 3.65m as the first one, the space would be reduced to exactly 2.45m and, therefore, offering a perfect symmetry! However, for the time being no phys-

ical evidence for a second colonnade at the northern side was found and there would be a mathematical problem for the joining of the second colonnade from the northern side with the one on the eastern side in front of the triclinium.

Contrary to the capitals discovered so far, the one from the northern portico exposed this year was very well preserved on one side (**Fig. 3**) and allows a better understanding of its ancient form. Contrary to our previous assumption of simple, not decorated Doric capitals, we are in reality dealing with a form of richly modeled capitals (on different types of capitals used by the Nabataeans, cf. Netzer 2003: 159-164).

Rooms 3, 8 and 9

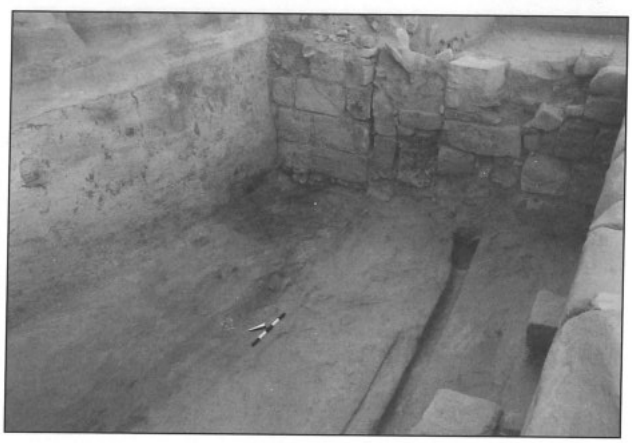
Room 3 measures 5.60m x 4.50m and is partially rock cut (NE side) and partially built up (SW side), covered with arches (**Figs. 1, 5**). As already observed during the partial excavation of that room in 2003, the initial, i.e. Nabataean floor level does not exist anymore, since the entire surface had been reused in later times including the Medieval period as is indicated by corresponding pottery found on the bedrock. During later times the room was subject to different modifications. The rock cut channel that initially was constructed to deliver water into the big cistern outside the complex (see below) was completely filled up with small and



3. Wādī Farasa East, lower terrace; northern portico, fallen column drums, capital and beginning of double arch (S. G. Schmid).



4 Wādī Farasa East, lower terrace; detail of capital from northern portico (S. G. Schmid).

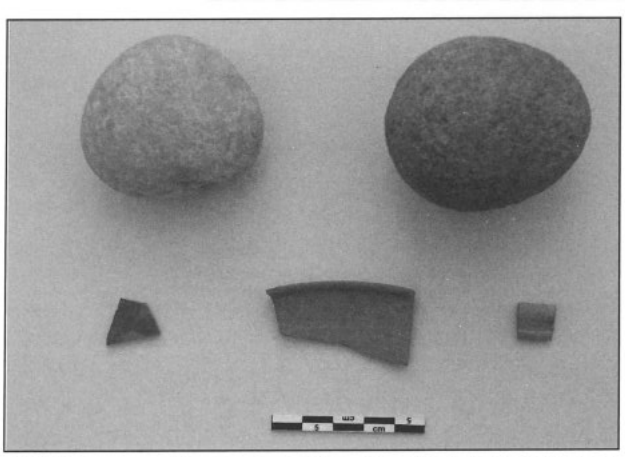


5. Wādī Farasa East, lower terrace; room 3, water channel and closed doorway (S. G. Schmid).

big stones. The fill contained a substantial amount of broken pottery, all of it belonging to the last quarter of the first century AD (**Fig. 6**). Together with the pottery, two small rounded stones were found, maybe used as bullets (**Fig. 6**). Therefore, the composition of the finds – pottery of the late first century AD and possible stone bullets – is exactly the same as observed on the lowest level of the big cistern according to the results of our excavation in 2003 and 2004 (see IWFP 2003 and below). Although the opening cut into the rock is at some stretches of considerable width and depth, the initial water channel must have been rather narrow as is indicated by a fragment of a stone cut water channel that was found in the fill and must have belonged to the initial construction. This underlines once more the technical skills of the Nabataeans, especially in terms of water management: for the construction and maintenance of a water channel, it was easier to construct it from hewn stones bedded into a rock cut foundation.

Initially, a large door gave access from room 3 to the northern portico, but in later times it was first narrowed to about half of its size and eventually completely closed by rather careless alignments of stones (**Fig. 5** top center and right). Within room 3 some elements of the bronze decoration of wooden furniture (or door) were found (**Fig. 7**), similar to decoration elements from late Roman contexts discovered by the Swiss excavations on az-Zanṭūr (personal communication by Dr. Bernhard Kolb, Basel).

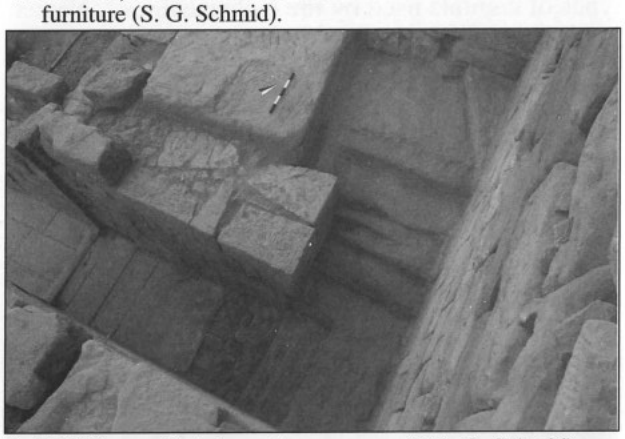
Room 8 is a stunning combination of rock cut and built up architecture. Its maximum outside dimensions are of 4.30m x 5.60m (**Figs. 8, 9**). Whilst its southern and western parts are freely constructed of well set high quality blocks, the northern and eastern walls, although constructed from the same type of blocks, are leaning at the natural



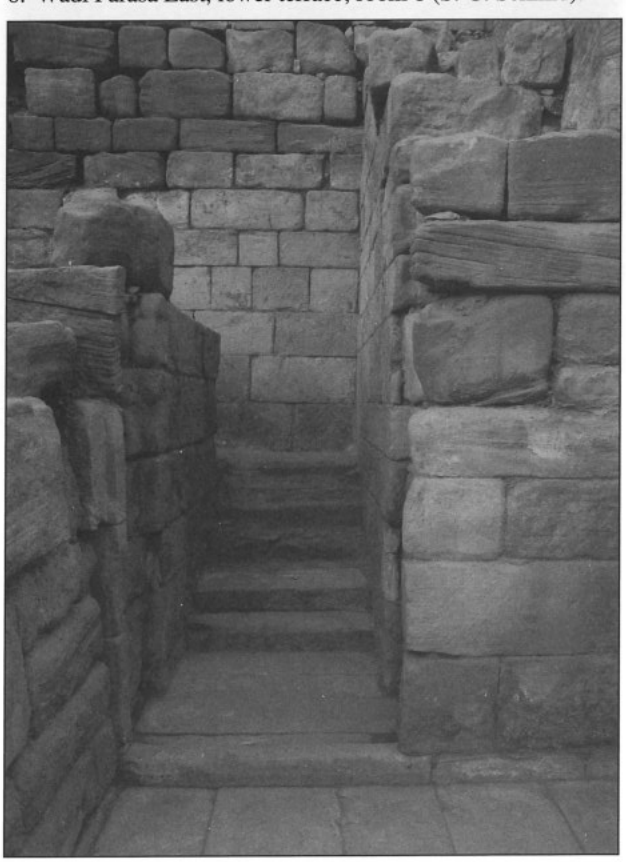
6. Nabataean pottery and possible stone bullets from room 3 (S. G. Schmid).



7. Room 3, bronze elements from the decoration of a wooden furniture (S. G. Schmid).



8. Wādī Farasa East, lower terrace; room 8 (S. G. Schmid).



9. Wādī Farasa East, lower terrace; rooms 7 and 8 (S. G. Schmid).

rock that was cut away for that purpose.

Already in 2003 we exposed the doorway leading to room 8 and it became clear that this room was rather narrow but conserved up to considerable height (**Figs. 9**). As soon became clear during the excavation, room 8 is a staircase leading up to the first floor of the entrance building of the Soldier's Tomb complex. The staircase is built around a central rock pillar and the first two courses of stairs are built upon the rock as well (**Fig. 8**). Nevertheless, in the Nabataean period the rock was not visible, since it was covered by slabs measuring 1.10m in length and by a massive wall. Two slabs forming the first two steps were found *in situ* and, therefore, we know that the height of one slab corresponds to 16cm. On the central rock pillar, a small rectangular zone is visible, that was carefully cut away (**Fig. 8**, on the spot of the meter). This is a first indication for additional courses of steps, as the staircase most probably was continuing: The bottom of the staircase is at 930.73m asl; the top of the rock pillar in the middle is at 932.90m asl, plus the 16cm of the slabs (now lost) brings us to 933.06m asl; therefore, the difference is of 2.33m. Interestingly, the rock on the top of our structure, i.e. the bottom of the first floor is at 935.26m asl, plus the 16cm of the slab (now lost) gives 935.42m asl and, therefore, a supposed difference between the middle of the staircase and the top of it of 2.36m, almost exactly the same as the first half.

In Medieval times the staircase was reused but apparently only up to half of its initial height. At this moment, an additional door was constructed, opening towards the north and, therefore, allowing a connection with the outside. In Nabataean times the staircase was directly accessible from the outside (see below) and through a small door in the huge entrance hall (room 1, cf. **Fig. 1**), first leading into room 7 and then into the staircase (room 8). One can suppose that the staircase was used in order to give a discrete access to the first floor, probably used for private purposes, while the official visitors to the complex were directly led through the central propylon into the courtyard and then into the tomb or the opposite banqueting hall.

Room 9 measures 3.50m x 3.50m and is built in front of room 7 (**Figs. 10, 11**; cf. **Fig. 1**). As soon became clear, room 9 is the result of a Medieval construction activity in that area and had no Nabataean predecessor. In the southern wall of room 9, a Nabataean door, initially giving access to room 7 (cf. **Fig. 1**) was closed by stone blocks and subsequently an arch was built against it (**Fig. 10** top left). For the construction of the Medieval room 9, the outer walls of the Nabataean rooms 7 and 8



10. Wādī Farasa East, lower terrace; room 9 (S. G. Schmid).



11. Wādī Farasa East, lower terrace; room 9 with Nabataean (right) and Medieval (left) walls (S. G. Schmid).

(staircase) were used, while two new walls had to be set up in order to build the northern and western sides of room 9. These new walls are built in a careless technique and stand on 30cm of sand, while the Nabataean walls were carefully put on a specially cut surface directly on the bedrock (**Fig. 11**). Further, in modern times the western wall of room 9 was reused in order to construct a path and therefore showed massive use of cement.

In order to completely expose the northern part of the Soldier's Tomb complex, cleaning of the rocky outcrop at the NE corner of the complex was begun (**Fig. 12**). The cleaning revealed another Medieval room measuring 6.0m x 4.6m, built in a careless technique with reused stones and containing an important amount of the so-called Ayubid-Mamluk pottery (**Fig. 13**, for similar pottery see Walmsley and Grey 2001: 153-159; Tonghini and Vanni Desideri 2001; Pringle 1984, 1985; Johns 1998, on local aspects of Late Islamic pottery in central and southern Jordan see Brown 1987, 1988, 1991: 232-241, in general terms on that period in Jordan see Walmsley 2001).



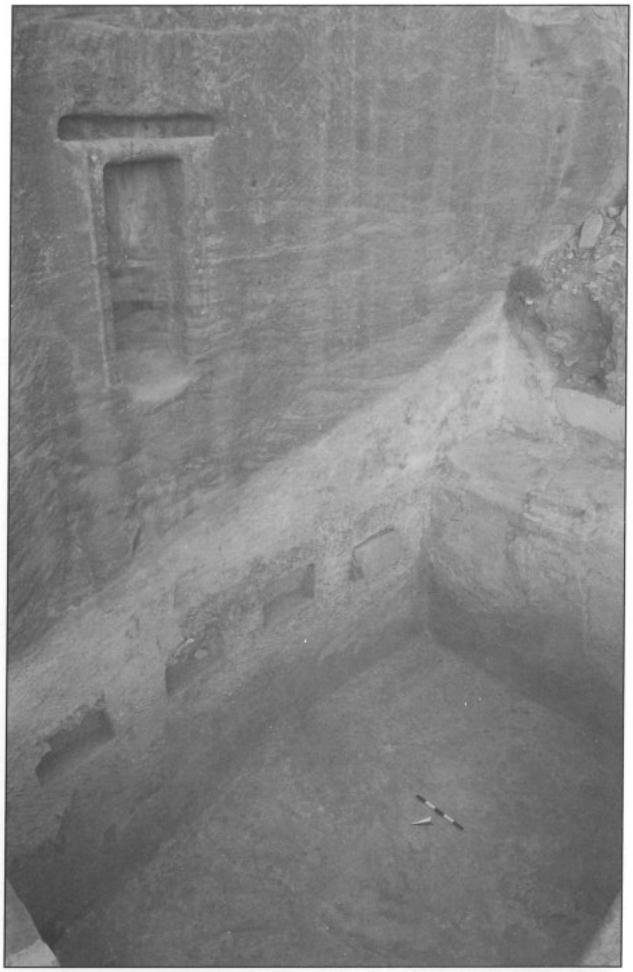
12. Wādī Farasa East, lower terrace; rock plateau with Medieval room (S. G. Schmid).



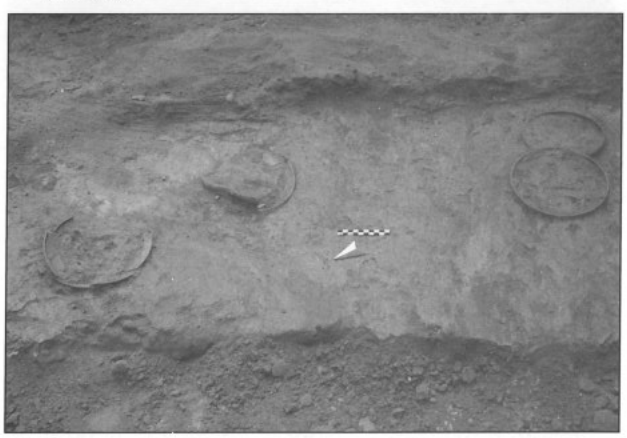
13. Medieval pottery from Medieval room on rock plateau (S. G. Schmid).

Cistern 1

In 2003 a cistern was discovered just outside, i.e. to the north of the Soldier's Tomb complex, measuring 5.2m x 3.4m and 2.20m in depth (**Fig. 14**). Since last year only half of it was excavated, this season the other half was completed. As last year, the upper levels did contain Nabataean pottery mixed up with substantial amounts of Medieval pottery, while the lower level, i.e. the last 30cm on top of the floor, where densely packed with Nabataean pottery (**Fig. 15**). The pottery of that last level shows an astonishing homogeneity, with almost 100% belonging to the last quarter of the first century AD (**Figs. 16-18**), or in terms of the phasing used for the painted pottery illustrated



14. cistern 1 in front of Soldier's Tomb complex (S. G. Schmid).

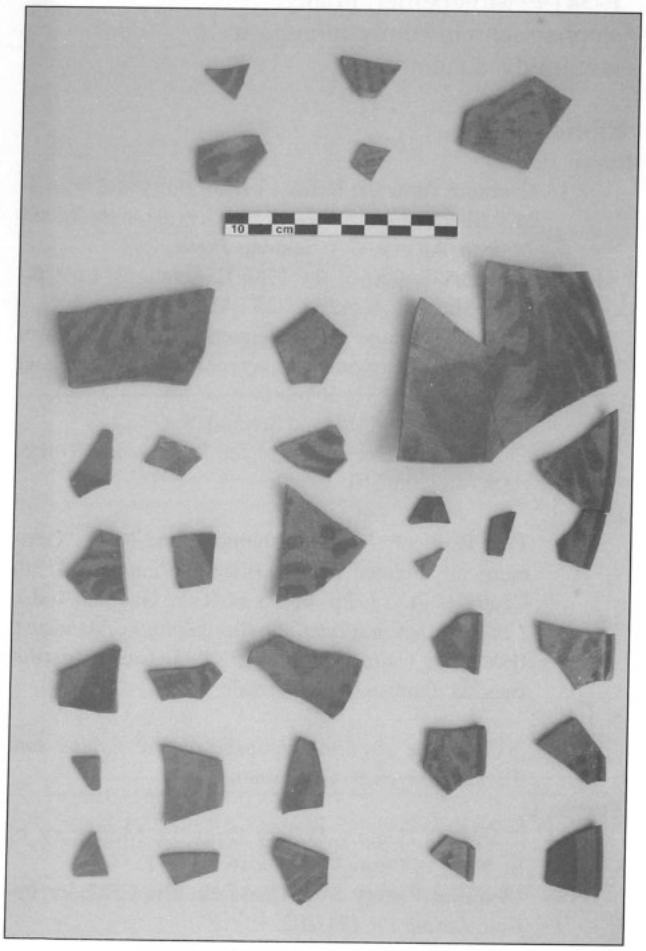


15. Bottom of cistern with Nabataean pottery *in situ* (S. G. Schmid).

on figure 17, phase 3b (on Nabataean pottery see Schmid 2000). Interestingly, although there were several more or less complete dishes and other forms of plain fine and coarse ware (cf. **Fig. 16**), there was much less painted pottery and most of it highly fragmented (**Fig. 17**), the exception being two complete painted bowls (top centre on **Fig.**



16. Nabataean pottery from bottom of cistern (S. G. Schmid).



17. Painted pottery from bottom of cistern (S. G. Schmid).

16). As can be illustrated with the small selection of coarse ware pottery on **Fig. 18**, we are readily dealing with an almost complete household, containing all types of vessels needed for storing, preparing and serving food and drinks. Still, it remains difficult to explain why a huge assemblage of complete and, therefore, still functioning pottery was thrown away into a cistern (cf. Schmid and Barmasse 2004). On the other hand, this almost complete "household" of pottery from the late first century AD clearly illustrates the multipurpose aspects of the Soldier's Tomb complex.

Renaissance Tomb

Following the results of last year's cleaning and excavation inside the so-called Renaissance Tomb (Huguenot, al-Bdool and Schmid 2004), we decided to carry out a small test trench measuring 4m x 4m in front of the tomb where one would expect the path leading towards the Wādī Farasa East to meet an eventual structure built in front of the tomb. However, besides two huge boulders maybe belonging to a wall, no built structures were found (**Fig. 19**), just substantial amounts of Nabataean pottery dating to the early first century AD.



18. Coarse ware pottery from bottom of cistern (S. G. Schmid).



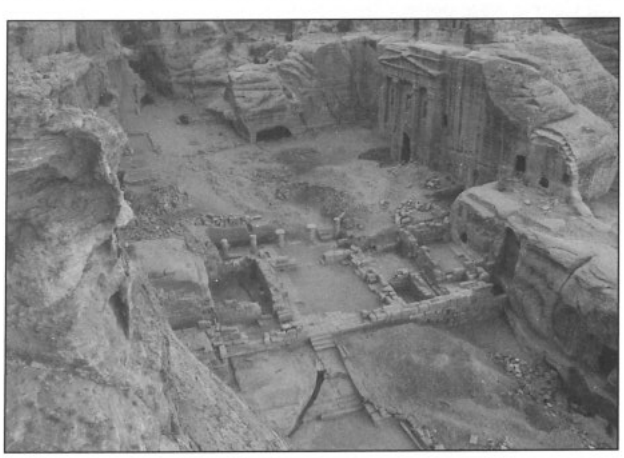
19. Trench in front of the Renaissance Tomb (S. G. Schmid).

Sylvie Duchesne, anthropologist of the CNRS Toulouse (France) studied all the human remains collected in 2003 inside the Renaissance Tomb. Despite the fact that all the tombs were disturbed, interesting results regarding age, sex and diseases of the people buried inside the tomb were obtained. Due to the absence of detailed written sources we do not know a lot about the funerary customs of the Nabataeans, a series of samples was taken in order to carry out DNA analysis. This should hopefully provide some information about parental relationships between the different subjects.

Restoration and General Perspectives

In terms of restoration an additional course of stones was added to the main retaining wall of the complex (cf. **Fig. 20** and wall 1 on **Fig. 1**). As in previous years, the newly added stones were fixed with an elastic mortar containing crushed pottery fragments in order to improve its hydraulic qualities and, therefore, a kind of modern version of Nabataean mortar. The same technique was applied for the fixing of a few floor slabs in the northern portico and in order to prepare the restoration of the staircase (room 8), where we plan to add several more steps in a next season.

With the completion of our 2004 season, all the built structures forming the northern part of the Soldier's tomb complex are exposed (**Fig. 20**) and the third dimension of those once sumptuous installations becomes clearly visible, including clear evidence of an upper floor, although details of its architectural aspects are missing for the time being (cf. **Fig. 21**). As was demonstrated this year with the recovery of the double arches once put on top of the columns, there are still some unknown elements regarding the architecture of the complex. Therefore, and because of the remaining maintenance problems (flashfloods, sand, erosion etc.), further exposure of the other porticoes and of the courtyard is needed.



20. Wādī Farasa East, complex of the Soldier's Tomb, general view (S. G. Schmid).



21. Wādī Farasa East, complex of the Soldier's Tomb, tentative reconstruction (S. G. Schmid and F. Demange).

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Bibliography

Brown, R. M.
1991 Ceramics from the Kerak Plateau. Pp. 168-279 in J. M. Miller (ed.), *Archaeological Survey of the Kerak Plateau.* Atlanta, GA: Scholars Press.
1988 Summary Report of the 1986 Excavations: Late Islamic Shobak. *ADAJ* 32: 225-245.
1987 A 12th Century A.D. Sequence from Southern Transjordan. Crusader and Ayyubid Occupation at el Wu`eira. *ADAJ* 31: 267-288.

Huguenot, C., al-Bdool, M. M. and Schmid, S. G.
2004 Cleaning and Excavation of the Renaissance Tomb. *ADAJ* 48: 203-210.

Johns, J.
1998 The Rise of Middle Islamic Hand-Made Geometrically Painted Ware in Bilad al-Sham (11th-13th Centuries A.D.). Pp. 65-93 in R.-P. Gayraud (ed.), *Colloque international sur l'archéologie islamique.* IFAO, Le Caire, 3-7 février 1993. Cairo: Institut français d'archéologie orientale.

Netzer, E.
2003 *Nabatäische Architektur, insbesondere Gräber und Tempel.* Mayence: von Zabern.

Pringle, D.
1984 Thirteenth-Century Pottery from the Monastery of St. Mary of Carmel. *Levant* 16: 91-111.
1985 Medieval Pottery from Caesarea. The Crusader Period. *Levant* 17: 171-202.

Schmid, S. G.
2004 The International Wadi Farasa Project (IWFP).

Progress on the Work in the Wadi Farasa East, Petra. *PEQ* 136: 163-186.

2000 *Die Feinkeramik der Nabatäer. Typologie, Chronologie und kulturhistorische Hintergründe. Petra - Ez Zantur II 1. Ergebnisse der Schweizerisch-Liechtensteinischen Ausgrabungen (= Terra* archaeologica IV. Monographien der Schweizerisch-Liechtensteinischen Stiftung für Archäologische Forschungen im Ausland [SLSA/FSLA]. Mayence: von Zabern.

Schmid, S. G. and Barmasse, A.

2004 The International Wadi Farasa Project (IWFP). 2003 Season. *ADAJ* 48: 333-346.

Tonghini, C. and Vanni Desideri, A.

2001 The Material Evidence from al-Wu`ayra: A Sample of Pottery. *SHAJ 7*: 707-719.

Walmsley, A.

2001 Fatimid, Ayyubid and Mamluk Jordan and the Crusader Interlude. Pp. 515-559 in B. MacDonald, R. Adams and P. Bienkowski (eds.), *The Archaeology of Jordan.* Sheffield: Sheffield Academic Press.

Walmsley, A. G. and Grey, A. D.

2001 An Interim Report on the Pottery from Gharandal (Arindela), Jordan. *Levant* 33: 139-164.

A LATE ROMAN TOMB NEAR QAṢR AR-RABBA

Megan A. Perry, Atef M. Al-Shiyab

Introduction

In 1993 and 1996 al-Shiyyab (1996 n.d.) sought to document the Nabataean temple at Qaṣr ar-Rabba, situated 5km north of ar-Rabba and 15km north of Karak in Jordan (Fig. 1). Part of this research involved exploring architectural features of the temple and its occupational history and water management features. In addition, al-Shiyyab wished to locate cemeteries associated with settlement at Qaṣr ar-Rabba. A hinterland survey discovered a previously undisturbed Roman and Byzantine period cut limestone tomb in the Nazzāza region between the vicinities of al-Qaṣr and ar-Rabba. The calcareous rocky region of Nazzāza is located approximately 2.50km to the southeast of the village of al-Qaṣr (**Fig. 1**), thus the individuals interred in the tomb likely resided in this rural locale rather than at the ancient site itself.

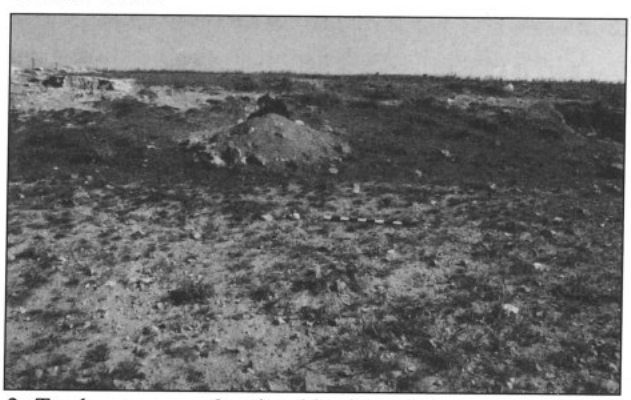
It remains unclear whether this tomb was isolated or included within a larger cemetery. The regional survey identified another collective rock-cut tomb destroyed by road construction. Other associated tombs may have been ruined by construction of a new road. Additionally, while the tomb reported here remained intact, construction of the new route destroyed its entrance (**Fig. 2**). The undisturbed disposition of the tomb structure enabled a complete study of the tomb architecture, material objects, and human skeletal remains. The tomb and grave goods are discussed in more detail elsewhere (al-Shiyyab 1996 n.d.), thus this information is presented only briefly here. Following this, the bioanthropological data are reported on and discussed.



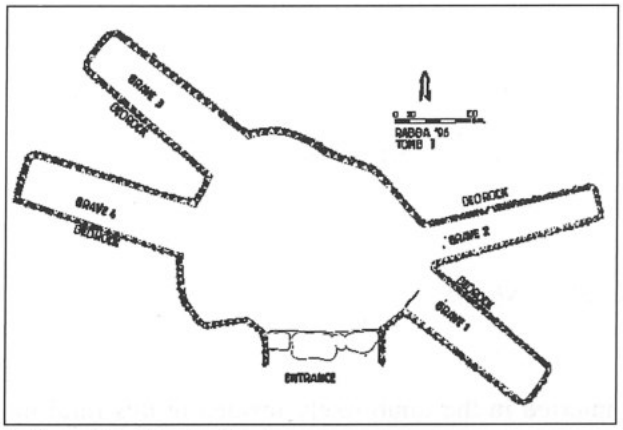
1. Location of the tomb in the Nazzāza region between al-Qaṣr and ar-Rabba.

Tomb Architecture and Material Culture

The rock-cut tomb consists of four sepultures situated around a round central chamber measuring 3.20m E-W x 2.60m N-S and 2.50m in height (**Fig. 3**). The tomb is entered through a 1.30m entrance in the southern side. As noted above, most of the tomb entrance was destroyed by road construction. Two loculi, Graves #1 and #2, are cut from the east wall and another two, Graves #3 and #4, are cut from the west wall of the chamber. Seats or benches encircle the chamber, measuring between 0.40-0.50m wide.



2. Tomb entrance and regional landscape.



3. Plan of the Nazzāza tomb.

Grave #1

Grave #1 is located 0.40m to the NE of the entrance and has a NW-SE orientation (**Figs. 3 and 4**). The rectangular loculus is approximately 0.60m high and 2.00m long, and the width varies from 0.52m at the opening to 0.66m at the inner end. A flagstone ca. 0.60m wide sealed the opening of the grave.

Grave #2

Grave #2 oriented ENE-WSW, lies ca. 0.20m to the north of Grave #1 (**Figs. 3 and 4**). The loculus is 2.30m in length and ranges from 0.38m wide at the entrance to 0.46m wide in the interior. Inside, the height averages 0.75m. Similar to Grave #1, a flagstone sealed the opening of the loculus.

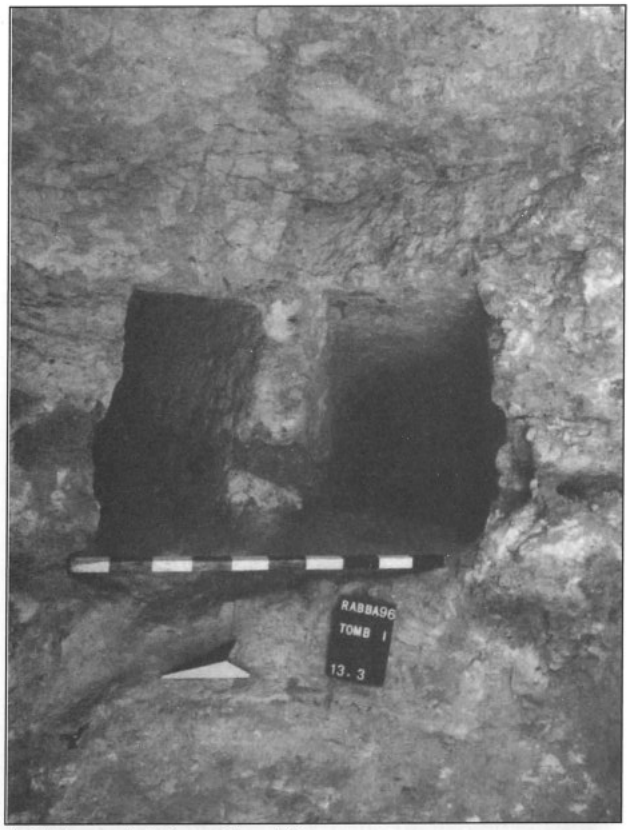
Grave #3

Grave #3 is cut from the western wall of the tomb, ca. 0.40m from Grave #4 and 2.25m from the tomb entrance. The tomb is oriented NW-SE and extends 2.30m in length and is ca. 0.75m high. Width of the loculus ranges from 0.56m wide at the entrance to 0.70m wide at the northwestern end (**Figs. 3 and 5**). The grave opening was sealed with a stone measuring approximately 0.70m in width.

Grave #4

Grave #4 is located 1.60m to the northwest of the entrance and 0.40m from Grave #3 (**Figs. 3 and 5**). The ENE-WSW-oriented loculus measures 2.30m in length and ranges from 0.60m wide at the entrance to 0.66m wide in the interior. The height of the loculus averages around 0.75m and the opening was sealed with a fieldstone similar to Grave #3.

The funerary objects and architectural evidence date tomb use to the Late Roman period (al-Shiyyab 1996). Based on the loculi radiating from a central chamber and the carved benches along the



4. Entrance to Graves 1 and 2.



5. Entrance to Graves 3 and 4.

walls, the tomb layout resembles those included within the Type I style identified at Ḥisbān, attributable to the Late Hellenistic to Late Roman periods (Waterhouse 1998: 10). Lacking any lamp niches or a "rolling stone" entrance, the tomb from Nazzāza parallels the simplest forms of this tomb style. As outlined by Krug (1998), in addition to those found at Ḥisbān, similar tombs have been discovered at Abila (Davis 1983, 1985; Fuller 1987; Smith 1989, 1990, 1992), in ʻAmmān and its vicinity (Dana 1970; Harding 1951; Maʻayeh

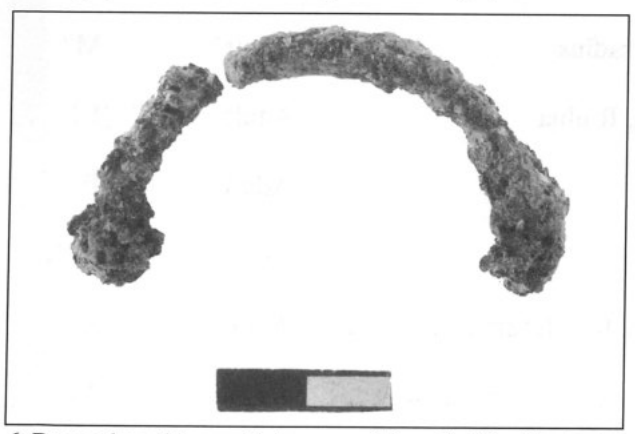
1960; Rashdan 1984; Suleiman 1987), Bayt Zar'a (Khadija 1974), Aydūn (Suleiman 1987), Gadara (Umm Qays) (Weber 1988), Gerasa (Jarash) (Fisher 1938; Ma'ayeh 1960), Ḥayy ad-Duraybāt (Suleiman 1987), Pella (Smith 1973; McNicoll et al. 1982, 1984, 1986, 1992; Potts *et al.* 1988), Petra (Browning 1973; Zayadine 1979, 1982), Rājib (Bisheh 1973), Umm al-Walīd (Zayadine 1981), Wādī al-Bādhān (Dajani 1953), and Yājūz (Thompson 1972).

Personal items from the tomb include a bronze bezel ring and a bronze anklet or bracelet typical for the Late Roman period (Ibrahim and Gordon 1987, Plates XIV and XV) (**Figs. 6 and 7**). Additionally, a large quantity of ceramics was recovered from the graves (see al-Shiyyab 1996). No contextual data for these artifacts exist, however. Compared to many contemporary tombs, the Nazzāza tomb contained little funerary material culture or personal items.

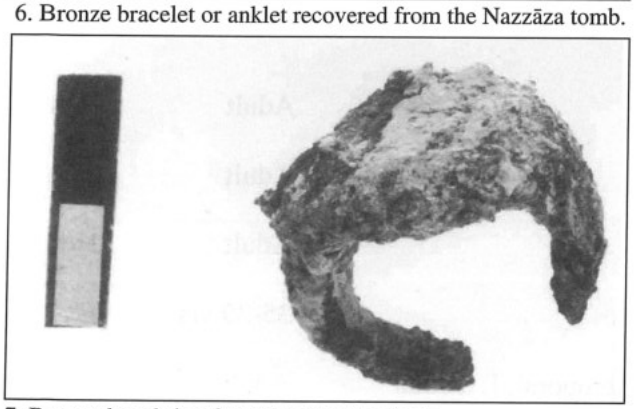
The Human Skeletal Remains

Methods

After recovery of the skeletal remains, excavators placed the elements into a large cardboard box and separated them by grave with layers of newspaper. Unfortunately, the newspaper did not prevent confusion of bones from different graves. Thus, the box had to be carefully "excavated" by newspaper layer, which meant that only some skeletal elements could be definitively associated with a grave. As described below, observations of morphology, size, color, and if possible, sex and age served to link elements with known context with unassociated elements and fragments. As a result, many of the grave designations in this report are hypothetical, and many skeletal elements could not be associated with a grave at all.



6. Bronze bracelet or anklet recovered from the Nazzāza tomb.



7. Bronze bezel ring from the Nazzāza tomb.

After the skeletal remains were carefully taken from the box layer by layer and cleaned, an inventory of skeletal elements in the entire tomb provided the "Minimum Number of Individuals", or "MNI", of the entire sample. The MNI reflects the smallest number of individuals that must be present to account for duplication of the elements in the sample, taking into consideration obvious age and sex differences.

In addition, considering the proper grave context for as many elements as possible established a MNI estimate for each grave and thus a more accurate MNI for the tomb. Despite post-excavation commingling of some skeletal elements, most still could be associated with their appropriate grave. The remaining elements without context were then linked with those of known origin. In order to accomplish this, skeletal elements were grouped together according to similarities in morphology, size, color, tomb location, age, and/or sex. Afterwards, these groups were combined into possible individuals based on these same criteria.

Collection of demographic and other bioanthropological variables followed protocol outlined in *Standards for Data Collection from Human Skeletal Remains* (Buikstra and Ubelaker 1994). Only auricular surface of the pelvis provided age estimation of the adult individuals (Lovejoy *et al.* 1985; Meindl and Lovejoy 1989), as no pubic symphyses were recovered. Adult sex estimates were provided through subjective observation of cranial and/or pelvic remains (Buikstra and Mielke 1985; Buikstra and Ubelaker 1994; Phenice 1969) and long bone measurements (Buikstra and Ubelaker 1994). Subadult age estimation also followed the Standards protocol, utilizing either dental eruption sequence (Ubelaker 1989) or a combination of long bone dimensions (Fazekas and Kósa 1978; Ubelaker 1989) and epiphyseal union (Buikstra and Ubelaker 1994). Additionally, bone size and shape abnormalities, reactions to disease processes, trauma, and congenital conditions were recorded following Standards (Buikstra and Ubelaker 1994). Furthermore, metric and non-metric

data were collected, but these are not reported here.

Results

The overall MNI for the tomb from Nazzāza is 11 individuals — two subadults and nine adults. An attempt to establish the context of skeletal elements mixed between graves with individuals of known grave identification provided a more detailed estimate of the MNI. Based on observations of possible tomb designation, age, sex, and skeletal morphology, size, and color, skeletal elements were combined into 16 "groups" indicating they likely belonged to the same individual (**Table 1**). Then, these 16 groups were combined into possible individuals based on morphology, size, color, age, sex, and hypothetical tomb designation (**Table 2**). Finally, in order to determine the MNI for each tomb, both the mixed unassociated remains and the remains of hypothetical individuals were combined by grave (**Table 3**). Some elements/individuals could not be definitively assigned to only one grave, thus some groups of elements have more than one grave identification. Furthermore, a 6 year-old (± 24 months) child could have been assigned to either Tomb #1 or Tomb #2, but was ul-

Table 1: Skeletal Element "Groups".

Group	Grave	Elements Present	Age	Sex
a	1	Femur, humerus, temporal, mandible	6 +/-24 mos	N/A
b	3?	Cranium, femur, tibia, fibula, humerii	NB – 0.5 yrs	N/A
A	4?	MT III, IV, and V	Adult	N/A
B	4?	L & R os coxae	30-34 yrs	M
C	4?	L os coxa	30-34 yrs	F
D	4	L humerus, L & R ulnae, L radius	Adult	M?
E	3 or 4	L & R humerii, L & R radii, R ulna	Adult	F?
F	3 or 4	L & R humerii, R ulna	Adult	F
G	1, 2, or 4	R humerus and R ulna	Adult	N/A
H	1	R humerus, R & L os coxae, R & L femora, R tibia	Adult	F
I	1	R & L humerii, R & L radii, R & L femora, R & L fibulae	Adult	M
J	1, 2, or 4	R & L ulnae, L humerus	Adult	N/A
K	4?	R & L tibiae	Adult	N/A
L	4?	R & L tibiae	Adult	N/A
M	3 or 4	R & L femur, R & L os coxae	35-39 yrs	F
N	1 or 2	Occipital, R & L parietal, L temporal, L frontal	Adult	M

Table 2: "Groups" Combined into Possible Individuals By Grave.

Individual	Grave	Groups	Age	Sex
1	1	N & I	Adult	M
2	1	H	Adult	F
3	1	a	6 yrs	N/A
4	3	b	NB – 0.5 yrs	N/A
5	4	C & F	30-34 yrs	F
6	3 or 4	M & E	35-59 yrs	F
7	4	B & D	30-34 yrs	M
8	1, 2, or 4	J	Adult	N/A
9	1, 2, or 4	G	Adult	N/A

* (Groups A, K, and L from Grave #4 listed in Table #1 can belong with individuals 5, 6, 7, 8, or 9)

Table 3: Final Tally of Individuals by Grave.

Grave	Burials
Grave #1	1 adult male
	1 adult female
	1 6 year-old (+/-24 months) child
Grave #1 or #2	2 adults (sex indeterminate)
Grave #3	1 birth – 0.5 year-old infant
	2 adults (sex indeterminate)
Grave #3 or #4	1 35-39 year-old female
	1 adult (sex indeterminate)
Grave #4	1 30-34 year-old male
	1 30-34 year-old female
	3 adults (sex indeterminate)
Grave #1, #2, or #4	2 adults (sex indeterminate)

timately assigned to Tomb #1 because the field notes noted the presence of a subadult in that tomb (al-Shiyyab n.d.). By combing these individuals with unassociated elements of known grave context, the total MNI of the sample increases from 11 to 15.

In general, the sample from al-Qaṣr displayed few paleopathologies beyond normal degeneration due to age or related to minor skeletal trauma. One adult from Grave #1 or #2 and one adult from Grave #3 displayed periosteal reactions on the lateral aspects of their right distal fibulae, which were active at the time of death. The localized nature of this condition suggests it stemmed from trauma rather than a systemic infection. An adult individual from Grave #1 or #2 had a previous fracture of one left rib (Rib III-X), which had almost completely healed at the time of death. The inferior surface of this rib displays a resorptive area with circumferential lipping just medial to the fracture, probably due to contact with the lower rib as a result of this trauma. One adult from Grave #3 had a resorbed and flattened distal articular surface of the right first metacarpal, possibly due to arthritis or a pathological condition of the articulating proximal phalanx (which was not recovered). The lumbar vertebra of an adult individual from Grave #4 displays three resorptive foci (Schmorl's nodes) on the anterior aspect of the superior surface of the vertebral body with resulting osteophytes on both the superior and inferior aspects of the body. General degenerative arthritis was noted on adult individuals from Graves #1 or #2 and Grave #4 on two proximal humerii from one individual, and on a number of unassociated ribs. Traumatic arthritis was noted on three metatarsals (3, 4, and 5) of one individual (Group A) in Grave #4 probably connected with what seems to be a complete fracture of the styloid process of MT5, which became healed on the dorsal surface of the metatarsal with resulting ossification of the surrounding soft tissue.

Compared with contemporary regional populations, individuals from the Nazzāza tomb display little evidence of infections or poor nutrition (see Alcorn and Goodman 1989; Bikai and Perry 2001; Grauer and Armelagos 1998; Nabulsi 1998; Perry 2002). Only localized rather than systemic infections were observed, implying they resulted from trauma rather than disease. These individuals suffered from a similar level of osteoarthritis and skeletal trauma as other communities, however (see Bikai and Perry 2001; Browne 1992; Grauer and Armelagos 1998; Nabulsi 1998; Perry 2002). The majority of osteoarthritis cases observed stemmed from trauma, and thus does not reflect prevalent age-related degeneration.

Summary and Conclusions

The tomb from the Nazzāza region near al-Qaṣr resembles similar Late Roman tombs from the region. Artifacts found within the graves also support its Late Roman date. The tomb contained a minimum of 15 individuals, computed after the skeletal elements were grouped together by grave context and combined into possible individuals. Com-

mingling of many elements between excavation and analysis made grave assignation of these individuals difficult. Thus, the MNI of 15 individuals may not be correct since it is based on conjectural evidence of skeletal element grave designation. The skeletal remains displayed no evidence of systemic infectious disease or lack of nutritive resources. Instead, trauma likely caused the localized infections observed. These individuals had an expected prevalence of osteoarthritis and trauma based on studies of other regional skeletal samples.

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Bibliography

Alcorn, C.M. and Goodman, A.H.
1987 Dental Enamel Defects Among Contemporary Nomadic and Sedentary Jordanians. Pp. 208-210 in L.T. Geraty, L.G. Herr, Ø.S. LaBianca and R.W. Younker (eds.), *Madaba Plains Project: The 1989 Season at Tell el-'Umeiri and Vicinity and Subsequent Studies.* Berrien Springs, MI: Andrews University Press.

Bikai, P.M. and Perry, M.A.
2001 Petra North Ridge Project Tombs 1 and 2: Preliminary Report. *BASOR* 104: 59-78.

Bisheh, G.
1973 Rock-cut tombs at Rajib. *ADAJ* 18: 63-67.

Browne, C.D.
1992 Palaeopathological Survey of the Human Remains from Pella. Pp. 227-229 in A.W. McNicoll, P.C. Edwards, J. Hambury-Jenison, J.B. Hennessy, T.F. Potts, R.H. Smith, A. Walmsley and P. Watson (eds.), *Pella in Jordan 2: The Second Interim Report of the Joint University of Sydney and College of Wooster Excavations at Pella: 1982-1985.* Sydney: Meditarch.

Browning, I.
1973 *Petra.* Parkridge, NJ: Noyes Publishing.

Buikstra, J.E. and Mielke, J.H.
1985 Demography, diet, and health. Pp. 359-422 in J. Gilbert and J.H. Mielke (eds.), *The Analysis of Prehistoric Diets.* New York: Academic Press.

Buikstra, J.E. and Ubelaker, D.H.
1994 *Standards for Data Collection from Human Skeletal Remains.* Fayetteville: Arkansas Archaeological Survey Research Series no 44.

Dajani, A.
1953 A Herodian Tombs at Wadi el Badhan. *ADAJ* 2: 78-81.

Dana, S.F.
1970 Luweibdeh Roman Tomb. *ADAJ* 15: 37-38.

Davis, J.J.
1983 Abila Tomb Excavations. *Near East Archaeological Society Bulletin 21*: 28-58.

Davis, J.J.
1985 Abila Tomb Excavations: 1984. *Near East Archaeological Society Bulletin 24*: 65-92.

Fazekas, I.G. and Kósa, F.
1978 *Forensic Fetal Osteology.* Budapest: Akadémiai Kiadó.

Fisher, C.S.
1938 Tombs of the Southwest Cemetery. Pp. 549-571 in C.H. Kraeling (ed.), *Gerasa: City of the Decapolis.* New Haven: American Schools of Oriental Research.

Fuller, N.B.
1987 Abila Tomb Excavations: 1986. *Near East Archaeological Society Bulletin* 29: 31-62.

Grauer, A.L. and Armelagos, G.
1998 Skeletal Biology of Hesban: A Biocultural Interpretation. Pp. 109-131 in S.D. Waterhouse (ed.), *The Necropolis of Hesban: A Typology of Tombs.* Berrien Springs, MI: Andrews University Press.

Harding, G.L.
1951 A Roman tomb in Amman. *ADAJ* 1: 30-33.

Ibrahim, M.M. and Gordon, R.L.
1987 *A Cemetery at Queen Alia International Airport.* Wiesbaden: Harrassowitz.

Khadija, M.M.
1974 Beit Zar'a Tombs. *ASSOR* 19: 157-163.

Krug, H.P.
1998 Comparative Roman-Byzantine tombs in Transjordan. Pp. 135-171 in S.D. Waterhouse (ed.), *The Necropolis of Hesban: A Typology of Tombs.* Berrien Springs, MI: Andrews University Press.

Lovejoy, C.O., Meindl, R.S., Pryzbeck, T.R. and Mensforth, R.P.
1985 Chronological Metamorphosis of the Auricular Surface of the Ilium: a New Method for the Determination of Adult Skeletal Age at Death. *American Journal of Physical Anthropology 68:* 15-28.

Ma'ayeh, F.
1960 Recent Archaeological Discoveries in Jordan. *ADAJ* 4-5: 115.

McNicoll, A.W., Smith, R.H. and Hennessy, J.B.
1982 *Pella in Jordan I: An interim report on the Joint University of Sydney and College of Wooster expeditions at Pella 1979-1981.* Canberra: Australian National Museum.

McNicoll, A.W., Ball, W., Bassett, S., Edwards, P.C., Macumber, P., Petocz, D., Potts, T.F., Randle, L., Villiers, L. and Watson, P.
1984 Preliminary Report of the University of Sydney's Fifth Season of Excavations at Pella in Jordan. *ADAJ* 28: 55-86.

McNicoll, A.W., Edwards, P.C., Hosking, J., Macumber, P., Walmsley, A. and Watson, P.
1986 Preliminary Report of the University of Sydney's

Seventh Season of Excavations at Pella (Tabaqat Fahl) in 1985. *ADAJ* 30: 155-199.

McNicoll, A.W., Smith, R.H. and Hennessy, J.B.
1992 *Pella in Jordan 2: The second interim report of the Joint University of Sydney and College of Wooster excavations at Pella 1982-1985.* Sydney: Meditarch.

Meindl, R.S. and Lovejoy, C.O.
1989 Age Changes in the Pelvis: Implications for Paleodemography. Pp. 127-168 in M.Y. Iscan (ed.), *Age Markers in the Human Skeleton.* Springfield, IL: Charles C. Thomas.

Nabulsi, A.
1998 The Byzantine Cemetery in Samra. Pp. 271-279 in J.-B. Humbert and A. Desreumaux (eds.), *Fouilles de Khirbet es-Samra en Jordanie.* Turnhout: Brepols.

Perry, M.A.
2002 *Health, Labor, and Political Economy: A Bioarchaeological Analysis of Three Communities in Provincia Arabia.* Department of Anthropology, University of New Mexico, Albuquerque.

Phenice, T.
1969 A Newly Developed Visual Method of Sexing in the Os Pubis. *American Journal of Physical Anthropology 30:* 297-301.

Potts, T.F., Braune, S.J., Edwards, P.C., Richards, F. and Wightman, G.J.
1988 Preliminary Report on the Eighth and Ninth Seasons of Excavation by the University of Sydney at Pella (Tabaqat Fahl), 1986 and 1987. *ADAJ* 32: 115-149.

Rashdan, W.
1984 Excavation in the Roman Tomb in Amman (Jabal Amman 6th Circle) (in Arabic). *ADAJ* 28: 23-24.

Shiyyab (al-), A.M.
n.d. *Excavation at Al-Qasr and Ar-Rabba.* unpublished manuscript in possession of the author.
1996 *La Jordanie et la Conquête Arabe.* Ph.D. Dissertation, Department de Histoire Ancienne et Archeologie, Universite de Versailles Saint-Quentin-en-Yvelines.

Smith, R.H.
1973 *Pella of the Decapolis, Vol. 1: The 1967 Season of the College of Wooster Expedition to Pella.* Wooster, OH: College of Wooster.

Smith, R.W.
1989 Abila tomb excavations 1988. *Near East Archaeological Society Bulletin 32/33:* 21-42.
1990 The Fifth Season of Tomb Excavations at Abila. *Near East Archaeological Society Bulletin 35:* 40-53.
1992 The Sixth Season of Tomb Excavations at Abila. *Near East Archaeological Society Bulletin 37:* 40-59.

Suleiman, E.
1987 Salvage Excavations in Jordan 1985-1986. *ASSOR* 31: 543.

Thompson, H.O.
1972 A Tomb at Khirbet Yajuz. *ADAJ* 17: 37-45.

Ubelaker, D.H.
1989 *Human Skeletal Remains: Excavation, Analysis, Interpretation.* Washington: Taraxacum.

Waterhouse, S.D.
1998 Tomb Type I: Chamber tombs with loculi radiating from the chamber. Pp. 21-44 in S.D. Waterhouse (ed.), *The Necropolis of Hesban: A typology of tombs.* Berrien Springs, MI: Andrews University Press.

Weber, T.
1988 Gadara of the Decapolis: a Summary of the 1988 Season at Umm Qeis. *ASSOR* 32: 349-352.

Zayadine, F.
1979 Excavations at Petra (1976-1978). *ADAJ* 25: 341-355.
1981 Recent Excavations and Restorations of the Department of Antiquities (1979-1980). *ADAJ* 25: 341-355.
1982 Recent Excavations and Restorations of Department of Antiquities. *ADAJ* 26: 55-68.

DAYR 'ALLĀ REGIONAL PROJECT: SETTLING THE STEPPE FIRST CAMPAIGN 2004

Eva Kaptijn, Lucas Petit, Ellis Grootveld, Fuad Hourani, Gerrit van der Kooij, and Omar al-Ghul.

Introduction

The long term archaeological study of Tall Dayr 'Allā, a Joint Project of Leiden University and Yarmouk University, in close cooperation with the Department of Antiquities of Jordan, has resulted in a view of the complicated varying use of the site during the Bronze Age and Iron Age. Use of the site should not be studied in isolation, but in connection with the archaeology of the total surrounding landscape, including other settlement sites. In order to study and explain the existence and character of for example the Middle Bronze IIC or Late Bronze Age town it is necessary to know about other settlements in the surrounding steppe region, and about the other kinds of landscape.use. Especially the complicated and unstable use of the site during the Iron Age II and III periods (Van der Kooij 2001) should be explained in combination with a study of the use of the surrounding landscape and other settlement sites. Considering the phytogeographical steppe character of this part of the Jordan Valley and the need for irrigation in case of intensive agricultural activities, the relationship with the Mediterranean zones to the east and west of the Valley should also be connected with this study.

In order to examine explanations for the settling and use of the steppe a comprehensive project was designed and granted financial support by the Netherlands Organization for Scientific Research (NWO). It started in March 2004 under the title: *"Settling the Steppe; the archaeology of changing societies in Syro-Palestinian drylands in the Bronze and Iron Ages"*. This project, directed by Gerrit van der Kooij and Diederik Meijer, combines current research by Leiden University in the Syrian Jazīrah and in the Dayr 'Allā Jordan Valley region, but also has a wider scope and purpose (see below).

After some local preparatory activities in Spring 2004, the first season of fieldwork in the Dayr 'Allā region took place from October 7th till November 20th, 2004 and this report gives a general outline of the archaeological framework of the survey project and the preliminary results of this season.

The 'Settling The Steppe'-Project

Introduction

The Near East consists for the large parts of arid regions, like steppe and desert zones. Habitation in these areas is often difficult as precipitation is usually not sufficient for rain fed agriculture. The efforts involved in successfully maintaining a society in such an area are significantly higher than those in a more favourable region like the Mediterranean zone. Yet many people live in such a marginal area today and did so in the past. In an attempt to contribute to the global discussion on the habitation of drylands from an archaeological point of view and based upon two current major archaeological research projects, Leiden University started this 'Settling the steppe'-project. Thus, the project aims to explain this feature in two site-and-landscape clusters, namely Tall Dayr 'Allā in the Eastern Jordan Valley and Tall al-Ḥammām at-Turkmān in the Syrian Jazīra, during the Early Bronze through the Iron Ages (ca. 3000-400 BC).

The Project

Aim and Research Questions

In archaeology, geography, and sociology the habitation in drylands has received significant attention. In archaeology themes like climatic change and diachronic settlement histories have been the focus of research (Miller Rosen 1995; Finkelstein 1995). The study of modern societies in drylands has shown that usually complex relationships exist between individuals, communities, institutions and the landscapes with which they interact (Barker and Gilbertson 2000:15; Van der Leeuw and Redman 2002). Archaeology should be able to fully appreciate such relations between people and the environment. The aims of the *Settling the Steppe-*

project are to get an insight into how and with what reasons people settled in an arid region like the steppe zone and by what means they were able to sustain a living for a certain period of time. The research questions that are studied to achieve these aims can be phrased as follows:

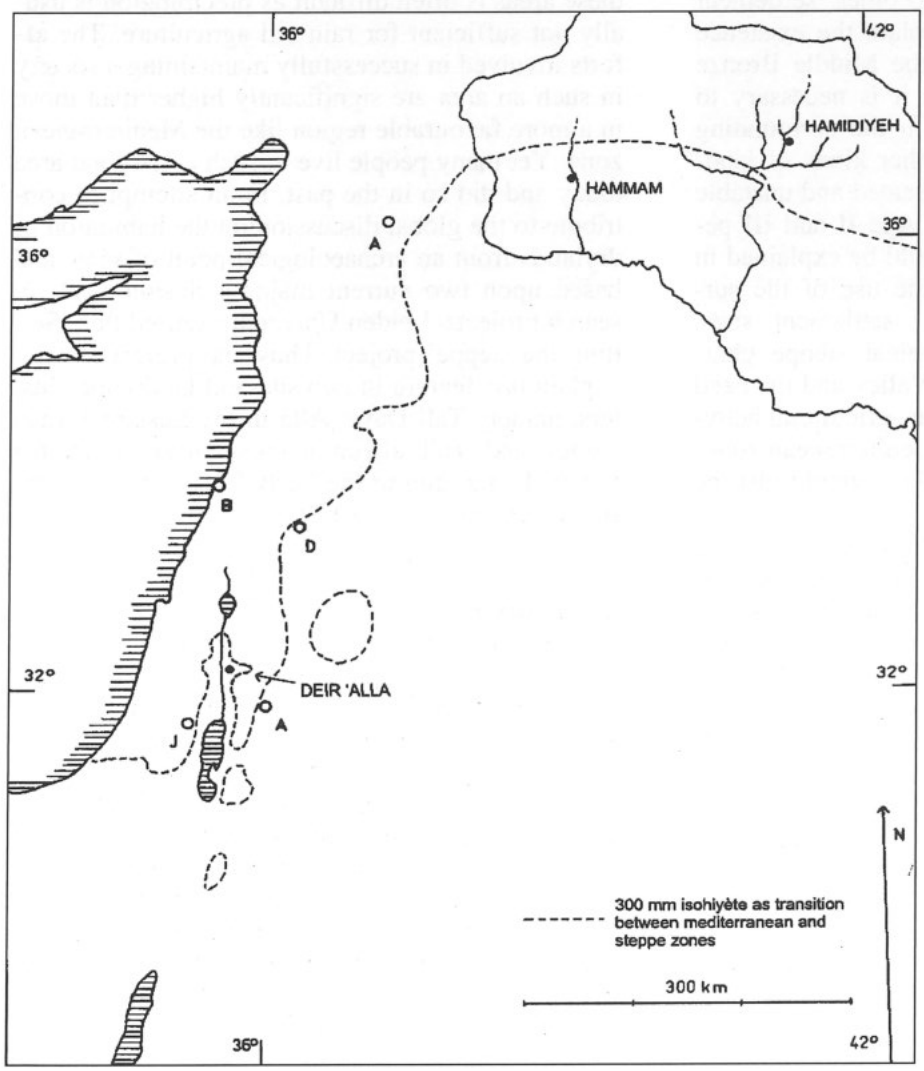
- How and why people came to live in the steppe zone and how and why did they abandon it?
- How did people maintain a successful and stable society and what was its character?
- What was the relationship of these societies in the steppe zone with their neighbours in the more favourable Mediterranean zone?

In order to answer these questions two regions are being investigated, i.e. the area around Tall Dayr 'Allā in the Eastern Jordan Valley and parts of the North Syrian Jezirah (**Fig. 1**). In both clusters the region will be studied as a totality and not as consisting of several isolated topics. In an interdisciplinary and highly integrated fashion the archaeological, geographical, geomorphologic and biological aspects of the landscape in the Bronze and Iron Ages will be studied. The Jezirah-component focuses on the Bronze Age, while in the Dayr 'Allā region focus lies upon the Iron Age.

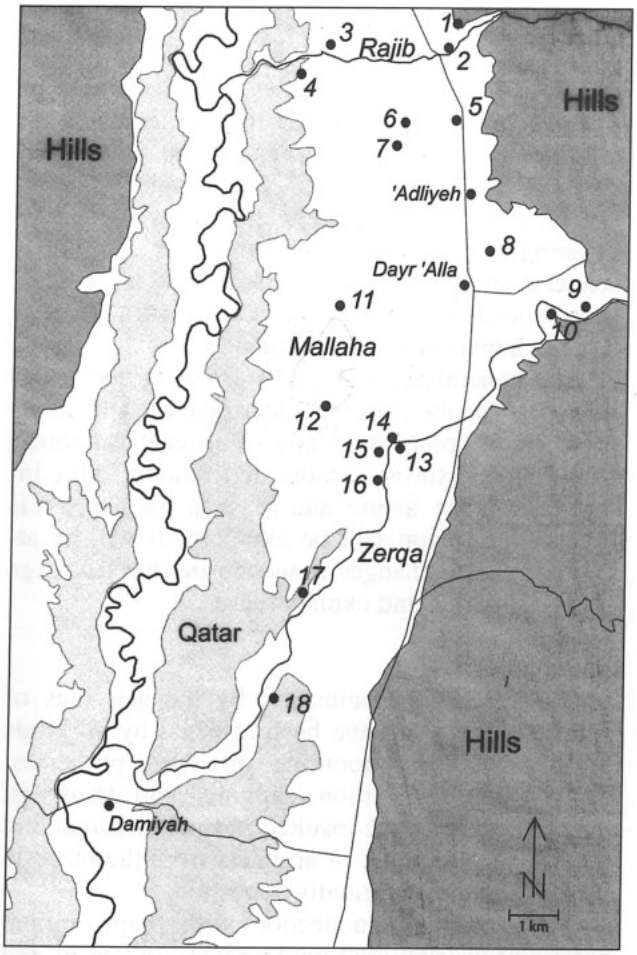
The two regional clusters will in part be dealt with separately, but always from the same theoretical background and purpose. The results will be combined and integrated into a comprehensive view on settlement of steppe zones.

The Tall Dayr 'Allā Cluster

The research area lies between the Wādī Rājib in the north and the az-Zarqā' River, with Tall Dāmiya in the south, comprising approximately 72km^2, and usually regarded to be the southernmost extension of the regularly settled part of the Jordan Valley (**Fig. 2**). Previous survey teams, e.g. Nelson Glueck (Glueck 1951) and the East Jordan Valley Survey (Ibrahim *et al.* 1976, 1988), have presented thorough overviews of the different tall sites in this region. No emphasis has, however,



1. Map of the Near East showing the steppe zone and research areas.



2. Map of the Dayr 'Allā region with Iron Age tall sites
1. Tall Qaws; 2. Tall 'Ammata; 3. Khirbat Buwayb; 4. Tall Buwayb; 5. Tall Abū 'Ubayda; 6. Tall al-Ghazāla; 7. Tall al-Mazār; 8. Tall al-Qa'dān North; 9. Tall al-Ḥimma; 10. Tall Abu az-Zighān; 11. Tall ar-Rabī'; 12. Tall 'Arqadat; 13. Tall Ramayla; 14. Tall al-Bashir; 15. Tall Shahwan; 16. Tall Zakari; 17. Tall Umm Hammad al-Sharqi, 18. Tall al-Murabba'.

been placed on the archaeological remains present within the landscape. The present research therefore incorporates a more systematic survey focusing on the region as a whole. The landscape is considered here as a complex palimpsest of the results of physical, biological and human activities in the past.

Tall Dayr 'Allā is taken to be the centre of the research area not only in a geographical sense but also methodologically as a reference site. The study by Leiden University in the 1960s and the subsequent excavations as a joint project with the Department of Antiquities of Jordan (since 1976) and Yarmouk University (since 1980) has provided us with a mass of valuable information (Franken 1969, 1992; Ibrahim and Van der Kooij 1997; Van der Kooij and Kafafi in prep.). Especially the sequence of villages dating to the Iron Age II and III periods provide an ideal starting point for the study of the habitation of the Steppe Zone. In this period (ca. 1000-400BC), a sequence of settling, habitation and abandonment that recurs several times is visible (Van der Kooij 2001). *The Settling the Steppe* project investigates the reasons and character of this recurring settlement cycle. This is studied — as a branch of the Joint Dayr 'Allā Project and led by Gerrit van der Kooij and Omar al-Ghul — through limited excavation at small sites around Tall Dayr 'Allā (Lucas Petit) and systematic surface survey (Eva Kaptijn). These archaeological investigations are combined with geomorphologic (Fuad Hourani) and (archaeo) botanical research (Ellis Grootveld). The results will be compared with those of similar projects in the more favourable Mediterranean zones as well as with already excavated and studied sites in the research area, namely Tall al-Mazār, excavated by the University of Jordan (Yassine 1984, 1988), and Tall al-Ḥimma, as part of the Joint Dayr 'Allā Project (Van der Steen 2001, 2004; Veldhuijzen and Van der Steen 1999). It should be added that a regional study of this area has become an urgent matter in recent years, since agricultural and demographic developments are putting a high pressure on the archaeological heritage, causing irreversible changes and "damage" to both the archaeological remains in the landscape and tall sites.

The Jazīra Cluster

The Syrian component of the project concentrates on the Balikh valley in Northern Syria, where the important Bronze Age site of Tall Ḥammām al-Turkman is located. This site has been excavated first by the University of Amsterdam under the direction of Maurits van Loon and later by Leiden University, directed by Diederik Meijer (Van Loon 1988; Meijer 1996, 2000a and 2000b). Furthermore a tall-based survey has been conducted in this valley by Peter Akkermans (Akkermans 1984). The data of both the excavation and the survey will, in combination with already published research in the area, be used to come to a better understanding of the reasons why people came to settle in this arid region. The investigation of the tall sites and their surrounding landscape will be undertaken by archaeologist Arne Wossink and will be combined with geomorphology (Fuad Hourani) and archaeobotany (Ellis Grootveld). The geographical situation differs, however, from the Jordan Valley where the low-lying, arid valley is part of the steppe zone but the slopes to both the east and west enter the Mediterranean zone. In the Jazīra the valleys with their

higher groundwater table must be regarded as the most suitable places for habitation. The areas further away from the valleys are very arid and habitation has been concentrated within reach of the higher groundwater of the Balikh. In order to get a good insight into the specific character and problems of habitation in the steppe zone the Balikh Valley will be compared to the Upper Khabur Valley through fieldwork in the form of both survey and excavation, starting in 2005. Preliminary results will be published in the near future in the Annales Archéologiques Arabes Syriennes.

PRELIMINARY RESULTS AND SPECIFICS

During October and November 2004 the first of three seasons of fieldwork in the Tall Dayr 'Allā region was conducted. The preliminary results of the different subprojects will be presented separately. Obviously, general conclusions regarding the settling processes cannot yet be presented, due to the early stage of research.

1. Cultural Landscape Study – Eva Kaptijn

Aims and Theoretical Framework

While several surface survey projects are being conducted in Jordan this part of the Jordan Valley has as yet never been studied in such a way. A range of tall based surveys conducted in this area, like Nelson Glueck's Explorations in Eastern Palestine (1951) and the East Jordan Valley Survey (Ibrahim *et al.* 1976, 1988), have provided us with a detailed picture of the number of tall sites and the periods in which they were inhabited. No attention has, however, been paid to the fields between the tall sites. Detailed surface surveys in other parts of Jordan and in the larger Eastern Mediterranean region have shown that an enormous amount of information can be gained from the systematic examination of the landscape (e.g. MacDonald 1992).

Furthermore, this information is of a different nature than the data discovered at tall sites. The inhabitants of these tall sites were not confined to their settlement. They must have interacted with the surrounding landscape in several ways, largely already indicated by certain remains of the settlement sites. Agricultural fields will have been present to sustain in their livelihood, flocks of probably sheep and goats, as well as cattle, will have been herded, roads will have connected the different areas and settlements, burials will have existed at certain locations, and (communal) memory will have provided certain localities with special significance. Most likely the environment was considered to be as much part of the living domain as the settlement was. The village and its surrounding landscape are intrinsically linked and can therefore not be understood in complete isolation from each other. Some activities of people in the past left traces in the landscape that can be discovered by archaeologists. The problem the archaeologist is confronted with is how to discern meaningful patterns in the sometimes continuous scatter of artefacts that are affected by all sorts of post-depositional factors and how to link these patterns to human activities in the past.

The general aims of this subproject can therefore be described as the identification and interpretation of archaeologically significant patterning in the general surface scatter of artefacts. In the interpretation the nature and reasons for using this arid steppe region will be explored. It will be attempted to see changes in use during the Iron Age II and III period and explain these.

Methodology

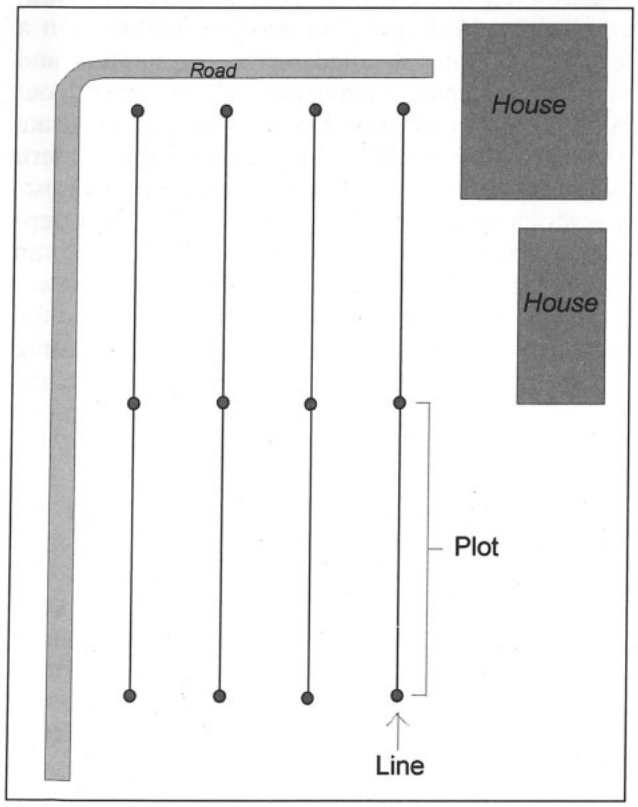
The material remains left by the activities of people in the past have been affected by all kinds of processes acting upon the soil. These processes, e.g. erosion, deposition, digging, soil transport, ploughing, etc., have resulted in the horizontal and vertical displacement of artefacts from the place in which they were originally deposited.

Therefore any connection with their original pattern of distribution might be lost. As a result not all distributions of artefacts represent archaeological meaning. A distribution of artefacts on the surface must first be examined in terms of the geomorphologic and human processes that acted upon it before any archaeological significance can be inferred. Little effort has however been invested in the development of models to aid this examination (Bintliff 2005: 137).

Because the artefact distribution on the surface is regarded as being created by a combination of processes of which one is the activity of people in the past a methodology based on the terms on- and off-site can no longer be used. The terms site and off-site assume that a concentration of artefacts on the surface has an archaeological significance, although not necessarily always a settlement. The present interpretation sees artefacts on the surface as a continuous distribution with areas of higher and lower density that is caused by many different processes. A landscape-survey is therefore initially non-site based, a term which is unfortunately not widely used (Van de Velde 2001: 29). After analysis the finds that do represent archaeological patterning can be filtered out from this continuous 'carpet' of artefacts that covers the surface. Only at

that stage can archaeologists start using the term site.

Governed by these aims and considerations this survey had to develop a method that was able to document this continuous spread in a detailed way that allowed statistical calculations, but that also covered a sufficiently large area to be able to assess the entire research area of 72km^2. For logistical purposes the basic survey unit (termed the field) was taken to be a modern agricultural field. It was decided to subdivide each field into lines that were walked by one person. The lines were spaced 15m apart, thereby operating at a level of detail of maximum 15m. In order to detect changes in density of artefacts along one line these were broken up into plots of 50m (**Fig. 3**). As experiments have shown that it is very difficult to look for more than one material category at the same time each plot was walked twice; the first time collecting pottery, the second time searching for everything else. All detected artefacts were collected and brought to the station to be processed further. No distinction was made between feature and non-feature sherds or between flint tools and debitage flakes; all objects with indications of human background, processed and analysed. Although the interpretation focuses on the Iron Age II and III the survey will yield finds from other periods as well. These finds will of course not be ignored as the preliminary results presented here show, but within the scope of the *Settling the Steppe*-project their interpretation will not be at a level of detail similar to the Iron Age remains.



3. Sketch of a fictional field showing lines and plots.

Preliminary results

During the 2004 field season the survey team consisted of an average of 6 people. In the 30 days of actual survey work the team covered an area of 1.6 km^2. This is only 2.2% of the entire research area. However, if the areas that cannot be surveyed due to the presence of villages, severe erosion, roads, etc. are not incorporated the percentage of area covered is significantly higher. As Tall Dayr 'Allā is the major site in the area and because the large amount of excavation data available make it the scientific focus of the project the area around Tall Dayr 'Allā, is going to be surveyed as thoroughly as possible. This is done to ensure that no valuable information in its occupational realm, or so-called *siedlungskammer*, is missed. Because of its size the rest of the research area can only be studied in a sampling fashion.

The region that was investigated this season can be divided into four areas. This year the areas to the southwest and northeast of Tall Dayr 'Allā were surveyed. To the southwest the land of the 'Dayr 'Allā Regional Centre for Agricultural Research and Technology Transfer', which includes Tall al-Fukhār, was surveyed. To the northwest part of the area east of the main road including land around Tall al-Qa'dān North and South was investigated. In this area, i.e. in field 27, a large amount of Chalcolithic sherds and flint tools was discovered in an area of ca. 300x180m. The field was until recently covered by a citrus plantation and had now been ploughed. Destruction by deep ploughing seems therefore to have been minimal and caused the good preservation of the finds. Analyses on the pottery, flint and stone tools are being undertaken at the moment. The results of this analysis will be published as a separate article in the near future.

The area to the east of Tall Dayr 'Allā was surveyed in a few large strips of fields to incorporate the area of Tall al-Ḥimma, located 3km to the east of Dayr 'Allā. In the first of these strips, at the southern side of the Wādī al-Ghawr circa 500m east of Tall Dayr 'Allā a very large amount of Islamic sugar pots and syrup jars was found. These are connected to the widespread sugar production from sugar cane grown in the Jordan Valley during the Islamic Period (LaGro 2002).

The fields surrounding Tall al-Ḥimma were sur-

veyed as completely as possible. In the field it was already clear that this area is characterized by a relatively large component of flint tools dating to the Chalcolithic period. Further conclusions however have to await the analysis of the finds.

The second area to be surveyed was the Zur, the actual bed of the Jordan, surrounding Tall Dāmiya where the az-Zarqā' confluences with the Jordan River. It was aimed to establish the use of the landscape around Tall Dāmiya, which is one of the talls excavated by Lucas Petit in the *Iron Age Settlement Site Study* (see section below). Virtually no finds at all were discovered in this area. Fuad Hourani, the project's geomorphologist, concluded that this area has received so many alluvial deposits through the continuous overflowing of the Jordan and az-Zarqā' Rivers that all archaeological artefacts were most probably either buried or washed away.

The surroundings of the salt plain of Mallāḥa, located west-south-west of Tall Dayr 'Allā, were also investigated. Except for some exceptional geomorphologic results that still have to be analysed in detail, no major archaeological artefacts on the surface were detected.

The last area to be surveyed was the vicinity of Tall al-Bashīr on the curve of the az-Zarqā' near the village of aṭ-Ṭiwāl. This area is characterized by the location of many talls close to each other, i.e. Rikābī, Bashīr/Asiyah, Ramayla, Shahwān, Zakārī, Qaṭar Zakārī and Miḥith. Previous survey reports are not in agreement on the exact locations of these talls. One of the aims was therefore to determine their exact position. Remeileh on the southern side of the az-Zarqā' turned out to have been bulldozed away a few years ago. Tall Shahwān has been built over by the modern village of aṭ-Ṭiwāl and both Qaṭar Zakārī and Mhith, reported by the East Jordan Valley Survey, could not be located (Ibrahim *et al.* 1988: 191). Just south-east of Tall al-Bashīr, on the northern side of the az-Zarqā' a relatively high density of both Neolithic flint tools and pottery, and Islamic sugar pots was discovered.

Conclusions

Although conclusions regarding the research aims of the *Settling the Steppe*-project can only be drawn after full-scale analysis, some preliminary results were already clear in the field. The most important result of the first season must be that detailed surface survey is indeed useful. The restrictions posed by the active sedimentary nature of this alluvial area do not greatly inhibit the results of survey. Furthermore, several localities of special interest that can already at this stage be identified as archaeological sites, like fields 27, 81 and the sugar pot sherds, have been discovered. The biggest contribution of this first season of landscape survey to the archaeology of the Jordan Valley is to be found in the large amount of artefacts found scattered over the area; a total of 45.846 sherds and 1458 pieces of flint were collected. This amount proves that a lot of information can be gained from the study of the countryside. The countryside provides us with a different type of data than excavations of tall sites; it gives us an insight into the activities in the landscape in the past. Both village and countryside have been part of the past society and the results of this first landscape survey activity show us that the archaeological remains in the countryside can no longer be neglected in this part of Jordan.

2. Iron Age Settlement Site Study – Lucas Petit

The purpose of this sub-project is to find regional parallels, or divergences, for the chronology and intensity of use of the core site Tall Dayr 'Allā during the Iron Age II and III periods – in itself and in connection with neighbouring, sometimes more favourable, regions. Judging from previous survey work, the research area, defined before, contains some 20 settlement sites with clear Iron Age occupation (*e.g.* Glueck 1951; Melleart 1962; Ibrahim *et al.* 1976, 1988 and Van der Steen 2004). On a few of these sites detailed surface exploration and micro-stratigraphic excavation will be carried out in order to get a detailed record of all cultural strata preserved. The analysis takes care of the modern assessment criteria, based upon knowledge of post-deposition processes that affected the original deposition-location of material culture (*cf.* Sullivan 1989). Data collection in the field, analysis of previous survey and excavation work, comparison with the stratigraphic picture and material culture of Tall Dayr 'Allā and close co-operation with the other disciplines of this project should finally result in a detailed picture of the habitation cycle of the drylands in the Jordan Valley.

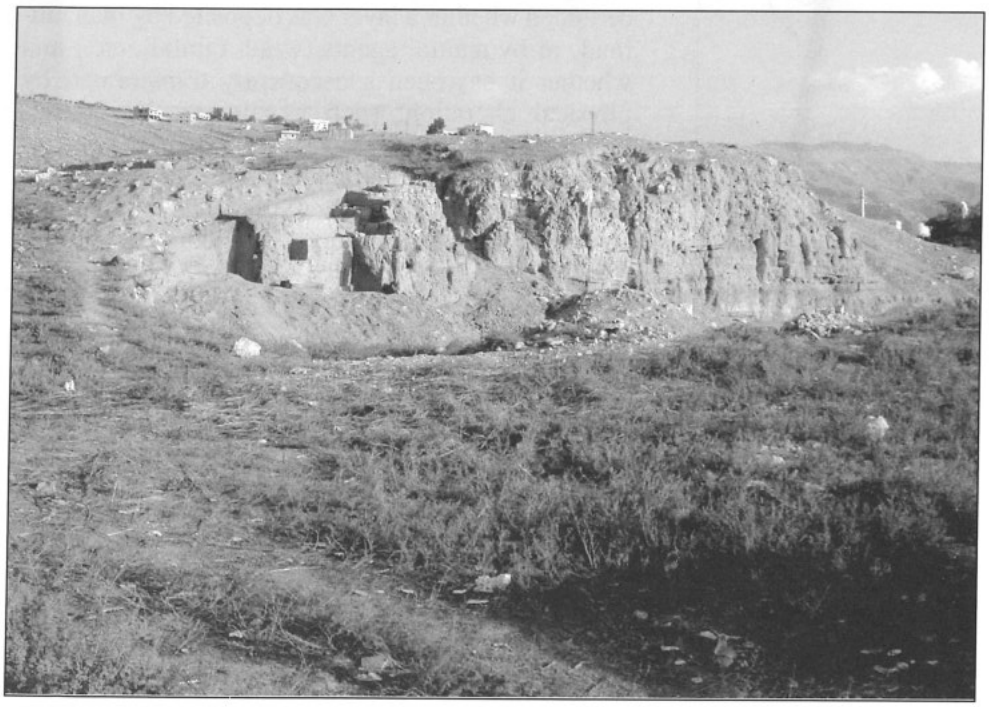
The choice of the sites to be small-scale excavated was not only determined by their partial Iron Age occupation and a relevant location within the project's study focus, but also because of easy access to these levels by damage afflicted to them, generally by bulldozer's cuts. During the reported season two sites were trenched. The results should be read as preliminary, due to restricted analyses of the stratigraphy and material culture.

Tall al-'Adliyya, situated less than 1.5km south east of Tall al-Mazār and 2km north of Tall Dayr 'Allā,

was initially tested and systematically surveyed in October 2004. The site is approximately 41m in diameter, revealing Early Bronze Age, Iron Age I and II, Hellenistic, Roman, Byzantine and Ayyubid/Mamluk pottery (e.g. Glueck 1951: 307; Melleart 1962; Ibrahim *et al.* 1988: 190). Three soundings were conducted on the western half of the site along the edge of a major bulldozer cut that went down into virgin soil (**Fig. 4**).

A fragment of an east-west oriented mudbrick wall represents the earliest occupation remains excavated thus far, situated directly above sterile soil. The limited horizontal exposure prevents at the moment a precise dating of its construction and habitation. Nevertheless, other contemporaneous walls were seen in the bulldozer section, revealing with some extrapolation at least two multi-room houses. In the second phase, not long after the earlier units had collapsed, new features were built and some wall stumps were reused. Two excellently preserved houses with a large courtyard in between were encountered at Tall al-'Adliyya, constructed in a similar pattern as the buildings belonging to phase 1. The numerous courtyard layers and rebuilding activities in this phase represent a long time of continuous occupation during Iron Age II. Destruction ended this occupation suddenly, evidenced by a large number of storage jars left in one of the excavated rooms and a layer of burnt mudbricks in the most southern end of the bulldozer cut. After a period of abandonment, people re-established some living units, on top of and in between the ruined houses of phase 2. This squatter activity showed a poor and meagre assemblage of material culture. The succeeding phases 4 and 5 contained excessive Roman occupation with *Terra Sigilata* and fragments of glass containers. A large east-west running wall on top of foundation stones was attributed to the earliest of both phases and acted probably as an outer extremity of a large building. The latest architectural remains found at Tall al-'Adliyya consist of large stonewalls and pavements. Unfortunately no floor surfaces nor material objects *in situ* were unearthed to date this construction. After the inhabitants left Tall al-'Adliyya, the site was used as a cemetery during the Islamic period, with pit graves and a row of stones on top of the east-west oriented skeletal remains.

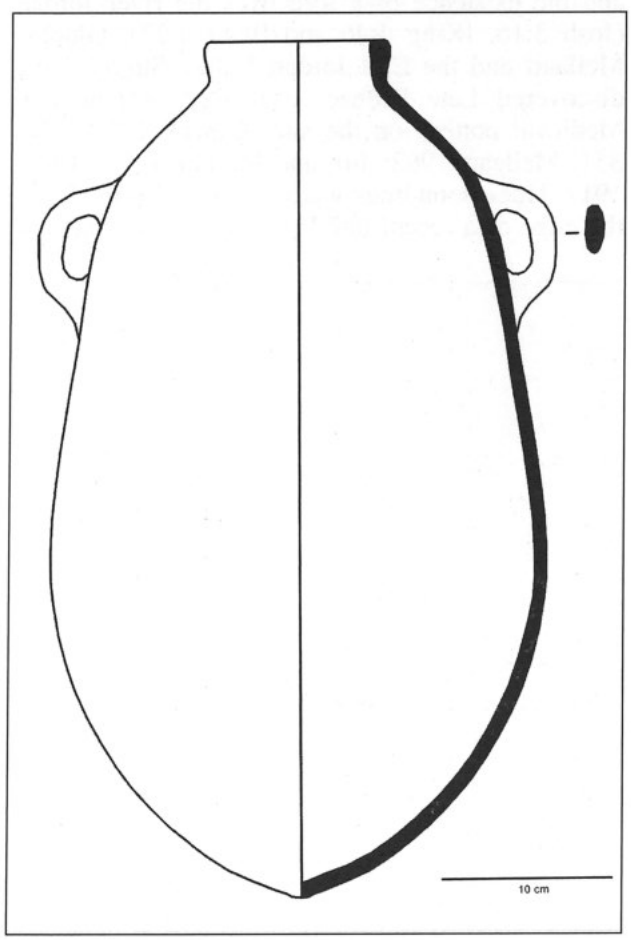
Tall Dāmiya, a medium sized settlement mound that rises abruptly out of the flat fertile lands of the Zur, is located directly south of the confluence of the az-Zarqā' and the Jordan River. The site has been cited frequently, due to its possible identification with the Biblical town of Adam, or Adamah and the existence of a ford over the river Jordan (Josh 3:16, IKing 4:46 and IIChr 4:27). Glueck, Mellaart and the East Jordan Valley Survey have discovered Late Bronze, Iron Age, Roman and Medieval pottery on the site (Glueck 1951: 330-331; Melleart 1962: 148 and Ibrahim *et al.* 1988: 191). Three soundings were conducted directly on the edge of a recent bulldozer cut on the southern



4. Section Tall al-'Adliyya showing soundings.

side of the mound's top. Eleven different phases were identified that, nonetheless, cover only the uppermost layers of this 15m high mound.

The earliest phase excavated thus far, was only reached in one square and consisted of several courtyard layers. Two succeeding phases were distinguished with only flimsy evidence of human occupation and meagre construction works. The character of the remains did change substantially in the fourth phase, including numerous mudbrick walls, installations and rich material culture, all buried under a thick layer of destruction debris. The remains of at least one two-roomed building were found that were constructed directly upon the uneven walking surface of the settlement mound. The ceramic evidence (**Fig. 5**) shows parallels with the Iron Age IIC assemblages found in phases VI and VII at Tall Dayr 'Allā and a bulla with cuneiform writing proves the connection with other regions. Shortly after the destruction, the inhabitants rebuilt the walls and used red-burnt mudbricks of the previous phase for building new installations and retaining walls. After a period of occupation the structures were abandoned and covered by a thin layer of occupation deposits. No architectural features were distinguished and the material remains in the sediments are scarce. The stratigraphic relation of this phase with some mudbrick-lined pits that cut through many of the older layers cannot yet be made. The fills in all pits consist of white chalk remains of reed and straw, deposited in a continuous and long process of depositing. Beside organic contents that point to a function as storage, the fill also contained many clay loom weights. Two burial pits were discovered in the upper most layers of which one revealed the skeletal remains of a child. The chronological context of those is not yet clear.



5. Iron Age IIc jar from Tall Dāmiya.

3. Physical Landscape and Geoarchaeological Study – Fuad Hourani

The physical landscape study attempts to determine the palaeogeographical development of the Lower az-Zarqā' Basin during the Holocene (Hourani 2002). In order to achieve this aim focus will be placed on the Wādī az-Zarqā', the Wādī Rājib and the Wādī al-Ghawr. In valleys the different stages of erosion and sedimentation are the most distinct and their investigation will contribute significantly to the geological history of the Dayr 'Allā area. Additionally the geomorphologic processes in the areas to be surveyed will be studied. This will help to determine what post-depositional factors have acted on an artefact found on the surface. In the excavations some geomorphologic analyses will attempt to determine the nature of the deposition of certain stratigraphic layers. It can for example be ascertained whether a layer was deposited by man, animals or by natural agents (wind, rainfall, etc.) and whether it has been subsequently transformed by physical alteration, such as biological activities (earthworms, insects, roots), swallow/shrinking of sediments, dissolution/precipitation of soluble salts, and/ or by chemical and bio-chemical weathering, for instance redistribution of secondary carbonates, oxidisation, etc.

During this season the investigations concentrated mainly along the course of the az-Zarqā' River. Especially in the areas east of Tall al-Ḥimma, in the bend near Tall al-Bashīr and in the Zur near Tall Dāmiya the deposits of the az-Zarqā' river were investigated. At least three terraces could be discerned. This points to the conclusion that this area has known at least three phases in which the az-Zarqā' had an erosive character alternated by periods of sedimentation. In the coming seasons attention will focus on establishing a date for the formation of these terraces.

At the foot of Tall Dāmiya a 3m deep sounding

was made to determine the original surface on which the tall's first settlement was built and to see in what type of environment it was located. The virgin soil was, however, not reached in this season. From this sounding and from investigations in the environment in combination with the archaeological surface survey it can be concluded that the amount of deposits that this riverbed environment received is very significant.

Additionally attention was given to a remarkable geomorphologic feature in this region, i.e. the Mallāḥa salt plain. Again soundings were carried out and several samples, for micromorphological and physicochemical analyses, were taken. As these samples still await analysis no definitive conclusions can be drawn, but it seems that human influence is greater than would be expected.

In the excavations at Tall al-'Adliyya and Tall Dāmiya suitable stratigraphic layers were sampled, but these too await analysis.

4. Botanical landscape study – Ellis Grootveld

The botanical study within this project concerns the analysis of archaeological botanical remains and — in order to interpret them — the study of the current flora in the region in relation to artificial watering and soil types.

The aims of this study are to develop a view about land use for agriculture and herding around the various Iron Age settlement sites during their distinguished phases, including the use of irrigation of agricultural fields. This would be an ecological and economic contribution to the project's aim to understand how and why people settled in this steppe region (cf. Neef 1989). In previous studies of carbonised plant samples from Dayr 'Allā it is clearly indicated (mainly by flax seeds, Van Zeist and Heeres 1973: 27) that during some periods irrigated agriculture was practised. Also other approaches to the identification of irrigated fields are promising (cf. Miller Rosen 1999; Charles *et al.* 2003).

Consequently, after identification of the seeds from collected samples, information about the ecology of each cultivated and non-cultivated species will be gathered, e.g. favoured precipitation, soil requirements, temperature regimes and flowering time. Thus indications of irrigation or possibly of varieties in mean annual precipitation may be given. The connection with different soils in the surrounding landscape may indicate where people in the Iron Age grew their different crops – or grazed their herds, because remains of their dung are often found in fireplaces.

Knowledge about present-day vegetation is taken from relevant publications as well as from *herbaria* in Jordan, including Yarmouk University. Additional data and material will be collected during different seasons. This makes it possible to see a plant with leaves, flowers and seeds.

During this first excavation season samples from Tall al-'Adliyya and Tall Damiya were flotated and sorted. Analysis of these samples and some of the samples that were taken during the more recent previous excavations at Tall Dayr 'Allā (in addition to the material studied by Van Zeist and Neef) is taking place at Leiden University and is still in an early stage. In the 'Adliyya and Damiya samples very few weeds were found so far, and agricultural crops present are mainly *Triticum spec.* and *Hordeum spec.*

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References

Akkermans, P.M.M.G.
1984 Archäologische Geländebegehung im Balih-Tal. *Archiv für Orientforschung* 31: 188-190.

Barker, G. and Gilbertson, D. (eds.)
2000 *The Archaeology of Drylands; Living at the margin,* One World Archaeology 39. London and New York: Routledge.

Bintliff, J.
2005 Human impact, land-use history, and the surface archaeological record: a case study from Greece. *Geoarchaeology: an international journal* 20(2): 135-147.

Charles, M., Hoppé, C., Jones, G., Bogaard, A., Hodgson, J.G.
2003 Using weed functional attributes for the identification of irrigation regimes in Jordan. *Journal of Archaeological Science* 30: 1429-1441.

Finkelstein, I.
1995 *Living on the fringe; the archaeology and history of the Negev, Sinai and neighbouring regions in the Bronze and Iron Ages,* Monographs in Mediterranean Archaeology 6. Sheffield: Academic Press.

Franken, H.J.
1969 *Excavations at Deir 'Alla. A stratigraphical and analytical study of the Early Iron Age pottery.* Leiden: Brill
1992 *Excavations at Tall Deir 'Alla: the Late Bronze Age Sanctuary.* Leuven: Peeters Press.

Glueck, N.
1951 Explorations in Eastern Palestine IV. *AASOR* 25-28. New Haven: ASOR.

Hourani, F.
2002 *Le cadre paléogéographique des premières sociétés agricoles dans la vallée du Jourdain.* Unpublished Doctoral Thesis, Paris.

Ibrahim, M., Sauer, J. and Yassine, K.
1976 The East Jordan Valley Survey, 1975. *BASOR* 222: 41-66.
1988 East Jordan Valley Survey, 1976. Pp. 189-207 in K. Yassine (ed.), *Archaeology of Jordan: essays and reports.* Amman: Department of Antiquities and University of Jordan.

Kooij, G. van der
2001 The vicissitudes of life at Dayr 'Alla during the first millennium BC, seen in a wider context. *SHAJ 7*: 295-304.

Ibrahim, M.M. and Kooij, G. van der
1997 Excavations at Tall Dayr 'Alla; seasons 1987 and 1994. *ADAJ* 41: 95-114.

Kooij, G van der and Kafafi, Z.
In prep. Excavations at Tall Dayr 'Alla; seasons 1996, 1998 and 2000. *ADAJ*

LaGro, H.E.
2002 *An insight into Ayyubid-Mamluk pottery: description and analysis of a corpus of mediaeval pottery from the cane sugar production and village occupation at Tall Abu Sarbut in Jordan.* unpublished diss. Leiden.

Van der Leeuw, S. and Redman, C.L.
2002 Placing archaeology at the centre of socio-natural studies. *American Antiquity* 67/4: 597-605.

Van Loon,
1988 *Hammam et-Turkman I. Report on the Universityof Amsterdam's 1981-84 excavations in Syria.* Uitgaven van het Nederlands Historisch-Archaeologisch Instituut te Istanbul, 63. Istanbul: Nederlands Historisch-Archaeologisch Instituut.

MacDonald, B. (ed.)
1992 *The southern Ghors and northeastern 'Arabah archaeological survey.* Sheffield archaeological monographs 5. Sheffield: Sheffield academic press.

Meijer, D.J.W.
1996 Tall Hammam al-Turkman: Preliminary report on the seventh campaign, May-July 1995. *Anatolica* 22: 181-194.
2000a State and Trade. Toward a case study for Northern Syria. Pp. 219-240 in O. Rouault and M. Wäfler (eds.), *La Djéziré et l'Euphrate Syriens.* Subartu 7. Brussel: Brepols.
2000b Ecology and archaeology: Perceptions and questions. Pp. 203-212 in L. Milano, S. de Martino, F.M. Fales, G.B. Lanfranchi (eds.), *Landscapes, Territories, Frontiers and Horizons in the Ancient Near East. Papers presented to the XLIV Rencontre Assyriologique Internationale, Venezia, 7-11 July 1997.* HANE Monographs 3: Padova: Sargon.

Melleart, J.
1962 Preliminary Report of the Archaeological Survey in the Yarmuk and Jordan Valley for the Point four Irrigation Scheme. *ADAJ* 6-7: 126-157.

Miller Rosen, A.
1995 The social response to environmental change in Early Bronze Age Canaan. *Journal of Anthropological Archaeology* 14: 26-44.
1999 Phytolith analysis in Near Eastern archaeology. Pp. 9-15 in S. Pike and S. Gitin, (eds.), *The practical impact of science on Near Eastern and Aegean archaeology.* Wiener Laboratory Monograph 3. London: Archetype.

Neef, R.
1989 Ch. III.a Plants. Pp. 30-37 in G. van der Kooij and M.M. Ibrahim (eds), *Picking up the threads...A continuing review of excavations at Deir Alla, Jordan.* Leiden: University of Leiden Archaeological Centre.

Steen, E.J. van der
2001 Excavations at Tall al-Hammeh. *SHAJ 7*: 229-232.
2004 Tribes and Territories in Transition. The central east Jordan Valley and surrounding regions in the late Bronze and Early Iron Ages: a study of the sources. Orientalia Lovanensia analecta 0777-978X; 130, Dudley (MA.): Uitgeverij Peeters and Departement Oosterse Studies.

Sullivan, A.P.
1989 Technology of ceramic reuse: formation processes and archaeological evidence. *World Archaeology* 21: 101-113.

Velde, P. van de
2001 An extensive alternative to intensive survey: point sampling in the Riu Mannu Survey Project, Sardenia. *Journal of Mediterranean Archaeology* 14(1): 24-52.

Veldhuijzen, H.A. and Steen, E.J. van der
1999 Iron Production center found in the Jordan Valley. *Near Eastern Archaeology* 62/3: 195-199.

Yassine, K.
1984a *Tall el Mazar I. Cemetery A.* Amman: University of Jordan.
1988 *Archaeology of Jordan: essays and reports.* Amman: Department of Antiquities of Jordan, University of Jordan.

Zeist, W. van, Heeres, J.A.H.
1973 Paleobotanical studies of Deir 'Alla, Jordan. *Paléorient* 1: 21-37.

RECENT EXCAVATIONS AT THE MIDDLE EPIPALAEOLITHIC ENCAMPMENT OF 'UYŪN AL-ḤAMMĀM, NORTHERN JORDAN

Lisa A. Maher

Recent survey and excavation by the Wādī Ziqlāp Project in northern Jordan have extended our knowledge of prehistoric settlement and land use in the area back to the Middle Epipalaeolithic (ca. 15000BP). In 2000, geomorphic survey of ancient river terraces revealed an eroded section on the modern road to the village of Tubna that contains extremely high densities of stone tools, debitage, and faunal remains (Maher 2001). Two test trenches were excavated into the section on the north side of the road. The lithics, preliminarily identified as Geometric Kebaran, and fauna occurred in a Pleistocene palaeosol. In 2001, we returned to the site to reopen one of our test trenches and excavate two additional test pits on the surface of the terrace to determine the depth of the Epipalaeolithic deposits and the horizontal extent of the site. Our findings from the season indicated over 1.5m of lithic and faunal material, some of it *in situ*, as well as the presence of human remains. In 2002, the Wādī Ziqlāp Project conducted excavations at the site to open up a larger horizontal area in an attempt to identify any spatial or temporal patterning in the distribution of artefacts and features. Here, I present the results of excavation at this site, named 'Uyūn al-Ḥammām, with emphasis on our most recent findings. I also discuss 'Uyūn al-Ḥammām in terms of its relationship to other nearby culturally contemporary sites.

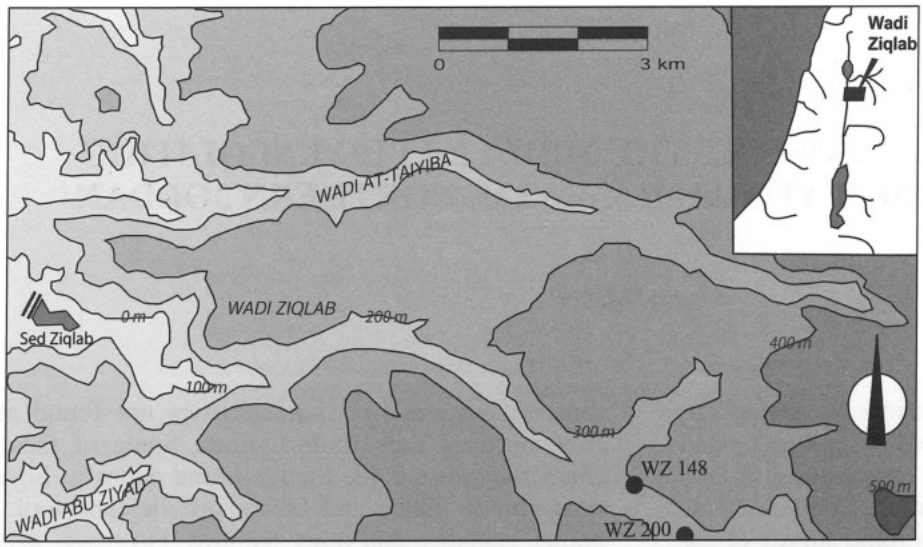
According to current cultural-chronological schemes for the Epipalaeolithic of the southern Levant (see Belfer-Cohen 2003), 'Uyūn al-Ḥammām is a classic Geometric Kebaran site. The lithic assemblage is dominated by trapeze/rectangles, produced in large numbers from single-platform, subpyramidal bladelet cores. Endscrapers on blades and burins are also common. Like other similar Geometric Kebaran sites in the Mediterranean core, such as Neve David (Kaufman 1987), Hefzibah (Ronan *et al.* 1975), Hayonim Terrace (Henry and Leroi-Gourhan 1976), 'Ayn Miri (Shimelmitz *et al.* 2001) and, to a much lesser degree, Fazael III and VIII (Goring-Morris 1980), 'Uyūn al-Ḥammām exhibits characteristics not found at contemporary sites further south. Some of these characteristics include thick cultural deposits, high densities of lithics and fauna, groundstone tools, human remains, and other features. However, it is notably different from nearby, contemporary sites in Jordan, such as those in Wādī al-Ḥimma, Wādī Ḥisbān (discussed below), and southern and eastern Jordan (Henry 1995). Although the site is found in the same Pleistocene palaeosol, it is also clearly different from the Late Kebaran/Geometric Kebaran transitional site of Ṭabaqat al-Būma, radiometrically dated to 15500 cal BC and located only 800m upstream (Maher 2002).

'Uyūn al-Ḥammām (WZ 148): The Site and its Environs

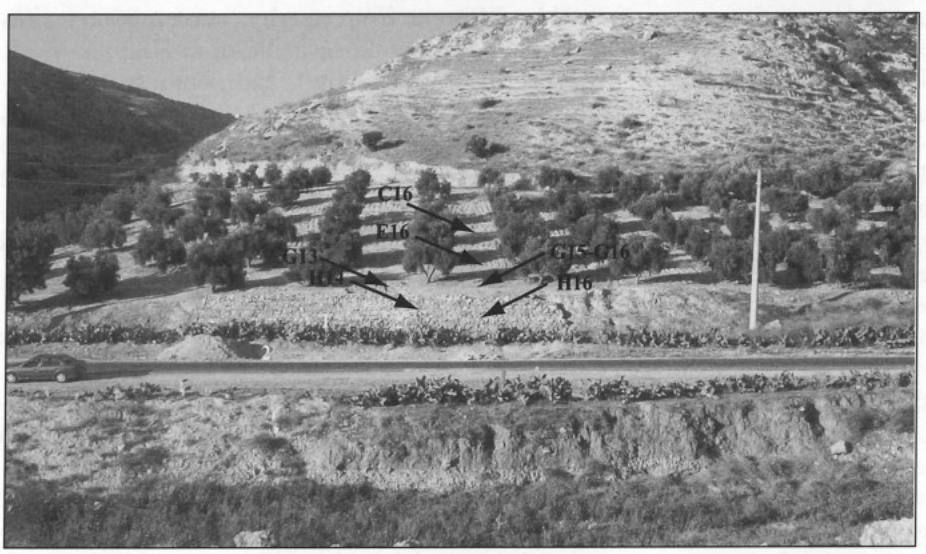
'Uyūn al-Ḥammām is named after a nearby permanent spring. It is located approximately 100m northwest of al-'Aqaba (WZ 310) where the project excavated Early Bronze and Late Neolithic material in 1990 and 1992, and 800m from the Epipalaeolithic and Late Neolithic site of Ṭabaqat al-Būma (WZ 200) (Banning *et al.* 1996, 1992) (**Fig. 1**). Situated on an ancient river terrace adjacent to the present-day Wādī bid (**Fig. 2**), it lies at an elevation of 210m a.s.l. Approximately one-third of the site has been destroyed by recent construction of a paved road to the village of Tubna, while incision of the wadi channel has also cut into the site from the south. An olive grove now occupies the remaining terrace.

'Uyūn al-Ḥammām is estimated to cover an area of approximately 1500m^2 based on the extent of artefacts. The site is also located near several outcrops of fine-quality, tan-coloured flint and is situated at the boundary between the oak-pistachio forest to the east and the steppe to the west. It is also less than 3km east of Lake Lisan's maximum palaeoshoreline (Bartov 2002), providing access to a wide range of food and non-food resources.

In 2000 and 2001 we conducted soundings in several areas in an attempt to determine the site's



1. Topographic map of Wādī Ziqlāb's main drainage basin, showing the location of 'Uyūn al-Ḥammām (WZ 148) and Ṭabaqat al-Būma (WZ 200) discussed in the text.



2. Photograph of the terrace of 'Uyūn al-Ḥammām (WZ 148) showing the location of our excavation areas. Small soundings were excavated in areas C16, E16, H14 and H16 in 2000 and 2001. These areas were reopened in 2002 and excavated along with the larger areas of G13, G15, and G16. The road cuts through the site and Epipalaeolithic material was found throughout the section of the large terrace between the car (left) and past the telephone pole (right), on both shoulders of the road, and in the section leading down to the modern wadi bottom (foreground).

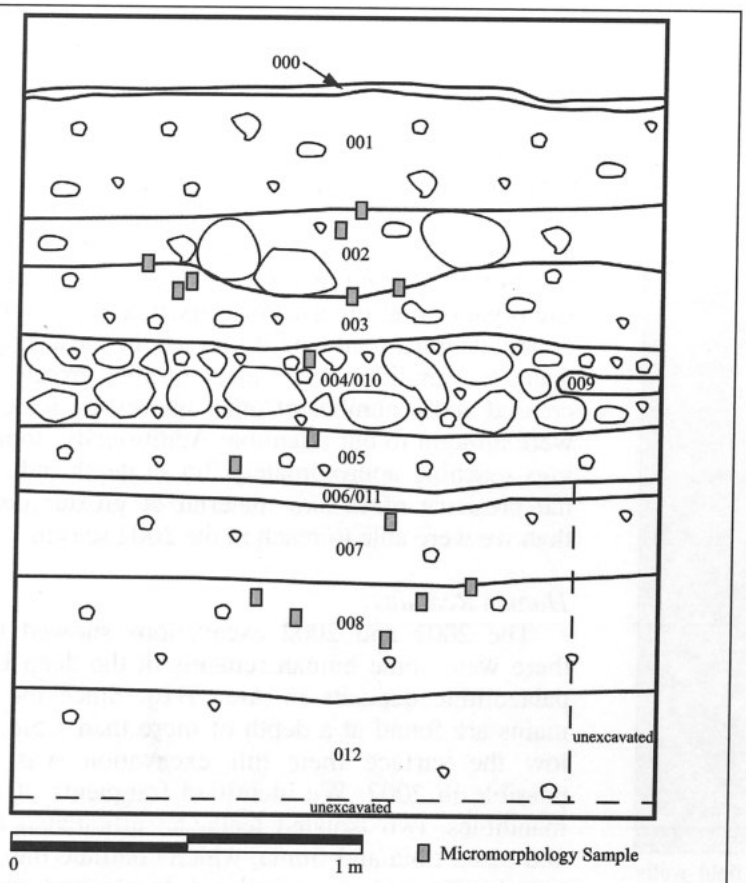
horizontal and vertical extent (**Fig. 3**). Our tests indicate that, underlying approximately 70cm of light-brown colluvium that contains Byzantine artefacts, a distinctive dark, red palaeosol contains high densities of Geometric Kebaran artefacts. The uppermost portions of the palaeosol have been redeposited from upslope but the lower portions are intact and contain *in situ* lithic, faunal, and human remains (Maher 2003). The discovery of this site is important because contemporary sites of this size with such a high density of artefacts and wide diversity of features, especially burials, are uncommon in the southern Levant. Excavation of this site allows investigation of both the nature of Middle Epipalaeolithic occupations in northern Jordan and its relationships with other contemporary sites.

In 2002, we excavated a total area of 38m^2 over the southern portion of the remaining terrace to expose a fairly large contiguous area of the Geometric Kebaran deposits. Our goal was to detect any spatial organization of the material culture and determine the depositional history of the deposits. Although we could discern no activity areas, hearths, or architecture in these upper deposits, the excavation greatly increased our lithic and faunal sample and brought a number of other interesting features to our attention.

Excavation Methods

In 2000 and 2001 the Wādī Ziqlāp Project conducted limited test excavations at the site in four areas (C16, E16, H14, and H16 in **Fig. 2**). Here, we excavated to a depth of 2.5m below the surface, uncovering approximately 1.75m of Middle Epipalaeolithic material (Maher 2001, 2002). This underlay 0.75m of recent (Holocene) plough-zone soil containing Roman/Byzantine and, possibly, Late Neolithic artefacts.

The 2002 excavations employed a nominal 3 x 3m grid, subdivided into smaller units of 50 x



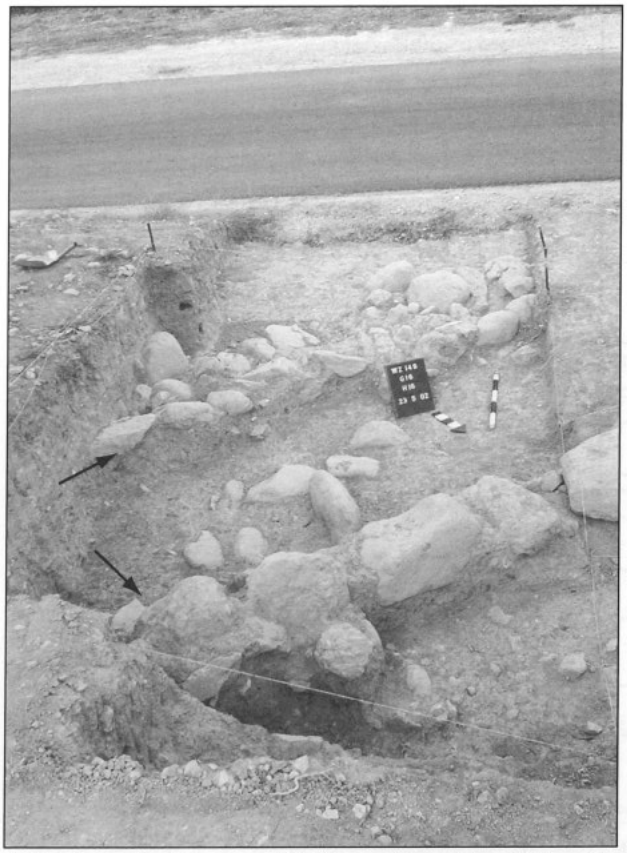
3. Stratigraphic profile for the north section of area H16, 'Uyūn al-Ḥammām, showing all excavated loci (labeled 000-012). The location of thin-section samples collected from 2000-2002 are marked by grey boxes. The human remains were discovered in locus 006/011.

50cm. Vertical subdivisions of stratigraphic layers by 10cm spits were used wherever there were no lithological grounds for changing locus. We screened 100% of excavated deposits through two sizes of overlapping mesh. Lithics, bone, shell, seeds and other artefacts were collected from the upper 3.5mm mesh, while all material in the lower 2mm mesh was collected and wet-sieved in the field laboratory. This material was later sorted in Toronto, by volunteers of the Wādī Ziqlāp Project, for micro-artefacts into the same artefact categories as the 3.5mm size fraction. Additionally, we systematically collected samples for flotation and micromorphological analysis.

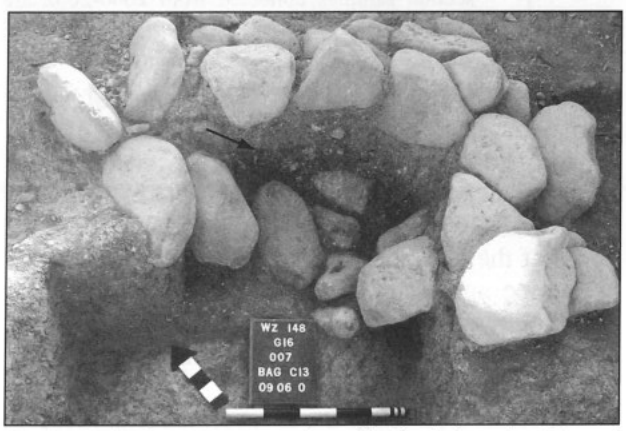
Late Neolithic and Roman/Byzantine Occupations

The terrace surface is covered by 50-75cm of Holocene sediment, exposed by our trenches stepped into the deep section created by road construction. It consists of a light-brown, silty colluvium with a very low density of Roman/Byzantine artefacts (mainly fragments of glass containers and beads) and the remnants of two small field walls whose foundations sit upon the uppermost Epipalaeolithic deposits (**Fig. 4**). The field walls were constructed parallel to the contours of the terrace edge and presumably stabilised the slope against erosion. Prior to road construction, the terrace was almost twice as large as today and provided an extensive flat surface suitable for farming.

In Area G16 (**Fig. 2**), a large, circular feature constructed of water-rounded cobbles appears to have been cut into the uppermost surface of the underlying Pleistocene palaeosol (**Fig. 5**). One Late Neolithic sherd was found lying directly on top of the stone feature and another possible Late Neolithic sherd was found below the first layer of stones. The feature was excavated in section to a depth of 15cm below the lowest stone and only a few Epipalaeolithic lithics and some fauna were recovered from within the feature. However, securely placing the feature within the Late Neolithic or



4. Photograph of two parallel Roman/Byzantine field walls (arrows) in areas G15 and G16. The base of these walls lies within Holocene colluvium evidencing ongoing mass movements and they likely represent an attempt to stabilize the terrace slope for agricultural purposes.



5. The rock feature was stratigraphically below the Roman/ Byzantine field walls but its foundation was dug into the uppermost portions of the Epipalaeolithic-bearing palaeosol. The abrupt transition between these two deposits is highlighted by the arrow. Two possible Late Neolithic potsherds and microliths are the only artifacts associated with the feature.

Epipalaeolithic must await future excavation in 2005.

The Geometric Kebaran Occupation

Directly below the light-colluvium with Late Neolithic and Roman/Byzantine artefacts is an abrupt stratigraphic change to the Epipalaeolithic deposit (**Fig. 3**), marked by a distinctive change in colour, texture, and structure, as well as a dramatic increase in microliths and faunal remains. Upon removal of the light colluvium, the surface of the Epipalaeolithic deposit was mapped, photographed and subdivided into 50 x 50cm subunits for excavation to a depth of 30cm. Although no internal site organisation in terms of activity areas, hearths, or architecture could be discerned in these upper deposits, our lithic and faunal sample greatly increased and a number of other interesting features were brought to our attention. Additionally, soundings reaching approximately 2m in depth indicate the presence of *in situ* material at greater depth than we were able to reach in the 2002 season.

Human Remains

The 2001 and 2002 excavations showed that there were some human remains in the deep Epipalaeolithic deposits in Area H16. Since the remains are found at a depth of more than 1.5m below the surface their full excavation was not possible in 2002. We identified fragments of two mandibles, two isolated teeth, an articulated foot and distal tibia and fibula, which continue into the unit baulk, and an articulated femur and pelvis (**Fig. 6**). The mandibles and pelvis were removed to prevent their impending destruction from erosion and construction of a terrace wall to stabilise



6. Human remains recovered from Area H16 at 'Uyūn al-Ḥammām include an articulated foot (1) and the fragmented remains of two mandibles and several isolated teeth (found under the sign board), confirming the presence of at least two individuals. In 2002, an articulated femur and pelvis (2) were found approximately 30cm away from the foot and mandibular fragments eroding out of the terrace section that cuts through the site. A large unretouched blade was discovered immediately beside the femur (arrow). The remains were conserved in the field and reburied for future excavation and analysis. In addition, isolated teeth and another mandibular fragment were also found eroding out of the section about 8m to the west of the remains shown here.

the site. One mandible is very large and robust (adult male) with substantial wear on the lower teeth, while the other is smaller and shows even more extensive tooth wear down to the crown. The foot, which continues into the baulk has been conserved *in situ* and reburied for future excavation in 2005. Our excavations of the remains indicate they represent the burial of two or three individuals, probably in flexed position. However, the road cut and subsequent erosion have disturbed portions of each skeleton. The remains were also associated with four large rocks found in a semi-circular position around the articulated foot. A broken basalt mortar, two trapeze/rectangles, and one well-made endscraper on a blade were found nearby, although their exact association with the human remains is uncertain.

In addition, we found isolated traces of human remains again eroding out of the slope about 8m farther west, at about the same elevation as those in Area H16. However, these constitute only one isolated tooth and another fragmented mandible and we could not trace the remains any farther into the section, so labelling these as a burial is tenuous at best.

In general, the bones are in good condition with some fragmentation and damage related to exposure from erosion. Attempts to date the human remains by radiocarbon dating (one sample of a mandible fragment and one sample of a tooth) at Isotrace Laboratories in Toronto failed, however, because of insufficient datable material.

Human remains from this period are extremely rare and previous examples are known from only a few sites in Jordan (al-Kharrāna, Muheisen 1988b) and Israel (Neve David, Kaufman 1987, 1989). Given the significant social and ideological importance that interment of the deceased may have had in this and subsequent periods, further investigation of these remains is of great importance.

Faunal Remains

A large quantity of faunal material was recovered from three seasons of excavation. The majority of it comes from locus 004 of Area H16 (**Fig. 3**) where a total of 2,171 bone fragments were excavated from 0.26m^3. Of these, only 187 (8.6%) have been identified to Genus or species because of the extremely fragmentary and carbonate-encrusted nature of the material. In many cases, carbonate deposits were virtually impossible to dissolve or remove without destroying the bone. Despite sample size and preservation issues, the proportions and types of identified material are much like those in other Geometric Kebaran assemblages (e.g., Bar-Oz and Dayan 1999, 2002).

Preliminary analysis of identifiable species from all excavation areas indicates a relatively wide species breadth, but with some focus on deer, gazelle, and hartebeest (Maher 2002). Our analysis identified 15 vertebrate and invertebrate taxa (Humphrey 2003), with *Gazella sp.*, *Cervus elaphus* and *Cervidae* sp. exhibiting the highest NISP values. Hartebeest (*Alcephalus*) and *Avies* are also abundant (Maher 2002). The presence and abundance of *Avies* sp. are significant because the preservation of these delicate bones (Humphrey 2003) is consistent with rapid burial by sediment.

A recent analysis of the faunal remains by E. Humphrey (2003) focussed on taphonomic and other information that the large quantity of unidentifiable remains could provide. Humphrey found that long-bone shafts were the most commonly represented body part, comprising 69.5% of the entire sample of unidentified fragments and suggests that the body parts represented by the unidentified fragments are consistent with what one would expect in a midden deposit, namely a high proportion of high-utility items, perhaps produced as a result of intensive processing for marrow extraction (Maher 2002).

The faunal material exhibits no evidence of carnivore gnawing (Humphrey 2003), although carbonate encrustation may have obscured it in some cases. We account for the high degree of fragmentation as a result of both food-processing activities, such as meat roasting and marrow and grease extraction, and some trampling that has created an assemblage of highly fragmented, largely unidentifiable pieces (Humphrey 2003; Maher 2002). A combination of food-processing activities and highly alkali soil conditions probably also accounts for the lack of collagen, hindering dating of bone samples. Several radiocarbon samples consisting of bone (TO-8850, TO-8851, TO-8852, and TO-8853) yielded insufficient collagen for dates. We are currently attempting to obtain dates from additional samples.

Burning or charring is relatively common and is found on 15.2% of mammalian long-bone fragments (Humphrey 2003; Maher 2002). Evidence for *in situ* hearths is lacking in these deposits, yet ash, charcoal fragments, and burnt flint occur in significant quantities in these deposits (see micromorphology below) and they likely represent refuse dumps or midden contexts. Large pieces of meat may have been cooked in an open pit or bones discarded in a fire and, later, redeposited in the midden.

Only three bone fragments showed any cultural

modification. The fragments all belong to the cervid family and show macroscopic evidence of cutting from skinning or disarticulation processes (Humphrey 2003).

The possibility that ʿUyūn al-Ḥammām is a specialised hunting or kill site is ruled out by the diversity of tool types, evidence for both on-site and off-site core reduction (see below), the abundance and diversity of animal species, and the presence of other artefacts (like groundstone) and substantial thickness of the deposits. Both high-utility and low-utility items are present in the faunal assemblage, indicating that sometimes entire carcasses, rather than just high-utility parts, were transported to the site (Humphrey 2003).

According to existing reconstructions of the distribution of mammals throughout the southern Levant (Tchernov 1998; Uerpmann 1981) and reconstruction of the forest-steppe boundary in Wādī Ziqlāp (Banning *et al.* 1987) all of the identified species were available within the immediate vicinity of the site. Much as with the acquisition of lithic raw material (see below), subsistence resources were readily available and occupants of the site did not have to travel far to acquire the species represented in the faunal assemblage. Consistent with palaeoenvironmental reconstructions for this region during the Middle Epipalaeolithic (Banning *et al.* 1987; Maher 2005), a broad spectrum of resources was available to the site's inhabitants. Resultantly, the faunal evidence suggests a relatively diverse subsistence base.

The Chipped Stone Assemblage

The 2002 excavations recovered far fewer lithics than previous seasons because we excavated only the top portion of the Epipalaeolithic deposit, where our previous soundings indicate that artefact densities are noticeably lower. However, the lithic material from this season is similar to that recovered previously (Maher 2002). Microliths of various forms dominate the tools (**Table 1**). Although both complete and incomplete trapeze/rectangles make up almost 50% of the identified tools, other common microliths include asymmetrical trapezes, obliquely truncated and backed bladelets, partially and completely backed bladelets, and fragments of backed pieces.

Most of the tools are made on a fine-quality, light brown or tan-coloured flint containing small, white inclusions, from a source in the flint-rich limestone hills east of the site. Generally, however, the lithic raw material is variable in quality and appearance. In almost all cases where cortex is pre-

Table 1: A preliminary count of tool classes from ʿUyūn al-Ḥammām (* excluding cores, core fragments, and core trimming elements) for the 2000-2002 seasons.

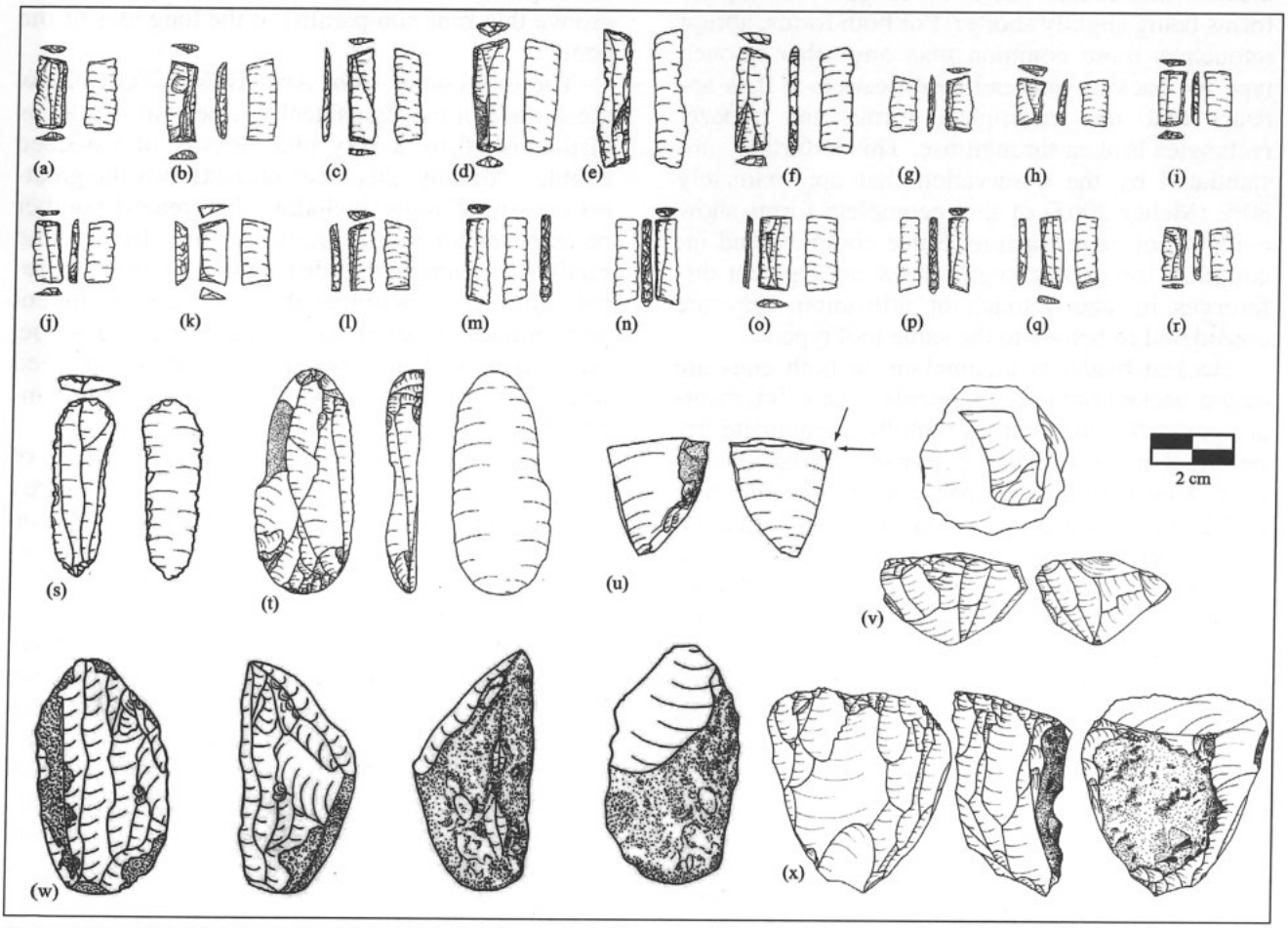
Artefact Class		**Total Number (n)**	**Percentage of all Tools***
Retouched Tools		225	15.8
Microliths	Non-Geometric	174	12.3
	Geometric	734	51.7
	(trapeze/rectangles)	(706)	(49.7)
	(asymmetrical trapezes)	(21)	(14.8)
	(lunates)	(4)	(0.3)
	(triangles)	(3)	(0.2)
Scrapers		121	8.5
Burins		64	4.5
Multiple Tools		16	1.1
Utilised Tools		64	4.5
Microburins		4	0.3
Notches and Denticulates		10	0.7
Perforators		5	0.3
Heavy Duty Core Tools		3	0.2
Cores, Core Fragments, Core Trimming Elements		153	-
Total		1573	100

served, it is well-rolled and water-worn. Its abraded nature and survey of the flint available today in the wadi suggest that most of the raw material at the site comes from small nodules from the adjacent wadi bottom. However, the presence of a very fine, translucent, dark brown flint that outcrops only downstream in the chalky bedrock near the mouth of Wādī Ziqlāp indicates that the occupants did intentionally search out this raw material.

Debitage from the excavations indicates that all stages of lithic manufacture occurred on-site. The abundance of complete and fragmented blades and bladelets demonstrates the importance of their production, presumably for microliths. However, most cores are too small, even in their original form as reconstructed from the percentage of preserved cortex, to have produced many of the large blade tools. This suggests not all tools were manufactured on-site.

Of the cores analysed, over 60% of them are single-platform, pyramidal or sub-pyramidal cores focussed on the production of uniformly-shaped bladelets (**Fig. 7**). Other core types include a few carinated core scrapers, punch cores, and amorphous flake cores. The bladelet cores are generally small in size and are fairly extensively covered in bladelet removal scars, suggesting relatively exhaustive use. In fact, we recovered one extremely small bladelet core that measured less than 3cm in its maximum dimension. For single-platform cores, an average of 270° of the platform circumference is utilised, with the remainder exhibiting water-rolled cortex.

Microlithic tools are twice as abundant as non-microlithic ones, making up 64% of all tools analysed (**Table 1**). Among non-microlithic tools, the most common types are endscrapers and burins. Over 69% of all identified scrapers are single or double endscrapers on blades. Notably, many of them are made on dark brown or reddish-brown flint of very fine quality. The assemblage also includes a substantial number of burins on natural surfaces and multiple tools, the burin on a re-



7. Tools from 'Uyūn al-Ḥammām assigned to the Geometric Kebaran include complete trapeze/rectangles, (a-k) incomplete trapeze/rectangles (l-r), endscrapers (s-t), burins (u), a single-platform carinated core scraper (v), and broad-faced, single-platform bladelet cores (w-x) (drawn by N. Tataric and R. Stebelsky).

touched blade being the most common.

The microlithic tool component is dominated by geometrics, which form 81% of this tool category. These consist of complete and incomplete forms of the trapeze/rectangle (**Fig. 7**), the asymmetrical trapeze B, backed bladelet fragments, a single abnormal scalene triangle, and two possible lunates. However, the abundance of trapeze/rectangles throughout all excavation areas and loci is notable. The clear dominance of, and uniformity within, this tool class is consistent with a typical Geometric Kebaran assemblage (Bar-Yosef 1970; Fellner 1995; Goring-Morris 1987). Within this tool class, both complete trapeze/rectangles and incomplete or "proto" forms are combined because, among backed tools with only one end retouched (the other truncated/snapped), it was impossible to tell the difference between tools that were "proto" forms not yet completely retouched into finished tools and ones broken on one end from use. However, comparison of the average length, width, and thickness of incomplete and complete forms indicates differences only in length, incomplete forms being slightly shorter. For both forms, abrupt retouch is more common than any other retouch type for backing and end modification. It thus appears that the incomplete forms are trapeze/rectangles broken through use. This is further substantiated by the observation that approximately 80% (Maher 2005) of the incomplete forms show evidence of edge fracture. Since complete and incomplete trapeze/rectangles show no apparent differences in size, retouch or utilisation, they are considered to belong to the same tool type.

Backed bladelets incomplete on both ends are called backed bladelet fragments. These fragments are generally short but, as with the incomplete trapeze/rectangles, they are otherwise similar to complete ones in width, thickness and location and type of backing. Most fragments also exhibit some degree of edge damage. Arguably, they represent trapeze/rectangles that have been broken on both ends through use or during manufacture, and are not a distinct class of tools.

Only four unambiguous microburins have been identified in the entire assemblage. Based upon the number of microburins (n=4) in relation to geometric microliths (n=734), it is clear that the microburin technique was not consistently or intentionally used.

Many of the blades and flakes display extensive pot-lids and fracturing from exposure to heat. Heating seems to be common for the unretouched debitage and some of the utilised pieces, but rare among retouched tools, where only 0.6% displays any evidence of burning.

Groundstone Tools

Groundstone tools from all three seasons at ʿUyūn al-Ḥammām include one broken and two complete cylindrical pestles, fragments of two basalt vessels, a complete limestone hand stone, and a small amorphous fragment of basalt. All three pestles were found eroding out of the terrace section. A limestone pestle (**Fig. 8**) and a large hand stone were eroding out of the section in Area H16, just above the level of the human remains. It may be significant that two of the three complete pieces of groundstone found to-date, both of which are made from limestone, were found only a few centimetres above the human remains.

Other Objects

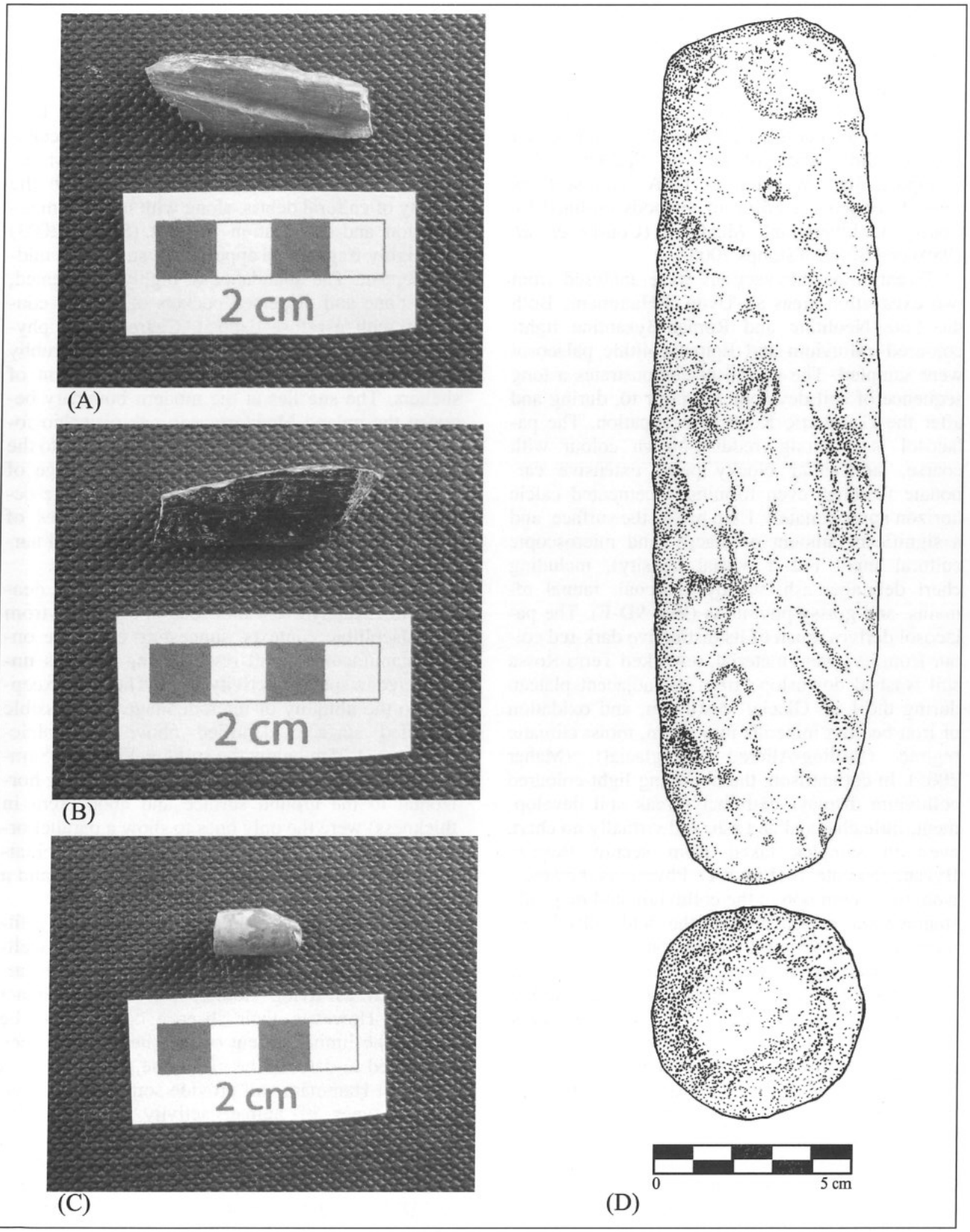
One unambiguous bone tool fragment was recovered from Area H16 (**Fig. 8**). It is a fragment of a mammalian long bone, probably a rib, with both surfaces highly polished. One surface is black from burning, while the other has a deeply incised groove that runs sub-parallel to the long axis of the bone.

The tool comes from Area H16, ~30cm below the surface of the Epipalaeolithic deposit in a locus distinguished by a very high density of fist-sized cobbles. Notably, this locus also exhibits the greatest density of tools, including the greatest number of trapeze/rectangles. However, the density and random orientation and distribution of artefacts results from slope activities that have input sediment and cultural material from on-site areas upslope. All remaining faunal material has been examined in the lab and no other bone tools have been identified.

Prior to 2002, only a few very small pieces of unidentifiable mollusc shell had been recovered from the site. In 2002, we excavated only the top 30cm of the Epipalaeolithic horizon, yet we recovered several pieces of shell, a fragment of a bone bead, a fossilized bivalve, and several fossilized fish teeth. The fossils do not appear to have been modified, although it is possible they were brought to the site as decorative objects. We also recovered two small tubular beads or bead fragments, one of shell (*Dentalium sp.*) and the other of bone (**Fig. 8**); both were poorly preserved. Finally, we found a few small fragments of both red and yellow ochre, neither of which occur naturally on-site.

Micromorphology

Samples of *in situ* blocks of sediment were col-



8. Objects from ʻUyūn al-Ḥammām include: (A-B) a bone tool with a deeply incised groove running subparallel to the long axis of the long bone on one surface (A), while the other surface of the tool is extensively burned and polished (B); (C) a bone bead fragment displaying a highly polished surface and, (D) a limestone pestle found eroding out of the section of the terrace close to the human remains in area H16 (drawn by R. Stebelsky).

lected from several Epipalaeolithic contexts (**Fig. 3**) in 2001 and 2002 for micromorphological analysis with the aim of identifying possible living surfaces, activity areas, and site-formation processes. Consolidated blocks were impregnated with a clear polyester resin, cut to a thickness of 30µm, glued to a glass slide, and polished by Spectrum Petrographics Inc., Washington, USA. Thin-sections were described according to methods outlined by Courty, Goldberg and MacPhail (Courty *et al.* 1989) and Stoops (Stoops 2003).

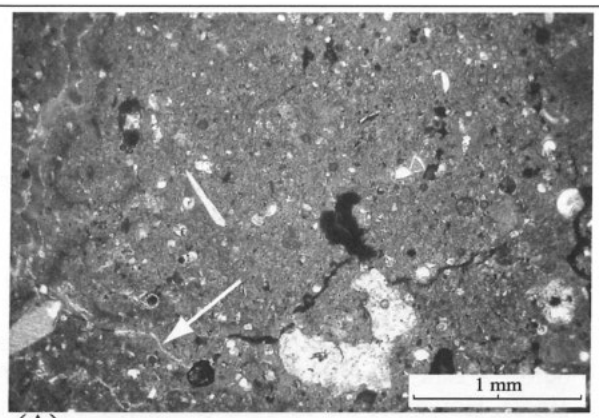
Twenty-nine thin-sections were analysed from two excavation areas at ʿUyūn al-Ḥammām. Both the Late Neolithic and Roman/Byzantine light-coloured colluvium and Epipalaeolithic palaeosol were sampled. The palaeosol demonstrates a long sequence of soil development prior to, during and after the Geometric Kebaran occupation. The palaeosol is a strong, reddish-brown colour with coarse, subangular blocky peds, extensive carbonate features, even forming a cemented calcic horizon approximately 1.8m below the surface, and a significant amount of macro- and microscopic cultural input (~2-% visual density), including chert debitage, ash, woody charcoal, faunal remains, and grassy phytoliths (**Fig. 9D-F**). The palaeosol derives much of its distinctive dark-red colour from its parent material, reworked Terra Rossa soil washed downslope from the adjacent plateau during the Late Glacial Maximum, and oxidation of iron-bearing minerals in a warm, moist climatic regime (Bølling-Allerød interglacial) (Maher 2005). In comparison, the overlying light-coloured colluvium displays extremely weak soil development, little charcoal and ash, and virtually no chert, even in samples taken from secure Roman/Byzantine contexts (**Fig. 9A**). Phytoliths, however, were more common in the colluvium and may substantiate our interpretation of the field walls as elements of an agricultural installation.

The boundary between the well-developed palaeosol and the light-coloured colluvium exhibits an erosional unconformity. Two Late Neolithic body sherds associated with a circular stone feature (see above) found at the base of the colluvium suggest a duration of up to 4000 years (12 500-8000BP) for erosion during which an unknown thickness of the palaeosol and, perhaps, other sediments, were washed away. During or after this erosional phase and prior to burial by light colluvium (Holocene), portions of the palaeosol were eroded from upslope and redeposited at the edge of the terrace. They are similar appearance and composition, yet accompanied by derived soil aggregates, Geometric Kebaran artefacts, a high density of cobbles, and a more fragmented, crumbly microstructure. This suggests that it derived from the same parent material (reworked Terra Rossa) and its source was immediately upslope.

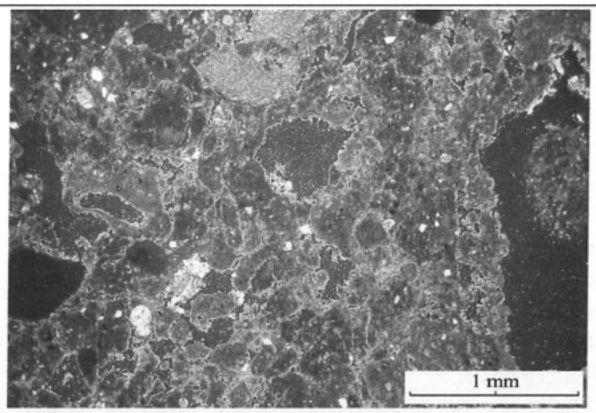
Further examination of the samples from Epipalaeolithic contexts allows us to discuss occupational differences between the two excavation areas. In Area H16, the dramatic increase in the density of cultural debris, along with its random orientation and distribution patterns (Stoops 2003) and highly fragmented appearance, suggests a midden deposit. The abundance of highly fragmented, burnt bone and dispersed pockets of ash are consistent with a refuse deposit. Charcoal and phytoliths attest to the use of woody and shrubby plants for fuel and, perhaps, the construction of shelters. The site lies at the modern boundary between the upland Mediterranean oak-pistachio forests to the east and the Irano-Turanan steppe to the west (Banning *et al.* 1987), and a wide range of plant species would have available to the site occupants. Further identification of the species of phytoliths represented in the thin-sections will narrow down the use of particular plant resources.

Flint microdebitage occurs in very high densities in virtually every thin-section examined from Epipalaeolithic contexts, suggesting extensive on-site manufacturing and resharpening of tools unrestricted to specific activity areas. The only exception to the ubiquity of microdebitage is a possible trampled surface identified above the calcic-horizon (~1.75m below the surface, Fig. 9C). Samples from this context (a linear feature running horizontal to the ground surface and about 1cm in thickness) were the only ones to show a parallel orientation of the coarse fraction, grain-size dominated by silts, lack of cultural debris except ash, and a highly compacted groundmass.

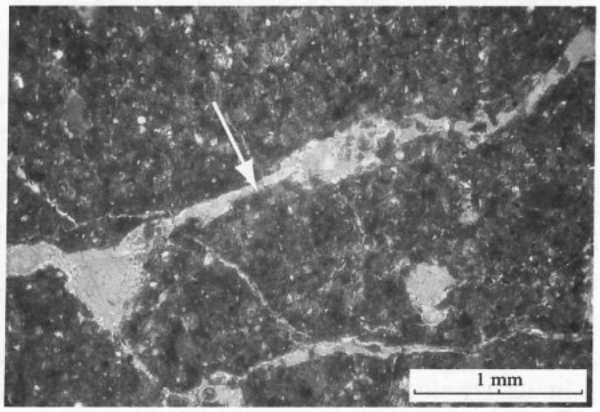
Reconstructing human activities on-site is a little more difficult because of the lack of well-defined occupational features in the excavated areas, such as living floors, structures, or intact hearths. However, their absence could easily be due to the limited extent of the site that has been excavated to-date. In the meantime, the deposits at ʿUyūn al-Ḥammām still provide some insights into certain types of human activity. Several thin-section samples show a dramatic increase in the density of cultural material, particularly microdebitage, large bone fragments, and charcoal (loci 005/007 and 008). These lower, *in situ* horizons show microstructures and combinations of constituents reminiscent of particular activities. Locus 005/007 resembles a midden or "unkept" living surface, with high densities of highly fragmented



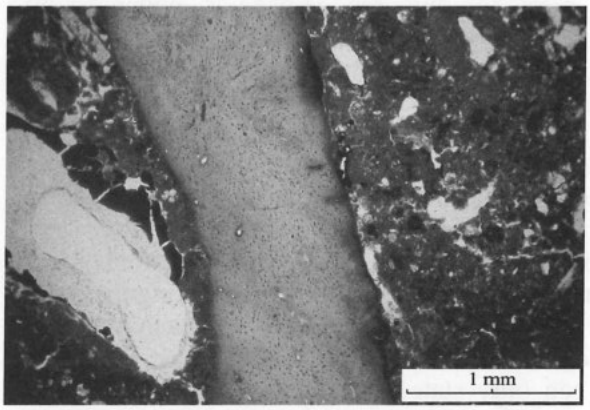
(A)



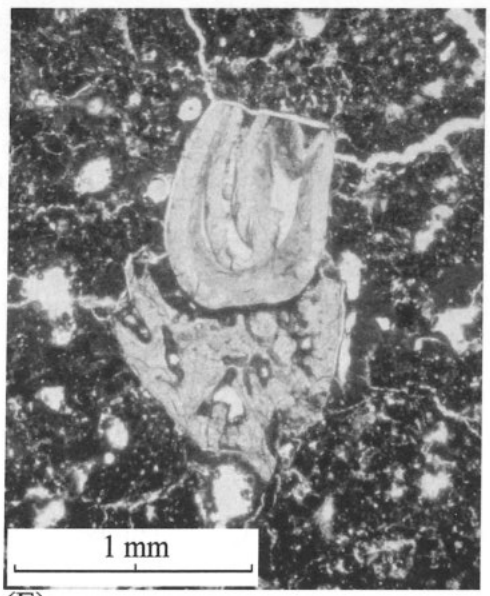
(B)



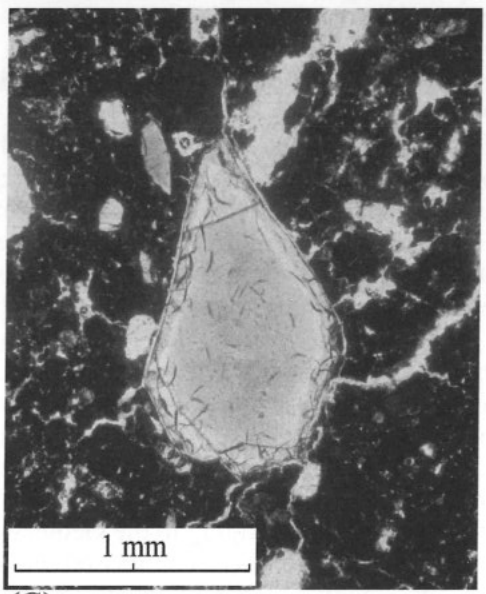
(C)



(D)



(E)



(G)

9. Photomicrographs of thin-section samples from ʻUyūn al-Ḥammām. (A) The abrupt transition between the Holocene colluvium (locus 002) and the reddish Epipalaeolithic palaeosol (locus 003) is marked by an arrow (XPL); (B) Extensive secondary carbonate development in locus 008 of the Epipalaeolithic-bearing palaeosol gives the groundmass a mottled and dense appearance and preserves and infills voids created by bioturbation. Pedogenic carbonate is found as calcite crystals lining void walls, hypocoatings, incipient nodules, and calcitic intergrowths (XPL); (C) A possible trampled surface at the base of locus 007 is marked by a horizontal, compacted, platy structure, as well as a notable lack of carbonate features and cultural debris from this ~1mm-thick feature (XPL), (D-F) Fragments of burned bone (PPL), a small carnivore molar (XPL), and chert microdebitage (XPL) from locus 008, respectively, all found in association with macroscopic charcoal, lithics and fauna.

bone, charcoal, and microdebitage all mixed together from continuous dumping of debris from adjacent hearths or other activity areas. The boundary between 007 and 008 shows a linear, horizontal, compacted feature, possibly part of a trampled floor. Furthermore, the one sample adjacent to the human remains showing evidence of heavy disturbance is overlain by intact deposits. It likely indicates an informal, shallow burial pit or depression, perhaps similar to those reported from Ohalo II (Nadel 1994) and Kharaneh IV (Muheisen 1988a, 1988b).

There are no clear occupational hiatuses or interruptions in deposition. The repeated use of certain areas for dumping garbage is evidenced by more than 20cm of midden-like material in locus 005 of Area H16. Samples taken near the human interments do not show evidence of distinct, intrusive pits. However, occupation of the site continued afterward and the deposits immediately overlying the human remains are intact. In summary, these deposits tell us that the site was occupied, continuously or not, as more than just a short-term, ephemeral campsite. Inferring the duration of occupation by rates of sedimentation and pedogenesis is virtually impossible here. Presently, we can only state that the lower portion of Epipalaeolithic-bearing material (loci 005-008) is ~ 1m thick and belongs to a single cultural phase — the Geometric Kebaran.

Relationship to Other Middle Epipalaeolithic Sites in Northern Jordan

The Epipalaeolithic sequence is based primarily on the analysis of lithic assemblages, and it is primarily through typological and technological comparisons of finished microliths that assemblages are assigned to different industries. However, assemblage composition varies considerably throughout the Levant. As a result, the Middle Epipalaeolithic is now characterised by a number of geographically-localised entities of roughly contemporaneous age (ca. 16 000-12 500BP), each defined largely on the basis of tool type frequencies and technological comparisons. An assemblage is generally considered as belonging to the Geometric Kebaran if the lithic technology is focussed on the production of relatively standardized trapeze/rectangles, such that they dominate the toolkit.

Survey and excavations in northern Jordan have revealed numerous sites of the Terminal Pleistocene. However, relatively little is known about the Middle Epipalaeolithic, specifically, as it is represented by only a few sites, including Ṭabaqat al-Būma and ʿUyūn al-Ḥammām in Wādī Ziqlāp (Maher 2002), WH 26, WH 31 and WH 50 in Wādī al-Ḥimma (Edwards 2001, 1996; Macumber and Head 1991), and two sites in Wādī Ḥisbān (Edwards 2001). However, the assemblages from these sites are significantly different from each other and other sites of contemporary age and so warrant some discussion.

Ṭabaqat al-Būma and ʿUyūn al-Ḥammām are located within 800m of each other in western Wādī Ziqlāp. Both are found in a distinct Pleistocene palaeosol and Ṭabaqat al-Būma is stratigraphically below a Late Neolithic occupation (Banning *et al.* 1992). However, the lithic assemblages of the two sites are quite different (Maher 2002). ʿUyūn al-Ḥammām exhibits an assemblage typical of the Geometric Kebaran, including an emphasis on the production of standardised trapeze/rectangles approximately 7mm in width. At Ṭabaqat al-Būma, lithic densities are much lower and there appears to be a focus on the production of extremely narrow bladelets truncated and retouched obliquely. Given that most of the tools were truncated at both ends to form narrow, elongated geometrics, the assemblage is somewhat similar to, but not typical of, the Geometric Kebaran.

Although ʿUyūn al-Ḥammām is unproblematic in its typological affinities, the assemblage from Ṭabaqat al-Būma exemplifies the confusion over how exactly to define the transition from Kebaran to Geometric Kebaran in the Mediterranean zone. It does not resemble a typical Geometric Kebaran assemblage, as there is no dominance of trapeze/rectangles. However, the assemblage is equally unlike a typical Kebaran assemblage, as there is considerable standardisation in the production of tools with both ends modified (i.e., both ends modified or snapped to resemble geometric shapes). Therefore, it can be argued that the material from Ṭabaqat al-Būma is transitional between the Kebaran and Geometric Kebaran, and this agrees well with existing radiocarbon dates placing occupation ~15 500 cal BC (Maher 2002).

In Wādī al-Ḥimma (WH), the assignment of Epipalaeolithic is in many cases based on radiocarbon dates, even though the lithics have few of the diagnostic features for specific Epipalaeolithic cultures (Edwards 1996). WH 26 and WH 31 are both tentatively assigned to the Middle Epipalaeolithic on the basis of a few "ad hoc" (Edwards 1996:123) geometric microliths. Also, WH 50 contains only a single backed bladelet fragment and, while microliths are the dominant tool type, they are primarily points formed by bilateral backing and abrupt retouch at the distal end, similar to early "El-Wad" points (Edwards 1996: 123). However, excavations

were limited at these small sites and the recovered tools may not be representative of the entire assemblages.

Therefore, the closest sites to ʿUyūn al-Ḥammām that are assigned to the Middle Epipalaeolithic and located in the Mediterranean woodlands are Ṭabaqat al-Būma and WH 50. Both are atypical sites, with none of the defining characteristics for this period. Neither resemble *ʿUyūn* al-Ḥammām in their lithic types or density, abundance of faunal remains, presence of burials, nor other features discussed above.

Conclusions

There are few classic Geometric Kebaran assemblages (those dominated by trapeze/rectangles and with groundstone and other site features discussed above) east of the Jordan Valley. The lithics from ʿUyūn al-Ḥammām are clearly Geometric Kebaran and comparable to many of the contemporary sites to the west and southeast (al-Azraq Basin). Despite the high degree of variability in Jordan in the Geometric Kebaran, northern Jordan no longer represents a gap in our knowledge for this period and can be related to other culturally contemporary sites in other parts of the southern Levant.

Although no architecture, hearths, or storage pits, features typically associated with multi-seasonal occupations have been discovered to-date, I suggest that this is due to the limited extent of excavation to date. We have only excavated the uppermost, partially disturbed, part of the Geometric Kebaran horizon. Our soundings indicate that the deeper deposits contain *in situ* material, including human remains. The rapid colluviation of the site has likely deeply buried any of these features so that, if they are present, we simply have not yet reached them.

In summary, I have attempted to outline our current understanding of this new assemblage from northern Jordan and place it within the region's cultural-chronological framework. Although *ʿUyūn* al-Ḥammām and Ṭabaqat al-Būma differ in their lithic assemblages, it is possible that the low density of artefacts from Ṭabaqat al-Būma, and its greater similarity to sites in the south and east of Jordan than to ones in the Mediterranean core, point to its use as a short-term hunting or gearing-up site (Maher 2002). The extremely high density of lithics from ʿUyūn al-Ḥammām and the appearance of "traditionally" Geometric Kebaran tools, the abundance of fauna, the traces of non-local shell and bone tools, the high occurrence of burning of the lithics and fauna, and the presence of at least three interments may indicate a more substantial site. If there are also architecture, storage pits, and other features, these must await further excavation.

Acknowledgments

This field season of the Wādī Ziqlāp Project was co-directed with Ted Banning and I would like to thank him for his guidance and allowing me to conduct excavations in cooperation with the Wādī Ziqlāp Project. I would also like to thank the field crew of the 2002 season, which included Kevin Gibbs, Nathan Goodale, Sarah Karmi, Carla Parslow, Steve Rhodes, and Alexandra Sumner. Our Department of Antiquities Representative, Dr. Ismail Milhem, provided a great deal of assistance and support in carrying out the excavations. I also thank Dr. Fawwaz al-Khraysheh, Director-General of the Department of Antiquities, for continuing to support our research. Finally, I would like to thank Deifullah Atrouz for allowing us to excavate in his olive orchard. The Wādī Ziqlāp Project gratefully acknowledges financial support from the Social Sciences and Humanities Research Council of Canada.

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Bibliography

Banning, E.B., Rahimi, D. Siggers, J. and Taani, H.
1996 The 1992 Season of Excavations in Wadi Ziqlab. *ADAJ* 40: 29-49.

Banning, E.B., Dodds, R. R., Field, J., Kuijt, I., McCorriston, J., Siggers, J., Taani, H. and Triggs, J.
1992 Tabaqat al Buma: 1990 Excavations at a Kebaran and Late Neolithic site in Wadi Ziqlab. *ADAJ* 36: 43-69.

Banning, E.B., Dodds, R.R., McCorriston, J., Monckton, S. and Sheppard, P.J.
1987 Report on the Wadi Ziqlab Project 1986 Season of Excavations. *ADAJ* 31: 321-342.

Bar-Oz, G. and Dayan, T.
1999 The Epipalaeolithic Faunal Sequence in Israel: A View from Neve David. *Journal of Archaeological Science* 26: 67-82.
2002 After 20 Years: A Taphonomic Re-evaluation of Nahal Hadera V, and Epipalaeolithic Site on the Israeli Coastal Plain. *Journal of Archaeological Science* 29: 145-156.

Bartov, Y., Stein, M., Enzel, Y., Agnon, A. and Reches, Z.
2002 Lake Levels and Sequence Stratigraphy of Lake Lisan, the Late Pleistocene Precursor of the Dead Sea.

Quaternary Research 57: 9-21.

Bar-Yosef, O.
1970 *The Epipalaeolithic Cultures of Palestine.* Unpublished Ph.D. thesis, Hebrew University, Israel.

Belfer-Cohen, A. and Goring-Morris, N.
2003 Why Microliths? Microlithization in the Levant. Pp. 57-68 in R. G. E. a. S. L. Kuhn (eds.), *In Thinking Small: Global Perspectives on Microlithic Technologies* vol. 12. American Anthropological Association: Arlington.

Courty, M.A., Goldberg, P. and MacPhail, R.
1989 *Soils and Micromorphology in Archaeology.* Cambridge University Press: Cambridge.

Edwards, P.C.
2001 Nine Millennia by Lake Lisan: The Epipalaeolithic in the East Jordan Valley Between 20, 000 and 11, 000 Years Ago. Pp. 85-93 in G. Bisheh (ed.), *SHAJ* 7. Department of Antiquity of Jordan: Amman.

Edwards, P.C., Macumber, P.G. and Head, M.J.
1996 The Early Epipalaeolithic of Wadi al-Hammeh. *Levant* 28: 115-130.

Fellner, R.O.
1995 *Cultural Change and the Epipalaeolithic of Palestine.* BAR International Series 599. British Archaeological Reports: Oxford.

Goring-Morris, A.N.
1980 *Late Quaternary Sites in Wadi Fazael, Lower Jordan Valley. Unpublished* M.A.thesis, Hebrew University: Israel.
1987 *At the Edge. Terminal Pleistocene Hunter- Gatherers in the Negev and Sinai.* BAR International Series. British Archaeological Reports: Oxford.

Henry, D.O.
1995 *Prehistoric Cultural Ecology and Evolution: Insights from Southern Jordan.* Plenum Press: New York.

Henry, D.O. and Leroi-Gourhan, A.
1976 The Excavation of Hayonim Terrace: an Interim Report. *Journal of Field Archaeology* 3: 391-407.

Humphrey, E.
2003 *To Aggregate or To Disperse: A Preliminary Taphonomic Analysis of a Middle Epipalaeolithic Site in Wadi Ziqlab, Northern Jordan. Unpublished M.A. thesis,* Department of Anthropology, University of Toronto, Canada.

Kaufman, D.
1987 Excavations at the Geometric Kebaran Site of Neve David, Israel. A preliminary report. *Quartär* 37/38: 189-199.
1989 Observations on the Geometric Kebaran: a view from Neve David. Pp. 275-286 in O. Bar-Yosef and B. Vandermeersch (eds.), *Investigations in South Levantine Prehistory. Préhitoire du Sud-Levant.* BAR International Series. vol. 497. British Archaeological Reports: Oxford.

Macumber, P. and Head, M.
1991 Implications of the Wadi al Hammeh Sequences for the Terminal Drying of Lake Lisan, Jordan. *Palaeogeography, Palaeoclimatology, Palaeoecology* 84: 163-173.

Maher, L.
2003 Excavations at a Geometric Kebaran Site in Wadi Ziqlab, northern Jordan. *Antiquity* Online Project Gallery 77 (295).
2005 *The Epipalaeolithic in Context: Palaeolandscapes and Prehistoric Occupation of Wadi Ziqlab, Northern Jordan.* Unpublished PhD Dissertation, Department of Anthropology, University of Toronto: Canada.

Maher, L., Lohr, M., Betts, M., Parslow, C. and Banning, E.B.
2002 Middle Epipalaeolithic Sites in Wadi Ziqlab, Northern Jordan. *Paléorient* 27(1): 5-19.

Maher, L. and Banning, E.B.
2001 Wadi Ziqlab Survey, Archaeology in Jordan. *American Journal of Archaeology* 105: 427-29.

Muheisen, M.
1988a The Epipalaeolithic Phases of Kharaneh IV. Pp. 353-367 in A. Garrard and H. Gebel (eds.), *The Prehistory of Jordan. The State of Research in* 1986. BAR International Series. vol. 396. British Archaeological Reports: Oxford.
1988b Le Gisement de Kharaneh IV, Note Summaire Sur la Phase D. *Paléorient* 14: 265-269.

Nadel, D.
1994 Levantine Upper Palaeolithic - Early Epipalaeolithic Burial Customs: Ohalo II as a Case Study. *Paléorient* 20 (1): 113-121.

Ronan, A., Kaufman, D., Gophna, R., Bakler, N., Smith, P. and Amiel, A.
1975 The Epipalaeolithic Site Hefziba, Central Coastal Plain of Israel. *Quartär* 26: 53-73.

Shimelmitz, R. and Barkai, R.A.
2001 An Epipalaeolithic Occurrence at the Site of 'Ein/ Ain Miri, Northern Israel. *Neolithics* 1/01: 4-5.

Stoops, G.J.
2003 *Guidelines for Analysis and Description of Soil and Regolith Thin Sections.* Pp. 184, Madison: Soil Science Society of America.

Tchernov, E.
1998 Are late Pleistocene Environmental Factors, Faunal Changes, and Cultural Transformations Causally Connected? The Case of the Southern Levant. *Paléorient* 23(2): 209-228.

Uerpmann, H.-P.
1981 The Major Faunal Areas of the Middle East During the Late Pleistocene and Early Holocene. *Colloques Internationaux du C.N.R.S., No. 598, Prehistoire Du Levant:* 99-106.

PRELIMINARY REPORT ON THE EXCAVATIONS AT SHAKĀRAT AL-MUSAY'ĪD, 1999-2004

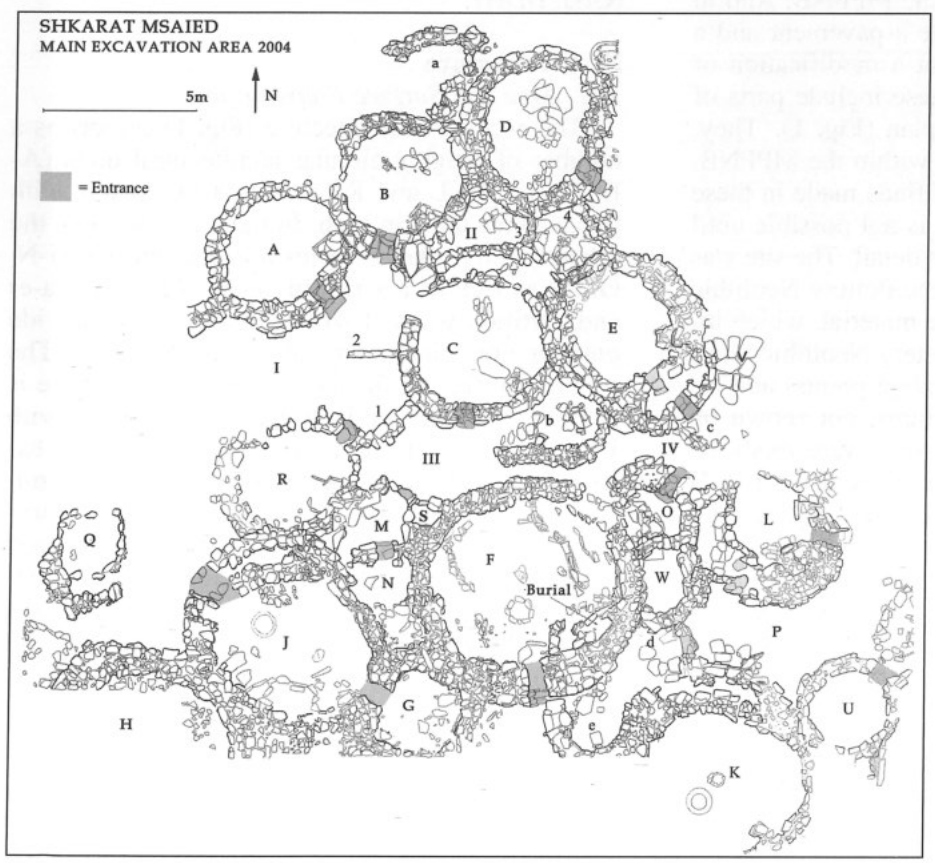
C. H. Jensen, B.D. Hermansen, M. Bille Petersen, M. Kinzel, M.M. Hald, P. Bangsgaard, N. Lynnerup and I. Thuesen.

I. Introduction

The site of Shakārat Musay'īd[1] is situated in the sandstone mountain area some 13km north of Petra ca. 1000m above sea level. The present day vegetation of the area is dominated by stone oak with some juniper and pistachio as well as shrubs and other minor herbs (Gebel 1986). No present day permanent spring is situated within less than two-hours walking distance (Gebel 1988: 81), but during our work at the site, we have observed that water is often close to the surface in the wadi, on the slope of which the site is located. Hence 'harvesting' or 'domestication' of water (Gebel 2004) during the Neolithic cannot be excluded.

Due to erosion of the southern and western edge of the site, as well as to recent construction works, the original size of the settlement is not known. Nevertheless more than 1000m^2 of well-preserved circular architecture is still present of which ca. 600m^2 have been subjected to excavation, so far (**Fig. 1**).

The site was discovered by Diana Kirkbride in



1. Plan of the site.

1. The site name has been written in different versions throughout the publications of Kirkbride (1966), Gebel (1986, 1988; Gebel and Starck 1985) and our team due to a variation in the Arabic spelling as well as in the transcription. With the kind assistance of our Department representative of the 2004 season Mr. Hani Falahat, inspector of the Department of Antiquities of the Ma'ān region, we now expect to have the correct transcription of the name as it is used here. The meaning of the site name is a small plot of land assigned to a poor man by the local land owner.

1964 (Kirkbride 1966: 54). She conducted a survey on the site and made a small sounding in the southern slope. In 1984 Hans Georg K. Gebel made a systematic survey on the site during his work in the Greater Petra Area (Gebel 1986, 1988). He also made a sounding on the south eastern slope, in which architectural remains were found (Gebel 1988: 83). Since 1999 the site has been under excavation by a Danish team (Kaliszan *et al.* 2001; Hermansen 2004; Hermansen and Jensen 2002; Jensen 2002, 2004b, in press; Petersen 2003; Petersen and Hermansen n.d.)[2]. The promising results of the first seasons followed by a short study season in 2002 encouraged us to continue work at the site, and plans were made for three additional years of excavation, of which two have passed at the time of writing. One of the goals of the remaining fieldwork has been to enlarge the excavated area further in order to enable a study of intra-site space use on a broader base.

One major building phase has been identified, conventionally dated to the MPPNB (see more below). At least one building (Unit E) is constructed on earlier walls, also dated to the MPPNB. And in the southeastern part of the site a pavement and a few flimsy structures, represent a modification of the main phase (cf. II.1-2). These include parts of the Units O, L, and P on the plan (**Fig. 1**). They, too, would seem to be datable within the MPPNB, to judge from the inventory of finds made in these structures. But a secure dating is not possible until the finds have been analysed in detail. The site was apparently also in use during the Pottery Neolithic as seen from the chipped stone material, which includes a few arrowheads of Pottery Neolithic types (Ha-Parsa, Nizzanim, and Herzliya points) and indicated by a few flimsy structures, not shown on the plan. Finally, the upper layers were modified through Nabatean reuse of stones from the PPNB architecture, Nabataean terracing, and agricultural activities of Nabataean and more recent date.

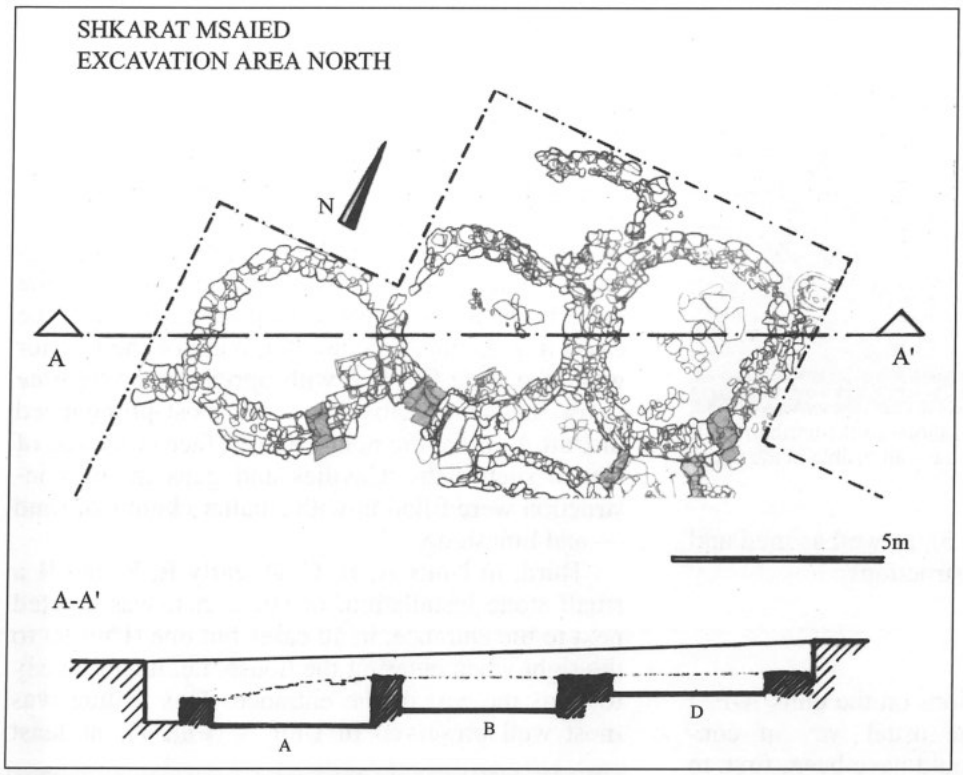
The dating of the main building phase to the MPPNB is based on the chipped stone material, showing arrowhead types dominated by Jericho and Jericho/Byblos transitional forms. Additionally, a very small proportion of Helwan points (until 2004 a total of 6 pieces) have been recovered. Five C-14 dates are available; two of which give uncalibrated conventional dates of 9144 ± 55 BP (Wk-15160); and 8977 ± 60 BP (Wk-15159) respectively; and the remainder giving uncalibrated conventional dates of 8880 ± 80 BP (AAR-9335), 9590 ± 90 PB (AAR-9336), and 8885 ± 70 BP (AAR-9337)[3]. Of these samples AAR-9335 is a charcoal sample of *Ephedra* sp., i.e. a shortlived herb, whereas the others are of *Juniperus* (AAR-9336) *Pistacia* (AAR-9337) or unidentified tree species (WK-15160 and Wk-15159). Additional samples are presently being processed for dating, species identification and tree ring analysis. The dates, acquired so far, would seem to place the tested samples in the EPPNB and the early part of the MPPNB. The presence of the few Helwan points (cf. V.1) may also point towards an early dating; as such points dominate in the Early PPNB and continue into the MPPNB (Gopher 1994; Rollefson 2001). In combination, then, these data suggest a date in the first half of the MPPNB for the site of Shakārat Musay'īd.
(CHJ, BDH)

II. Architecture

II.1. Area and Surface Preparations

The excavated architecture (**Fig. 1**) comprises a number of roughly circular architectural units (A-E, F, H-J, K, L and R), arranged in clusters with two or three units in each. In the areas between the circular units smaller rooms are situated (G, M-N, O, S), as well as a series of small enclosures (a-e) and partition walls (1-4) which seem to subdivide outdoor areas into more restricted premises. The original surface of the excavated part of the site is sloping gently towards the west and south with Unit D erected at the highest level within the excavated area (**Fig. 2**). The buildings are not semi-subterranean in the sense of those in Bayḍa (Kirkbride 1966: 18; Byrd 1994: 647). Instead, at least some units, (e.g. B and D), seem to have been constructed on a roughly circular terrace, cut into the slightly sloping surface. Alternately, in cases of rebuilding (Unit E), the earlier walls were leveled and incorporated in the later construction. Surfaces

2. The field work in 1999 was directed by Lea Kaliszan and Charlott Hoffmann Jensen, in 2000 by Susanne Kerner, and in 2001 by Lea Kaliszan. Since 2002, the project has been directed by Ingolf Thuesen, Charlott Hoffmann Jensen and Bo Dahl Hermansen.
3. Two C14 samples have been dated at the Radiocarbon Dating Laboratory at the University of Waikato, New Zealand (WK-15160 and WK15159). The results have been received in August 2004. Three samples have been dated at the AMS Laboratory at the University of Aarhus, Denmark (AAR-9335, AAR-9336, and AAR-9337) received in December 2004. The results are Conventional Age as per Stuiver and Polach 1977, Radiocarbon 19: 355-363 with correction for isotopic fractionation applied. Prior to dating, the Aarhus samples were analyzed by Dr. Claus Malmros for species identification at the National Museum of Copenhagen giving the results mentioned in the text.
The calibrated dates are as follows (95,4% probability):
WK-15160: 8530-8260BC. WK-15159: 8290-7960BC.
AAR-9335: 8300-7750BC. AAR-9336: 9250-8650BC.
AAR-9337: 8250-7760BC. Calibration as per Stuiver *et al.* 1998.

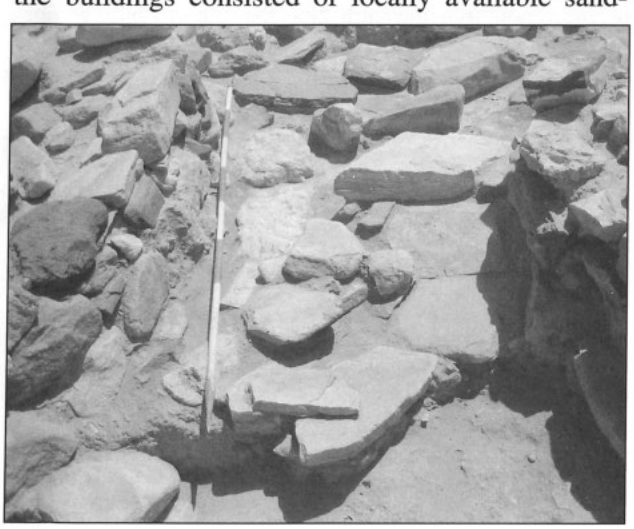


2. Section through the Units A, B and D showing the difference in level on which the housing units have been constructed (By M. Kinzel).

in outdoor areas were sometimes covered with a stone pavement (e.g. Space II and V) or with lime plaster (Part of Space I, Space III-IV), and rose considerably as a result of replastering and possibly repaving (the latter is based on the fact that two layers of stone pavement have been identified in Space II, **Fig. 3**). Earthen surfaces also occur (e.g. most of Space I).
(BDH, CHJ)

II.2. Building Materials

The main materials used in the construction of the buildings consisted of locally available sandstone and limestone. Although the pattern is not without exceptions, it does seem that limestone boulders were preferably used at the base of walls as a sort of support or foundation, whereas the walls were otherwise constructed of sandstone. In addition postholes along the inner face of the walls and charred roof beams, recovered in Unit K, indicate the use of wooden construction that would also have been acquired from locally available arboreal sources which, in prehistoric times in general, would have included the same as today: oak, pistachio and juniper (Gebel 1988: 72). This is also confirmed by two of the charcoal samples from the excavation, mentioned above, which have been identified as *juniperus* and *pistacia* sp. respectively.



3. Pavement in Space II in two layers, looking east.

Plaster was used on the floors of the houses, and replastering has been observed in several cases. In Unit K plaster was, indeed, found preserved on the interior wall to a height of more than 1m, indicating that not only floors but also at least parts of the interior walls of the circular structures were covered by plaster (**Fig. 4**). No analyses have been made on the plaster materials yet, but colour, texture and hardness indicate that lime plaster was frequently used (Lea Kaliszan, pers. comm.). In at least one case (Unit C), it could be shown that a plaster floor had been painted with a red colour, which paled swiftly after exposure to the open air. Finally, we have evidence of mud floors, including



4. Unit K showing plaster floor, postholes in the northern wall and wall plaster still attached to the wall visible in the upper right corner of photo.

a raised floor in Unit F (**Fig. 5**), as well as mud and lime mortar used in roof constructions.

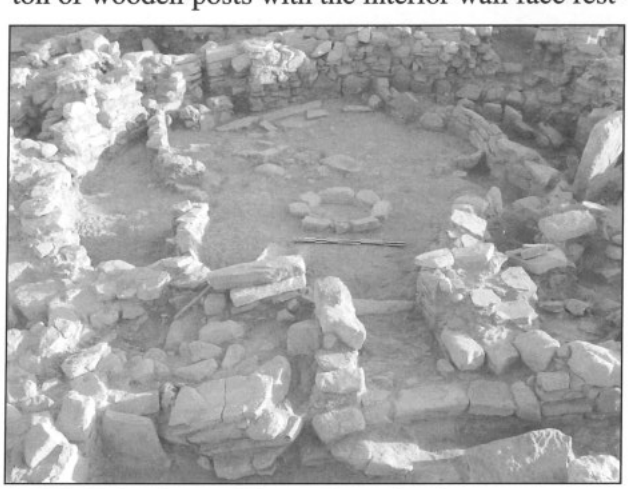
(BDH, CHJ)

II.3. Constructing a House

Interpreting our observations on the units A-F, J and R we suggest that the usual way of constructing a circular house would have been, first, to cut a roughly circular floor bed into the sloping surface of the site, however, future investigations below floors may force us to modify this suggestion. In cases of rebuilding (Unit E), the earlier walls were levelled and a floor bed prepared artificially. Then a circle of wooden posts, each ca. 10cm in diameter, would have been staked in the floor bed, some 20-30cm from the edge, at intervals of ca. 0,45-1,50m. In at least some buildings, this system was apparently organised around a larger pole, supporting the roof construction like in the circular houses in Bayḍa Phase A (Byrd 1994: 607).

Second, mostly double faced walls, ca. 60cm wide or more, were constructed around this skeleton of wooden posts with the interior wall face resting on the floor bed and the exterior face resting on the surrounding surface (**Fig. 6**). The interior face was constructed in segments, adjusted in size to the distance between the wooden posts. The exterior was constructed as an unbroken circle of large, horizontally laid boulders, mainly of sandstone. At this stage, the posts would have been visible in the gaps between wall segments (**Figs. 4 and 6**). Most segments of the inner circle were constructed in the same mode as the exterior wall faces, but in some cases (e.g. Units A, B, and C), parts of the interior wall face were finished with upright standing lime — or sandstone slabs. This was most pronounced in Unit A where the northern wall face consisted of eleven such slabs. Cavities and gaps in the construction were filled in with smaller chunks of sand — and limestone.

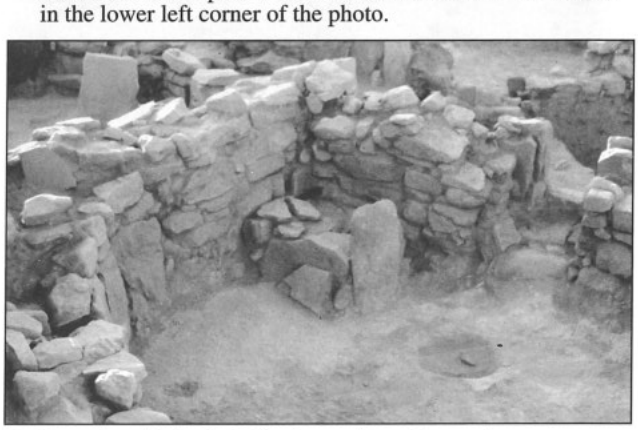
Third, in Units A, B, C, D, early E, F, and R a small stone installation, or stone cist, was erected next to the entrance, in all cases but one (Unit R) to the right when entering the house, i.e. unanimously towards the east of the entrance. This feature was most well preserved in Unit A (**Fig. 7**), at least



5. Unit F showing mud floor and stone benches.



6. Site viewed from the north. Note the wall of Unit B resting on a sloping surface in the lower right corner of the photo. Postholes are visible in the walls of Unit B and Unit C in the center of the photo. The Platform of Unit D is situated in the lower left corner of the photo.



7. Stone installation in Unit A seen from the northwest.

when first recovered. Here it was built of upright standing stone slabs, one of which was a very finely worked, blue sandstone slab, which rose above the rest as a monolithic marker of the installation. The fill within consisted of small limestone boulders set in plaster. The stone cist was covered with slabs, which would have provided a fine horizontal surface. A possible purpose and meaning of this installation has been discussed elsewhere (Hermansen and Jensen 2002).

Finally, when the stone cist was finished, a floor of plaster was laid out to cover the base of walls and stone features, at least in Unit K continuing up along the wall face (**Fig. 4**). Thus, if the interior walls were completely covered by plaster, as possibly indicated by the observations in Unit K, the wooden posts as well as the upright standing slabs in the wall construction would no longer have been directly visible. But this cannot be certified in most cases. Replastering was executed several times during the lifetime of the buildings.

After the floors had been plastered, a platform of stone slabs was sometimes (Unit B, C, D) laid out on the northern part of the floor (**Fig. 6**), opposite the doorways, or in one case (Unit D) just inside the door, to the left. These platforms may well have served as working surfaces.

In Unit F we recovered a raised floor constructed by infilling a layer of earth or mud, which was then stamped to reach a considerable compactness. Then a bench with a face of stone slabs was added along the east and west walls of the room (**Fig. 5**). In this way, an almost rectangular plan was effectuated, which may be of interest in the ongoing discussion on the origin of rectangular architecture in the Southern Levant.

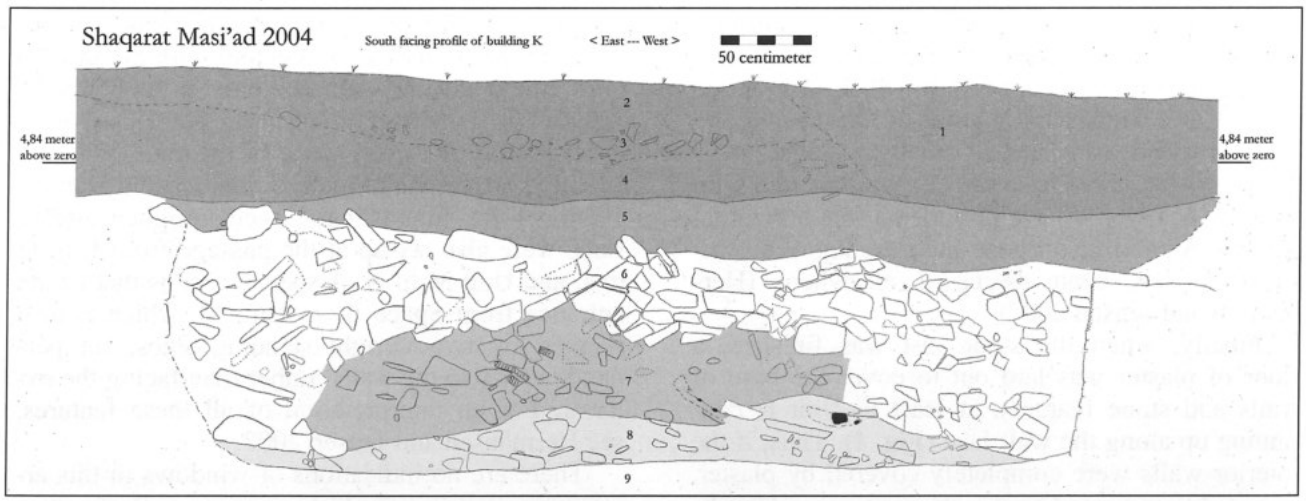
When constructing the houses, except for Unit J, only a single opening was left in the wall-constructions to serve as doorway. These are usually in the south, southwest or southeast. The only exceptions from this, so far, are Unit R, in which the door is in the northeast, and Unit J which has two doorways, a main one in the northwest and a secondary doorway in the southeast which probably originally led to an open space and later to Unit G (A doorway oriented roughly towards the east was identified both in Unit L and U during the spring season of 2005. The results of the 2005 season will be presented elsewhere). With the exception of the northwest door of Unit J, doorways are quite narrow, roughly 60cm in diameter, with thresholds some 20-30cm high. The thresholds consist of horizontally laid slabs, sometimes arranged as a small staircase. Additionally, the doors of Units A, B, C, and late E, were flanked on the exterior face by large upright standing slabs, an architectural feature which, together with the thresholds, would have served, implicitly or explicitly, to signify the boundary conditions, associated with passage from the open space of the exterior to the enclosed space of the interior (Hillier and Hanson 1984: 144ff). Interestingly, such upright standing slabs were also set up at the passage from Unit G to J, and Unit M to N. A special case is that of the entrance from Space III to Unit M, which is also flanked by two upright standing slabs, set perpendicularly to the walls, rather than facing the exterior. For an interpretation of all these features, see Hermansen and Jensen 2002.

There are no indications of windows in this architecture but this could have to do with the state of preservation. The village plan is well preserved, as we have seen, but the fill inside the houses indicate that the walls must have been considerably higher than preserved, in the case of Unit K significantly exceeding the preserved height of 1,40m. So windows can, of course, not be excluded. This leads to the question of what houses may have looked like, and how roofs may have been constructed, which will be discussed in the following paragraph.
(BDH, CHJ)

II.4. Reconstructing a Roof

It has recently been argued by Charlott Hoffmann Jensen (2002, 2004b) and Mikkel Bille Petersen (2003, 2004) that the houses in Shakārat Musay'īd may have had flat substantial roofs, and that these may have served as additional spaces for storage and activities. This suggestion was largely based on extrapolation from the distribution of artifacts recovered in room fill, and on sporadic evidence of roof collapse, i.e. circumstantial evidence. But no solid evidence of roof construction has been systematically identified so far. However, in the campaign of 2004 the authors of this paragraph excavated part of the room fill of Unit K and were able to record an east-west oriented section through this building. A brief report is offered here. The section drawing (**Fig. 8**) indicates our understanding of the observations.

The deposits in question are Stratum 6-9. Reading upwards, Stratum 9 is a well defined plaster floor, upon which Stratum 8 is resting. The latter is a layer of mud mortar, organic soil and large chunks of charred wood, with cobble sized stones embedded. Stratum 7, too, consists of a mixture of charred wood, organic soil, mud mortar and predominantly cobble sized stones. The main difference between the composition of the two strata, be-



8. Southern section of sq. D110 showing cut through the northern part of unit K.

ing that Stratum 8 has a much higher density of mortar and charcoal but hardly any artifacts, whereas Stratum 7 shows a quite high density of artifacts and bones. The charred wood appeared partly as large chunks, with a thickness from ca 5,75 to ca 14cm and a length of 39cm (chunks with a thickness of up to 17cm were found in the spring of 2005), partly as thin extensions of these, and partly as a spread of ashes and charcoal with little articulation. In one case such large chunks were found along an east west axis of more than 2m suggesting that we are dealing with the remains of roof beams. Unfortunately, the larger chunks were mostly embedded in ashes, and hence we fear that in most cases, the outer tree-rings have not been preserved. However, that will have to await proper investigation of the sampled material. Mortar and soil samples have also been collected in order to investigate the composition of the materials employed, as well as a sample of burned stone, found in Stratum 8.

This combination of findings would seem to us to indicate that Unit K had a substantial, flat roof, supported by large beams, branches and wickerwork, and covered by a quite thick layer (30-40cm?) of mortar with cobble sized stones embedded. The reconstruction of the roof will be further discussed in the following paragraph (II.5).

Finally, Stratum 6 would seem to represent the collapse of the walls of the house. As seen from the drawing the collapse of the walls appears to have happened in two tempi, first a collapse from the West (and Southwest), which took that wall down to a height of roughly 1 meter, and then a collapse from the East (and Northeast), which took that part of the wall down to a height of ca. 1,40m. i.e. this house, with its thick walls, must have stood to a height of perhaps 1,60-1,80m or more, and if our interpretation is reasonable, have had a flat, substantial roof.

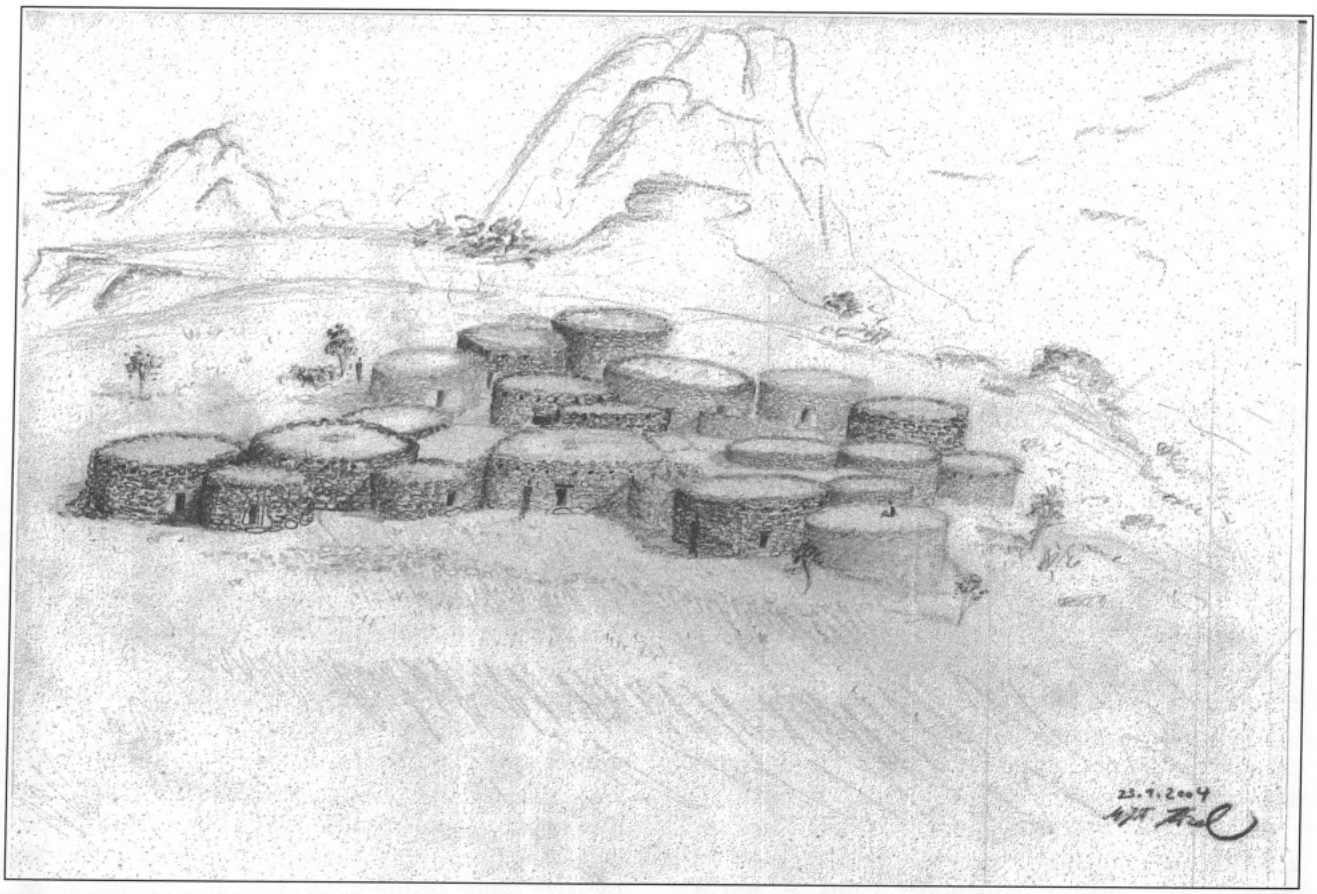
A full horizontal excavation of the remaining and major part of the room fill in Unit K is planned for the next campaign in 2005. And we hope then to be able to add details and perhaps modifications to the interpretation offered here (see Petersen and Hermansen n.d. for information that includes results from the first campaign of 2005).
(BDH and MBP)

II.5. Reconstructing a House

With the results from the last campaigns, especially concerning Unit K and H, we are able to present a preliminary reconstruction of PPNB buildings in Shakārat Musay'īd.

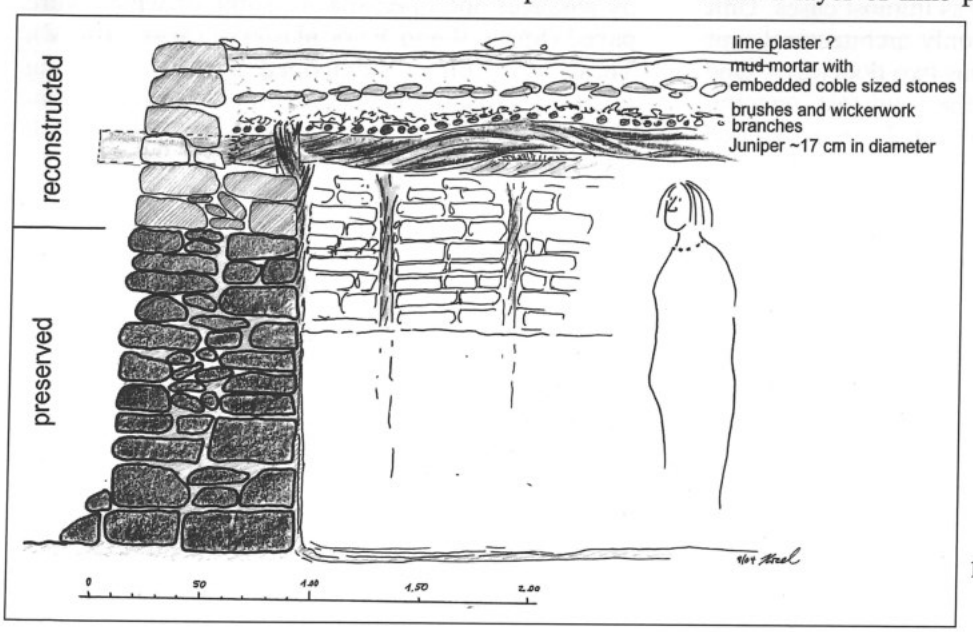
The buildings of Shakārat Musay'īd show various characteristics of the building tradition in semi-arid mountain areas along the 30th degree of latitude (Adam 1981) (**Fig. 9**). This kind of stone architecture, with walls more than 60cm wide, is well adapted to the extreme climate of the mountain setting in the area. Compared to the buildings of the Northern Levant, like in Jafr al-Aḥmar (Stordeur *et al.* 2000), the building construction here is both solid and substantial in order to compensate for the cold winters and hot summers.

Through an analysis and interpretation of the room fill of unit K and H the walls can be reconstructed to a height of up to perhaps 1.80m or more. The height is calculated for the wall interior. To calculate the height the stones from the room fill were collected in an area of 1 x 1 x 0,8m and when piled up, the stones measured some 1x 0,75 x ~ 0,5m. The height of the experimental wall, more than 0,5m, was added to the preserved height of unit K (1,40m) and H (ca. 1,20m) suggesting a comfortable height inside the buildings.



9. Reconstruction drawing by M. Kinzel of the village of Shakārat al-Musay'īd.

In general, the roofs in MPPNB Shakārat Musay'īd are, as mentioned earlier, considered to be flat. **Fig. 10** is a reconstruction of this feature. The beams of the flat roof rested on a scaffold of wooden posts that were placed in wall channels in the interior wall face and in a central posthole. Branches and wickerwork were placed across the beams, covered by thick layers of mud mortar embedded with cobble-sized stones. This material was heavily compressed by roof renewal processes. Finally, on top of the roof construction we may assume a layer of lime plaster. The cross-section re-



10. Reconstruction drawing showing a cross section of Unit K (By M. Kinzel).

constructed for Unit K shows the characteristic cross section of roof constructions in the region as it is seen today in the traditional village of ar-Rājif in Wādī Mūsā area (**Fig. 11**) (Kinzel 2004). How the roof beams were placed around the central post cannot be reconstructed yet. Nevertheless, this MPPNB construction seems to be at the beginning of a long tradition of roof building technology which, transferred to rectangular architecture, continued through the LPPNB until the present.
MK

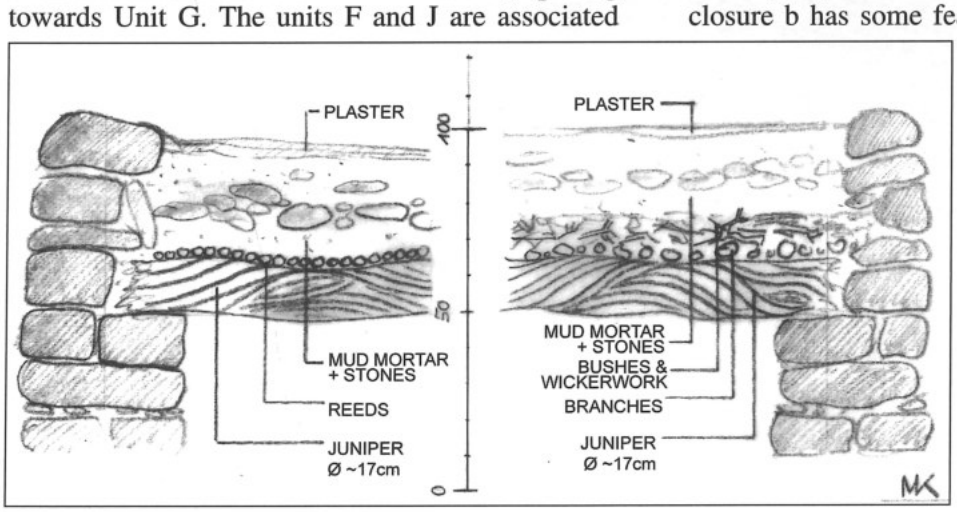
III. Village Plan and Organization

III.1. Village Plan

The plan, as revealed so far is focused on three main clusters of circular architectural units (**Fig. 1**). The two clusters to the north consist of respectively three and two units with floor areas of some 9-11m^2 (Units A, B, D, and early E), ca. 13m^2 (Unit C), and 17m^2 (late Unit E), respectively. Each of these circular units has its own entrance, as mentioned above, mostly from the south, southeast and southwest. By reference to the classifications of Byrd (1994: 646) we interpret these units as domestic houses.

The architecture to the south is more heterogeneous, encompassing one cluster with two or three larger, circular structures: Units F and J which cover some 25 and 17m^2, respectively, and Unit H, which is apparently large but with an unknown floor area because of limited exposure. At least Units F and J are presently interpreted as communal buildings, partly following Byrd (1994: 656f), and partly because of the finds recovered inside them (cf. IV.1-2; VI.6). The entrance of Unit F is roughly towards the south, as in most cases. Unit J, on the other hand, as the only architectural unit at the site excavated so far, has two doorways. One in the northwest and one in the southeast, opening towards Unit G. The units F and J are associated with a series of smaller structures (Units G, M, N, R), which would seem to have been added to an original layout with free passage between these units, and an open space in front. Unit R, ca. 9m^2, apparently belonged to the same category of buildings as A-early E. Concerning the units M and N, it has been suggested elsewhere (Hermansen and Jensen 2002), that these rooms may have been a setting for ritualized activities. Finally, the layout of the units L, O, and P was constructed by paving the area east and southeast of Unit F, leaving the ruined walls of an abandoned circular structure (Unit L), and adding division walls which subdivided the area in small compartments. The presence of another large building, Unit K, to the south of this cluster indicates that the site must have continued in southern direction. This is substantiated by wall remains, identified on the southern slope of the site before excavation started in 1999, which indicate that the Neolithic village continued southwards, beyond the present day slope of the site. Similarly, a test trench, excavated on the eastern slope of the site in 2001, not shown on the plan, indicates that the architecture also continued eastward, beyond the present day slope of the site. In this trench, another house unit (T) was recovered, half eroded away, but apparently originally within the size range of the units A-D. It may, therefore, be suggested that the hypothesized communal buildings were originally located in a focal position on the site, and hence served as a focal area in a changing layout of the domestic housing areas and open spaces that surrounded it. This, of course, needs substantiation through further excavation.

The main architectural clusters were separated by passages and open spaces, some of which were paved (Space II and V) or plastered (Space III-IV). These were further subdivided by small dividing walls (1-4) and enclosures (b-c). of these, enclosure b has some features which indicate that it



11. Two versions of roof construction from the village of ar-Rājif. The reconstructed roof of Unit K is similar to the right drawing (by M. Kinzel).

may have served as a setting for some sort of ritualized activity (see Hermansen and Jensen 2002). (BDH, CHJ, MBP)

III.2. Building Sequence and Changes of Village Plan

Even though no definitive interpretations can be made regarding the sequence of building activity at the site, and hence changes in the site plan, an attempt is made here to present the data and conclude as much as possible on specific parts of the excavated area. Starting from the southwest, it appears that the units in that part of the excavated area, H and J, were constructed simultaneously. This is because they share a wall, or rather; their walls are interlocked in a way, which indicates simultaneous construction. The stratigraphic relationship between Unit J and R is rather straightforward since the walls of the latter abut on the northern wall of Unit J. Thus, Unit R was probably a contemporary or subsequent addition to Unit J. The large Unit F, situated further east, was not originally connected to H, J and R. Its stratigraphic relationship to Units H, J, and R is therefore not clear, as yet.

Moving north on the plan, focus shifts to the units C and E. Unit E features two construction phases of which the later is considerably larger than the earlier construction. The walls of Unit C are abutting on those of late Unit E. But they are also built, partly on the same foundation; and thus, they must have been planned and executed in one operation. It is now clear that the wall of Enclosure b was also constructed on this foundation, indicating that this feature was planned and executed simultaneously with the two circular units.

The houses in the cluster to the north were apparently built in one or two tempi. Units B and D may or may not have been made simultaneously, since they are not sharing walls. But they were built on the same surface, which would tend to favour an interpretation that they were built with no long interval in between. The walls of Unit A, on the other hand, were clearly added to those of Unit B, to judge from the fact that they abut on the latter. However, like Unit C and late Unit E, it may well be that Unit A and B were planned and executed in one operation. Especially since that Unit B wall segment, which is shared with Unit A, rests on the Unit A floor bed.

The above considerations indicate that not all architectural units were necessarily constructed simultaneously. However, both these considerations and the features to be described presently would seem to indicate that they all, or most of them (excepting early E), would have been in simultaneous or overlapping use during the main phase at the site. This is because four flimsy dividing walls (**1-4 on the plan, Fig. 1**) were erected across the open areas between the houses. It is clear that Wall 1 would have separated Space I and III, and that it would have served to orient the doorway of Unit R towards Space I and that of Unit C towards Space III. Wall 2 would have separated Space I into an area in front of Unit R and one in front of the units A and B. Finally, the walls 3 and 4 would have separated Space II and a space to the east of the excavated area and hence, oriented the door of Unit D towards that latter space, leaving Space II in association with the doorways of Units A and B.

We currently interpret this insertion of dividing walls across open areas in the village as a strategy in the negotiation of social boundaries between inhabitants in the excavated area of the site. They would have had the effect of blocking or reducing circulation through the excavated parts of the village and setting up boundaries between premises of various social groups on the site. This process apparently resulted in the subdivision of open, possibly 'public' or 'communal', space into more 'private' premises.

This subdivision of some open areas in the excavated part of the site into individual premises was not the only architectural modifications in the excavated area. The most complex modifications of the plan are actually represented by the units G, M-N and S. These units were added by inserting a series of dividing walls and doorways in the space between the Units J, R and F. In this way, the space between Unit J and F was blocked completely. Unfortunately we cannot say at present how long an interval ensued between the construction of the units F, J, and R and that of M-N. Neither can we say if Unit G was constructed simultaneously with M-N and S, while the latter seems to be constructed in one operation. At any rate, it is clear that, together with the insertion of the partition wall (Wall 1), these modifications would have had the overall effect of creating an enclosed space in front of Unit C with privileged access to Unit M-N and Enclosure b, both of which have some rather unusual features, that have been discussed and interpreted elsewhere (Hermansen and Jensen 2002; cf. III.1).

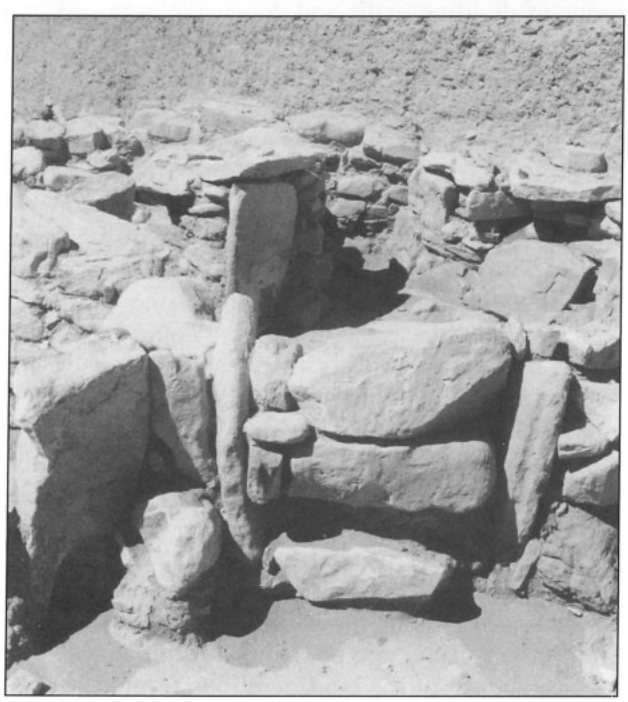
More work is needed in order to clarify the stratigraphic and architectural situation of the southeastern part of the excavated area which includes the architecture of the units L, O, and P. As a consequence of the considerations offered in this paragraph, it is perhaps reasonable to suggest that

the plan exposed so far would correspond pretty well to the village plan by the end of the PPNB occupation, at least within the excavated area. An impression that is strengthened by the fact that most, or all, entrances appear to have been deliberately blocked as if the inhabitants expected to return to the site (**Fig. 12**). Something that was obviously not to happen in the end.
(BDH, CHJ, MBP)

IV. The Human Burial

IV.1. The Context

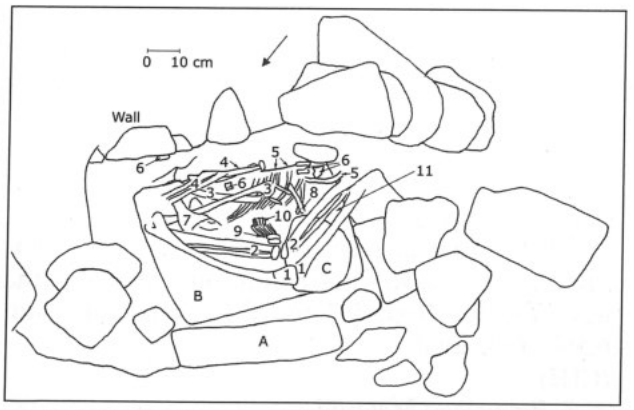
In the southeastern part of Unit F we located the most well preserved stone cist of all the cists identified. As in most cases this was to the right of the entrance when entering, i.e. to the east. Like the building itself, this feature is larger than the other recovered cases. It is constructed of horizontally laid boulders, and demarcated by a large, flat-topped monolith made of orange coloured sandstone, the surface of which has turned gray through the millennia. But the color must have been visible for the people who cut the monolith to shape and placed it in the position where it was found. On the face of this monolith there is a discoloration, which is centered on an area where the surface layer is flaking off (**Fig. 13**). The meaning of this is not yet clear to us. Although there are no direct signs that the discoloration and spalling were artificially induced, this can certainly not be excluded, since the contents of this built-in feature included a human burial. For these reasons a sample has been taken from the surface of the monolith, which is now under closer investigation. This was the only burial, recovered at the site, at the time of writing (See, however, Hermansen and Abu-Laban, in prep. for an additional burial, recovered in the spring of 2005). The buried individual is probably a female (see below) with the skull and jaw removed, and laid down with the arms apparently placed inside the torso, as described in details in paragraph IV.2 (**Fig. 14**). Few artifacts were found in the fill and none, apparently, deliberately placed with the burial (which may of course in itself be considered an artifact), but it was accompanied by four mandibles of sheep/goat, indicating perhaps that the funerary ceremony had included some sort of ritual feasting. The burial was placed on a large stone slab pretty high up in the fill of the feature (Hermansen and Abu-Laban, in prep.). These findings then would seem to indicate that burial practices at Shakārat Musay'īd may have resembled a general pattern of burial costumes in the MPPNB, albeit with a concrete expression specific to this site.
(BDH)



12. Blocked entrance to Unit M.



13. Surface of upright stone in Unit F.



14. Burial behind large upright stone (A). Below the burial is a large flat slab (B). In the lowest level of the burial is a flat stone (C) 1: Left (to the left) and right femur. 2: Right (to the left) and left tibia and fibula, with the foot (9) still attached to the right leg. 3: humerii. Note that they are placed directly on the left ribs (5) and one is inside the hip (7). 4: Radius and ulna. 6: Vertebrae. 8: Clavicula. 10: Phalanxes from the left foot. 11: The four mandibles of sheep/goat were situated below the upper end of the right femur, and the left tibia and fibula.

IV.2. Anthropological Interpretation

The burial was discovered at the end of the season in 2001. Except for a small test excavation in 2002, to check if it was a human burial, excavation did not commence until a physical anthropologist, Dr. Niels Lynnerup, could be present in 2003.

The burial was covered with at least 10cm of very hard mortar-like fill. Beneath that, the skeleton was found embedded in a hard yellowish fill. In addition to the four ovi-caprine jaws, only a few finds were recovered in the fill, including a few animal bones and chipped stones, all in a tertiary context. A large flat stone was placed in the south-eastern end of the burial at the same level as the lowest parts of the skeleton (**Fig. 14**). As mentioned above the skeleton had originally been placed on a large flat slab.

The bones probably belong to an adult female. The identification is based on talus size, general bone size and *incisura ischiadica*. The age of the female was probably 25-35 years, estimated on the basis of possible arthritic changes on ulna.

The bones were ill preserved, and it was difficult to remove them in one piece. Therefore laboratory analyses of the bones have not added information to the data recorded during excavation, although further data may be forthcoming from future stable isotope analyses.

As mentioned earlier the skull and the jaw were missing and probably removed before the body was placed in the burial. The left side ribs were found in anatomically correct position indicating that the rib cage may have been laid down complete. However, the right side ribs were missing, either because they were not preserved or because remnants of them could not be identified during removal of the top hard mortar layer of the burial during the excavation of 2001. The arms were apparently placed longitudinally inside the rib cage and the legs in front of it, as indicated by their respective positions and by the fact that both left and right ulna and radius, as well as left and right tibia and fibula, were found in anatomical relationship. This was also the case with one foot and one hand, while the other foot and hand are missing except for a few bones found out of context. Again, this may be due either to preservation or excavation. It may also have other reasons, however, since several finger bones have been found in the fill of the room in which the burial is situated. There are no cut marks visible on the bone surfaces and no signs of animal activity on the bones.

To conclude, it seems that the body was buried in a partly decomposed state, but still with soft tissue left on the joints. The head was removed from the body. The legs and arms were also removed from the torso before it was interred in the grave. The internal organs must have been removed or been in an advanced state of decomposition at the time of burial, since it was possible to place the arm bones inside the rib cage.
(NL, CHJ)

V. The Chipped Stone Industry

V.1. Introduction

The chipped stone industry from Shakārat Musay'īd has not yet been subjected to a detailed analysis. Except for part of the material excavated in 1999 and 2001, the chipped stone material has been sorted according to a primary classification (**see Table 1**). The sorted material account for close to 70% of the total.

Most of the raw materials are quite similar to the materials used at the site of Bayḍa (Mortensen 1970: 14-15). They include fine-grained to medium coarse grey and beige-brownish flint types as well as various coarser materials including a few ex-

Table 1: Primary production of chipped stone material 1999-2004.

Primary production	**N**	**%**
Cores (incl. fragm.)	635	1.9
Core trimming elem.	1911	5.8
Debitage	26854	81.4
Debris	1473	4.5
Tools	2137	6.5
Total sorted (Total excavated	33010 48676)	100.1

amples of fine grained quartz used in flaking. A single piece of obsidian has been found: a small fragment of a blade, which derives from the room fill of Unit F (an additional piece was found in the spring of 2005).
(CHJ)

V.2. Primary Production

Cores account for 1.9% of the investigated material. Only cores from the 2002-2004 seasons have been registered according to type. Here it can be seen that flake cores are quite numerous, accounting for almost 50%. The core-on-flake type is included in the flake core category, here, as these only rarely produce blanks of blade size. Blade cores comprise 41.5%. Of these most are bi-directional/opposed platform cores and only few are unipolar cores. The opposed platform cores show a variety of shapes (**Fig. 15**). Some of these can be termed naviform or semi-naviform, which shows that the standardized naviform core technology was introduced at Shakārat Musay'īd, but was not necessarily used consistently. The bi-directional technique is also seen in the rather high amount of crest blades, sometimes with the crest partly removed from the opposite end, as well as in blades, with bidirectional removal scars showing both feathered and pointed distal ends. The small size of many cores and the different types of core trimming elements found in the material show that not only core preparation, but also at least some core rejuvenation was taking place at the site, but unfortunately no workshop for blank production has so far been identified in the material.

For the 2000-2001 seasons flakes are far more represented among the debitage than blades as can be seen from a blade to flake ratio of 1:3.4. A small amount of the debitage could not be assigned more specifically to the blade or flake category due to fragmentation. When turning to the material from the seasons 2002-2004 a different picture is seen. Here the ratio of blades to flakes is very close to 1:1, but with 16% of indeterminable fragments of flakes/blades. This difference may perhaps be explained by a change of the staff doing the flint sorting. The limited study of the 1999 material does not allow a separation into blades and flakes.

The amount of material, which could be identified as tools also varies from one season to the next. Figures from 5.3 to 10.1% are seen, with 6.5% of the total.
(CHJ)

V.3. Retouched Material

Although flakes are more frequent among the debitage than blades, blades are preferred as tool blanks. The chipped stone tools show a predominance of blade related tools, such as arrowheads, knives, etc., with arrowheads being the most dominant tool group, accounting for almost 25% of the tools (**Table 2**). The table does not include material from the 1999 season, since the data from the in-field sorting does not allow a separation into tool types.

According to a detailed analysis of the arrowheads from the 1999-2002 seasons (Glar 2003) combined with information from the last two seasons the arrowheads consist of mostly Jericho points with almost 70% of the total registered as such (**Fig. 16**). Intermediate Jericho/ Byblos transitional forms, defined as types, which fit the Jericho definition along one lateral side and the Byblos definition on the other, are the second largest group with almost 12%. Byblos points follow closely with almost 10%. Amuq and Byblos/Amuq transitional forms are present as well but only in few numbers (less than 2%).

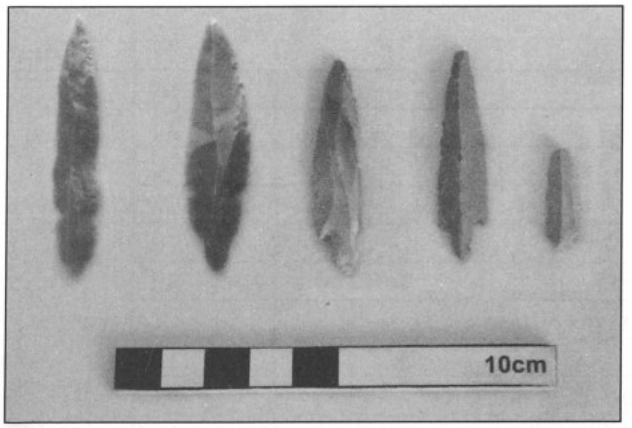
Of particular interest are the few Helwan points. Until the time of writing six have been identified,



15. Opposed platform blade cores and crest blades from the 2003 season.

Table 2: Chipped stone tool types from seasons 2000-2004.

Tools (2000-2004)	N	%
Arrowheads	446	24.7
Burins	25	1.4
Borers	184	10.2
Scrapers	206	11.4
Knives	399	22.1
Sickle blades	50	2.8
Backed blades	12	0.7
Notches & dent.	159	8.8
Retouched pieces	297	16.5
Heavy duty tools	26	1.4
Total	1804	100.0



16. Arrowheads: Helwan and Jericho types.

1.1% of the arrowhead assemblage, of which one point is a surface find and one comes from a tertiary context above the top of the walls of Unit B. The rest are found in proper architectural contexts: A few centimeters above the plaster floor of Unit F, embedded in the fill layer on which Unit C is constructed, which is below the floor of Enclosure b, but not necessarily predating the construction of Unit C, and in a fill layer in the eastern part of Unit P close to the level of the pavement excavated in the western part of that unit.

Late Neolithic arrowhead types are also represented. They primarily derive from the topsoil and upper fill of the houses, indicating that the site has been used in Late Neolithic times. So far no architectural remains can be dated with certainty to this phase. Further studies will show if circular structures excavated above the entrance to Unit B, above the southern end of Unit R and to the west of Unit J should be dated to the Late Neolithic.

Scrapers are also quite common (11,4%), especially side scrapers made on flakes. Sickle blades with gloss are represented, but are not very common (2,8%), while retouched blades and blades with fine denticulation (both types may have been used as knives), are found in large numbers (16,5% retouched pieces). Denticulates are registered together with notched pieces; therefore the exact percentage of finely denticulated blades is not mentioned, but they account for just less than half of the 8,8% notches and denticulates mentioned in the table.

Especially one tool type has been found in interesting contexts: borers (see below). This tool group, which account for around 10% of the tools, includes a variation of borers and drills. The type, which is most often represented is drills with short drill bits made on small flakes, bladelets and burin spalls. The rest are made on blades.
(CHJ)

V.4. Distribution

Two different deposits, a pit in area I, near the entrance to Unit A, and a small dump north of Unit B, both produced large numbers of borers when excavated. Each of these deposits is interpreted as deriving from a bead workshop. The tools are mostly of the drill type with the short drill bit mentioned above. The workshop material has been presented in detail elsewhere (Jensen 2004a, 2004b).

The other tool types seem to be evenly distributed across the site. This is also the case with the cores and primary elements; therefore no specific flint working areas have been identified so far. Any further details on the distribution of the chipped stone material will have to await a closer study.
(CHJ)

VI. The Small Finds

VI.1. Introduction

The six campaigns on the site have produced around 1000 objects (**Table 3**). The figure includes objects deriving from the surface and layers above the Neolithic architecture, therefore not all are necessarily dated to the PPNB period. The amount of objects may increase when the remaining part of the faunal remains are analyzed by our zooarchaeologist Pernille Bangsgaard, since we have experienced that some fragments of worked bone end up in the bone bags during excavation. The objects are all stored in Jordan; therefore the present manuscript report is based on descriptions in our database, which contains very limited information concerning the finds from the first three seasons.

The raw materials have not been positively identified by specialists. However, field investigations suggest that they include animal bones, various sea shells, mother-of-pearl, clay as well as various stones and minerals. The latter include local materials such as limestone, sandstone, quartzite, basalt, granite and mudstone. But also non-local materials seem to be represented such as turquoise, malachite, and various hard rocks.
(CHJ)

VI.2. Ground Stone Industry

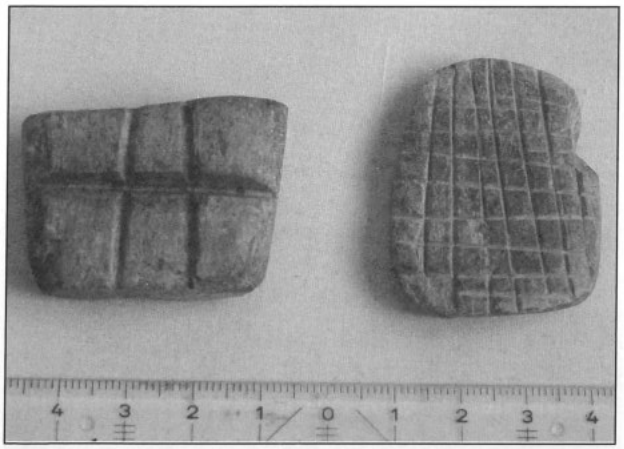
The ground stone industry makes up more than one third of the registered objects. The registration of these follows the typology of Karen Wright (1991). The group includes grinding slabs and hand stones, mortars and pestles, stone vessels, which are all fragmentary, ground heavy-duty stone tools and grooved stones. A number of objects are designated as unidentified ground stone objects due to a lack of information in the database. It is expected that this group includes mostly

Table 3: Object classes 1999-2004.

Object category	Object type	N	Total
Ground stone industry	Grinding slabs	18	
	Hand stones	122	
	Mortars	6	
	Pestles	93	
	Stone vessels	19	
	Ground stone celts	32	
	Ground stone chisels	1	
	Grooved stones	15	
	Unidentified ground stone objects	42	
Total			348
Other stone objects	Hammer stones	106	
	Polishers	65	
	Whet stones	12	
	Weights	3	
	Tuffa stones	15	
	Fire stones	10	
	Others	15	
	Unidentified stone objects	121	
Total			347
Clay objects			3
Beads	All materials		49
Bone tools	Awls	24	
	Needles	30	
	Spatulas	16	
	Scrapers	9	
	Figurines	1	
	Worked bone	43	
Total			123
Worked shell/ land snails	Cowrie shells with back removed	64	
	Pierced shells	34	
	Unspecified worked shells	5	
Total			103
Mother-of-pearl			3
Others + Unidentified objects			27
Total			1003

grinding slabs, but hand stones must be represented as well. Grooved stones are an interesting category since at least three of the 15 registered examples have incised decoration on the back (**Fig. 17**). The decoration used is a more or less regular cross pattern. They have all been defined as grooved stones, sometimes called "shaft straighteners", on the basis of a centrally made groove often with longitudinal striation marks. At least two examples have a groove on both faces. Except for one specimen of 20 x 20cm size, they are all rather small; the maximum dimension measured on the complete examples is 8.6cm. The usual shape is rather flat with a rectangular, square or oval outline. The use of these is questionable, but the fact that some are decorated indicates not only functional but also symbolic properties.

The most numerous of the ground stone tools are hand stones of which 122 have been registered so far. They have all been ground into a circular to oval shape with the base flattened by use (**Fig. 18**). In some cases more than one face show signs of



17. Grooved stones from the 2003 season with incised decoration on the back.



18. Enclosure e looking north. Hand stones in situ to the north-east of the pavement.

grinding activity. The maximum length and diameter of the registered complete examples is around 17-18cm. But since many were fragmented when found several would originally have exceeded this size.

Contrary to hand stones, the lower part of the grinding tools, the grinding slabs often have a rough unworked surface except for the working face which has been shaped by use and sometimes a more or less flat base has been made in order to stabilize the object while in use. The grinding slabs, of which 18 have been registered excluding the possible high number hidden in the unidentified ground stone object category, are often quite large, up to 68cm in length. The depressions created by the grinding process are mostly shallow, but in a few cases the slabs are later reused during which a second and deeper central groove-like depression is created.

Only six objects have been registered as mortars, of which at least two are made on reused grinding slabs. This is a low figure considering the 93 pestles found. Several of the pestles are broken, but since no attempt has been made to check if any of the fragments belong to the same object it is not possible to say if the figure covers a slightly smaller group. The pestles are of various cone or cylindrical shapes with an often circular working face with pounding marks and circular striations showing the different uses of the pestles: either pounding or circular grinding movements (**Fig. 19**).

By far most of the ground heavy-duty tools are celts, 32, while only one is registered as a chisel. Interestingly, the chipped stone heavy-duty tools are almost all picks, which indicates a relation between tool type and material. Most of the celts are made on hard dark grey rock, chipped and ground into shape and polished on both faces near the working edge (**Fig. 20**). Some have damages on the working face, which could have been made either during use or after disposal. The number includes a few very small celts, which may have had a more symbolic significance.
(CHJ)

VI.3. Other Stone Objects

Although most of the hammer stones, recovered at the site, are made on flint they have been registered as objects and not with the chipped stone



19. Pestle and mortar fragment from the 2002 season.



20. Celts from the 2004 season.

industry. In some cases flint cores or even large flakes or tools are re-used as hammer stones, but most of the flint hammer stones are made on unworked nodules. Other materials used include limestone and quartzite. The hammer stone group accounts for 106 specimens so far. A few more may show up in the chipped stone bags when the remainder of these are studied more closely.

A rather large group of objects, 65 examples, have been registered as polishers. They are small naturally shaped stones of quartzite or other hard rocks but with signs of polishing on one or several faces. The rest of the stone objects consist among others of whetstones, tuffa stones, possible weights, beads of various stone types, see also below, and a large group, 121, of unspecified objects. (CHJ)

VI.4. Bone Objects

The most interesting bone object, if not in the entire sample of objects, (see, however, Jensen and Abu-Laban in prep. for a description of two sandstone slabs with incised geometric figures and parallel lines, recovered in the spring of 2005) is a rib bone which has been decorated with a human face, briefly mentioned elsewhere (Jensen, in press) (**Fig. 21**). Unfortunately the exact find spot is not known as it was discovered in the bag with the faunal remains, but it derives from a locus inside Enclosure b.

Most of the bone tools are very fragmented which makes a precise classification rather difficult. Therefore a large group of the tools, 43 pieces, have been registered simply as worked bone. Tool types represented include 24 bone awls, 30 needles, 16 spatulas, 9 scrapers, and 5 beads. (CHJ)

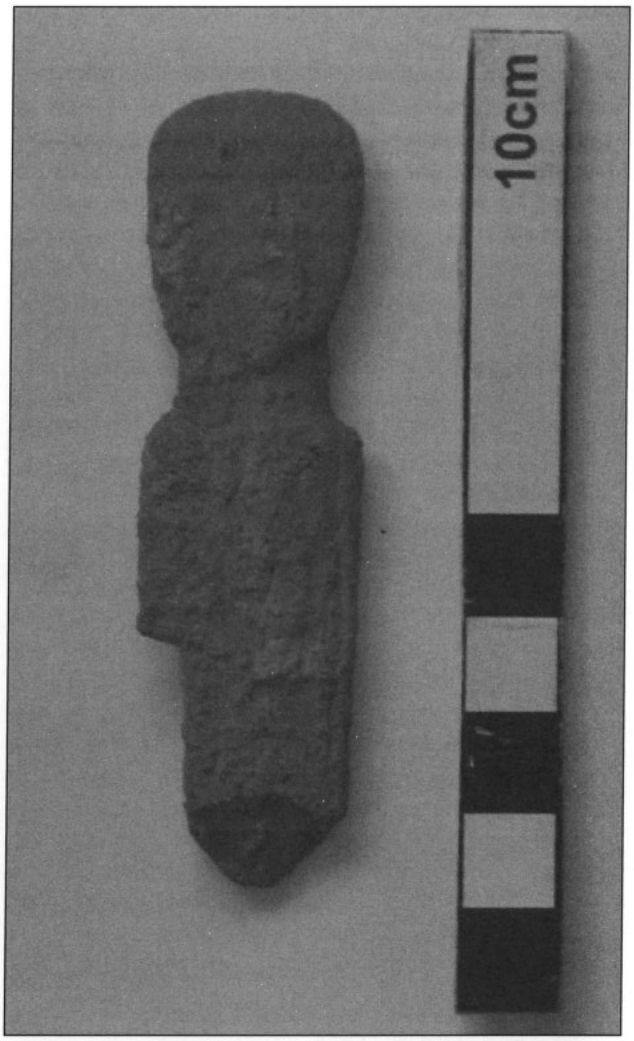
VI.5. Shell and Mother-of-Pearl

The group of shell objects is numerous, mostly because of a rather large number of cowrie shells, 64, which had the back removed deliberately. The rest is registered as pierced shells and beads, except for a small group of 5 shells, which could not be identified more closely than as 'worked'. In addition to cowries, a single *Dentalium* and a few *Nerita* sp. shells are included.

Only few objects of mother-of-pearl have been found during excavation. This includes 3 beads and 3 worked pieces. (CHJ)

VI.6. Distribution

As already mentioned in the presentation of the chipped stone industry, material probably deriving



21. Bone figurine found in a bone bag from Enclosure b.

from bead workshops has been found in two different locations. The beads and raw material from the production process found in these contexts all seem to be turquoise or another green stone. However, the material has not yet been investigated by a mineralogist.

In general most of the objects derive from tertiary contexts, but all architectural units contain a small amount of finds, including bone tools, hand stones, pestles etc. However, a few contexts deserve some attention. During the excavation of Unit J in the south-western corner of the excavated area a number of grinding slabs were found. The high amount of grinding tools in the building has already been mentioned elsewhere (Jensen, in press). Seen in connection with the large size of the building, a wide entrance, internal compartments in the southern area of the building, and direct access to Unit G, in which we also found a high content of grinding tools, it would seem reasonable to interpret Unit J as a communal working space for pro-

cessing cereals. Unit F has also been suggested as a communal building. Again, grinding slabs were found *in situ* as well as a number of other internal installations, including a stone cist, which contained the only burial found so far (see above, paragraph IV.1).

One area has provided a particularly high content of *in situ* finds: the paved area to the east and southeast of Unit F. The high content continues into P to the East of the paved area. The finds include among others several hand stones, of which two circular hand stones were found right next to each other (**Fig. 18**), pestles, celts, a grooved stone and a long almost complete bone awl as well as other bone tools.

In some cases, ground stone tools, especially large grinding slabs, were reused in the architectural construction of the houses. This is particularly well documented in the southeastern corner of the excavated area between the units K and L. A number of large grinding slabs have also been found on the eroded slopes of the wadi towards the south and east. It may be that these also came from a context of secondary use in building construction and not necessarily from a primary context.
(CHJ)

VI. The Shakārat Musay'īd Plant Remains: Preliminary Observations

During the 2002 study season at Shakārat Musay'īd, roughly 30 soil samples were taken for archaeobotanical analysis. As no actual excavation was taking place on site, the samples were taken from two types of context: a) already exposed surfaces that clearly contained charred material, and b) every clearly distinguished layer in the baulks that were removed as part of the research strategy of this season. During previous excavation seasons 114 soil samples had also been taken from various contexts and left in storage. During a brief visit on site by the author of this paragraph in 2002, 19 samples of between 0.5 and 40 litres were floated, both recent samples and samples from previous seasons, as described above. All samples were floated by hand, the floats were retained in a 0.3mm sieve and the samples have subsequently been scanned to assess the contents and richness of the botanical material.

All of the samples contained charred botanical material and the overall preservation is variable. Of the 19 samples that were floated, nine samples contained only charcoal and three samples contained a few indeterminate plant remains. The remaining seven samples contained a few large grasses and a larger proportion of wild plant varieties as well as charcoal. The large grasses resemble emmer wheat (*T. diccocum*). A total of only four grains and the lack of chaff means that a determination of the stage of domestication will have to wait until more plant material has been recovered.

Of the wild plants, *Aegilops* sp., *Malva* sp. and the legumes *Medicago* sp. and *Astragalus* sp. are present in many of the samples, as are weeds of the Cyperaceae family. Common for the above species, apart from *Astragalus* sp., is a relatively high water requirement, and their presence therefore suggests that the environment around Shakārat Musay'īd was wetter in the past than it is today.

In addition to the four grains of emmer wheat, there was one possible food plant found in the samples — wild pistachio, *Pistacia* sp. This plant type is relatively common throughout the samples and occurred in very large numbers in trench F95/F100, which is the open area I. It has not yet been possible to determine this *Pistacia* to a species due to the lack of sufficient reference material, but large numbers of *P. atlantica* were found at the nearby, contemporaneous site of Bayḍa (Helbaek 1966), suggesting that one or more species of wild pistachio may have played a significant role in the economy of PPNB sites in this region.

It is hoped that future analysis of the remaining Shakārat Musay'īd archaeobotanical samples will cast a more detailed light on the food economy of the site. A further 62 samples were floated during the 2004 spring season and are awaiting initial examination.
(MMH)

VII. The Faunal Remains from Shakārat Musay'īd

The faunal collection from Shakārat Musay'īd includes a wide variety of species. However, only a part of this collection has been analysed at present. The analysed material includes the majority of the faunal material of the collection from the excavation seasons of 1999 and 2000, which amount to 15923 fragments (weight 41791 grams). The areas of excavation from these two seasons include a variety of units, including open areas, several housing units of varying size and probably also function.

The main part of the material studied consist of goat (*Capra* sp.) and sheep (*Ovis* sp.) fragments, where goat is the dominating element (approximately 6:1) (**Table 4**). The evidence for the status of sheep and goat are not clear at present. However, the measurements would indicate a higher number of smaller animals or females, therefore probably a domesticated population or at least selective killing (see Zeder and Hesse 2000). Wild

Table 4: Faunal material from the 1999 and 2000 seasons of excavation.

Species	NISP	Weight (in g)
Pig, *Sus* sp.	1	4
Onager/wild ass, *Equus* sp.	8	198
Cattle, *Bos* sp.	77	1815
Goat, *Capra* sp.	585	6752
Sheep, *Ovis* sp.	93	930
Goat/sheep, *Capra/ovis* sp.	4380	18647
Gazelle, *Gazella* sp.	32	172
Dog/wolf, *Canis* sp.	2	4
Asiatic jackal, *Canis aureus*	4	13
Fox, *Vulpes* sp.	101	162
Stone marten, *Martes foina*	2	1
Badger, *Meles meles*	2	1
Wild cat, *Felis silvestris*	17	26
Leopard, *Panthera pardus*	4	7
Hyrax, *Procavia capensis*	3	7
Cape hare, *Lepus capensis*	19	9
Rodent, *Rodentia* sp.	1	0
Turtle, *Testudo* sp.	6	4
Bird,	300	173
Shark	1	0
Unidentified	10283	12867
Total	15923	41791

goat (*Capra aegagrus*) was, however, also present at the site, as the presence of 2 horn cores clearly indicate. None of the other possible domesticates, cattle (*Bos* sp.) and pig (*Sus* sp.), reveal evidence suggesting that these were near or fully domesticated. As for the *Canis* sp. fragments, they are too few and fragmented to determine whether they originated from a medium size dog (*Canis familiaris*) or from an Arabian wolf (*Canis l. arabs*).

A number of wild species have been identified at Shakārat Musay'īd; these include a variety of carnivores, such as various foxes (*Vulpes* sp.), where red fox (*Vulpes vulpes*) is the most numerous, leopard (*Panthera pardus*), badger (*Meles meles*), stone marten (*Martes foina*) and wild cat (*Felis silvestris*). Additionally, fragments from cape hare (*Lepus capensis*) and hyrax (*Procavia capensis*) are also present. Apart from a few butchering marks found on fox and hare, these animals appear to have been primarily utilized for their fur, as indicated by some skinning marks and a lack of meat carrying bones. This is especially clear for the two large carnivores badger and leopard, where only metapodiums and phalanges have been found. The wide variety of mammal carnivores could be seen as consistent with the pattern observed at the LPPNB site of Ba'ja (von den Driesch *et al.* in press). And to a certain extent also with that of the MPPNB site of Bayḍa, both sites being located in the Petra region, however, the range of animals utilised at Bayḍa is somewhat more limited especially for the larger carnivores as both badger and leopard are absent (Hecker 1975: 471).

A number of avian fragments were found at Shakārat Musay'īd. This could be seen as consistent with the pattern observed at other PPN sites where a relatively broad spectre of species is utilised, including avian fauna (Tchernov 1993). Of the 300 fragments so far identified at Shakārat Musay'īd 153 were further identified to family, genus or species. Apart from 5 fragments identified as rock pigeon, raven and partridge, all fragments belong to raptors (97% of the identified avifaunal material). These raptors include a number of eagles, vultures, buzzards and kites. The possible use of these animals is indicated by the distribution of skeleton elements, as 90% of the fragments found are from bones in the wing and leg. Although the bones of the skull are often found in lesser number due to poor preservation, this does not hold true for most of the bones in the body and the girdle. The distribution seen here therefore suggests that the raptors were utilised for another purpose than purely nutritional and can be compared to finds at other sites like Netiv Hagdud (Tchernov 1993). Whether this use was of a functional purpose as tools, fanes etc. or whether they served a more symbolic purpose remains to be seen.

The general collection suggest a broad based subsistence pattern where a large number of species were exploited, but with a heavy reliance on especially goat, probably in a domesticated form. (PB)

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Bibliography

Adams, J.
1981 *Wohn- und Siedlungsformen im Süden Marokkos.* München.

Byrd, B.
1994 Public and Private, Domestic and Corporate: The Emergence of the Southwest Asian Village. *AA* 59/4: 639-666.
2000 Households in Transition: Neolithic Social Organization within Southwest Asia. Pp. 63-102 in I. Kuijt (ed.), *Life in Neolithic Farming Communities. Social Organization, identity, and Differentiation.* New York: Kluwer Academic/Plenum Publishers.

Driesch, A. von den, Cartajena, I. and Manhart, H.
n.d. *The late PPNB site of Ba´ja/ Jordan: Faunal remains.* Unpublished manuscript.

Gebel, H.G.
1986 Die Jungsteinzeit im Petra-Gebiet. Pp. 273-308 in M. Lindner (ed.), *Petra. Neue Ausgrabungen und Entdeckungen.* München: Delp Verlag.
1988 Late Epipalaeolithic - Aceramic Neolithic sites in the Petra area. Pp. 67-100 in A. Garrard and H.G. Gebel (eds.), *The Prehistory of Jordan. The State of Research in 1986.* British Archaeological Reports - International Series 396.1. Oxford: B.A.R.
2001 Frühseßhafte verborgen in Felsen. Ba'ja in Süd-Jordanien stellt der Jungsteinzeitforschung neuartige Fragen. *Antike Welt 32*, 3: 275-283.
2004 The Domestication of Water. Evidence from Early Neolithic Ba´ja? Pp. 25-35 in H.D. Bienert and J. Häser (eds.), *Men of Dikes and Canals. The Archaeology of Water in the Middle East.* Orient-Archäologie 13. Rahden: Marie Leidorf-Verlag.

Gebel, H.G.K., Hermansen, B.D. and Jensen, C.H. (eds.)
2002/(2004) *Magic Practices and Ritual in the Near Eastern Neolithic.* Studies in Early Near Eastern Production, Subsistence and Environment 8. Berlin: Ex Oriente.

Gebel, H.G. and Starck, J.H.
1985 Investigations into the Stone Age of the Petra Area (Early Holocene Research) A Preliminary Report on the 1984 Campaigns. *ADAJ* 19: 89-114.

Glar, V.
2003 *An Analysis of the Relations between Arrowhead Groups and larger Wild Animal Species at Shaqarat Masi´ad and other PPNB sites of the Southern Levant.* Unpublished MA thesis.

Gopher, A.
1994 *Arrowheads of the Neolithic Levant.* American Schools of Oriental Research, Dissertation Series 10. Winona Lake: Eisenbrauns.

Hecker, H.M.
1975 *The Faunal Analysis of the Primary Food Animals from the Pre-Pottery Neolithic Beidha (Jordan).* Unpublished Ph.D. thesis from Columbia University.

Helbaek, H.
1966. Pre-Pottery Neolithic Farming at Beidha. *PEQ* 98: 61-66.

Hermansen, B.D.
2004 Supra-Regional Concepts from a Local Perspective. *Neo-Lithics* 1/04: 34-38.

Hermansen, B.D. and Abu-Laban, A.
In prep. *Burials at Shkarat Msaied.* Manuscript in preparation.

Hermansen, B.D. and Jensen, C.H.
2002/(2004) Notes on some features of possible ritual significance at MPPNB Shaqarat Mazyad, Southern Jordan. Pp. 91-101 in H.G.K. Gebel, B.D. Hermansen and C.H. Jensen (eds.), *Magic Practices and Ritual in the Near Eastern Neolithic.* Studies in Early Near Eastern Production, Subsistence and Environment 8. Berlin: Ex Oriente.

Hillier, B. and Hanson, J.
1984 *The Social Logic of Space.* Cambridge: Cambridge University Press.

Jensen, C.H.
2002 Verdens ældste landsby? *Sfinx* 25, 4: 168-71.
2004a Production areas at MPPNB Shkarat Msaied, Southern Jordan. *Neo-Lithics* 2/04: 22-26.
2004b *Workshops and Activity Areas in the PPNB Period: The Excavations at Shaqarat Masi´ad.* Paper read at the Fourth International Congress on the Archaeology of the Ancient Near East, Berlin April 2004.
In press Three Years of Excavation at the PPNB site Shaqarat Masi´ad, Southern Jordan. In J.C. Margueron et al. (eds.), *Proceedings of the Third International Congress on the Archaeology of the Ancient near East,* Paris 2002. Winona Lake: Eisenbrauns.

Jensen, C.H. and Abu-Laban, A.
In prep. *A note on two incised sandstone slabs from MPPNB*

Shkarat Msaied, Southern Jordan. Manuscript in preparation.

Kaliszan L.R., Hermansen, B.D., Jensen, C.H., Skuldbūl, T.B.B., Bille Petersen, M., Bangsgaard, P., Ihr, A., Sūrensen, M.L. and Markussen, B.

2001 Shaqarat Mazyad - The Village on the Edge. *Neo-Lithics* 1/02: 16-19.

Kinzel, M.

2004 Some notes on the Reconstruction of PPNB Architecture. *Neo-Lithics* 2/04: 18-22.

Kirkbride, D,

1966 Five Seasons at the Pre-pottery Neolithic Village of Beidha in Jordan. *PEQ* 98: 5-61.

Mortensen, P.

1970 A preliminary study of the chipped stone industry from Beidha, an early Neolithic village in Southern Jordan. *Acta Archaeologica* 41: 1-55.

Petersen, M.B.

2003 *Social Interaction in a Prehistoric Settlement. A study of Social Interaction from an architectural perspective in the MPPNB society of Shaqarat Masi´ad in Southern Jordan.* Unpublished MA thesis.

2004 *The Spatial Separation of Activities at MPPNB Shaqarat Masi´ad, Jordan.* Paper read at the Fourth International Congress on the Archaeology of the Ancient Near East, Berlin April 2004.

Petersen, M.B. and Hermansen, B.D.

n.d. *Flat, Conical or Pitched Roofs? Reconstructing Early Neolithic Architecture at MPPNB Shkarat Msaied, Southern Jordan.* Manuscript in prep.

Rollefson, G.

2001 The Neolithic Period. Pp. 67-105 in B. MacDonald, R. Adams and P. Bienkowski (eds.), *The Archaeology of Jordan.* Sheffield: Sheffield Academic Press.

Stordeur, D., Brenet, M., Der Aprahamian, G. and Roux, J.-C.

2000 Les Bâtiments Communautaires de Jerf el-Ahmar et Mureybet Horizon PPNA (Syrie). *Paléorient 26.1*: 29-44.

Tchernov, E.

1993 Exploitation of Birds during the Natufian and Early Neolithic of the Southern Levant. *Archaeofauna* 2: 121-143.

Wright, K.

1991 The Origins and Development of Ground Stone Assemblages in Late Pleistocene Southwest Asia. *Paléorient* 17, 1: 19-45.

Zeder, M and Hesse, B.

2000 The Initial Domestication of Goats (Capra Hircus) in the Zagros Mountains 10.000 years ago. *Science* 287, issue 5461: 2254-58.

PRELIMINARY REPORT ON THE ARCHAEOLOGICAL INVESTIGATIONS OF THE WĀDĪ AL-'ARAB AND TALL ZAR'A, 2003 AND 2004

Jutta Häser and Dieter Vieweger

Introduction

In 2001 a new research program — called 'Gadara Region Project' — was initiated by the Biblical-Archaeological Institute at the University of Wuppertal (Germany) directed by Prof. Dr. Dieter Vieweger. This project focuses on the interdisciplinary investigation of the Wādī al-'Arab south-west of Gadara/Umm Qays.

The investigation started with a ceramic survey of Tall Zar'a, the most promising tall in the Wadi. This has shown that the tall was inhabited from the Early Bronze Age until Ottoman times.

Furthermore, various geophysical methods were used in the exploration. The results demonstrate that there is a thick cultural layer up to 6m in height in many areas of the tall. However, in the tall's eastern part the bedrock almost reaches the surface.

Detailed information on the aims of the project the geographic situation of the Wādī al-'Arab and Tall Zar'a as well as the results of the first survey investigation have previously been published by Vieweger (2002a: 157-177, 2002b: 12-14, 2003a: 191-216, 2003b: 459-461; Vieweger and Häser in press).

A test trench was excavated on the western slope of the tall by Dr. Karel Vriezen of the University of Utrecht in 2001 and 2002. Several architectonic phases could be divided. These could be dated by the pottery to the Islamic, Byzantine, Early Iron Age, and Late Bronze Age period. An overview of the first results has been published by Vriezen (2002: 18-19, 2003: 13-14).

The 2003 and 2004 Campaigns

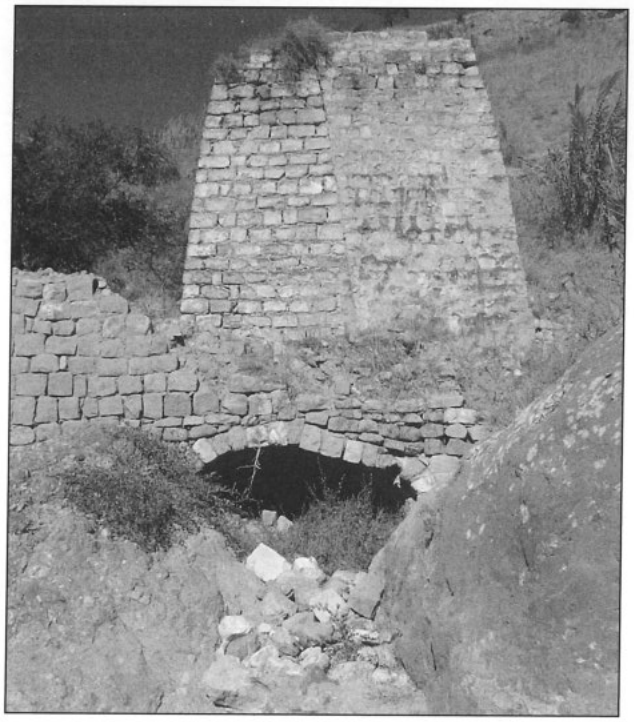
A first larger excavation campaign started in September 2003. It was carried out by the Biblical-Archaeological Institute of the University of Wuppertal and directed by Prof. Vieweger. Excavation activities concentrated on the northwestern slope of the tall. This area (I) was chosen because a significantly high concentration of finds had been found there in the course of the previous survey and because of its exposed position due to its special topography. Thus, a defense system could be assumed, since there is no natural protection here by the topography unlike on the southeast, east, north, and northwest sides of the tall.

Eight squares (measuring 5m x 5m each) were opened and explored to a maximal depth of 3.3m.

A second campaign was conducted in April 2004 as a co-operative project between the Biblical-Archaeological Institute and the German Protestant Institute of Archaeology, 'Ammān, directed by Prof. Vieweger and Dr. Häser. Work continued in the previously opened squares, and ten more squares were opened.

A further, ten-day campaign was carried out in July 2004 as part of a study course for theologians, continuing excavations in three of the eastern most squares.

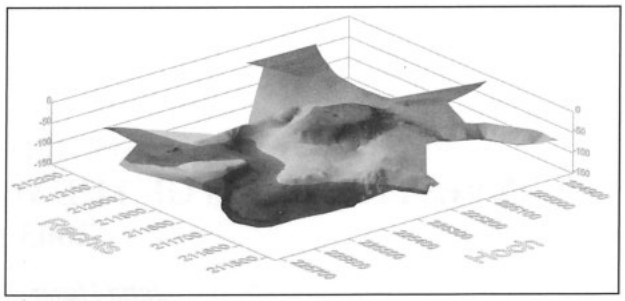
In the Wādī al-'Arab six water mills were explored and surveyed (**Fig. 1**). The building con-



1. Water mill in Wādī al-'Arab.

struction and milling technology of these mills as well as the water supply system will be studied during forthcoming years.

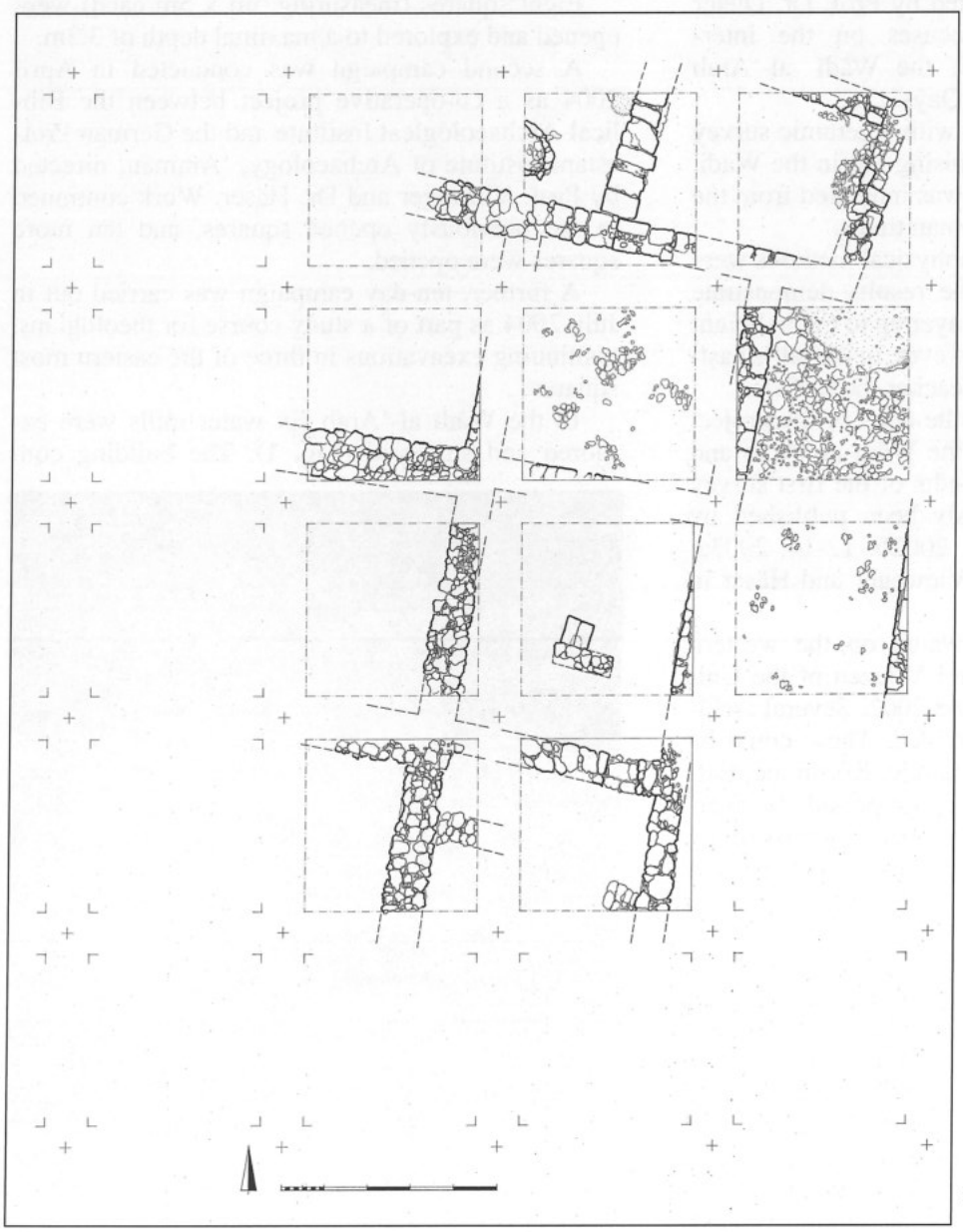
A survey was carried out in the Wādī al-'Arab with the help of a digital global positioning system (GPS). It provides the basis of a digital terrain model (**Fig. 2**) in order to map different archaeological features in the wadi.



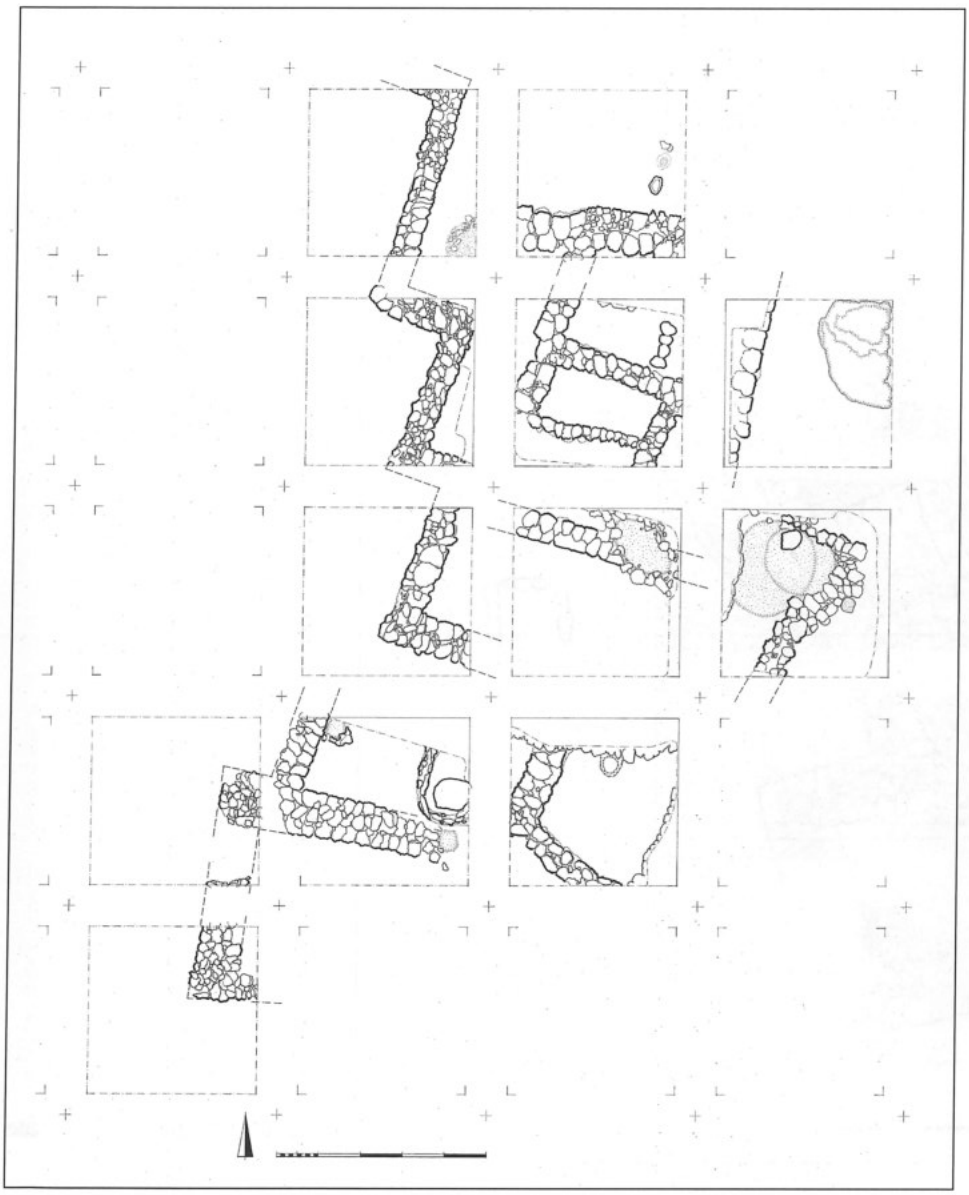
2. Digital elevation model of Tall Zar'a.

Results of the Excavation (Figs. 3-5)

During the excavations in 2003 and 2004 five strata were exposed. They were labeled 1 to 5 from top to bottom. In the uppermost stratum (1), the remains of three large houses were uncovered. They are orientated almost exactly northward. The location of the entrance is unresolved at this stage of the excavation. Two of the houses are joined a third one is situated east of them, separated by a 4m wide stone-paved road. The walls are built with undressed and some dressed stones. The latter are *spolia* from a building elsewhere. The walls rest on



3. Area I, Stratum 1 (Roman-Byzantine Period).



4. Area I, Stratum 2 (Iron Age II).

the butt of walls dating from the Iron Age II, i.e., stratum 2.

The westernmost house, no. 1, consists of at least six rooms. They have an average dimension of 4m. In one of the rooms, a threshold (AL 118), a column base and, adjoining it, a narrow bench (AM 118) were found. The column base points to the fact that this area was roofed. The area east of the threshold might not be a room but a courtyard.

House no. 2, to the north of house no. 1, consists of at least of two rooms (AO 117-119). The northern limits have not yet been reached. A stone-lined pit was excavated in the western room (AO 118).

Toward the western part of the slope, the buildings are eroded near the edge of the slope's steep incline.

House no. 3 is marked only by a single wall running from west to east (AM 119).

The pottery found in the houses can be dated to the Roman-Byzantine period. In addition, fragments of glass vessels and some coins were uncovered. The coins have not been dated yet since they have not been cleaned.

A deep pit with a diameter of about 4m was discovered under the paved road (AM/AN 119). It contained a mass of Roman-Byzantine pottery. It was presumably built when this area was not covered with houses.

The two subsequent strata (2 and 3) can be dated to the Iron Age. These strata are disturbed in many parts by large pits of the Roman-Byzantine period. Nevertheless, remains of a settlement wall and some houses could be traced.



5. Area I, Stratum 4 (Late Bronze Age).

The western limit of the built-up area of stratum 2 is marked by a sawtooth-like wall following the curve of the tall (AL-AO 117). Due to the balk it is unclear if the wall found in the squares AK-AL 116 is a continuation of the aforementioned wall. Both walls are built with field stones and are 1-1.20m wide. They are constructed on the casemate wall of the Late Bronze Age period.

An area with the remains of a house was discovered east of the defence wall. A room structure can be observed in the center of the area (AM-AO 118). The outer limits of this structure have not been excavated yet. Therefore, the building type cannot be determined as yet. Two building phases can be distinguished. In the first phase, two ovens were cut into the floor level. These were destroyed in the second phase. One of these ovens was partly covered by a wall constructed between two east-west running walls (AN 118). Another wall was built parallel to the west, forming a new room.

A well-prepared working area with a large flat grinding stone was built in the south (AL 117). This stone is surrounded by two rows of standing stones like a stone-lined silo. The connection of this working area with the room structure is still undetermined. The pottery shows that stratum 2 can be dated to the Iron Age II.

The architectural remains of stratum 3 were also disturbed by later construction work. Therefore, a coherent building structure cannot be observed. However, the remains of the walls of this stratum follow a consistent orientation running northwest by west to southeast by east or join them forming a right angle. Most of the walls were excavated in the squares AL-AO 117.

Two *ṭābūn*(s) were discovered in AM 117 and

AO 117, and a considerably large oven was uncovered in square AM 118.

The walls of stratum 3 are based on the remains of the preceding Late Bronze Age city wall in many places. These walls were built with field stones and are thin. The remains of the Late Bronze Age tower were used as the foundation for a hearth. In addition, stone-lined pits were dug in the remains of the Late Bronze Age city wall in squares AM 117 and AO 117.

In the slope terrain of the excavation area (AK-AM 115 and AK-AO 116/117) the layers of the Late Bronze Age (stratum 4) could be excavated. A casemate city wall protected the western slope in this period (**Fig. 6**). It was built above the Early Bronze Age glacis, separated from it by a meter high deposit. A small stone-lined pit was found in one of the rooms of the wall (AM 116). To the south, a room paved with stones was uncovered. From this room a passage leads into another stone-paved room, which is surrounded by 2m thick walls. Presumably, this was the interior of a tower. This might have been part of gate or a poterne, which can be expected south of the present excavation area.

A street runs parallel to the casemate wall on its east side. The width of the street cannot be measured at this stage of excavation. The street has a canal, which is covered by large stones. It collected water from two sides, draining it into another room or basin (AM 116/117). It can be assumed that the 3m deep shaft beyond the city wall in square AM 115 was part of this construction. At the foundation level of the Early Bronze Age glacis the shaft deviates from the vertical at an angle of about 30°. Just as the architecture of the Late Bronze Age is very prestigious, so are the finds. Various bronze objects have been found like remains of a dagger, a needle and a mirror as well as imported Mycenaean and Cypriote pottery. Several stone vessels, including an alabaster stand, imported pottery and bronze fragments were discovered in an architectural structure, which can probably be reconstructed as a room of a building with several installations.

Stratum 5 is represented by a 3m high glacis running along the western hill. This glacis and the basis of the city wall can be dated to the Early Bronze Age. The shaft mentioned before cuts it vertically. At the moment only the outer skin of the glacis is visible. The results of the survey suggest that the levels between the Late Bronze Age and the Early Bronze Age stratum are several meters thick.

The Pottery Analysis (Figs. 7-11)

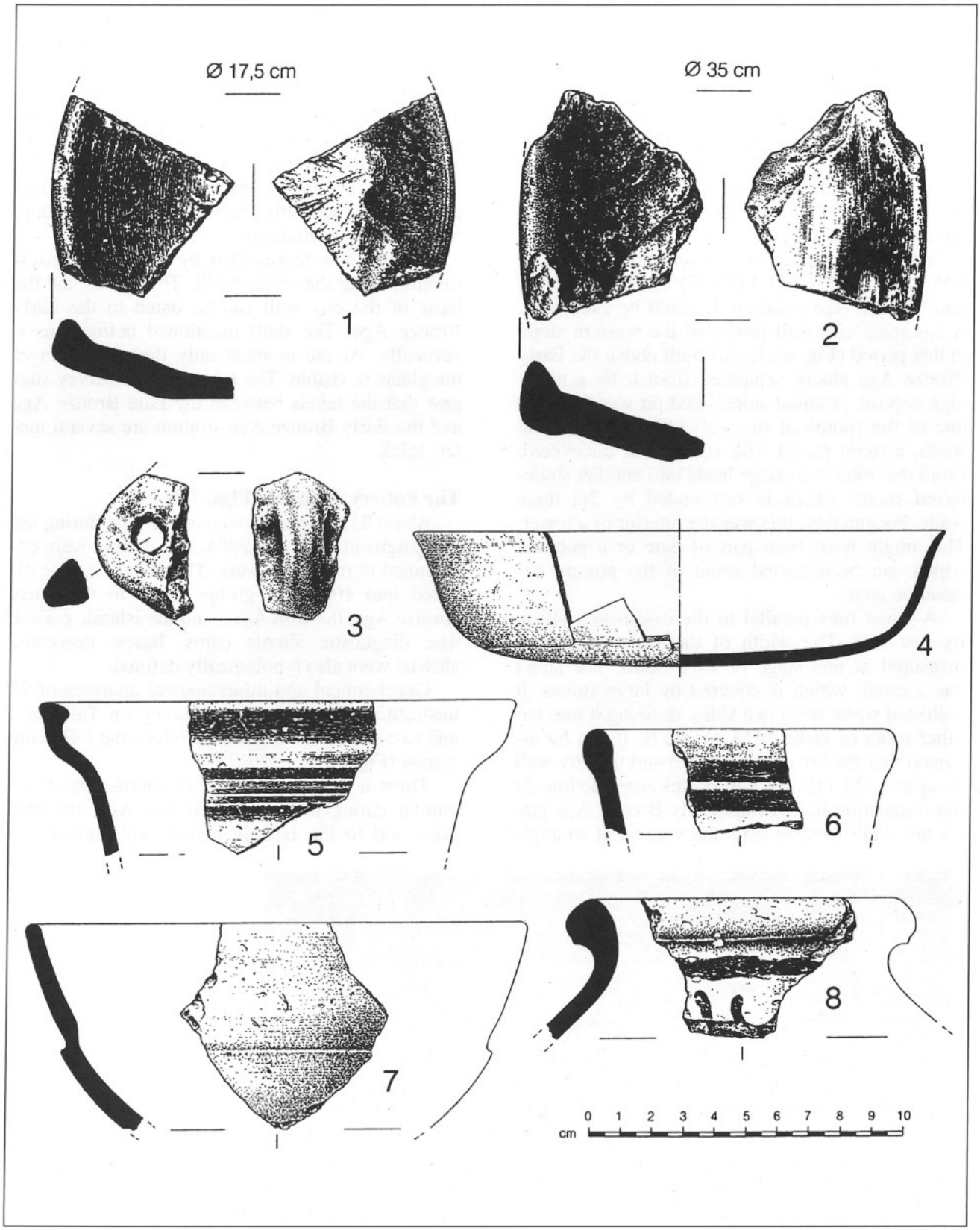
About 25,000 sherds were excavated during the campaigns in 2003 and 2004. All of them were determined in respect to ware. The pottery can be divided into 100 ware groups dated to the Early Bronze Age, the Iron Ages, and the Islamic period. The diagnostic sherds (rims, bases, decorated sherds) were also typologically defined.

Geochemical and mineralogical analyses of 23 unstratified sherds from the survey on Tall Zar'a and two sherds from Gadara produce the following results (**Fig. 12**).

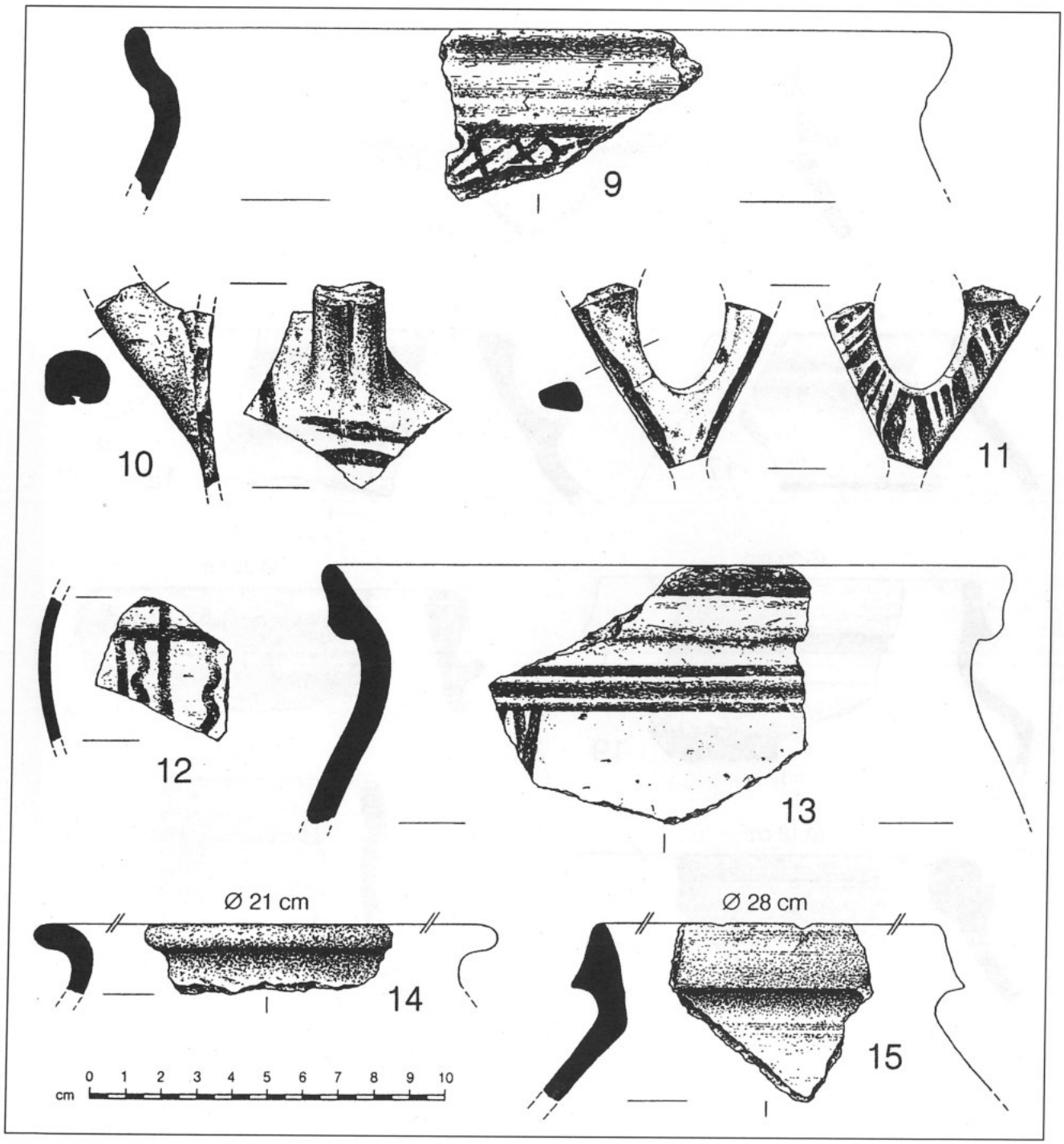
There is a main group of 12 sherds, which are similar dating to the Late Bronze Age, the Iron Age, and to the Islamic period. This includes a



6. Late Bronze Age casemate wall.



7. 1-3 handmade ceramics of the Early Bronze Age II/III; 1 TZ 1187-5 (context 80); 2 TZ 1520-6 (context 207); 3 TZ 1407-2 (context 172); 4-8 wheel-made ceramics; 4 TZ 1323-1 (context 143, Middle/Late Bronze Age); 5 TZ 1445-7 (context 168, Late Bronze Age II); 6 TZ 1498-12 (context 223, Late Bronze Age II/Iron Age I); 7 TZ 1412-7 (context 166, Late Bronze Age II); 8 TZ 1395-2 (context 155, Late Bronze Age II).

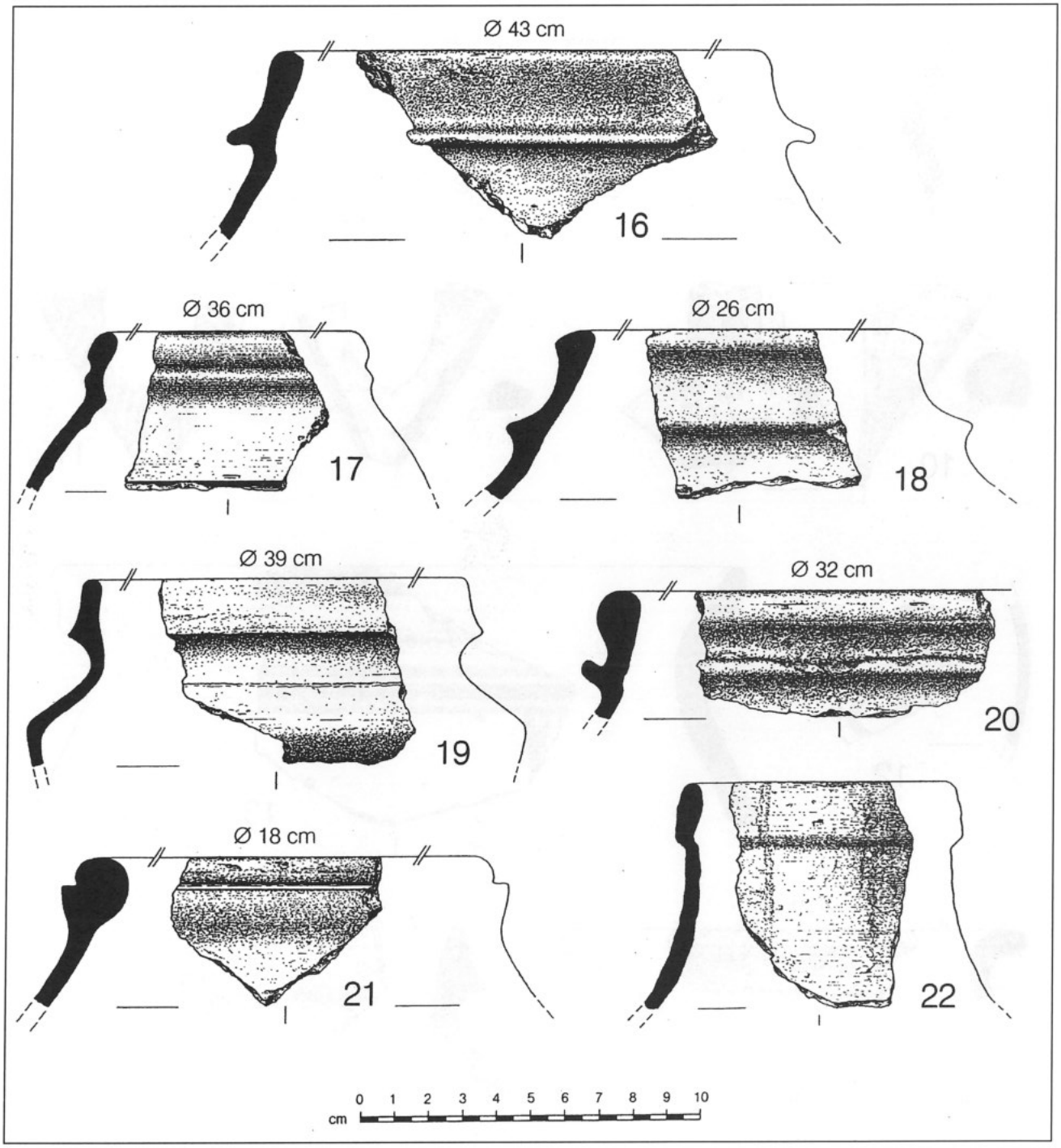


8. 9-13 Wheel-made ceramics of the Late Bronze Age: 9 TZ 1571-3 (context 235); 10-13 "Imports"; 10 TZ 1223-5 (context 67); 11 TZ 1088-1 (context 32, from Cyprus); 12 TZ 1380-2 (context 154, from Cyprus?); 13 TZ 1591-2 (context 244); 14-15 Cooking pots; 14 TZ 1450-7 (context 168); 15 TZ 1450-8 (context 168).

group of three very similar Iron Age sherds. All these pottery sherds probably originate from the surroundings of Tall Zar'a.

Five sherds from Tall Zar'a belong to a subgroup, which can also be included in the main group. Three sherds from Tall Zar'a are similar to Gadara-sample 1. One other sherd from Tall Zar'a resembles Gadara-sample 2. Four sherds are so different in composition that they belong neither to the main group nor to the Gadara samples.

Generally, it can be said that the pottery sherds of the Bronze and Iron Ages as well as from the Islamic period come from the surroundings of Tall Zar'a. In Hellenistic and Roman-Byzantine times



9. 16-21 Cooking pots from the Iron Ages: 16 TZ 1410-6 (context 162); 17 TZ 1441-2 (context 168); 18 TZ 1129-6 (context 51); 19 TZ 1177-10 (context 81); 20 TZ 1184-4 (context 53); 21 TZ 1111-12 (context 31); 22 TZ 1350-2 (context 150).

the pottery sherds show a strong similarity with samples from Gadara.

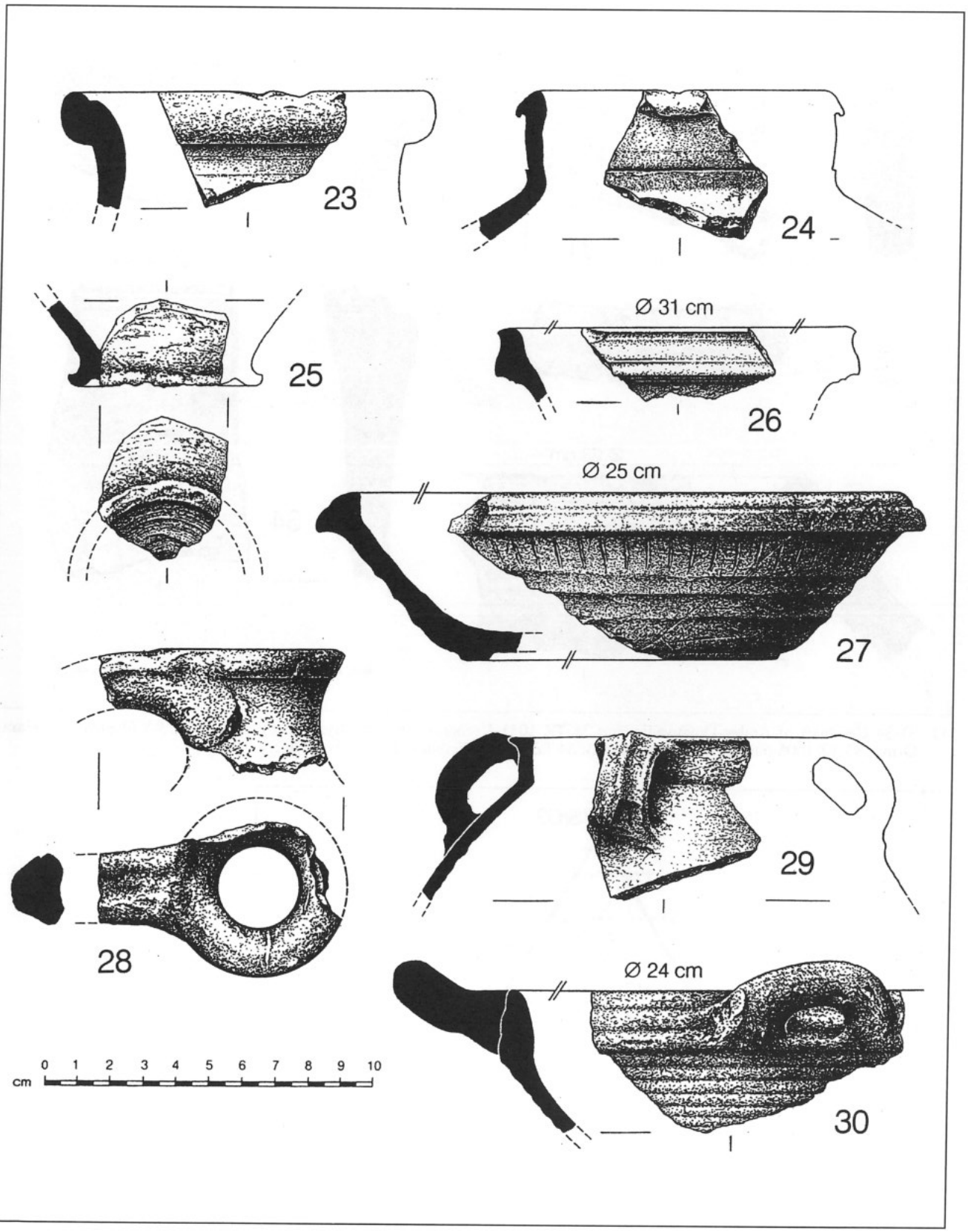
These results have to be scrutinized with the aid of stratified samples from the excavation on Tall Zar'a.

The Aerial Survey

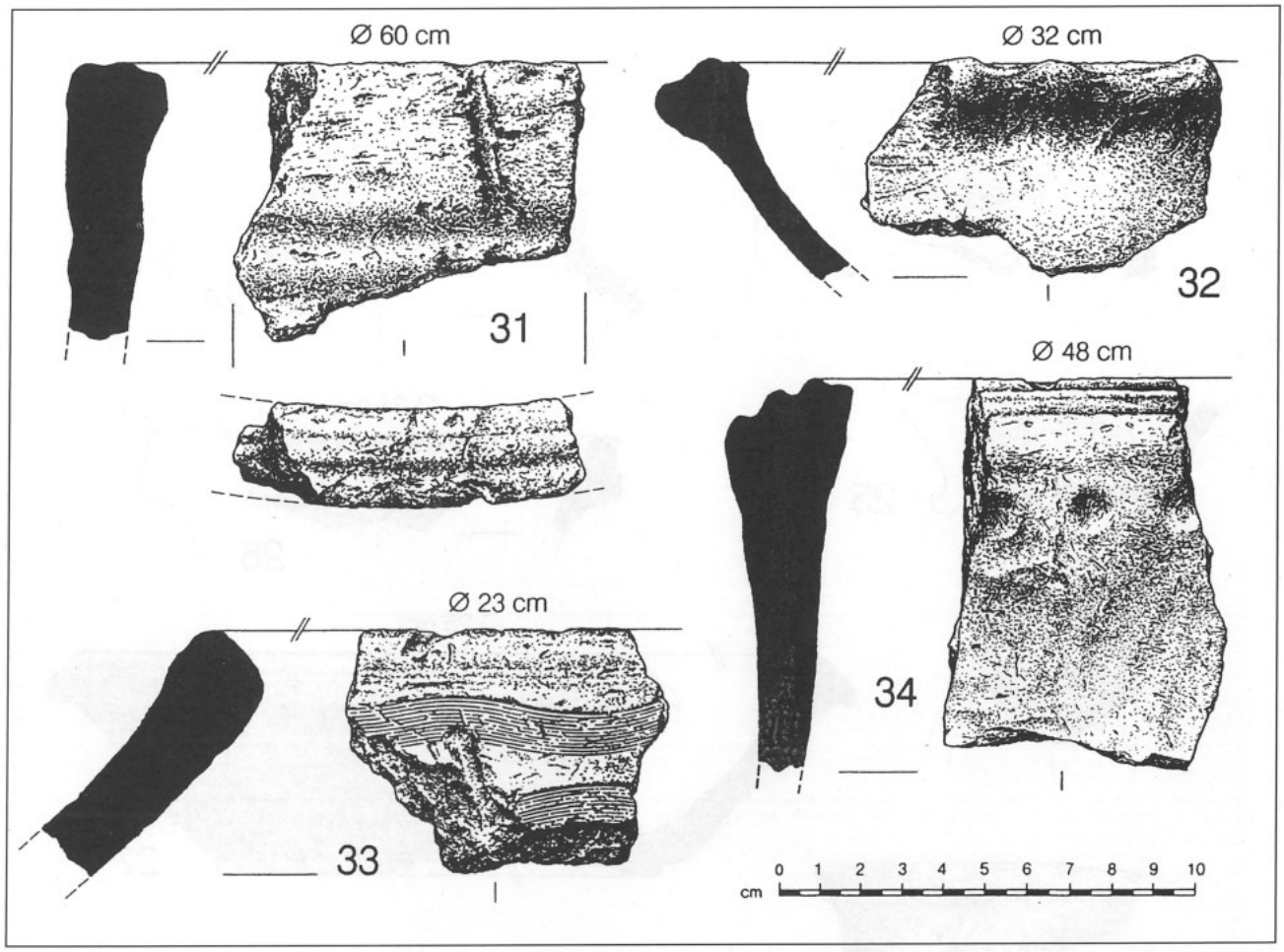
Surveying and photogrammetric mapping have made new research methods for archaeology possible by a combination of modern equipment with digital technologies.

Aerial Photogrammetry for the Production of Site Maps Respectively Topographical Maps

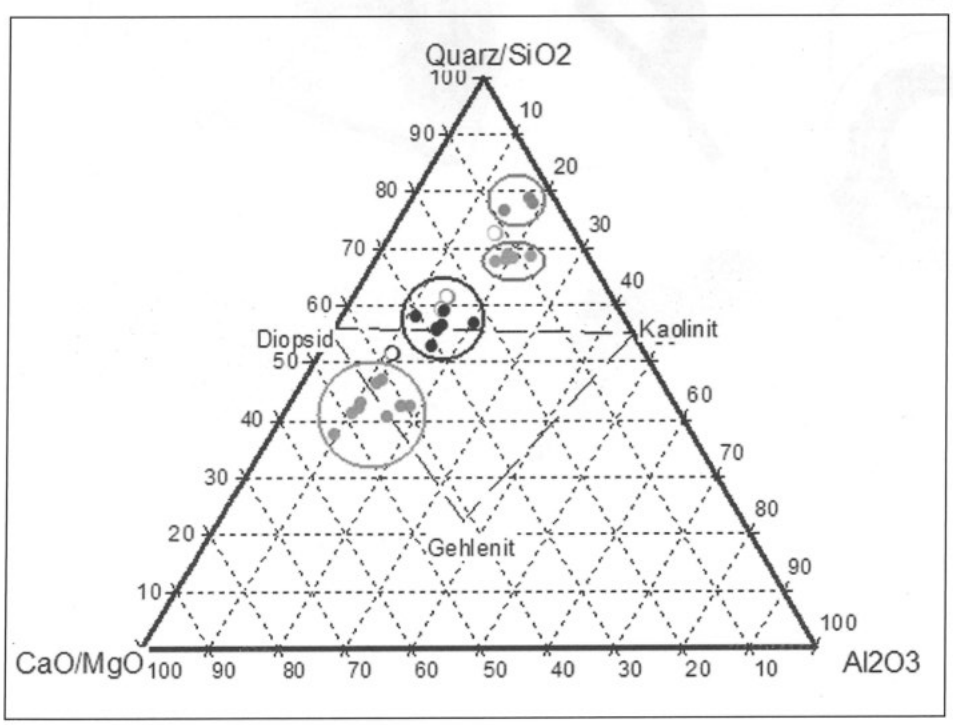
The mapping of features in large-scale surveys has long since been carried out by GPS in an ef-



10. 23-29 Wheel-made ceramics of the Hellenistic, Roman and Byzantine Era: 23 TZ 1063-8 (context 16, Late Hell.); 24 TZ 1192-3 (context 53, Late Hell.); 25 TZ 1437-1 (context 181, Late Hell.); 26 TZ 1042-11 (context 3, Rom.-Byz.); 27 TZ 1035-24 (context 6, Rom.-Byz.); 28 TZ 1002-9 (context 1, Late Rom.-Byz.); 29 TZ 1189-7 (context 92, Late Rom.-Byz.); 30 TZ 1003-2 (context, late Rom.-Byz.).



11. 31-34 Ceramics of Arabic-Omayyadic Era; 31 TZ 1031-1 (context 16, Late Byz.-Oma.); 32 TZ 1173-5 (context 53, Mam.-Osm.); 33 TZ 1006-5 (context 2, Mam.-Osm.); 34 TZ 1002-11 (context 1, Late Byz.-Oma.).



12. 'Fingerprint' of ceramics from Tall Zar'a.

fective and time saving way. We combined this mapping method with the recording of objects, as has been common in archaeology for some time: a camera platform, equipped with three-dimensional mobility via remote control, was fastened to a helium-filled balloon. With a rope, the balloon was tied up on the ground or directed to the areas to be surveyed. In order to take photos, the camera had to be positioned almost perpendicularly above the areas to be mapped. This was done with the help of radio telecontrol. The section in the viewfinder was relayed digitally to a ground station (TFT monitor or head-display during strong sun radiation). Photos taken from heights of up to 135m supplied ground segments of maximally 15,000m2 per picture. On one hand, these photos served as photograms for specific site data supplemented by GPS data. On the other hand, the overall view of the excavation area and its surroundings could be impressively documented. The pictures were rectified and assembled into a collage by way of control points (**Fig. 13**).

Photogrammetry Used in the Documentation of Archaeological Features

Similarly, the excavation squares on Tall Zar'a were documented with the help of modern technological equipment. On a daily basis, nearly perpendicular photos were taken from ca. 4m above the squares. First, the distortion of the objective was corrected. Then the digital photographs were rectified via control points (here the corner points of the squares) (**Fig. 14**). In this way, both the progress of the excavation could be documented and site sketches produced with great accuracy.

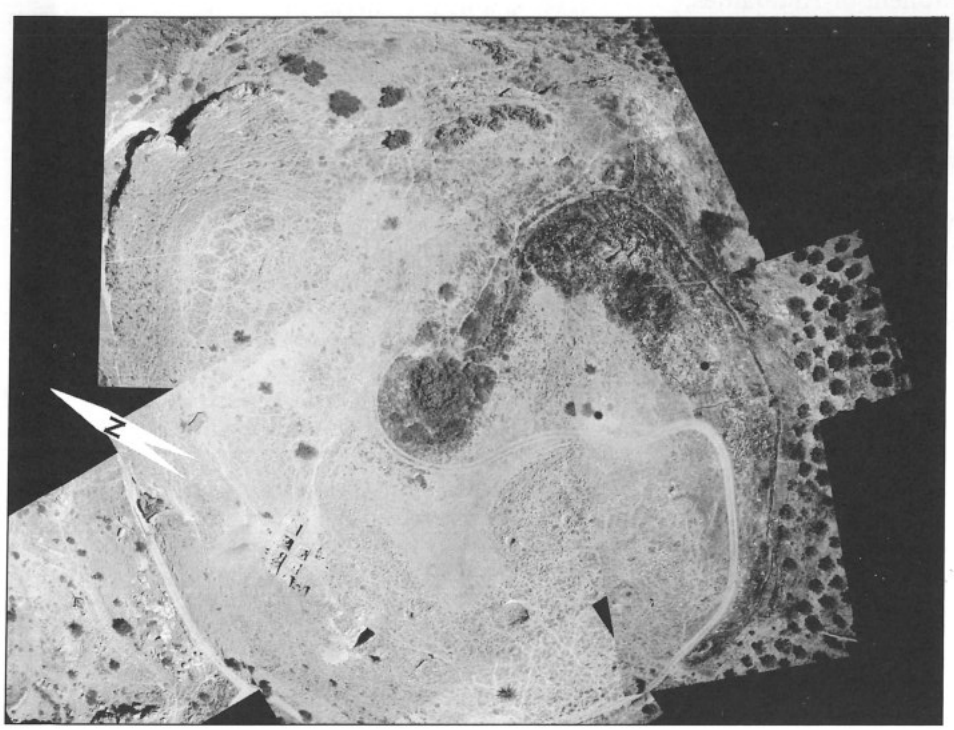
The evaluation of these photographs should be undertaken jointly by the surveyor and the archaeologist in charge to ensure that the represented data are correctly interpreted. To improve our techniques means, we will in future campaigns analyze potential error sources inherent in deeply excavated squares and consider the former's elimination while looking at aspects of practicality and accuracy.

Experimental Archaeology

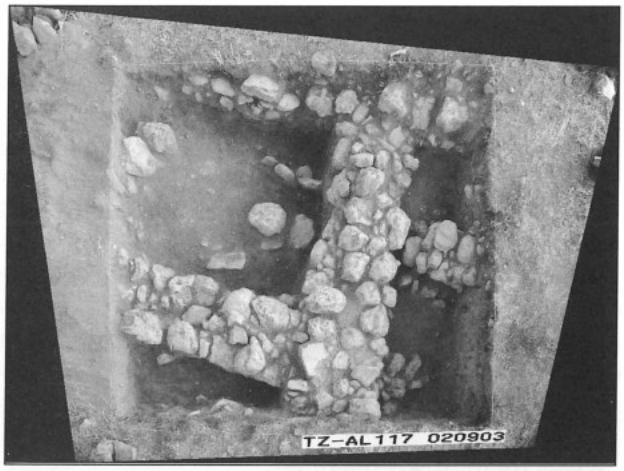
Following the excavation in 2003, a project with a technological-historical background was carried out. Within three weeks, Mustafa Saleh, the son of the last Ṭābūna still living in Umm Qays (**Fig. 15**), built a bread-baking oven commissioned by the Biblical-Archaeological Institute. Our analysis comprised the following: the origin, grinding, cleaning, and mixing of the clay, origin and use of added materials (e.g., rush and goat hair), manual construction of the oven, special make-up of the oven's base and upper rim, preparation of the pit in which the oven was set, heating it and, of course, the baking of bread.

Acknowledgments

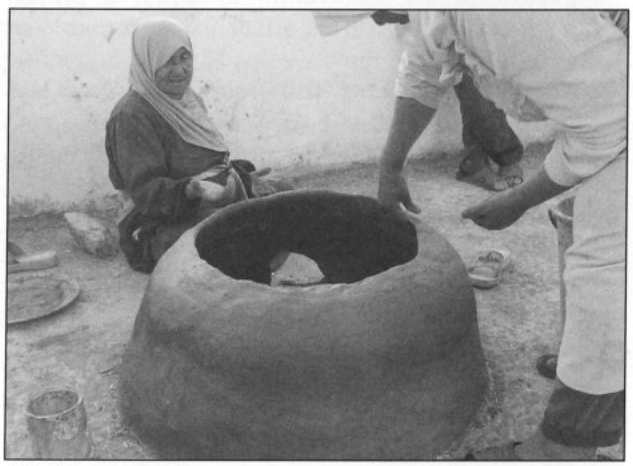
We would like to extend cordial thanks to the



13. Mosaic of rectified photographs taken from a helium filled balloon.



14. Rectified photograph of a square.



15. Ṭābūna at work.

Director General of the Department of Antiquities, Jordan, Dr. Fawwaz al-Khraysheh, Antiquities Inspector for the Irbid District, Wajeh Karasneh, and the inspectors Imad Obeidat (Umm Qays) as well as Lina Khreis (Irbid) for their generous support of our work as well to our sponsors: Sparkasse Wuppertal, Schuhhaus Klauser GmbH (Wuppertal), Stiftung Mittelsten Scheid (Wuppertal), Erfurt and Sohn KG (Wuppertal), and last but not least to the Freundeskreis of the Biblical-Archaeological Institute. In addition, we are indebted to Hugo Gressmann Stiftung, Hannover, which supports young scientists.

Without the commitment of our co-workers, our work could not have been accomplished. The team consisted of archaeologists, theologians, geophysicists, chemists, a survey engineer, a geologist, and volunteers. We were energetically supported by local workers and a group of 40 volunteers under the direction of Dr. Thilo Fitzner of the Protestant Academy Bad Boll. Geophycisists and surveyors of the Biblical-Archaeological Institute, Wuppertal, contributed to our project while at the same time working on Khirbat az-Zayraqūn with Professors Dr. Siegfried Mittmann and Dr. Mohawiya Ibrahim. Special thanks also go to Patrick Leiverkus, Markus Heyneck, Dr. Wolfgang Bruns, Jens Kleb, Jens Eichner, Dr. Wolfgang Auge, Adelheid Baker, Dietmar Biedermann, Dr. Armin Rauen, Lina Unterbörsch, Sina Dörfling, Christiane Schubert, Dagmar and Hans Jagsch, Jürgen Kröpsch, Andrea Schwermer, and Andrea Gropp.

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Bibliography

Vieweger, D.
2002a Tall Zar'a in Wādī al-'Arab: The "Gadara Region Project". *ADAJ* 46: 157-177.
2002b Tall Zera'a in the Wadi al-'Arab. Occident & Orient 7/2: 12-14.
2003a unter Mitarbeit von Jens Eichner und Patrick Leiverkus. Der Tell Zera'a im Wādī al-'Arab. Die Region südlich von Gadara. Das Altertum 48: 191-216.
2003b Tell Zera'a. *AJA* 107: 459-461.

Vieweger, D. and Häser, J.
In press Der Tell Zera'a im Wādī al-'Arab. Das ‚Gadara Region-Project' in den Jahren 2001 bis 2004. Zeitschrift des Deutschen Palästina-Vereins 121.

Vriezen, K.
2002 The Region of Gadara/Umm Qeis Project. Second part of the 2001-season: a test trench on Tell Zera'a. Occident & Orient 7/1: 18-19.
2003 The Region of Gadara/Umm Qeis. The 2002 season: a test trench on Tell Zera'a. Occident & Orient 8/1: 13-14.

BROWN UNIVERSITY ARCHAEOLOGICAL RESEARCH AT THE PETRA GREAT TEMPLE, 2004

Martha Sharp Joukowsky

Archaeological research at the Petra Great Temple is supported by the Luther I. Replogle Foundation, the Brown University Exploration Fund, the Joukowsky Family Foundation, and several private donors. The 12th excavation season by Brown University archaeologists took place from June 5 until August 5, 2004, under my direction. To better understand its stratigraphic development and phasing, excavations continued in all sectors of the Great Temple — Propylaeum, the Lower Temenos, the Upper Temenos and in the Great Temple proper.

This campaign would not have been possible without the generous assistance of the Jordanian Department of Antiquities, Fawwaz al-Kraysheh, Director, and Suleiman Farajat Director of the Petra National Park, Sami al-Nawafleh our Department of Antiquities Representative and the American Center of Oriental Research, Pierre M. Bikai, Director. We would also like to express our thanks to Brown University for making this season possible.

Brown University archaeologists included Martha Sharp Joukowsky, Director, Artemis A. W. Joukowsky, Photographer, and 11 supervisors served as most valued staff members, including Joseph J. Basile, Brian A. Brown, Emily Catherine Egan, Emma Susan Libonati, Christian F. Cloke (Surveyor), Eleanor A. Power, Tarek M. Khanachet, Monica Sylvester, Sara Karz Reid, Michael S. Zimmerman, Christopher A. Tuttle, Deirdre G. Barrett (Cataloguer), Ulrich Bellwald (Baroque Room Stucco Restorer), and Shari L. Saunders (Residential Quarter Pottery). Megan A. Perry, physical anthropologist, analyzed the bones from the "Tot in the Pot", discovered during the 2002 campaign[1].

We were supported by a work force of 50 devoted Bedouin, directed by Dakhilallah Qublan, Foreman. The American Center of Oriental Research in Amman, to whom we are most grateful, also provided additional support.

Introduction

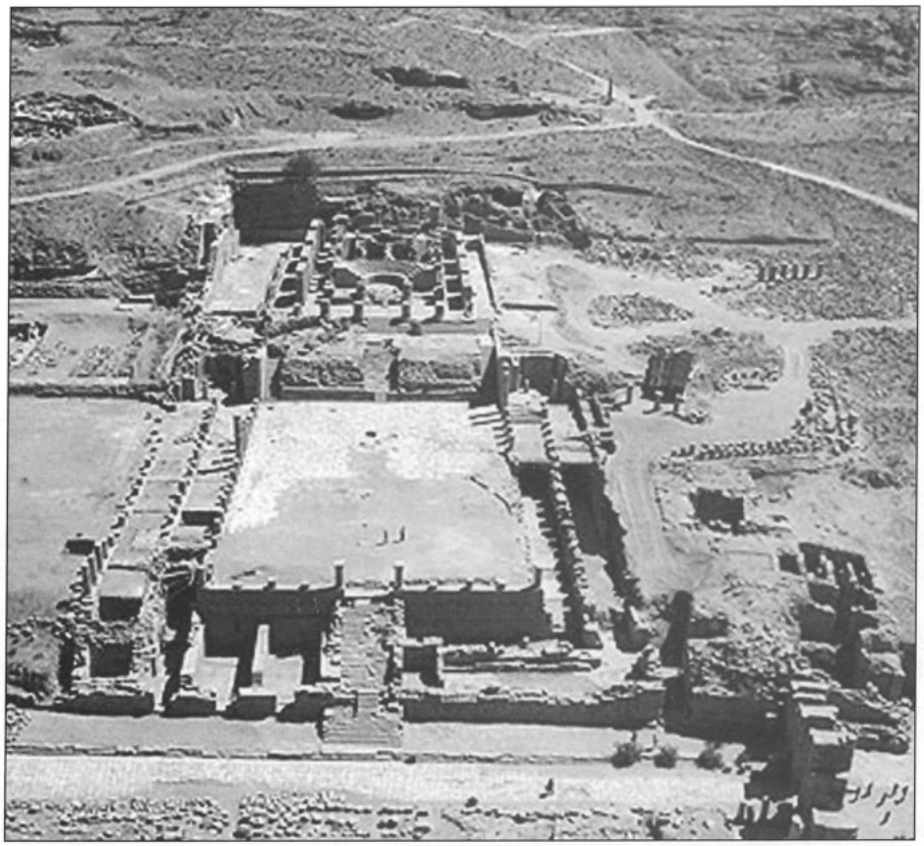
The Petra Great Temple occupies the site on a south slope south of the Roman Street just before reaching the Temenos Gate of the Qaṣr al-Bint. Founded in the last quarter of the first century BC, the Great Temple is the result of the construction of a great urbanization program undertaken by the Nabataeans. Located in the heart of the city, the Great Temple served as one of the centers of Petra, and because it houses a theater in its center, it appears to have had a civic as well as a religious function. As seen today, the temple is a free-standing tetrastyle in antis building in the open Upper Temenos.

Large-scale annual excavations carried out by Brown University archaeologists since 1993 have exposed the architecture of the Great Temple, and our research has concentrated on recording the site plan (Zimmerman 1996, 2000), the conservation of the site (see Joukowsky annual reports in *Annual of the Department of Antiquities of Jordan*), the restoration of the Baroque Room ceiling (Joukowsky 2003: 400-401), sculpture (Basile 1997, 1999, 2002a, 2000b, 2003 and Schluntz 1997, 1998, 1999) and the subterranean water system (Joukowsky 1997, 2004; Payne 1998; Tullis 1998; Cloke 2004). The excavation of the site is nearing completion and is scheduled for 2006.

Fieldwork 2004

The site as excavated in 2004 can be seen in **Figs. 1. and 2** illustrates the four divisions of the precinct: the Propylaeum; the Lower Temenos; the Upper Temenos, and the Great Temple proper. The site plan with the trenches excavated in 2004 are indicated in **Fig. 3** where it is shown that the 2004 excavations were undertaken in all areas of the pre-

1. Perry reported that the bones were of a newborn infant ± two months of age of indeterminate sex and the pathology was "active cribra orbitalia within the eye orbits," which may indicate anemia, malnutrition or an infectious disease.



1. 2004 Petra Great Temple aerial to south at the close of the 2004 excavations (Artemis W. Joukowsky).

cinct. In total, five large trenches were excavated and nine special projects were directed to specific stratigraphic problems we wanted to tackle. Each area's excavations will be discussed with the trenches and Special Projects that elucidate key issues of the Great Temple's stratigraphy. In a previous report (Joukowsky 2004: 155-170), the phasing and dating of the site was suggested which we will follow here[2], but will be employed in our discussion of each 2004 trench or special project's development. This 2004 report discusses the excavations and the artifact repertoire, then we will turn to cover each excavation's phasing, and we will conclude with a discussion of consolidation and restoration measures undertaken for the site.

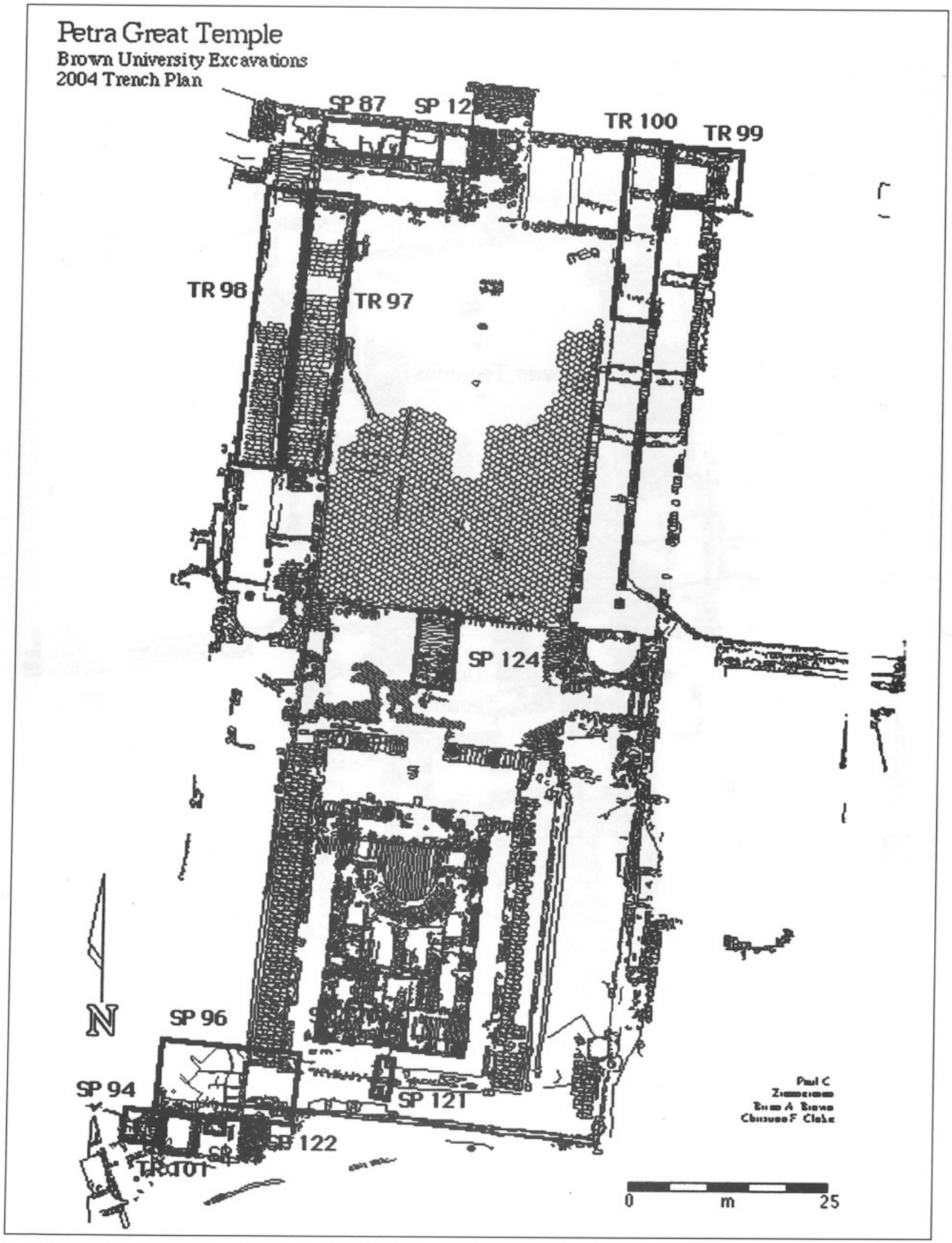
PROPYLAEUM

Propylaeum East

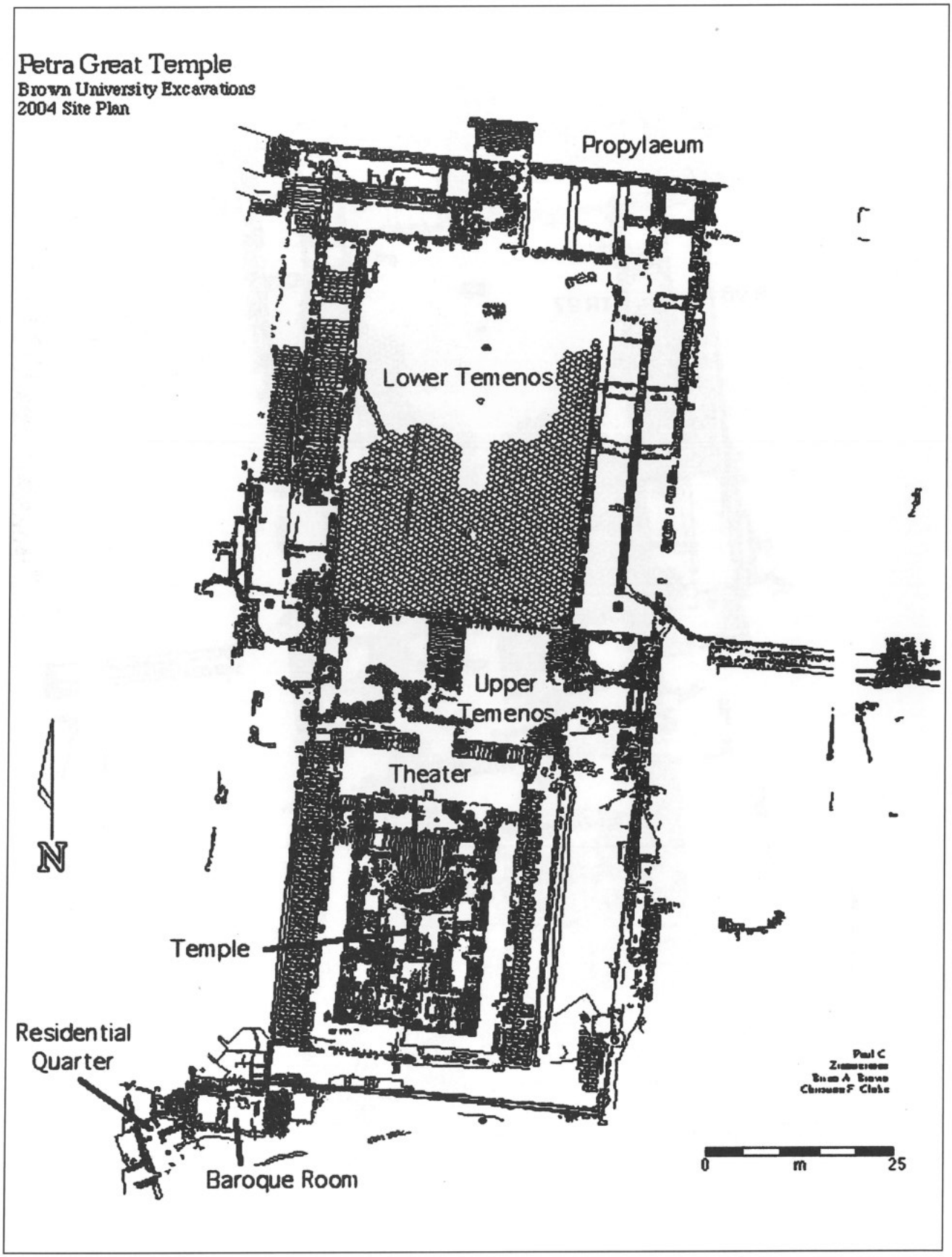
Two large trenches, 99 and 100, were undertaken in the Propylaeum East to define and analyze the northeast perimeter of the precinct and the reasons why the East Propylaeum is so different in its architectural program from the Propylaeum West. The Propylaeum Portico Wall was originally built in the first century BC. The Grand Design building of the Propylaeum West at the end of the first century BC retained its original configuration parallel to the Roman Street whereas the Propylaeum East, was reconfigured in the second century AD perpendicular to the street, into two rooms flanked by a passageway into the East Cryptoporticus, and a series of rooms to the east.

On the northeast precinct perimeter of the Propylaeum East, Trench 99, supervised by Joseph J. Basile, was comprised of two rooms and lying to the east with what appears to be a hexagonally paved passageway which probably, technically, belongs to the Garden-Pool lying to the east of the Great Temple precinct (these gardens embellish the Great Temple but have been excavated separately). Trench 99measured approximately 8.00m east-west by 5.50m north south.

2. We cannot fix the architectural events to absolute dates — thus our chronology is relative. The Petra Great Temple Site Phasing is comprised of 14 phases, as follows:
Phase I-Early to mid-first century BC; Phase II-first century BC; Phase III-Minor damage; Phase IV-the "Grand Design," last quarter of the first century BC to AD first century; Phase V-late AD first century; Phase VI-AD second century; Phase VII-AD mid second century, Roman period; Phase VIII-abandonment and robbing; Phase IX-363AD earthquake; Phase X-abandonment, Byzantine period, AD late fourth through fifth centuries; Phase XI-post AD fifth century, perhaps result of 512AD earthquake? Phase XII-robbing and abandonment; Phase XIII-major collapses that continue into the Islamic period; Phase XIV-modern period, Bedouin activities and accumulation of debris.



2. Petra Great Temple Site Plan with Precinct Areas identified (Christian F. Cloke and Brian A. Brown).

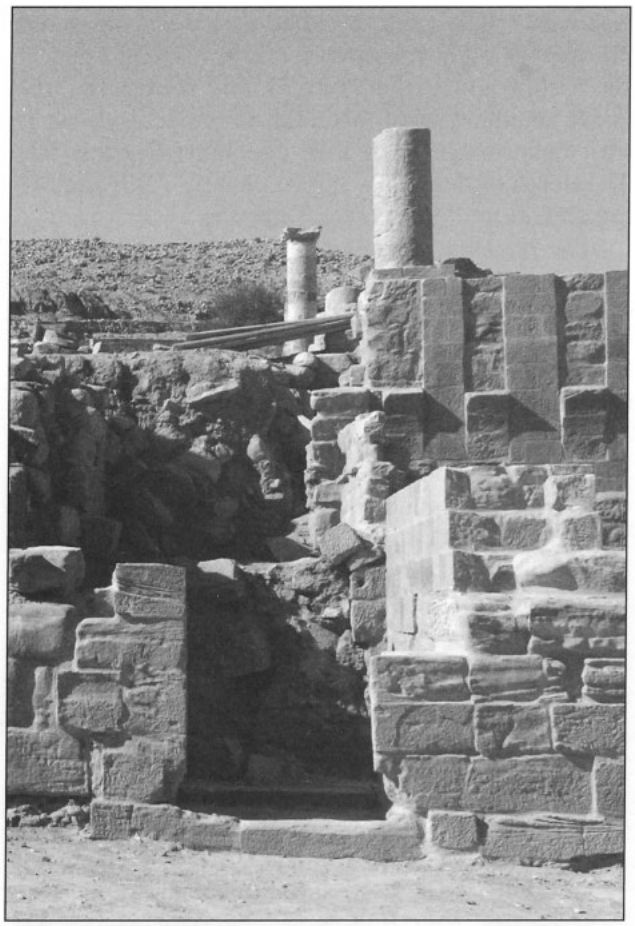


3. Petra Great Temple Plan of the 2004 Trenches Excavated (Christian F. Cloke and Brian A. Brown).

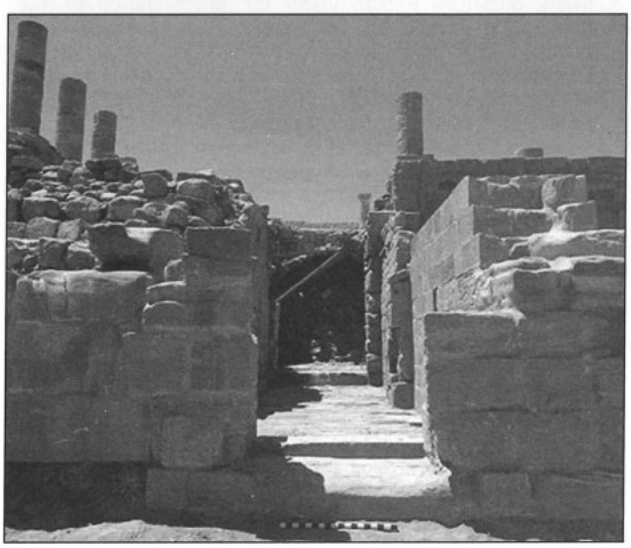
This area is crucial in that it represents the northeast limit of the Great Temple precinct, and it is also potentially an area accessing both the Great Temple and the Garden. It must contain clues as to the relationship of the Great Temple with the Garden Pool site, and important architectural/structural data (specifically, how "corners" were constructed where north south oriented cryptoportici met east west oriented cryptoportici). Nearly all architectural features in this area were exposed, including original Nabataean foundations and walls, Nabataean floor bedding and floor material, a newly discovered door threshold representing access to a partially excavated room (outside the Great Temple east wall and technically part of the Garden Pool site), later cross-walls (forming a square "room" in the northeast of the Great Temple complex with no access), and meters of purposeful fill.

In Trench 99 there is little evidence of the massive collapse of column drums and capitals as seen in areas of the Propylaeum to the west. Obviously, with this feature filled-in in the second century AD, collapsing columns would have fallen on top of the earlier deposits and have been dropped more or less on the surface, subsequent weathering would have worn away many of the sandstone columns or washed them down onto the Roman Street. Was there a full complement of colonnades in the Propylaeum area, or just one or two rows of columns fronted by a wall? The answer to this question eluded us. On the whole, however, excavations in Trench 99 served to answer many questions regarding the important area where the North Cryptoporticus of the Propylaeum and the East Cryptoporticus of the East Colonnade met to form the northeastern-most corner of the Great Temple precinct.

Adjacent to Trench 99 is Trench 100, also known as the Propylaeum East Room 3, with pairs of projecting buttresses separating each section of a long narrow corridor comprised of three chambers (Chambers 1-3) from north to south.. **Figure 4** shows Propylaeum East Room 3 before excavation and **Fig. 5** Propylaeum East Room 3 after excavation. The overall Trench 100measurements before excavation were approximately 17.34m north south by 3.80m - 4.30m, depending upon the architectural divisions of this corridor. Although they appear to be homogeneous, each chamber has different internal dimensions. Chamber 1 is the entryway to Room 3 and includes the north set of entry piers, East and West Piers #1 and East and West Buttresses #1, internal measurements: 4.16m north south by 3.43m east west. Chamber 2 lies between East and West Buttresses #1 and East and West



4. Propylaeum East Corridor Room 3 before excavation to south (Artemis W. Joukowsky).



5. Propylaeum East Corridor Room 3 after 2004 excavation to south (Artemis W. Joukowsky).

Buttresses #2 with internal measurements of 4.34m north south by 3.23m east west. Incompletely excavated, Chamber 3 extends from East and West Buttresses #2 and includes an *in situ* vault and the south balk measuring 5.30m north south by 4.13m

east west[3]. The vault, oriented east west, measures 30 degrees eight minutes is 1.25m in height and is set 5.20m above the floor of this room. The reconstructed extent of this vault is conjectural, but it may have extended to East and West Buttress #2. The depth of deposit is approximately 7.00m below the elevation of the Lower Temenos.

The phasing of Trench 100 is difficult to assess because each architectural element has two to three phases of rebuilding, repair and reconstruction. These chamber walls, given a single locus description may be placed in two or occasionally three distinct construction stages. These distinctions are marked by differing masonry — hewn ashlars wet laid with mortar that are different in their dimensions and construction styles.

From earliest to latest, the site phasing of the East Corridor Trench 100 is best assigned as follows: In Site Phase II, the Portico Wall[4] is constructed after which Wall K is assumed to have been put in place in Site Phase IV. In Site Phase VII or the mid-AD second century the entry doorway #3 is inserted in the Portico Wall along with internal buttresses #1 and #2. The walls are rebuilt for the vault construction in Chamber 3, the floors of Chambers 1-3 are laid with limestone pavers after an interior step threshold between Chambers 2 and 3 is built as well as the side walls of Chambers 2-3. In a fourth construction, the chambers are still in use, but a secondary entry threshold from the Roman Street is built up and appointed with ten threshold iron bars inserted across the entrance, as is the case with Rooms 1 and 2 to the west. Thereafter in Site Phase VIII Chambers 1-3 limestone floors are robbed out. In Phase IX (before the AD 363 earthquake) and thereafter burning of (?) incense and large animals takes place. This is followed by the first major earthquake collapse of architectural elements, followed by massive accumulation of debris[5].

Propylaeum Steps, Special Project 125

Special Project 125, the investigation of the Propylaeum Steps supervised by Michael S. Zimmer-

3. Continued excavation was too dangerous due too the possible collapse of the vault in Chamber 3.
4. In the Propylaeum East and West, the Portico Wall fronts the precinct on the north separating it from the Roman Street. Wall K is parallel to the Portico Wall and divides the Propylaeum West into north and south galleries. South of Wall K is the parallel Propylaeum Retaining Wall. In the Propylaeum East, Wall K was dismantled to construct Rooms 1 and 2, which are oriented perpendicular to the street.
5. Many questions remain about the interpretation of site phasing for Trench 100. Although the structural developments taking place in the east corridor appear to be straightforward, they cannot be confirmed to be securely aligned with our site phases. Many discussions between Eleanor A. Power and the writer have been devoted to the stratigraphy and structural development of the East Corridor. We have agreed to assign these developments to mid-second century Phase VII until we have more evidence for an earlier placement in the site phasing.
   The alternate schema, however, may be proposed as follows: The Propylaeum Portico Wall is assumed to have been constructed in Site Phase II, and changes to it can also have been proposed to have taken place in Site Phase IV when we also posit Wall K is built across the East Propylaeum, for vestiges of it remain and can be seen in the adjacent Room 3 Trench 100 Corridor, Propylaeum East Rooms 1 and 2 Lower Temenos Retaining Wall (and Wall K remains extant in the Propylaeum West).
   This alternate phasing suggests that Trench 100 Stages 2 and 3 also took place at this time resulting in the Portico Wall being breached and the corridor entry was reconfigured and reconstructed along with the installation of its entry threshold. At the same time, the lowest courses of the north south corridor walls in Chamber 3 are put in place as well as internal buttresses, which provide support for the vault — assuming that it too is constructed at the same time and the buttresses serve for its support. The internal step threshold between Chambers 2 and 3 is also built and the limestone pavement floors are laid. As there also had to be additional support and reinforcement for the Lower Temenos Hexagonal Pavement, thus the wall also is reconstructed on the corridor west. In order to complete the corridor had to be rebuilt (although the rebuilding extant today may have occurred at a later time or site phase as well). This also may be the case for east and west walls. Essentially this phasing assumes that all these modifications are synchronous developments taking place in the Great Temple Phase IV.
   In short, this alternative phasing scheme assumes the Corridor is constructed along with the other elements in the Great Temple Grand Design, which is the re-design of the precinct in Site Phase IV instead of where we have placed these activities — in Site Phase VII.
   The clarification of this East Propylaeum component presents many problems, as does this phasing placement in Site Phase IV because it assumes that Wall K topped with its elephant-headed capitals either did not further extend to the east (no traces of it remain), and initially was not constructed over this area which would have thrown off the symmetry of the Propylaeum. Or, should Wall K have been in place before the corridor was extended, it may have been completely razed to provide for the construction of this passageway. Clearly there are modifications to this corridor-passageway and we cannot state with assurance if its components were put in place in Great Temple Phase IV at the end of the first century BC or ca. 175 years later in Phase VII dated to the mid-second century AD. What is clear is that the corridor was in use until its floor was ransacked and the earthquake of 363 took place resulting in the collapse of the elephant headed capitals adorning the colonnade adorning the Propylaeum Retaining Wall.
   In conclusion, the later phasing of the Trench 100 construction as represented in Phase VII remains conjectural, however, we have reasoned that it seems more appropriate to the overall site phasing, although the relationship of the chambered corridor to the Propylaeum East and the precinct as a whole remains unclear. As it stands now, the evidence emphasizes the need for the East Propylaeum to be archaeologically re-investigated. We hope to shed more light on this seeming architectural enigma with excavation beneath the piers, corridor walls and the plaster under bedding of the floors to provide some evidence and further confirm these developments and their placement within the site phasing.

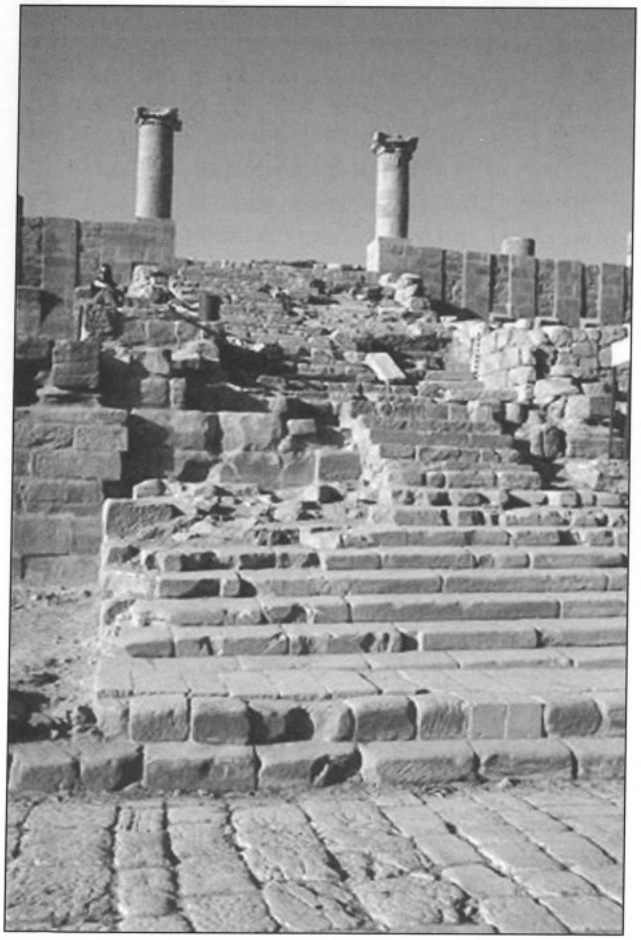
man and assisted by Sara Karz Reid, was located at the western edge of the central Propylaeum Staircase between the West Portico Wall of the Propylaeum and Wall K (the southern wall of Room 1 of the Propylaeum West). This sondage measured north south 6.35m by 1.20m east west. Its purposes were to chart the extent of preservation of earlier steps underneath the later steps and if the earlier steps terminated at the north face of Wall K. And did they relate to the east doorway of Room 1 of the Propylaeum West? The west side of eight steps between Wall K and the Portico Wall were exposed. **Figure 6** captures the Propylaeum Steps as they appear today and **Fig. 7** shows the recovery of the earlier Propylaeum Stairs.

At the bottom of the earlier steps were found ceramic floor pavers oriented towards the threshold of Room 1, abutting both the threshold and the earlier stair treads, indicating that this particular floor surface was placed after both of these features were installed. The removal of a floor paver abutting the north side of the bottom tread of the early staircase clarified this issue and revealed the landing was coeval to the staircase.

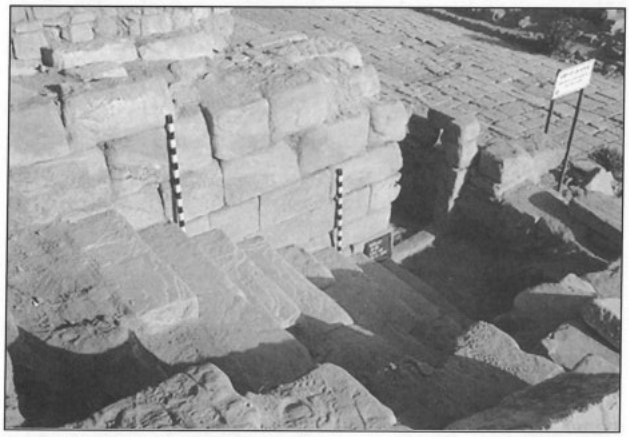
The presence of earlier steps was confirmed, and it can be assumed they belong to Roman period Site Phase V. The fact that architectural fragments from the main collapse of the Great Temple were found beneath the later steps suggests that they were built after the earthquake of 363AD.

Propylaeum West, Ballista Balls, Special Project 87

One of our 2004 objectives was to better understand the stratigraphy related to the 55 ballista balls found in the north gallery of the Propylaeum West in 2002. Sara Karz Reid supervised the Propylaeum West excavations of Special Project 87 in the sub floor of the north gallery area west of Room 1 in the Propylaeum West (**Fig. 8**), and between the Portico Wall to the north, and the bench abutting the north side of Wall K to the south.[6] SP87 measures 1.96m north south by 7.66m east west. The goal was to clarify the relationship be-



6. Central Propylaeum Stairs to south (Artemis W. Joukowsky).



7. Central Propylaeum Earlier Stairs to northwest (Artemis W. Joukowsky).



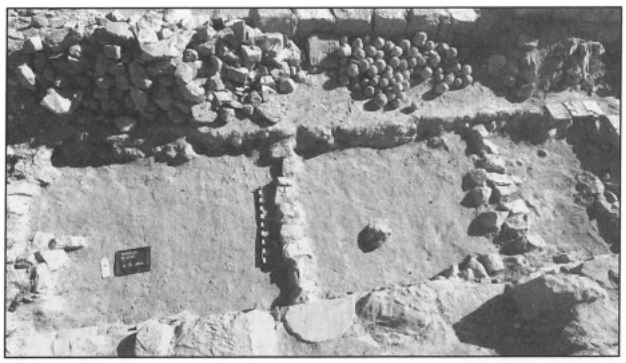
8. West Propylaeum North Gallery Before Excavation to northwest (Artemis W. Joukowsky).

6. Previously excavated in this area were Trenches 51, 87, and 88.

tween the ceramic floor tile surface and the deposit of ballista balls discovered during the excavation of Trench 87 in 2002.

A series of shallow test trenches clearly indicated that this area was the staging for a conflict, for 363 additional ballista balls were recovered as well as 162 arrowheads and two bronze cheek pieces. **Fig. 9** illustrates the ballista balls numbered *in situ*, and **Fig. 10** shows the sondages where they were recovered. Each ballista ball was weighed and presently is in the process of being analyzed. The total number of ballistas from Great Temple deposits is 423 missiles. One of our many queries is if these missiles were stored in the Propylaeum West in preparation for an attack (Joukowsky 2003: 396) or were the result of an attack. Clearly some sort of offensive action was anticipated or had taken place. Many questions remain for the interpretation of this weaponry.

A tentative historic reconstruction of the Propylaeum West now can be outlined. Site Phase I is an early major wall construction in the Propylaeum West preceding the construction of the Portico Wall in Phase II in the first century BC. In Site Phase IV of the Nabataean Grand Design the full Propylaeum West with Wall K and the Propylaeum Retaining Wall is constructed. The north gallery (between the Portico Wall and Wall K and the south gallery and between Wall K and the Propylaeum Retaining Wall), the West Entry Steps, and Room 1 are also put in place. The large ballista repository was found embedded in the floor and the fill above it. This is assigned to Site Phase VI the Late Nabataean period when there are a number of collapses probably as a result of Roman

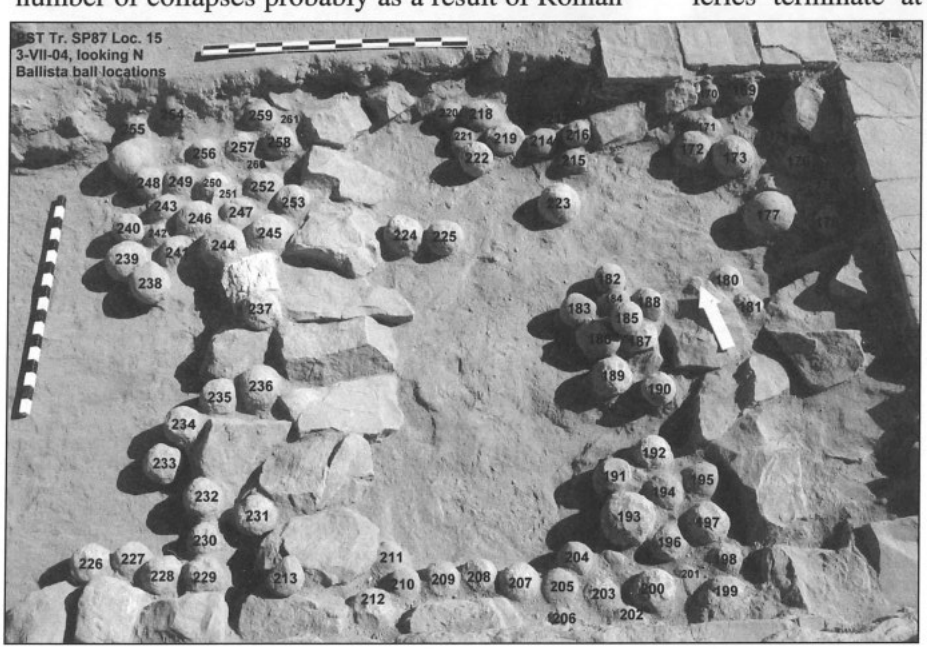


10. Propylaeum West Ballista Sondages to north (Artemis W. Joukowsky).

aggression, this phase we date to ca. 106AD. In Roman period Site Phase VII assigned to the AD mid second century, is a time for repairs and rebuilding including the building of the betyl niche and the betyl installation (Joukowsky 2002: 317-318). At that time, the new ceramic flooring is placed in the north gallery with its sub floor containing the majority of ballista balls. The entire Propylaeum West succumbs to the 363AD earthquake, with the collapse of the Lower Temenos-Propylaeum colonnade with elephant head capitals after which it is buried by falling architectural elements and massive debris.

LOWER TEMENOS

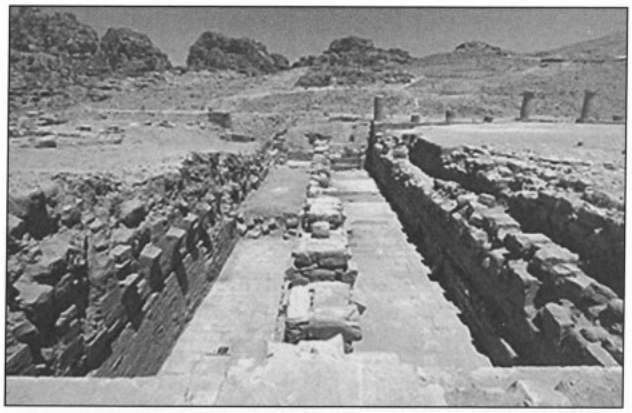
In the Lower Temenos two large trenches, Trenches 97 and 98, were excavated to uncover the parallel north south subterranean cryptoporticoes constructed under the west triple colonnade. Together measuring 32.80m north south by 12.20m east west by 3.25m depth, these two enclosed galleries terminate at the north in the Propylaeum



9. Propylaeum West Numbered Ballista Balls *in situ* (Sara Karz Reid).

West[7]. Trench 97 was supervised by Christopher A. Tuttle Parallel to Trench 97 is Trench 98 the gallery of the West Cryptoporticus West. Trench 98 was supervised by Eleanor A. Power and Tarek M. Khanachet (Trench 98's excavations were not quite completed by the end of the season). **Fig. 11** illustrates the West Cryptoporticus before excavations and **Fig. 12** illustrates the West Cryptoporticus after trenches were cleared.

The interpretation of the stratigraphy is fairly straightforward. The lowest layer is associated with Site Phase IV Grand Design when the West Cryptoporticus is constructed with the insertion of vaults. In Site Phase V, the vaults are blocked when the floors of the cryptoportici were laid and there was discovered a repair of the center cryptoporticus wall that supports vaults extending both to the east and the west. In the Roman period of Site Phase VII, there is an early collapse and the addition of new ashlars in the center wall, and benches are constructed along the south and east walls. With the AD 363 earthquake there is major collapse and destruction, upon which, in Site Phases IX and X, sedimentation, fill and an ash layer collects over the collapsed architecture.



12. Lower Temenos West Cryptoporticus after excavations to north (Artemis W. Joukowsky).

Architectural elements comprised the largest percentage of non-fill material found in Trenches 97 and 98. Due to the collapse event(s) that destroyed the surmounting Triple Colonnade and the cryptoporticus arch system, 1732 architectural fragments were excavated and recorded, including numerous voussoirs, wall ashlars, column drums, arch slabs, and several stylobate blocks. In addition, there were pieces of the hexagonal paving from the Lower Temenos, and from several different styles of cor-



11. Lower Temenos West Cryptoporticus before excavations to south, 2002 (Artemis W. Joukowsky).

7. The actual interior measurements of the West Cryptoporticus are 32.80m north south with each gallery measuring 4.30m east west, respectively. The 2004 excavated dimensions of Trench 97, however, were ca. 25.77m. north south by 6.10m. east-west: since the south area of the West CP East had been cleared to the floor as Trench 79 in 2001.

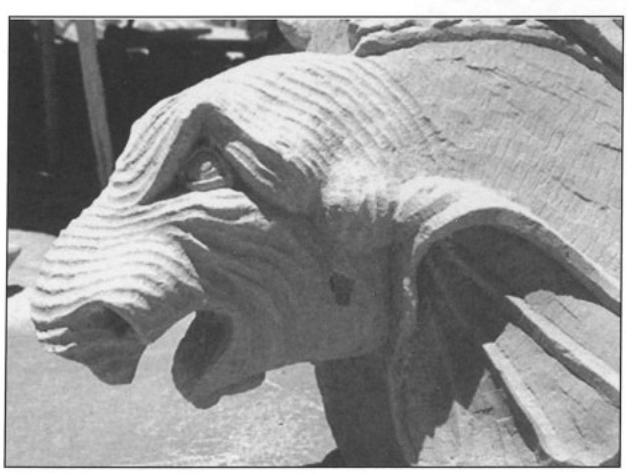
nice, as well as numerous limestone Ionic capital fragments were uncovered. In Trench 97, the most remarkable finds were four elephant-head capitals. An additional head from a third capital was identified and restored in the field. **Figure 13** illustrates the elephant head before restoration. Moreover, for the first time since the inception of the Great Temple excavations, pinecone bosses were found preserved on two of the elephant-head capitals. This unprecedented discovery of four well-preserved capitals in Trench 97 provided the opportunity to place two capitals on the reconstructed columns flanking the Propylaeum steps.

These excavations also yielded a range of small finds consisting of pottery, metal, bone, shell, stone, glass, shell, stucco, and vegetal remains. Of these, the most notable were the extensive finds of metal artifacts in Trench 97 near the floor level, much of which appears to be martial in nature. This selection included significant numbers of iron artifacts, including 105 arrowheads, a helmet cheek piece, several possible javelin points, a scabbard tip, buckles, rings, possible harness plates, as well as nails, spikes and knobs. Besides the iron, a significant amount of bronze artifacts were also found, including a scabbard tip, pins, tacks, rings, fragments of a bracelet and toggle pin, as well as four crescent shaped pendants with associated pieces. These artifacts also may be associated with the ballista deposit found just to the north in the Propylaeum West (*supra*). Trench 97 also yielded 20 coins (there were 5 in Trench 98), fine examples of decorated glassware, worked bone and/or ivory artifacts, as well as 48 lamp fragments and two complete lamps.

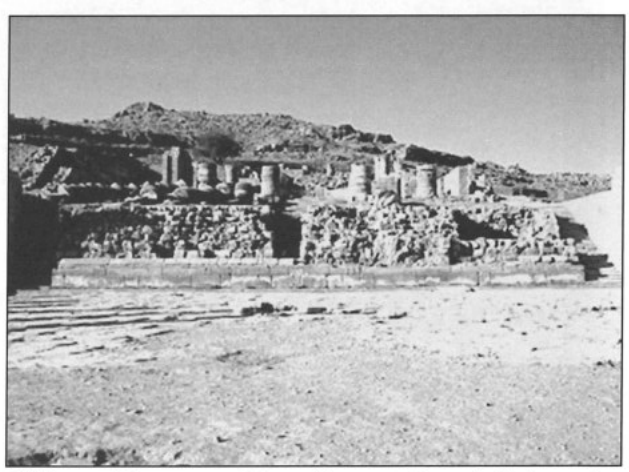
Lower Temenos to Upper Temenos — Central Stairs, Special Project 124

The central stairs leading from the Lower Temenos to the Upper Temenos were investigated by Emily Catherine Egan and Emma Susan Libonati in Special Project 124, 5.90m north south by 4.56m east west and 3.98m in depth, and its goal was to fully expose the central staircase between the Upper and Lower Temenos which is blocked by the construction of the Lower Temenos Retaining Wall, as well as to expose the earlier building stage of the precinct[8]. Additionally, it was determined that this excavation was necessary for a consolidation project above the Lower Temenos Retaining Wall to hold back the spolia and to prevent further damage to the Lower Temenos' hexagonal pavement. Upon examination of the Lower Temenos Retaining Wall, the remains of the Central Stairs east and west staircase façade walls had been evident for some time. These loci provided the boundaries for the excavation in the east, west, and north. The southern boundary was determined by the three fully exposed top treads of the staircase previously excavated. **Fig. 14** shows the Central Stairs before excavation and **Fig. 15** illustrates how they appear today, after excavation.

The stair bedding in the original phase of construction, Site Phase I, was covered with a fine white stucco which is far more intact on the lower treads and to some extent on the lower courses. This suggests that the cladding of the staircase and possibly the walls was marble or limestone veneer that was removed when the architectural plan was altered. The structural integrity of the bedding and extant façade wall clearly suggest the choice to fill

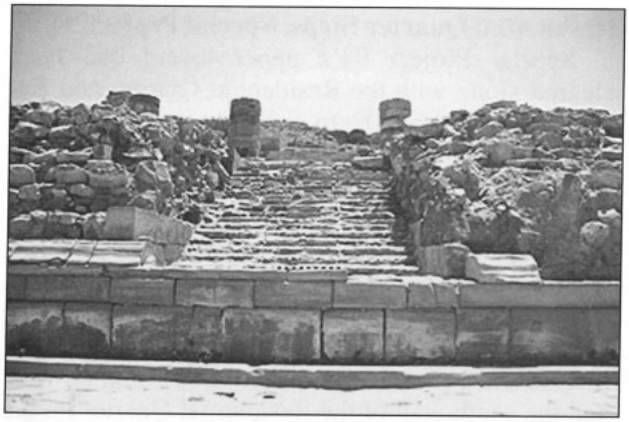


13. Elephant head from the West Cryptoporticus excavations (Artemis W. Joukowsky).



14. Lower Temenos to Upper Temenos Central Stairway before excavation to south (Artemis W. Joukowsky).

8. Special Project 4 in 1994-5 had investigated the Central Staircase and the central artery of the canalization that lay beneath it. Special Project 124 fully exposed the staircase and its relationship to the Lower Temenos Retaining Wall.



15. Lower Temenos to Upper Temenos Central Stairway after excavation to south (Artemis W. Joukowsky).

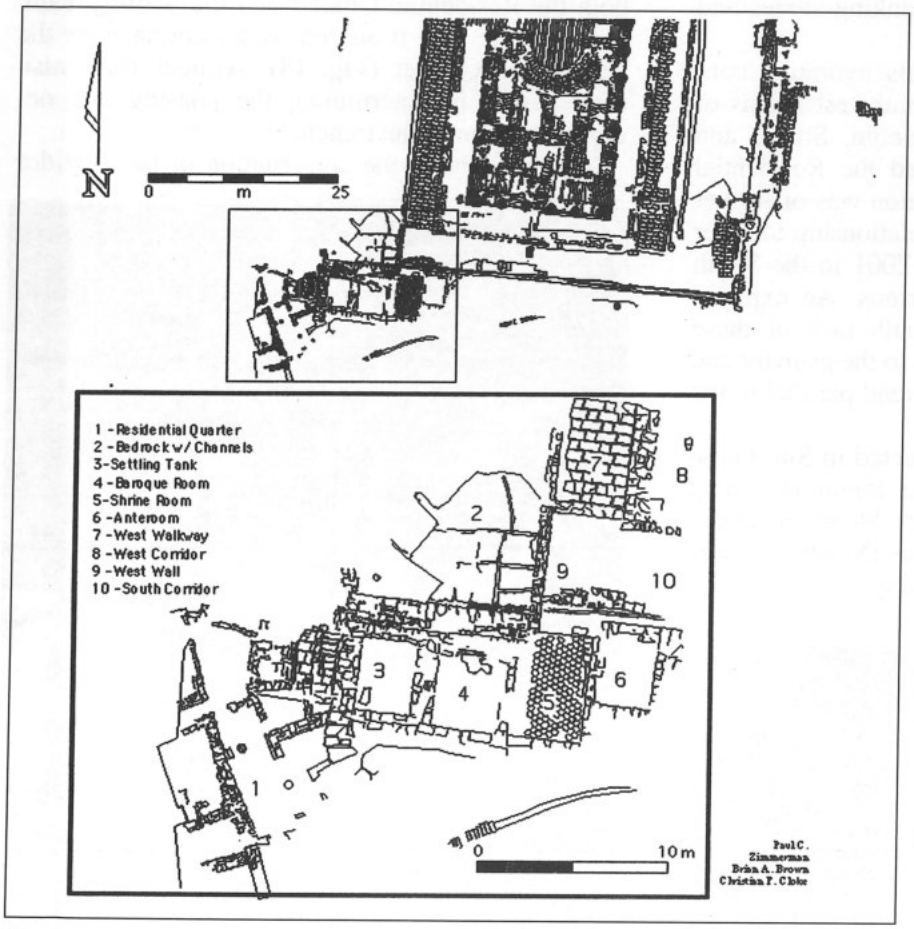
in the Central Staircase was one not of necessity brought about by the Site Phase III destruction but of one of design when the temple precinct was expanded in Site Phase IV, and the steps were blocked off by the Lower Temenos Retaining Wall of the Grand Design. This excavation provides both academic visitors and tourists with a more informed architectural picture of the evolving stages of the Great Temple's development[9].

UPPER TEMENOS

Here there was a great deal of activity for one trench and five Special Projects were undertaken in the Upper Temenos, including the Settling Tank, the Residential Quarter Steps, the South Passageway, the Shrine Room floor, the Baroque Room door, and the removal of the ramp and West Wall of the temple precinct. In the following paragraphs, the discussion will progress in that order. **Fig. 16** gives the plan of this area.

The Settling Tank, Trench 101

Excavated by Emma S. Libonati and Tarek M.



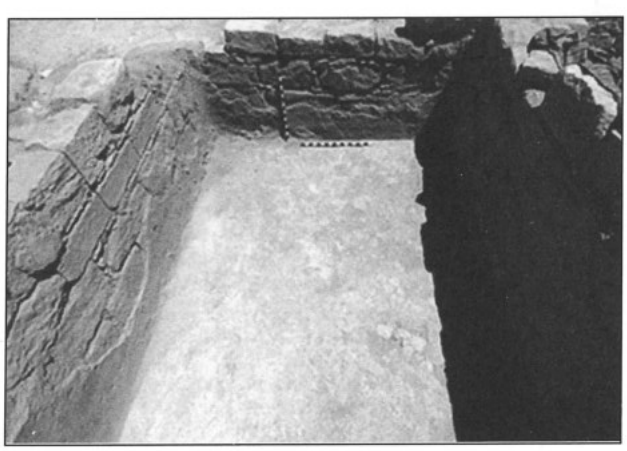
16. Surevyed plan of the southwest rooms and the Residential Quarter (Christian F. Cloke and Brian A. Brown).

9. These footprints of the pre-Grand Design Temple could be examined in more depth in order to establish answers to more ephemeral questions about the changing socio-economic and cultural status of the Nabataean kingdom in the Hellenistic world. A specific project which relates to the area requiring minimal effort would be to mathematically determine where the staircase's base would have fallen underneath the existing Lower Temenos and examine the remains of the landing. From calculations from where the stair treads are truncated by the Lower Temenos Retaining wall the stairs should have a landing 2.27m from the north face of that wall. These calculations are based on the supposition the Lower Temenos' original height is close to the level it is today. A 2.00m north south by 2.00m east west sondage on the Lower Temenos might help to answer these questions.

Khanachet, Trench 101 is located in the southwest corner of the temple precinct adjacent to the south retaining wall of the Upper Temenos and the Residential Quarter excavated in 2002. The excavation goal was to expose the remaining southwest area left unexcavated in 2002 in order to protect the Baroque Room's decorative stucco. In Trench 89 (2002), the room had been excavated to the top of its walls with thick hydraulic plaster adhering to at least three of the walls; it was hypothesized that the room likely had a hydraulic function and it was posited in 2002 that the room was utilized as a cistern, however, because of its limited depth of 1.96m, it now is identified as a settling tank for the collection of water either as run-off from the hillside above and/or for rainwater collection. The settling tank (**Fig. 17**) internal dimensions are 4.96m north south by 1.14m east west. It is comprised of six to seven courses of diagonally dressed Nabataean ashlars stabilized with chinking stones and coated with hydraulic plaster.

Of primary importance is this hydraulic construction's relationship to the southwest rooms of the Upper Temenos (i.e., Anteroom, Shrine and Baroque Rooms) to the east and the Residential Quarter to the west. The excavation was of further importance in determining the relationship to other water installations identified in 2001 in the South Passageway of the Upper Temenos. An exposed edge of a lead pipe on the south face of these southwest rooms likely connects to the primary and secondary water systems that extend parallel to the south façade wall.

The settling tank was constructed in Site Phase V after the construction of the South Retaining Wall in the Grand Design of Site Phase IV, and it ceased to function in Site Phase IX when it was filled in with overburden and collapse.

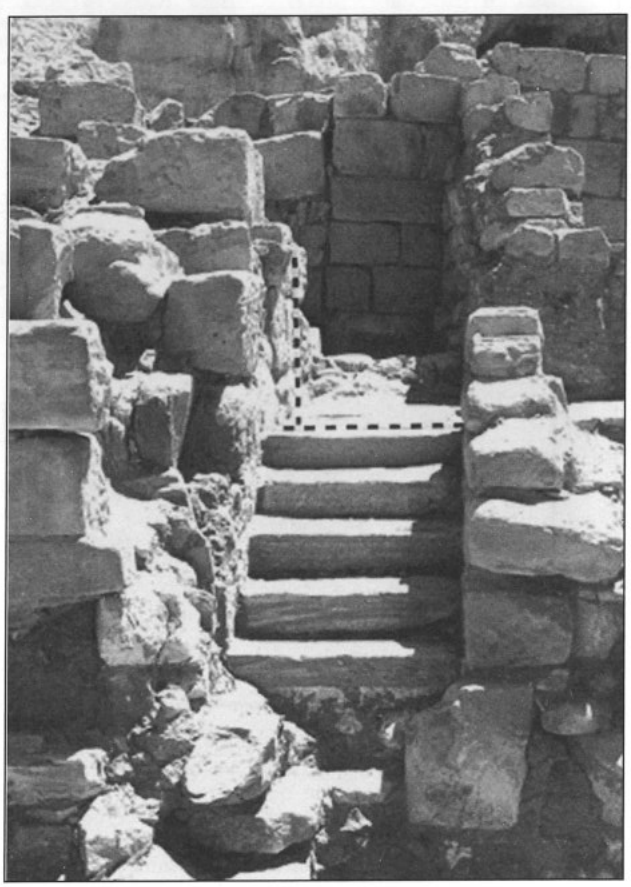


17. Upper Temenos Settling Tank to east (Artemis W. Joukowsky).

Residential Quarter Steps, Special Project 94

Special Project 94's upper layers had been cleared along with the Residential Quarter and Baroque Room in 2002 to the extant levels of the South Perimeter Wall. This project was excavated by Tarek M. Khanachet, and the rectilinear area measured 4.90m north south by 1.66m east west. The purpose of Special Project 94 was to establish what connections, if any, existed between the Residential Quarter and the Upper Temenos. Located outside of the temple complex proper, it is delimited on the south by the South Perimeter Wall and the south wall of the Residential Quarter on the east. On the east side, the trench was bounded by the West Walkway wall and the Settling Tank. On the west it was bounded by a wall, separating it from the rooms of the Residential Quarter. There was no wall on the north side of the trench. These steps were connected by walls and architecture to both the Residential Quarter and the Settling Tank and indicate that it served as an entrance to the Residential Quarter (**Fig. 18**). Artifact finds also were useful in determining the phasing and occupational use of the trench.

Phasing places the construction of the corridor



18. Residential Quarter Steps to south (Artemis W. Joukowsky).

and steps to Site Phase V or to the Late Nabataean redesign and repair of the precinct before AD 100 when the Residential Quarter expansion was constructed. In Site Phase VI was the construction of the west wall and thereafter modifications were made to this entryway. Extending from Site Phase IX to Site Phase XIV burn layers and successive deposits indicate destruction and then wash down and sedimentation from the high rock face directly south of the trench.

South Passageway, Special Project 121

Special Project 121 was excavated by Michael S. Zimmerman. Two sondages were opened in the center of the South Passageway of the Upper Temenos, between (and adjacent to) the South Corridor Wall of the Great Temple, measuring 4.60m north south by 1.50m east west. The trench's west edge was set 13.60m east of the west edge of the temple's South Corridor Wall, while its east boundary was set 12.24m west of the east edge of the South Corridor Wall. The primary goals for SP 121 were twofold: first, to determine if the four channels cut into the bedrock in the center of the South Corridor continued north, extending under the South Corridor Wall and into the South Passageway, and, secondly, to determine if the channels connected to any other water systems extending east west, adjacent to the South Perimeter Wall. Artifact recovery also might date their latest use.

Excavation was initiated with a 1.50m north south by 1.00m east west sondage, positioned directly south of the channels cut into the bedrock of the South Corridor, on the opposite side of the South Corridor Wall of the temple. After finding the channels continued into the South Passageway, a second 0.50m north south by 1.00m east west sondage was then opened opposite the channels, against the north face of the South Perimeter Wall, to determine if the channels continued south or possibly met up with the ceramic pipe which was a part of Trench 83 in 2001. This sondage, excavated to bedrock, a total depth of 0.50m from the floor of the South Passageway, uncovered no such evidence. As a result, the excavation of the original sondage was extended approximately 0.50m south but stopped short of the preserved paved surface of the floor of the South Passageway. At an approximate depth of 0.35m, the channels ended abruptly approximately 1.50m from the south face of the South Corridor Wall. The plaster that filled the channels was then removed from the westernmost channel, yielding no artifacts, but revealing the bedding for a lead pipe. The sondage was then extended 0.50m to the west, in order to determine if any additional water systems existed in conjunction with the channels, but no evidence was found.

The phasing of these elements begins in Site Phase II, during the major construction of the distyle temple when the channels were cut into the bedrock and lead pipes were laid. With the Phase IV Grand Design, the water channels were covered with fill, likely in preparation for the laying of the paved floor of the South Passageway, and there was no further activity for water passage. Thereafter in Site Phases IX and later massive earthquake damage and fill covered the area.

Shrine Room Floor, Special Project 123

Special Project 123 was opened by Emma Susan Libonati and Emily Catherine Egan. It was completed after reaching bedrock. The trench is located in the southwest corner of the Shrine Room and measured 0.86m north south by 0.60m east west. The purpose was to find any datable material in a small sondage underneath the hexagonal pavement floor in the Shrine Room excavated in Trench 83, 2001. Six hexagonal pavers were removed. At the conclusion of the project, the sondage was backfilled and the pavers were replaced in their original position.

Of significance were two pieces of Schmid II ceramic sherds that securely date the *terminus post quem* of the floor to the first century AD. This further solidifies the hypothesis that the construction of the Shrine Room was founded on bedrock for greater architectural stability. Special Project 123 resolved the projected dating for the construction of the southwest rooms and precinct's South Retaining Wall. As the architectural phasing has suggested for the Upper Temenos the expansion of the temple in its Grand Design reincarnation occurred in Site Phase IV. This was proven conclusively with the *terminus ante quem* of the painted sherds found underneath the floor bedding.

Baroque Room North Door, Special Project 89

Excavated by Emily Catherine Egan, this special project was undertaken in the "Baroque Room" (hereafter Baroque Room). Measuring approximately 1.30m east west, the trench was bordered in the east and west by the preserved courses of the original Nabataean north wall of the Baroque Room. Directly above the trench rested the leveling stones and stringcourse of the upper, late portion of a north wall put in place after the Nabataean wall (and door) had gone out of use. The purpose of the trench was to examine further the north wall of the Baroque Room and to determine

if the observed break in the wall's construction was a door. Working from south to north, excavations in Special Project 89 extended approximately 0.30m into the observed cut in the wall, fully exposing a preserved sandstone threshold and part of the abutting stone floor bedding to the north, firmly identifying this area as an original point of entry.

Above the threshold and floor bedding was found a great quantity of collapsed molded decorative plaster similar to that discovered in the central area of the Baroque Room in 2002. This delicate plaster, presumably fallen from the ceiling and door walls in successive layers, was consolidated by Ulrich Bellwald, and is now on display at Altes Museum, Museumsinsel in Berlin[10]. Additional finds from the trench were scant and consisted primarily of bone, a small quantity of pottery (both Nabataean and late) and one Nabataean coin found in the threshold's west posthole, which will be integral for dating the door's original construction.

Abundantly clear is that the perceived break in the north wall of the Baroque Room is in fact a door. This door, however, did not access the temple West Plaza, but opened into a small east west corridor excavated as part of Special Project 96 in 2004 (*infra*). As a result of excavations in Special Project 89 a number of questions were answered concerning the architectural arrangement of, and points of access to the Baroque Room. The question of the exact dating of the construction of the early and late walls of the Baroque Room, however, remains, and may be clarified by further excavation into the Baroque Room's north door from the north or south to identify and datable materials. A small sondage into the floor bedding of the Baroque Room to search for dateable material may also be useful. Notwithstanding some reservations, the phasing for the construction and plastering of the Baroque Room north door tentatively is placed in Site Phase IV of the Nabataean Great Design within the first century BC into the AD first century. The doorway collapses in the Late Nabataean pre 106AD at which time there is an accumulation of fill.

West Ramp and Southwest Wall of the Great Temple Precinct, Special Project 96

Special Project 96 was supervised by Emily Catherine Egan and Emma Susan Libonati. The trench is located in the southwest corner of the Great Temple precinct. In the south the trench is bounded by the north wall of the Baroque Room and the north wall of the Settling Tank, and in the west by the westernmost wall of the temple precinct. The earthen ramp providing access between the temple South Corridor and the West Plaza served as the trench's east boundary and in the north excavation extended to the edge of the leveled bedrock. The purpose of this trench was to clear the earthen access ramp and to expose the south part of the temple late West Walkway Wall beneath. In removing this deposit of mixed collapse and intentional debris, lower level architectural features including the bottom courses of the late north wall of the Baroque Room, the paved floor of the proposed north corridor of the Baroque Room (*supra*), the foundation courses of the temple South Perimeter Wall and associated canalization features were uncovered[11]. Excavation began with the clearing of the earthen ramp to the east of the late West Walkway Wall. Mechanical assistance was employed for the removal of the upper layers of debris, which had been deposited deliberately by our excavations for access and to protect the intact pavers of the South Passageway from falling ashlars during the excavation of the upper levels of Trench 85 in 2001.

The lower levels of earth contained delicate stucco fragments, a large quantity of Nabataean pottery similar to those recovered during the excavation of the nearby Residential Quarter, and significant quantities of pottery, bone, glass, metal and stucco fragments as well as organic material and faience. Thirteen architectural fragments were recovered, the most intricate of which was a carved limestone capital volute. Special finds included two complete Nabataean vessels, a ridged drinking cup and an unguentarium, a Nabataean oil lamp, the base of a figurine, a carved sandstone block with bored holes (postulated to be a sundial or board game), a small limestone pedestal, and a fragment of ridged faience.

As can be seen in **Fig. 19**, the excavation of Special Project 96 brought to light a number of new architectural features in the southwest corner of the Great Temple precinct, and with them a number of new theories concerning the construction and use of this area. The most striking features in Special Project 96 are the quarrying cuts, prominently positioned in the central area of the trench on an elevated bedrock plateau. As yet unseen at

10. The Great Temple Baroque Room Ceiling, Elephant Headed Capitals and other artifacts, in "Gesichter Des Orients 10,000 Jahre Kunst und Kultur aus Jordanien".
11. Prior excavation in the area of the trench includes the exposure of the temple South Passageway (Trench 83, 2001), of the Baroque Room (Trench 89, 2002) and of the Southwest Settling Tank (Trench 101, 2004).



19. West Ramp and Southwest Wall of the Great Temple precinct to east (Artemis W. Joukowsky).

the Great Temple, quarrying cuts such as these offer valuable insight into the early construction of the temple and argue strongly that the stone used to build the temple originated from both local and more distant sources. The cuts are made in a rough grid pattern, each set approximately 1.10m apart. In antiquity, each cut would have been filled with wet wood that would expand, splitting large blocks of raw sandstone loose from the bedrock. For construction parallels, a similar style of grid quarrying is visible nearby in Bayḍa and on the bedrock outcrop east of the pediment of ad-Dayr.

Immediately west of the quarrying cuts are a second group of intriguing features: three bedrock caves. Aligned north to south, the three caves hug the edge of the bedrock plateau, each opening to the west. Like the caves in the Residential Quarter, located to the immediate west, these three caves show evidence of human manipulation. In the floor of the south cave are two square cuts, one near the cave's entrance and another smaller in the rear north corner, presumably used to anchor posts to support either a doorway or a ceiling. In the central cave, the north bedrock partition wall is chiseled into a doorjamb. In the north cave, only partially excavated, a carved ledge is visible, presumably to support a roof structure. This evidence of chisel work, combined with large quantities of ceramic and bone material, sheds light on the early use of the southwest area of the precinct prior to the Great Temple's construction. Once plans for the temple were set and quarrying had begun, the caves were shaved down and the remaining cavities of the south and central caves were filled with large unhewn stones. The north cave, however, was carefully filled with stacked hewn sandstone ashlars. Excavation of this cave was not completed, but this preliminary discovery may be a clue to the rituals and practices of the early Nabataeans.

A third interesting feature exposed during the excavation of Special Project 96 is the so-called Shrine Room North Corridor. Located to the north of the north doorway of the Baroque Room (*supra*), the north corridor appears to be the northeast continuation of the adjacent Shrine Room. The small, cut-to-fit hexagonal pavement of the corridor is identical to that of the Shrine Room, even down to the use of bonded half-hexagons as edging. In its location, the corridor provides an alternative point of access between the Shrine Room and the Baroque Room, allowing for a circular traffic pattern in this most sacred area of the precinct. Patrons, presumably a privileged few based on the small size and spectacular decoration of these interior rooms, likely would have used the North Corridor as either a point of indirect exit or entry to the Baroque Room, circling either towards or away from the Baroque Room's east doorway[12]. Based on this architectural arrangement, traffic flow within this complex proceeded as follows: from the South Passageway west, visitors entered the Anteroom, moving west into the Shrine Room and then into the Baroque Room either directly through the door between the two (set into the Shrine Room's west wall) or by way of the north corridor. Most likely one door (either in the north or in the east) to the Baroque Room would have been designated as the entrance and the other as the exit in order to minimize the disruption of the traffic flow. The lack of direct access from both the Shrine Room and the Baroque Room to the temple plazas reinforces the sacred character of these areas — screened from public view by the temple's South Perimeter Wall.

We place Stage 1 of the manipulation of the bedrock and caves and the accumulation of domestic debris in a Pre-Site Phase somewhere before the late first century BC. This is followed by

12. The function of this feature as a corridor, however, remains uncertain. Currently, the south and east portions of the hexagonal paving are obscured by the late north wall of the Baroque Room and late temple West Walkway Wall respectively. Further complicating the picture is the noted absence of hexagonal paving to the west of the small step, which marks the boundary between the North Corridor and the Shrine Room proper. Located in what should be the northwest corner of the Shrine Room, the irregular sandstone paving in this area was initially thought to be a type of sub floor bedding. A brief sondage beneath the hexagonal pavement in the southwest corner of the Shrine Room (*supra*), however, revealed that the pavers rest directly on packed soil and are held together by white plaster. There is no stone sub floor. As such, the possibility remains that the perceived corridor is a unique feature, stylistically, but not functionally related to the adjacent Shrine Room.

the bedrock preparation and quarrying activity to level the temple southwest in Site Phase I, which is pre-first century BC. The construction of the hexagonally paved corridor can be dated to the Grand Design construction of the Great Temple in Site Phase IV. And the Late Nabataean redesign of the precinct in Site Phase V dating to the AD first century was the time in which we place the Baroque Room collapse, and presumably after that time this area was filled with debris. In Site Phase VII, secondary construction is evidenced by the addition of a ceramic piping in a channel, after which there is abandonment and a period of robbing ensues in Site Phase VIII. With the 363 earthquake there is major collapse and destruction, and in Site Phase X dated to the Byzantine period there is the construction of the late West Walkway Wall and two low walls in the South Passageway. This is followed by Site Phase XI with further collapse and the accumulation of debris.

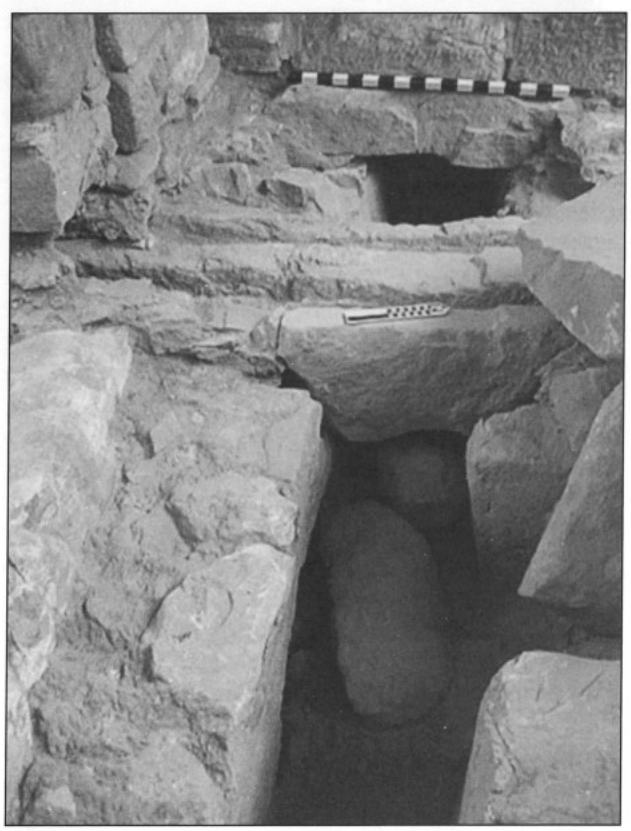
GREAT TEMPLE

Great Temple Central Arch Canalization Special Project 120

Due to the completion of the major portion of the Petra Great Temple's excavations, we revisited the water installations in the Central Arch to determine their interrelationships, this investigation was supervised by Emma Susan Libonati in Special Project 120.

There are two separate water systems referred to in the following discussion: the central north south subterranean canalization system i.e., canalization, and the western above ground north south "channelization"[13] . The central canalization was constructed to terminate at the south of the Central Arch. In the east and south the terminus has been cut into bedrock, to the west the blockage was constructed under the Central Arch wall, but has no possible connection to any other water system[14]. It seems likely that the original constructors either decided that a horizontal connection to the main cistern in the East Plaza was not efficient to warrant the effort of constructing an access through the bedrock to the east and opted for the diagonal East Plaza canalization that extends both diagonally and with gravity to intersect with the central artery. It is also possible that the southern extent of the central artery was installed to accommodate winter and spring overflow by giving any water excess an overflow outlet. The central artery was in use as is apparent from the amount of sediment fill ranging from 0.60m to 0.80m in depth as well as calcification lines present on the walls. This suggests that the Nabataean canalization operated by capillary action/adhesion to draw water up to the south in certain times when there was sufficient water to warrant the south section of the canalization system working as an overflow valve. The prevalence of flash floods in the area and the Nabataean preventive measures to direct and control water, likely was a consideration in the building of this unusual feature. These excavations can be seen in **Fig. 20**.

The second water installation in use in the temple was the shallow bedrock channelization. The suggestion that the channelization was a later in-



20. Temple: East west subterranean canalization system (Artemis W. Joukowsky).

13. Special Project 120 refuted the hypothesis that the blockages to the east, west and south were possibly later installations to cease usage within the Temple of the central canalization system. These previous hypotheses were the result of sondages excavated by crawling through the central canalization but were not the result of exposing these areas by removing capstones.

14. The "hole" recognized in Trench 57, 1998 was investigated and determined that it was a poorly constructed canalization wall, which was laid in front of bedrock. In light of the definitive terminus of the Central Artery in the south, questions must be raised as to the use of the branch in the south before its connection to the canalization artery from the East Plaza.

stallation is the prevalence of abandoned attempts to cut it into Central Arch capstones[15]. It seems that in the first stage the channelization was potentially not differentiated into four water channels in the Central Arch[16], but it was later modified prior to the installation of the Corridor Intercolumnar Walls and the construction of the Central Arch. The lead pipe and the channel bedding in bedrock trough connected to the channelization. The lead pipe insert into the east side of the south wall[17] proves that when the intercolumnar walls were constructed while the channelization was still in use[18]. Special Projects 120 and 121 (*supra*) revealed the extent of the south central water systems within the Temple precinct. The excavations proved that the channelization connected to the South Passageway but not to the channels that run parallel to the South Temple façade wall. It is likely that the channels collected rain water or runoff from the temple roof and directed this water through a series of lead pipes. It is possible that the channelization originally fed into the central canalization system and then the installation was later modified to include an overlay of the four water channels to distinguish between the different water systems.

The central canalization system was proved definitively to terminate in the Central Arch and to connect neither to the Eastern Plaza Cistern nor to the water systems in the Upper Temenos South Passageway. This would suggest that as far as possible the channelization originating in the South Passageway of the Upper Temenos could be followed to the north through the temple to determine its use in the West Vaulted Chamber and beyond to the north.

The Site Phasing for the bedrock preparation for the water systems places the installation of the central canalization under the Central Arch in Presite Phase I sometime in ca. the mid-first century BC. This is before the Grand Design of the Great Temple in the late first century BC - AD first century, and the Site Phase V Late Nabataean 106 redesign, which includes the construction of the Central Arch and the Intercolumnar Corridor Walls. The lead pipes are inserted in Site Phase V. Thus, it is assumed that this canalization functioned until the 363 earthquake of Site Phase IX.

Artifacts 2004

Artifacts recovered in 2004 artifacts include 41 coins, 81 cataloged lamps, 13 pottery vessels and figurines, four additional elephant head capitals, and 14 bone objects. The head of an elephant found in the West Cryptoporticus shown in **Fig. 10**. Our databases accumulated over 12 years of excavation continue to swell with architectural fragments bringing the total up to 14,272. There were also considerable cultural materials, numbering 21,461 for the 2004 season bringing the overall total to 348,122 artifacts recorded in our Grosso Modo database. To keep up with the documentation of our pilaster fragments, Emily Catherine Egan undertook the drawing of the Athena pilaster and the Helmet pilaster as well as many other sculptures.

Following up on the 2002 excavations of the Residential Quarter, Shari L. Saunders studied its substantial pottery assemblage. More than 30,000 sherds were excavated in the Residential Quarter and recorded in the Great Temple's database. Her study is proving to be invaluable for statistical analysis. From this assemblage Naif Zaban restored several near complete vessels, both painted and unpainted. The current study limits the number of sherds to those excavated from loci near floor levels and sealed contexts. Comparative analysis will help to date the architectural sequence in this quarter, while a functional analysis of the pottery may indicate the purpose of individual rooms or areas within the Residential Quarter. The results of the study will be published in the final report of the Great Temple excavations.

Consolidation 2004-2005

Restoration has been under the direction of Dakhilallah Qublan and has included numerous projects including the re-erection of the Pro-

15. Trench 57, 1998 Loci 21 and 28.
16. Trench 57, 1998, Loci 27, 29, 30, 31.
17. Trench 57, 1998, Locus 20.
18. Locus 2's purpose was probably to funnel rainwater from the roof and into the channelization system although this is impossible to determine since the connection would be underneath the west side of the south wall. It seems from the sediment in the Locus 5 bedrock trough, was used potentially as a small settling basin for the water flowing from this lead pipe. This installation as well as the evidence from Special Project 121 further adds credence that the channelization was used for fresh water distribution while the canalization was used for unfiltered non-potable water. These channels were leveled with hydraulic plaster and in the westernmost channel at least the lead pipe remained. Exactly when this system fell out of use is impossible to determine. However two artifacts may date the *terminus ante quem* of this system: the first was a Nabataean fine ware bowl (Seq. No. 57737, Cat. No. 98-P-24) found in channel 2 underneath the north wall; and a coin (Seq. No. 57709, Cat. No. 98-C-11) identified as from the first century BC/AD — This coin was found in the plaster layer in the southwest that was used to fill the channelization. Additionally this coin provides a *terminus post quem* for the hard packed "clay" floor in Trench 57, 1998.

pylaeum columns and the pointing of walls. In the Propylaeum East the *in situ* vault will be consolidated and restored. At this time there is danger of its collapse, and with winter rains such a threat seems to be a distinct possibility. The Lower Temenos West Cryptoportici walls need to be pointed for their stabilization. The consolidation and reconstruction of the Lower Temenos Retaining Wall, located to either side and in front of the Central Staircase is aimed to establish continuity between the east and west sides of the wall, the absent portions of the stringcourse and cornice band are to be reconstructed in the west. The goal of restoration in this area of the temple is threefold: (1) to stabilize the highly disarticulated fill of the Lower Temenos Retaining Wall and the damaged Central Staircase; (2) to build up a barrier to prevent the collapse of fill onto the Lower Temenos, and (3) to present scholars, tourists and other visitors to the site with a more complete view of the temple's façade — and provide a realistic appearance of the original Nabataean construction.

Additionally, the important frescoes in the temple West Corridor are to be stabilized and protected against water run-off with an unobtrusive slope on the top of the shared West Corridor-West Walkway wall to deflect the winter rains. The excavated Residential Quarter and Baroque Room have been used as dumps by visitors. Entrance to these rooms will be prevented by a door or grill barring access. And finally, a flight of steps is to be constructed to the east and west of the West Wall for access to and from the South Corridor and the temple west. These measures are crucial to the structural integrity of the Great Temple. The importance of preserving and conserving this great precinct cannot be underestimated. As for the artifacts, all the metal artifacts, including the coins have been sent to 'Ammån to be restored by Naif Zaban at the American Center of Oriental Research, after which they will be returned to the Petra Museum.

Archaeologists must be responsible for the artifacts they excavate. Besides the special finds turned over to the Jordanian Department of Antiquities, there are three on-site storage areas at the Petra Great Temple, and in 2004 the reorganization of our artifact storage was undertaken so that we would be able to find useful elements to be used for consolidation or reconstruction. In storage Area #1 are located small decorative architectural elements — vines, hibiscus blossoms, pinecones, poppies, acanthus leaves, elephant head components as well as other capital architectural fragments. There are over 5637 numbered stone artifacts stored here along with marble revetment pieces that have in effect been returned to their micro-environment. Storage Area #2 contains the majority of excavated pottery diagnostics as well as plaster, metal, and bone objects. Here are located 107 cratesl; 91 boxes of pottery, 12 boxes of stucco, 2 boxes of bones, one crate of soil samples, and one crate of glass. Storage Area #3, the Great Temple "Sculpture Garden", is composed of large sculptural elements such as capitals and pilaster blocks. Here there are approximately 150 architectural fragments arranged in rows with the most delicately carved smaller elements behind a centrally fenced area.

At Home Research 2004

Two members of the Brown University team defended their Ph.D. dissertations in 2004, both of which will have an impact on Nabataean studies. Deirdre Grace Barrett, The Ceramic Oil Lamp as an Indicator of Cultural Change Within Nabataean Society in Petra and its Environs Circa AD 106, and Sara Karz Reid, The Small Temple: A Roman Imperial Cult Building in Petra, Jordan. We are looking forward to their final publications. Our WallDrawer program developed from our U. S. National Science Foundation grant continued to serve us well (NSF Information Technology Research (ITR #0205477) Grant of $2 million for four years). Sarah Whicher Kansa continues to analyze our bone corpus, and David S. Reese is studying our shell remains. The chemical components of soil samples from a burned deposit in the Propylaeum East are being studied by the Brown University Chemistry Department. And, of course, much discussion continues between team members about site phasing and directions for future research.

Conclusions

Finally, it is apparent that we must continue to try to fill the gaps in our knowledge about various features of the Great Temple and focus on those that deserve special attention. For example, quite unexpected in 2004 was the discovery of the ballista ball armory in the corridor of the West Propylaeum, indicating that a major conflict was either staged here or was anticipated by the Nabataeans.

It would appear that we have one more season to excavate through the thick debris on the temple west, which is scheduled for 2005. The driving forces behind Nabataean eclecticism can be better understood when we direct our attention to their sculptural ideas and architecture as well as the functional features of their provocative architecture

and art. Fortunately, the stratigraphy is in many cases well preserved and its detailed analyses is crucial to our understanding of the Great Temple's development.

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Bibliography

Basile, J.J.,

1997 A Head of the Goddess Tyche from Petra, Jordan. *ADAJ* 41: 255-266.

1999 Preliminary Report of the Notes on the Head of the Goddess Tyche from Petra, Jordan. *ADAJ* 42: 223-226.

2002a Recently Discovered Relief Sculptures from the Great Temple at Petra, Jordan. *ADAJ* 46: 331-346.

2002b Two Visual Languages at Petra: Aniconic and Representational Sculpture of the Great Temple. *NEA* 65, No. 4: 255-259.

Joukowsky, M.S.

1997 The Water Canalization System of the Petra Southern Temple. Pp. 303-311 in *SHAJ* 6. Amman: Department of Antiquities.

1998 *Petra: The Great Temple. Volume I. Brown University Excavations 1993-1997.* With Contributions by Christian Augé, Deirdre G. Barrett, Joseph J. Basile, Jean Blackburn, Leigh-Ann Bedal, Donna J. D'Agostino, Sara G. Karz, Elizabeth E. Payne, Thomas R. Paradise, Erika L. Schluntz, Monica L. Sylvester, Stephen V. Tracy, Loa P. Traxler, Terry Tullis, Peter Warnock, and Paul C. Zimmerman, Brown University, Petra Exploration Fund.

2003 More Treasure and Nabataean Traditions at the Petra Great Temple: The Brown University tenth Campaign 2002. *ADAJ* 47: 389-406.

2004a The Petra Great Temple's Water Strategy. *SHAJ* 9 (forthcoming).

2004b The Water Installations of the Petra Great Temple, *in H-D. Bienert and J. Häser (eds.), Men of Dikes and Canals, The Archaeology of Water in the Middle East.* International Symposium held at Petra, Wadi Musa (H. K. of Jordan) 15-20 June, 1999, *Orient-Archäologie* 13, Rahden/Westf.

Payne, E.E.

1998 Evidence for the Nabataean Subterranean Canalization System. Pp. 170-178 *in Petra: The Great Temple, Volume I Brown University Excavations 1993-1997.* Brown University, Providence RI 02912, Petra Exploration Fund.

Schluntz, E.L.

1997 The Architectural Sculpture of the Southern Temple at Petra, Jordan. *AJA* 101: 339.

1998a The Upper Temenos and the Great Temple. Pp. 209-224 *in Petra: The Great Temple, Volume I Brown University Excavations 1993-1997.* Brown University, Providence RI 02912, Petra Exploration Fund.

1998b The Architectural Sculpture of the Great Temple. Pp. 225-234 *in Petra: The Great Temple, Volume I Brown University Excavations 1993-1997.* Brown University, Providence RI 02912, Petra Exploration Fund.

1999 *From Royal to Public Assembly Space: The Transformation of the "Great Temple" Complex at Petra.* Ph.D. dissertation, Brown University, Center for Old World Archaeology and Art.

Zimmerman, P.C.

1996 MiniCad 6—Another View. In *CSA Newsletter: A Quarterly Newsletter for Architectural Historians and Archaeologists* 9: 3, 9-11.

2000 Mapping Petra." In *Expedition*, The Magazine of the University of Pennsylvania Museum of Archaeology and Anthropology 42: 2, 37-41.

THE HERMIT LIFE ON AL-LISĀN PENINSULA – RESULTS OF THE SWEDISH DEAD SEA EXPEDITION: A PRELIMINARY REPORT

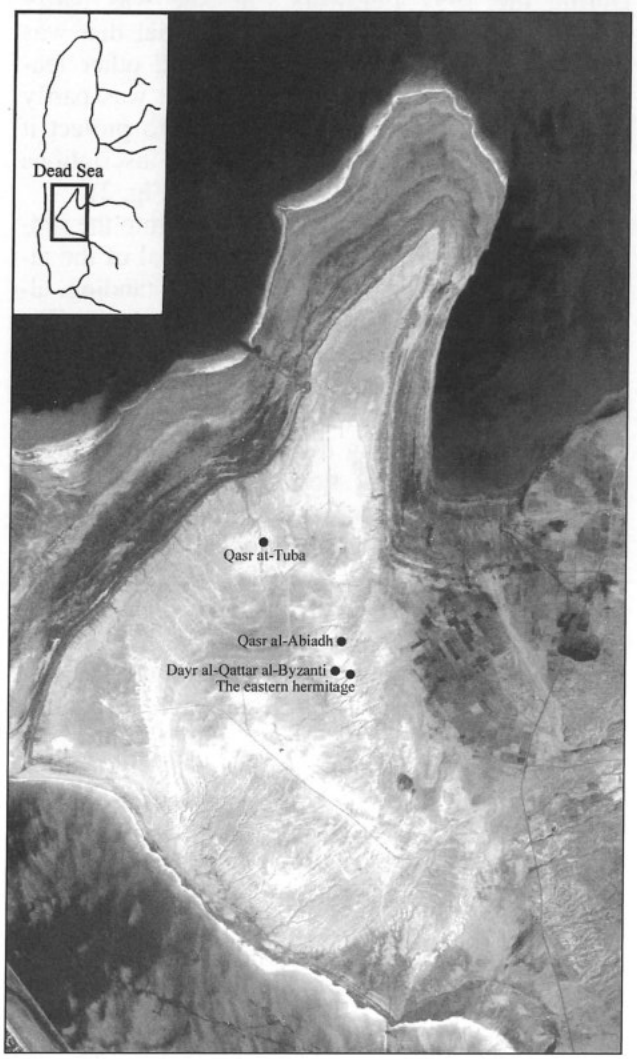
Richard Holmgren and Anders Kaliff

With Contributions by Jan Svensson

Preface

This preliminary report is based on the results of the Swedish Dead Sea Expedition to al-Lisān peninsula in November-December 2002. Presented here are also selected material from earlier seasons that have been processed during the last years, not published before. The primary objective of the 2002 field season was an overall inspection of the maintenance of the partly excavated church/ monastic site of Dayr al-Qaṭṭār al-Bīzanṭī (JADIS no. 1907.007) besides a complementary documentation of a recently discovered hermitage, here referred to as Qaṣr al-Abiadh. The latter comprised a thorough mapping and documentation of the structure among its numerous wall inscriptions found within. Qaṣr al-Abiadh is yet another addition to the earlier documented hermitages in the surroundings of Dayr al-Qaṭṭār and the larger hermitage of Qaṣr aṭ-Ṭūba (Holmgren and Kaliff 1997: 321-340). The church and the hermitages in its vicinity represent a hermit society similar to the well-known desert monasteries in Egypt and the Judean desert. Qaṣr al-Abiadh has the potential to shed valuable light on early Christians and other local communities in this area, where hermit dwellings and tombs are scattered over large parts of the al-Lisān peninsula, sometimes in clusters as laurae (**Fig. 1**).

The Swedish Dead Sea Expedition is an independent archaeological project, initiated in 1994 by the authors of this report, who also function as field directors. The project has earlier been associated with the Museum of Mediterranean and Near Eastern Antiquities in Stockholm, but is now linked to the Department of Archaeology and Ancient History at Uppsala University. Apart from the documentation of Dayr al-Qaṭṭār al-Bīzanṭī, the main goal of the Swedish Dead Sea Expedition is a study of the different hermit dwellings and other monastic activities in al-Lisān area in a long-term perspective (approx. 300-900AD). This preliminary report will focus on some of the excavations and documentation work performed in the late 1990s as well as on the 2002 documentation of the palaeographic material discovered in Qaṣr al-Abiadh. The fieldwork of 2002 had yet another important goal: to investigate the need for restoration and protection of Dayr al-Qaṭṭār and other monastic sites of al-Lisān. This work has been re-



1. Satellite image of the al-Lisān peninsula, with the major sites discussed in this paper marked respectively (National Imagery and Mapping Agency CNES/SPOT Image 1992-1994 ©).

ported separately to the Ministry of Tourism and Antiquities (letter dated 25-04-2004).

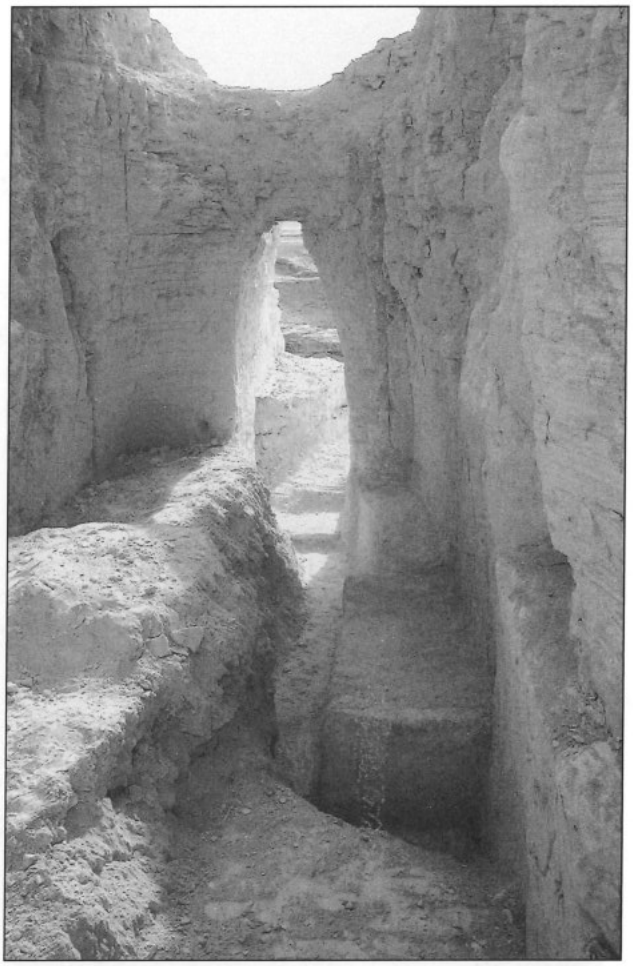
In the text below we will first present the work at the newly discovered site of Qaṣr al-Abiadh. In addition to the palaeographic material discovered, we will also present a papyrus fragment found during the 1996 excavation of Qaṣr aṭ-Ṭūba. The text will then proceed with a presentation of the hermitage east of Dayr al-Qaṭṭār, partly described earlier (Holmgren and Kaliff 1997: 332-333). Conclusively a discussion will present a short tentative interpretation of the monastic sites on al-Lisān, based on the results made so far.

Presentation of Qaṣr al-Abiadh

The hermitage of Qaṣr al-Abiadh is located 800m north of Dayr al-Qaṭṭār al-Byzanṭi. It was documented by our team for the first time in 1997. During the 1997 fieldwork, the site was partly cleared from debris and eroded material that was threatening vulnerable inscriptions and other features. After the documentation the site was partly covered with softer material in order to protect it from further damage. The accessible inscriptions were documented in December 2002 (**Fig. 2**).

The hermitage with its rooms is cut into the sediment ridge of a small rift valley, typical of the al-Lisān area. Part of the structure is still standing, although with a partly collapsed superstructure. The site in general is in a weak condition due to natural erosion and geological activities. The typical beach rock (soft laminated marl) of the al-Lisān is excellent for constructing dwellings and other structures. Qaṣr al-Abiadh showed evidence of severe recent illicit excavations, at least in its upper strata. This, besides the natural erosion, has severely damaged the site and makes an urgent need for restoration and documentation. To avoid further damage, only the accessible parts of the site have been documented. Beneath debris and eroded material were discovered some scattered fragments of pottery, strips of palm leafs, tuft of camel hair, rope stumps, nutshells, smaller bones and textile fragments. There is still a great potential to recover more well-preserved finds and other features in the non-investigated parts of the collapsed building, much depending on the extension of earlier looting activities.

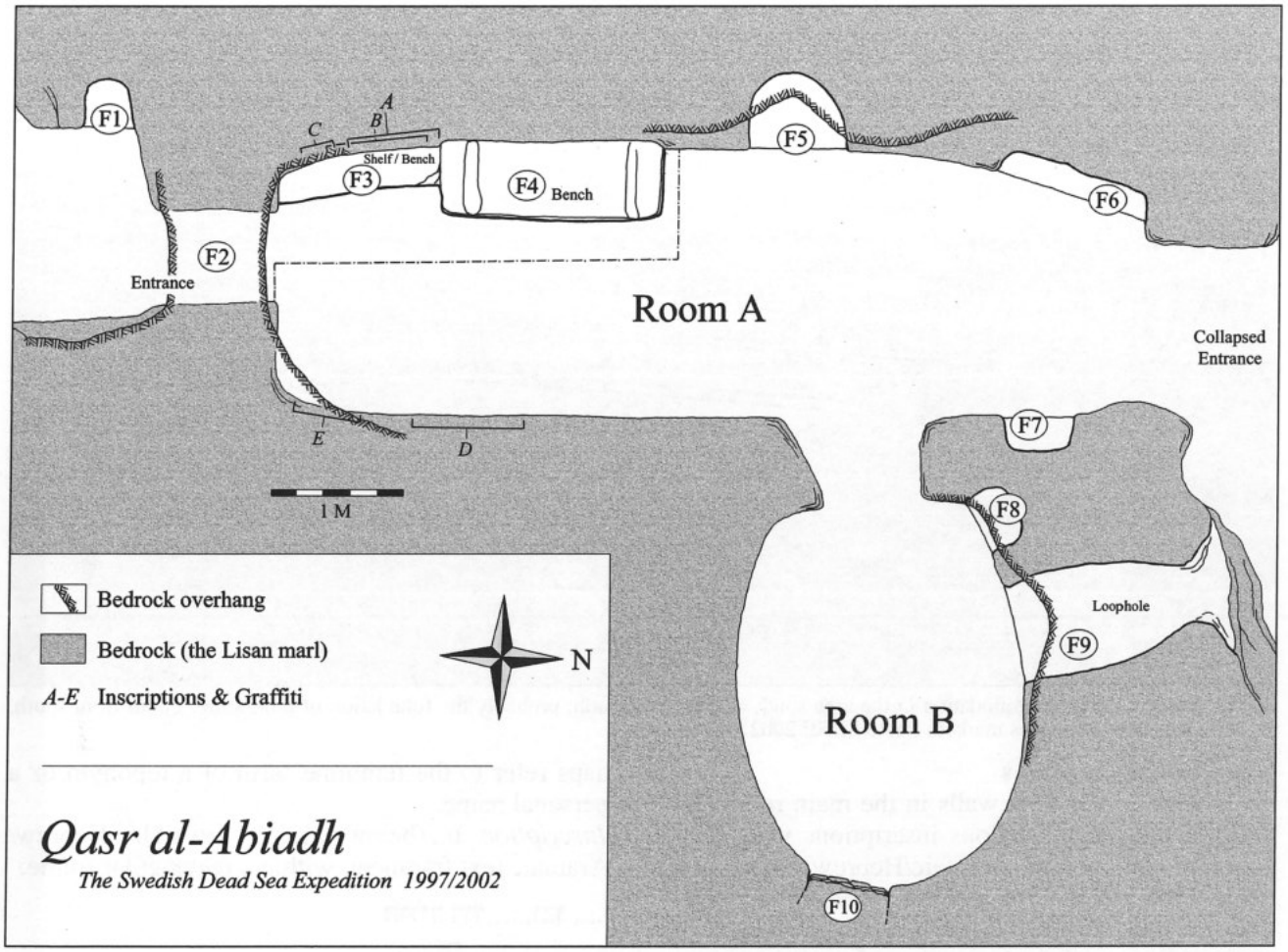
The architectural plan of Qaṣr al-Abiadh consists of a larger room/hall measuring 6 x 2.5 meters in a north-south direction (room A) with an adjacent oblong smaller chamber towards the east (room B). An additional space towards the north possibly comprises of the remains of yet another entrance. The latter is badly damaged as an effect



2. Photo towards south, showing the inner of room A of Qaṣr al-Abiadh during the documentation. Photo SDSE 1997.

of the erosion and collapse into the nearby wadi. Room A had an original height of 2.5-3 meters, now with some standing marl-walls up to a height of 2-2.5 meters. Room B is connected to the previous room by a narrow passage. The northern part of room A, as well as its superstructure and the possible entrance from the north, is furthermore badly damaged. The entrance in the north and south respectively, make an analogy to Qaṣr aṭ-Ṭūba and probably had a practical functional. Still today this gives a cooling flow of air through the chambers and the passage. This must have been of vital importance for the hermits, dwelling in this extremely hot environment.

The narrow main entrance from the south (F2), as well as the hall it leads into (room A), has a lancet shaped section with a pointed vault. The natural cave has preserved the entrance vault, whilst the section of room A could be reconstructed through the still standing walls and fragments of the collapsed superstructure. As such, the architecture could be described as a smaller version of the her-



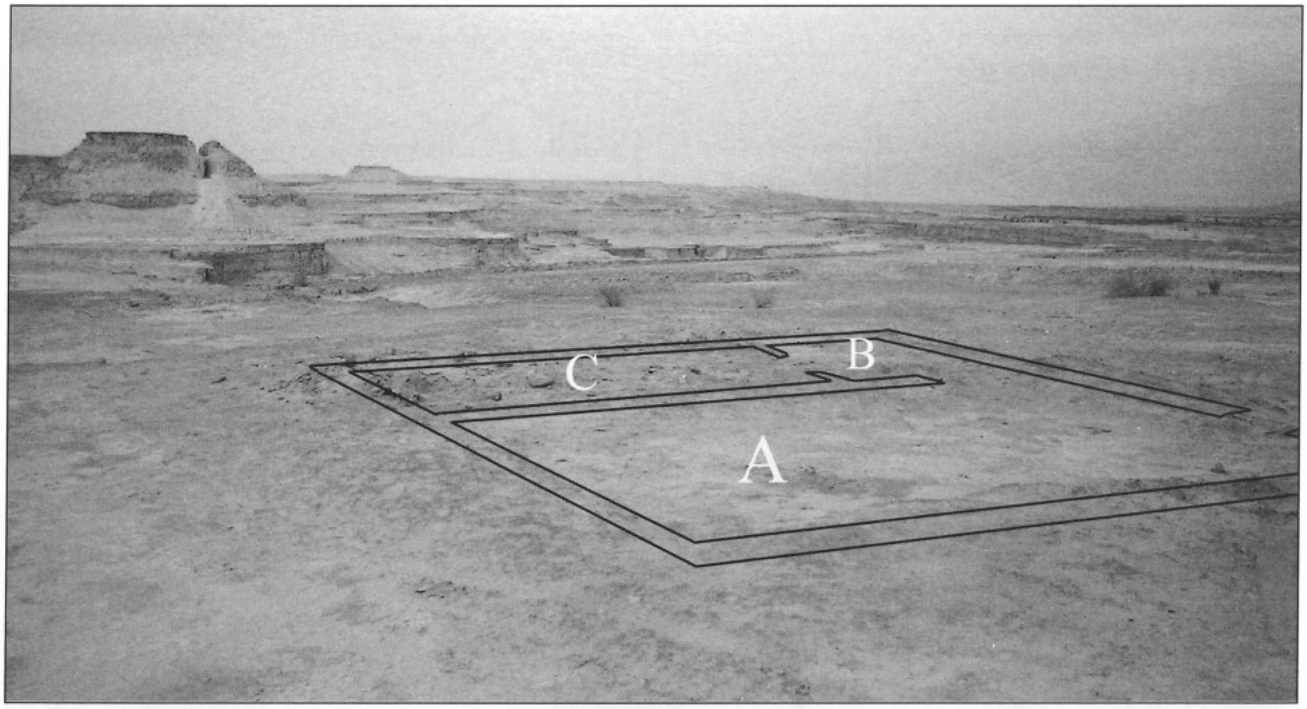
3. Plan showing the inner structure of Qaṣr al-Abiadh, with the two different rooms (A-B), features (F1-F10) and the inscriptions marked (A-E). SDSE 2002.

mitage of Qaṣr aṭ-Ṭūba (Holmgren and Kaliff 1997: 333-336; see also Abel 1929; Politis 1995).

In the western wall just outside the southern entrance a small niche was located (F1). A low bench (F4) with an adjacent shelf (F3) can be seen along the western wall, in the southern part of room A. The bench is a mud-brick construction covered with a smooth plaster reinforced with dried reed. In the western wall, north of F4, one vaulted niche (F5) is situated as well as a shelf (F6). Another small niche (F7) can be seen in the northern part of the eastern wall of room A. In the smaller compartment, room B only one niche was present besides a loophole construction (F9) and a blocked passage (F10) (**Fig. 3**).

The larger hall of the earlier documented Qaṣr a -Ṭūba, with its documented liturgical installations, showed clear evidence of having functioned as a chapel. There is reason to believe that the larger room in Qaṣr al-Abiadh held the same function. The artefacts and installations found, as well as the palaeographic material, suggests a combination of a hermit dwelling and a place of worship. This combination is not unusual in the early monastic system. The hermit cell has been discussed as a miniature church where the hermits celebrated the Eucharist in solitude. This was experienced as a corporate solitude where the whole church was present in the solitary. The famous saying of Evagrios of Pontus can be quoted in regard to this: "The monk lives separate from all and united to all" (Lozano 1987: 145).

In an open area approximately 100 meters south of Qaṣr al-Abiadh the foundation of a possible building was detected during 2002. Besides the church complex of Dayr al-Qaṭṭār al-Bīzanṭī, this is the only freestanding construction found so far on the peninsula. The structure was visible as a rectangular stone foundation, approximately 5 x 6m, consisting of three inner sections (A-C). In the south-eastern corner a possible entrance can be distinguished. Any possible connection between this structure and Qaṣr al-Abiadh or any other activity in the area is yet to be determined (**Fig. 4**).



4. The rectangular stone foundation in the area south of Qaṣr al-Abiadh, probably the foundation of a building. Photo from south, with the stone structures marked. Photo SDSE 2002.

The Wall Inscriptions

Alongside the marl walls in the main room (A) of Qaṣr al-Abiadh, various inscriptions were documented. Greek and Aramaic/Hebrew letters and other inscriptions are present, besides different crosses and graffiti. Among various shapes of crosses the usual Latin cross is found, here predominantly depicted with triangular endings on each of the arms which makes the crosses resemble the Saint George cross. Furthermore a version of a probable Jerusalem cross is present (see below). The preliminary interpretation of the Hebrew/ Aramaic and Greek text fragments follows the interpretation of Jan Svensson, made for this report (2003).

Western Wall of Room A

Inscription a: Cluster of graffiti on the western wall showing a rectangular frame depicted with a central cross stretching vertically and horizontally from its margins. The geometrical cross symbol with its composition might suggest a depiction of a Jerusalem cross. Underlying the latter, one can discern three horizontal strings of text among a variety of scattered Greek letters. The three inscription lines most probably repeat the very same phrase on each row. On the basis of the perhaps best preserved initial characters in the central row and the final part of the upper row, the phrase ΚΑΙΘ (Υ) ΣΗΑΓΙΑ can be a tentative interpretation — "Kaithys the Holy". This definite article would perhaps refer to the feminine form of a toponym or a personal name.

Inscription b (below a): A probable Hebrew/ Aramaic text fragment, within a rectangular frame:

..... הוליד דוד.....ובן

.....ים.....

The first line, due to a tentative interpretation, begins as follows: "David became father of…". In the second line only two letters are discernable, possibly representing the Hebrew plural form — *im.*

Inscription c (north of a and b): a short inscription in Greek — ΚΑΙΘΥΣ (Kaithys). This is possibly a proper name related to the phrase found in inscription a. If alternatively interpreted as two words, it could moreover be a fragment with the meaning ΚΑΙΘΥΣ[ΙΑ] (and sacrifice) or ΚΑΙΘΥΣ [ΙΑΣΤΗΡΙΟΝ] (and altar).

Eastern Wall of Room A

Inscription d: An Hebrew/Aramaic inscription in three lines, with the upper line as a possible heading

להחש

חש.....

ביש....בשש

A suggested interpretation for the heading is: "Belonging to the one who is fleeing" or "Belonging to the one who is in a hurry". The same let-

ters are repeated at the end of line two, *chet* and *shin*. As such, also this line could refer to someone who is fleeing. The first and the last word of line three, contains *bet* and *shin* and this form in Hebrew could have the meaning "to cheat", "to disappoint", "to make ashamed" or to "wither".

Inscription e (south of d): Cluster of crosses in different appearances and sizes: Latin crosses, Greek crosses, one of them inscribed within a circle. Present are also scattered Greek letters, possibly remains of proper names, but not possible to interpret. Inscriptions of Greek proper names have parallels from Qaṣr aṭ-Ṭūba, as described by Konstantinos Politis (1995). The preliminary report concerns the removal and conservation of some inscriptions found on the walls. One of the inscriptions mentions four Greek names, "Agapios", "Konstantinos", "Makarios" and "Ioannis", perhaps the hermits that dwelt at the site during some period. Although more fragmented and difficult to interpret, it is probable that some of the inscriptions from Qaṣr al-Abiadh also refer to hermits once living in this location. Alternatively, names inscribed in this manner originate from pilgrims visiting the dwelling place of important hermits.

Besides the inscriptions described above, there are also some minor and scattered clusters of fragmentary inscriptions in the same room. The fragments consist of separate letters and parts of crosses, as well as unidentified marks and lines, not possible to interpret at present.

Some of the inscriptions in Dayr al-Abiadh can be correlated to the inscriptions found in the hermitage located about 300 meters east of Dayr al-Qaṭṭār (Holmgren and Kaliff 1997: 332-333). These inscriptions were documented in cells labelled nos. 1-3. Along with these carvings were several crosses as well as a building, alternatively a reliquary, depicting a Jerusalem cross within. The latter demonstrate resemblance to inscription "a", in Qaṣr al-Abiadh. Among other cell-carvings, a group of letters forming the name ΗΛΙΑΣ (Elias) was documented. Considering the inscriptions and graffiti of Qaṣr al-Abiadh, a stylistically similar depiction can be noticed at the former, suggesting the same hand.

Although fragmented, many of the inscriptions of al-Lisān are remarkably well preserved, especially regarding the considerable time they have survived exposure to the open air, let alone the soft material they are inscribed in. This of course raises the quest for a thorough preservation plan for the wall inscriptions in the al-Lisān area in particular, but also the remains of the early monastic activities in general (**Fig. 5**).

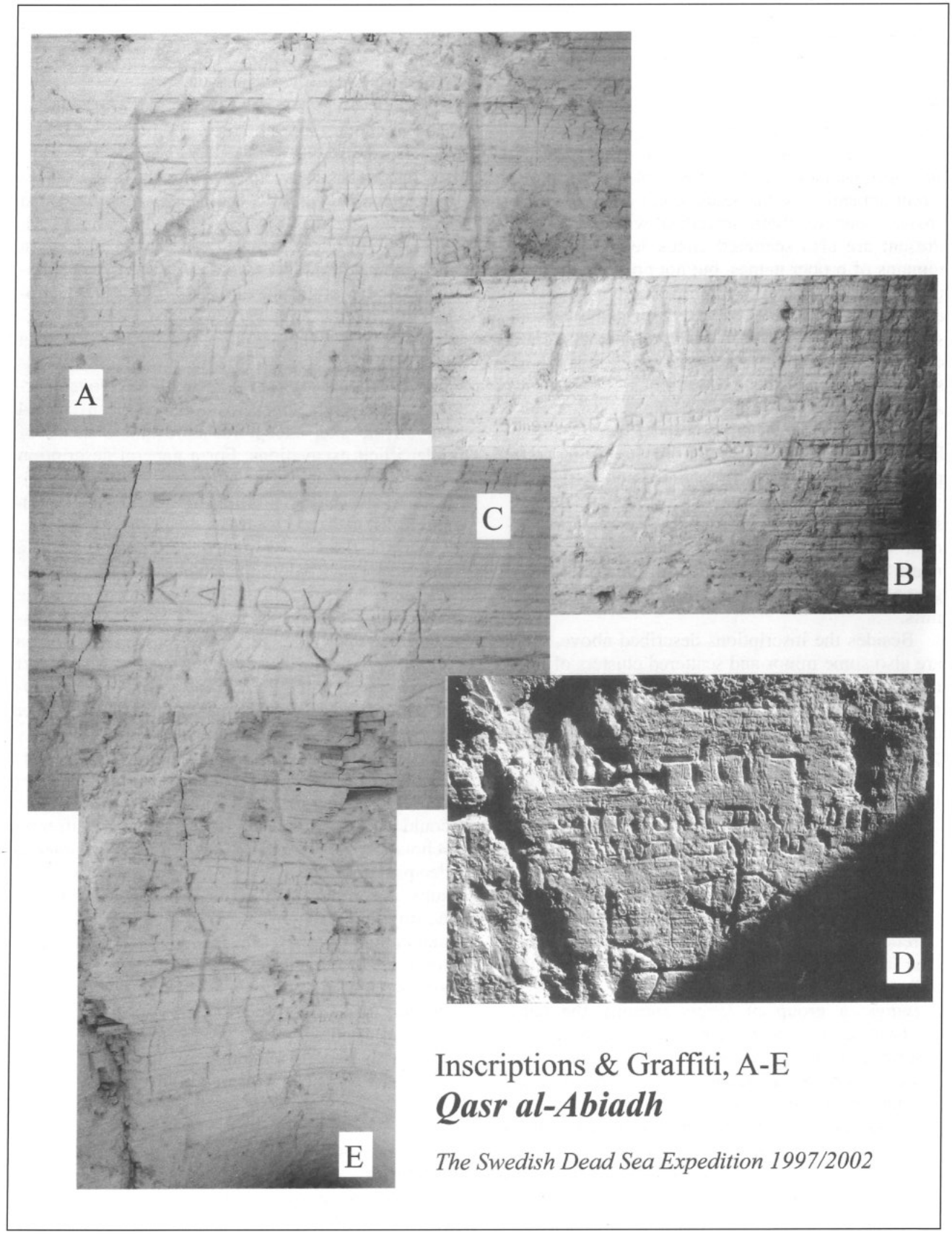
The Papyrus Find of Qaṣr aṭ-Ṭūba

Qaṣr aṭ-Ṭūba is located about 3km northwest of Dayr al-Qaṭṭār (approximately 34.5°N-S and 65°E-W). The hermitage and the connected chapel are cut into a bastion-shaped sediment formation in one of the rift valleys leading down to the Dead Sea. The site was discovered in 1928 by F. M. Abel (1929) while exploring the al-Lisān area. In the 1929 edition of *Revue Biblique*, Abel published a plan of the site and a short description, apparently after a brief survey in the field. Our excavation and documentation of the site show a partly different shape of the hermitage and also additional rooms. Before our work in November-December 1996 no excavation had been carried out on the site, except for unfortunate traces of older illicit excavations. For a general description of the excavation and documentation of the site we refer to the earlier preliminary report (Holmgren and Kaliff 1997: 333-336).

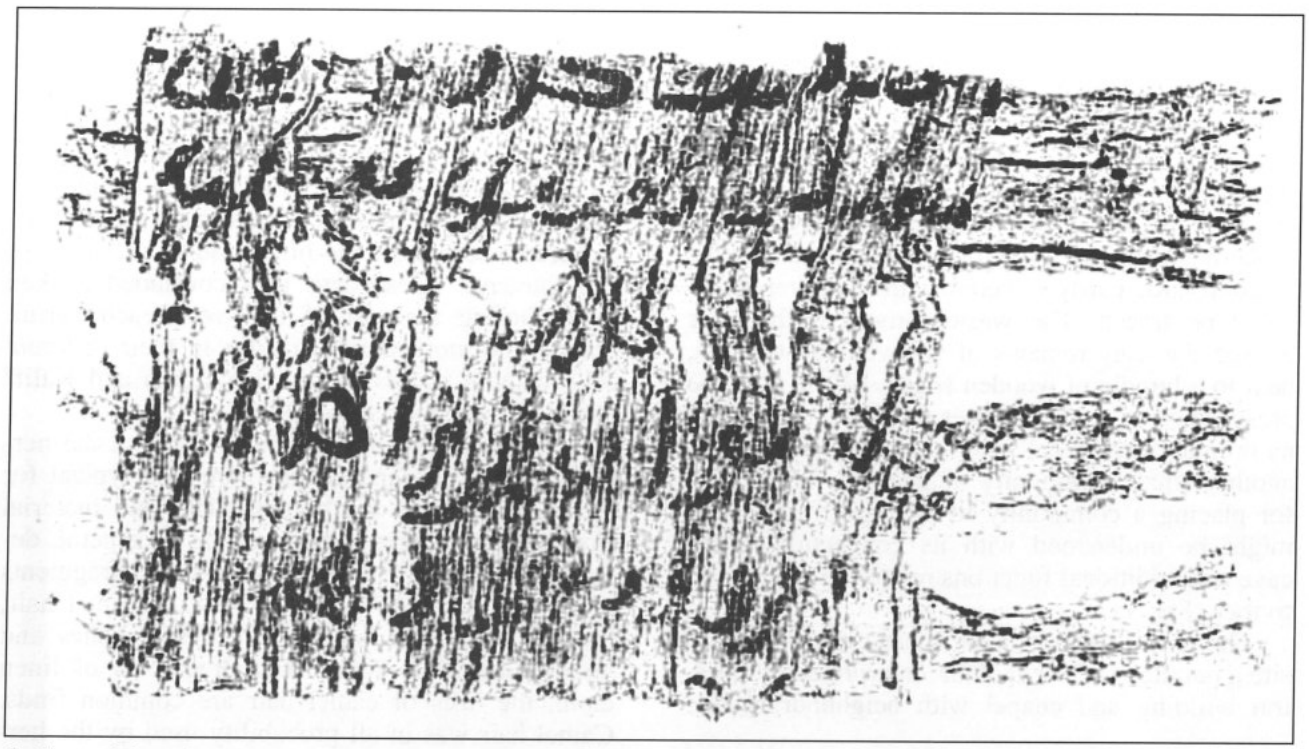
On the floor level immediately south east of a cistern, located below the floor level, a small rectangular papyrus fragment was found. The piece measures 8 x 5cm, where six lines of text are discernable. The fragment is most certainly part of a larger papyrus, because a continuation of the text can be traced at the far right as well as on the lower part of the piece. The papyrus is the first ever discovered on the al-Lisān peninsula and may therefore be of vital importance to the understanding of the local monastic activities. Depending on the nature of the text, the papyrus could also be of great general interest. Different scholars have put forward several ideas in order to decipher the letters, so far without conclusive results. A common first impression suggests a Greek writing, but a somewhat closer study reveals some unparalleled strokes, which might suggest an early form of Arabic script. The papyrus remains enigmatic and up to now there is no satisfactory suggestion for its interpretation. Despite this we have decided to publish the papyrus in this preliminary report, in hope of encouraging other scholars to present a plausible interpretation of the text (**Fig. 6**).

Documentation of the Hermitage East of Dayr al-Qaṭṭār

Extensive documentation has also been carried out at the nearby hermit dwellings in the surroundings of Dayr al-Qaṭṭār, located on the slopes of the rift valley. In a small wadi 300 meters east



5. The various inscriptions, documented on the walls of room A in Qaṣr al-Abiadh. The photos present the documentation of the inscriptions as approached in the field, without emphasizing on any particular interpretation. Photo SDSE 2002.



6. Photo of the enigmatic papyrus fragment from Qaṣr aṭ-Ṭūba. Photo SDSE 1998.

of Dayr al-Qaṭṭār, a smaller excavation was performed inside a cave. The latter is interpreted as a possible hermit dwelling, were its three adjacent cells were additionally documented in 1996. These hermit cells, cut out of the slopes of the nearby ridges, may form the pattern of a laura and a smaller hermit society of its own (e.g. Hirschfeld 1992 and Patrich 1995). The documentation of wall inscriptions from three of the cells, briefly mentioned above, was presented in the preliminary report covering the results from 1995 and 1996.

The cave extends about 50 meters into the saline bedrock beneath the marl sediments. A thick layer of sediment covering the floor showed that the cave had been undisturbed for centuries. A narrow passage leads from the entrance into a larger chamber of a considerable height, in all a larger version resembling the artificially constructed interiors of Qaṣr aṭ-Ṭūba and Qaṣr al-Abiadh.

A trial sounding of the floor sediments was carried out during the 1997 season. Two small trial trenches, measuring one by one meter each, were dug in the sediments covering the cave floor of the large hall. The material was cautiously excavated and sieved, to make it possible to detect small bones and other materials besides artefacts. The finds from the test squares were not very extensive. Apart from traces of soot and ashes only a few animal bones were found. Only a minor part of the cave has been investigated so far but the ambition is to make a more thorough documentation and measurement of the cave.

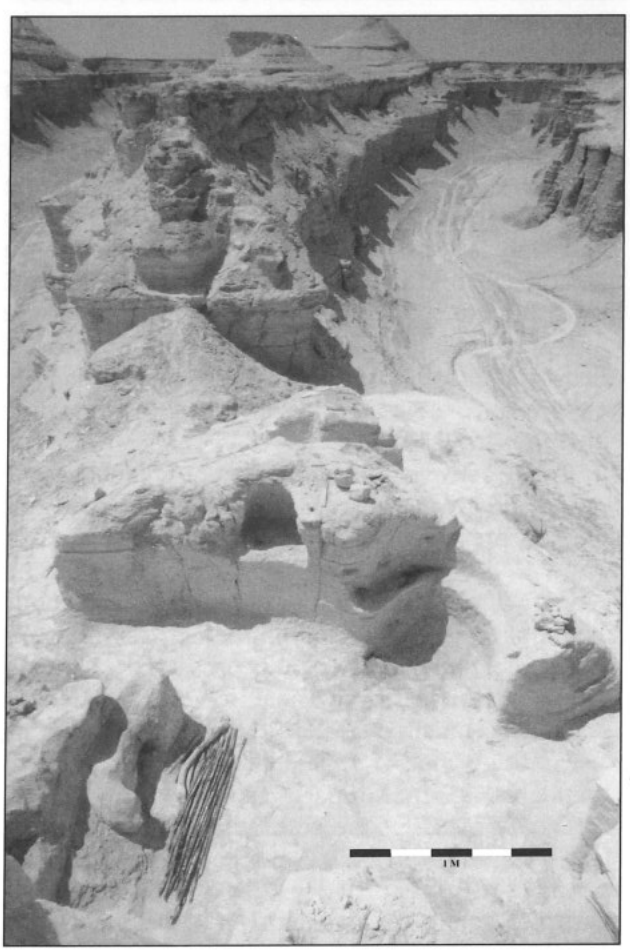
During the fieldwork of 1997 yet another structure was discovered, on the top of the ridge on the opposite side of the cave entrance. The three cells with wall inscriptions, as well as the structure on the top, were excavated and documented. Cell 2 and 3 are partly well preserved, with some of the chambers or cells relatively intact. In other parts of the dwellings the superstructures had collapsed, leaving a considerable risk of the still standing structures to fall in near future.

Cell 1 consisted of two different chambers; one larger and partly collapsed chamber besides one smaller preserved cell with inscriptions on the walls. Cell 2 and 3 were both partly preserved together with their wall inscriptions, also presented in the report of 1997 (Holmgren and Kaliff 1997: 333). The floor levels of the preserved chambers were carefully sieved, leaving a considerable scarce find material besides the elsewhere well attested fragments of rope, plaited work and bone fragments. A preliminary analysis of some recorded sherds dates the pottery material to the fifth and sixth centuries AD. A connection between the pottery (often deposited in the upper rubble) and the other find material cannot yet be determined for certain.

The structure on the top of the ridge, consisting of one chamber and a small courtyard, was totally

collapsed. The site had to be cleared from debris and wind-blown sand in order to document its inner structures. Beneath was discovered the remains of one large, irregular room, originally cut out of the marl and customized with a plaster floor. There are two narrow openings in the walls, in the eastern and western part of the room respectively. On the western and southern side of the hermitage a smaller courtyard, partly covered with a plaster floor, could be traced. The western room furthermore housed the ashy remains of an oven-construction, next to a bundle of wooden sticks still *in situ*. The presence of an oven indicates that this site was not an ordinary hermit cell, but rather the centre of yet another small community of its own. The reason for placing a community to this specific location might be understood with its connection to the cave and additional functions related to pilgrim activities (**Fig. 7**).

The oven is of particular interest and makes the site a parallel to Qaṣr aṭ-Ṭūba, interpreted as a central building and chapel with neighbouring hermitages. In both cases the cells cut out of the slopes of the nearby ridges form the pattern of a laura. The hermitage east of Dayr al-Qaṭṭār could be interpreted as a centre within a small hermit community of its own, despite its close geographical connection with the monastic centre of Dayr al-Qaṭṭār. According to the Rules of Gerasimus, the hermits gathered to celebrate the liturgy only on Saturdays and Sundays. These days they consumed cooked food. During the rest of the week each hermit prayed and worked individually in their different cells without access to fire (Holmgren and Kaliff 1997: 336; c.f. Svensson 1997).



7. Photo showing the described structure in the hermitage east of Dayr al-Qaṭṭār, probably the centre of a small hermit community. Photo SDSE 1997.

The relatively poor find material from the hermitages, its cells and chapels, are also typical for the ascetic life of the hermits. The find material from the hermitages is very similar in general, despite the papyrus find of Qaṣr aṭ-Ṭūba: fragments of pottery, strips of palm leaf, tuft of camel hair, fragments of rope, nut shells, smaller bones and textile fragments. Apart from fragments of linen cloth, the tufts of camel hair are common finds. Camel hair was in all probability used by the hermits for the clothing, a custom relating to John the Baptist: "And John was clothed camel's hair, and a leathern girdle about his loins: and he ate locusts and wild honey" (Mark 1:6). The practice refers to the Prophet Elias (2 Kings 1:8), where John the Baptist in turn is presented as Elias *redivivus* by Jesus (Mt 17 :12, 13). Both were understood as prototypes for the hermit life.

Discussion

The results of the excavation in Dayr al-Qaṭṭār, performed in 1997, support the hypothesis that the site could be identical with a bishopric from the 4th century — probably named Sodoma. In the councillor list of the church meeting of Nicea in 325, bishop Severus of Sodoma is mentioned, among the bishops of the province of Arabia. In the list of fathers gathered at the Council of Chalcedon in 451 and at the Synod of Jerusalem in 518, the bishop of Sodoma is lacking, but instead the bishop of Zoara turns up (Abel 1938: 198-201). The reading of Sodoma was challenged already in the 1930s, and it was suggested that Sodoma was a misspelling of Soadon. It has also been proposed in the past that Sodoma refers to a general area around Zoara, and not to a bishop seat. At the time when the existence of a bishop of Sodoma was questioned, the church at Dayr al-Qaṭṭār was not known. The problem concerning bishop Severus of Sodoma can be reasonably solved by the presence of Dayr al-Qaṭṭār as a bishop church. Our argumentation for Dayr al-Qaṭṭār as Sodoma has recently been further discussed

and supported by the Finnish historian Joonas Sipilää: "The argument is quite convincing, including the suggestive geology of the area and the Roman road passing south of it. The site does not appear to be dictated by economic considerations. Rather, it had a strict religious function in line with the tradition to mark out biblical events. The placing of the bishop seat of Sodoma on the Lisan Peninsula and, consequently, in to the province of Arabia solves the problem of Severus" (Sipilää in print).

Dayr al-Qaṭṭār al-Byzanṭī and the surrounding hermitages can be an analogy and a predecessor to Dayr 'Ayn 'Abāṭa near Ghawr aṣ-Ṣāfī, which has been identified as the basilica at Lot's cave, according to the Byzantine tradition (Politis 1992, 1993). The hermit communities on al-Lisān, including Dayr al-Qaṭṭār, may have been built in line with the same Old Testament tradition, concerning Sodom and Gomorrah (c.f. Abel 1929: 248). An early dating of the original church at Dayr al-Qa ār is supported by the discovery of older walls and hermit dwellings on the spot as well as by Late Roman pottery found during the 1997 excavation. Apart from the find material, an early date is also indicated by the Roman road passing near the site and already mentioned by Alois Musil in his famous travel account (Musil 1907: 164).

There is evidence pointing at Dayr al-Qaṭṭār as the location of the earliest and most important hermit dwelling in the al-Lisān area. It is probable that the earliest phase of the hermit community on al-Lisān can be dated to the late third or early forth century AD. The crypt of Dayr al-Qaṭṭār (Holmgren and Kaliff 1997: 329) is likely to be an early hermit cell, later incorporated in the church of Dayr al-Qaṭṭār and used as an ossuary. This crypt may originally have been the cell of one of the early hermits settling in this area, later revered as a holy person. The tomb of the founding father was sometimes later marked by a special building, or he was buried in the cave in which he had spent his life (Patrich 1997: 44). The shape of the crypt, resembling the hermit dwellings in the vicinity, indicates that this is the case. This interpretation could furthermore find its parallel to the original function of the cave in the eastern hermitage. A tentative explanation for the cave is that it originally served as a dwelling for one of the first hermits to settle on this spot. Later the cave may have turned into a tomb. The inscriptions and graffiti in the adjacent hermitages indicate that the place eventually developed into a pilgrimage.

Dayr al-Qaṭṭār has remained a monastery into the Early Islamic periods, a common phenomenon recognizable in several Byzantine sites in today's Jordan (e.g. Kaegi 1992: 88 ff). One such example resembling Dayr al-Qaṭṭār is the sanctuary of Saint Aron (Jabal Hārūn), where a Christian place of worship later was converted into a Muslim shrine (Peterman and Schick 1996). The function of the Dayr al-Qaṭṭār and the surrounding hermitages during the Islamic period still remains uncertain.

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Bibliography

Abel, F.-M.
1929 Chronique: Notes Complementaires Sur la Mer Morte. *Revue Biblique* 1.
1938 *Géographie de la Palestine* II. Paris.

Hirschfeld, Y.
1992 *The Judean Desert Monasteries in the Byzantine* Period. New Haven.

Holmegren, R. and Kaliff, A.
1997 The 1995-1996 Excavation of Dayr al-Qattar al-Byzanti a Preliminary Report. *ADAJ* 41: 321-340. *JADIS* Information from Jordan Antiquities Data Base and Information System. Amman: Department of Antiqiuties.

Kaegi, W.E.
1992 *Byzantium and the Early Islamic Conquest.* Cambridge: Cambridge University Press.

Lozano, J.M.
1987 *Eremitism. In M. Eliade (ed.), Encyclopedia of Religion* 5. New York: Macmilla Publishing Co.

Meyendorf, J.
1979 *Byzantine Theology: Historical Trends and Doctrinal Themes.* Fordham University Press.

Musil, A.
1907 *Arabia Petraea.* I Moab. Topographischer Reisebericht. Wien.

Patrich, J.
1995 *Sabas, Leader of Palestinian Monasticism: A Comparative Study in Eastern Monasticism, Fourth to Seventh Centuries.* Dumbarton Oaks Studies 32. Washington D.C.
1997 Monasteries. The Oxford Encyclopedia of Archaeology in the Near East 4. Eric M. Meyers (ed.). Oxford University Press.

Peterman, G. and Schick, R.
1996 The Monastery of Saint Aaron. *ADAJ* 40: 473-480.

Politis, K.D.
1992 Excavations at Deir 'Ain 'Abata 1988. *ADAJ* 33: 227-234.
1993 The 1992 Season of Excavations and the 1993 Season of Restorations at Deir 'Ain 'Abata. *ADAJ* 37:

503-520.

1995 New Greek inscriptions in the Byzantine hermitage at Qasr at-Tuba on the Lisan. *ADAJ* 39: 556-559.

Sipilää, J.

2005 Roman Arabia and the Provincial Reorganisation of the Fourth Century. *Mediterraneo Antico.*

Svensson, J.

1997 Coenobitic Life in Palestine. Historical and Theological Commentary for The Swedish Dead Sea Expedition (unpublished).

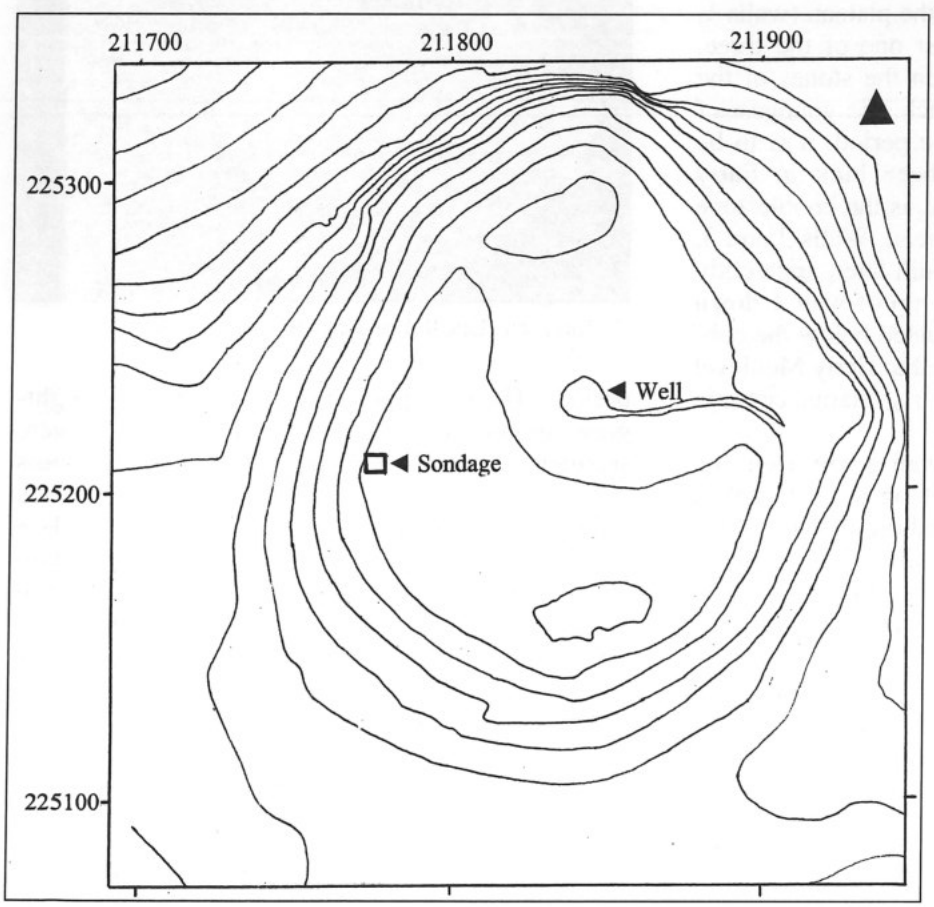
THE GADARA-REGION-PROJECT: PRELIMINARY REPORT OF THE SONDAGE ON TALL ZAR'A (2001-2002) AND THE IDENTIFICATION OF LATE BRONZE AGE GADARA

Jan Dijkstra, Meindert Dijkstra and Karel J.H. Vriezen

I- The Sondage (2001-2002)

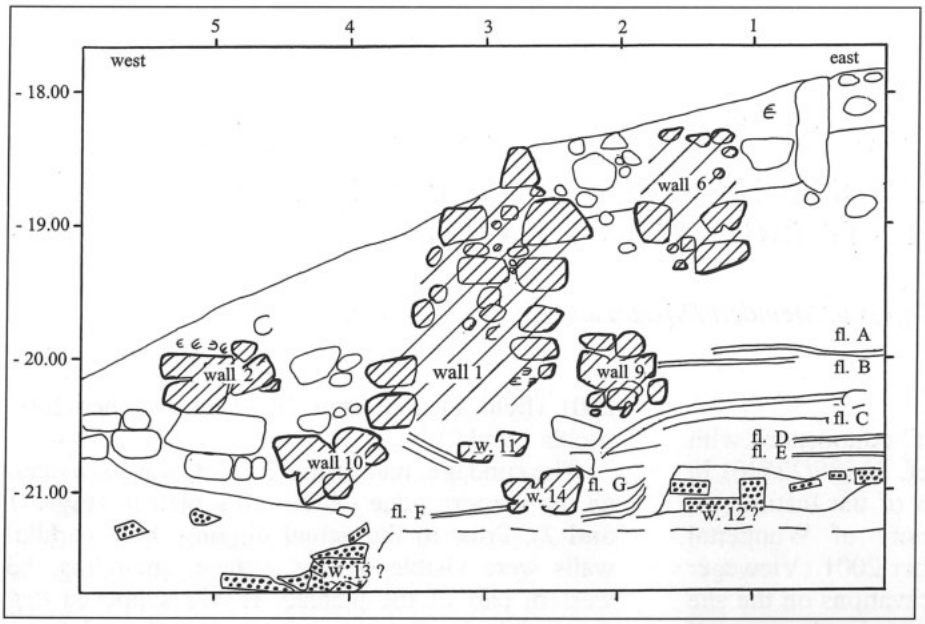
The "Gadara-Region-Project" commenced with a survey of Tall Zar'a (map ref. 21185/22520) in the Wādī al-'Arab by the team of the Institute of Biblical Archaeology, University of Wuppertal (Germany) in September-October 2001 (Vieweger 2002: 157-177). After that, excavations on the site started with a sondage carried out by the team of the Theological Faculty, University of Utrecht (Netherlands), from 21 October to1 November 2001 (field 1) and from 19 to 31 October 2002 (fields 1 and 2).[1]

The sondage, measuring 7 x 6m, was excavated on the western edge of the tall's plateau (**Figs. 1 and 2**). Prior to the actual digging three parallel walls were visible on the surface, encircling the western part of the plateau. It was supposed that they might be the remains of an ancient defence line and therefore the sondage was laid out as to make a cross section of these walls. Then, it soon

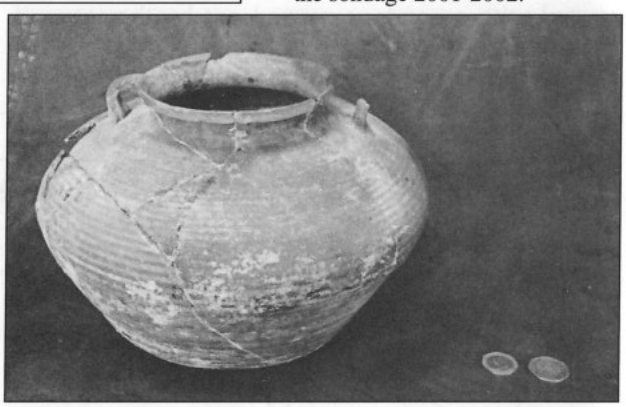


1. Plan of Tall Zar'a with location of the sondage 2001-2002.

1. Participants in the team were in 2001: Erik Terwan and Karel J.H. Vriezen; in 2002: Jan Dijkstra, Meindert Dijkstra, Evert van Rooijen, Peter Vreeken, Karel J.H. Vriezen and Max G.L. van de Wiel. We would like to take the opportunity to thank the Director General of Antiquities, Dr. Fawwaz al-Khraysheh, and the representatives Amjad Bataineh and Ibrahim Zubi, as well as the team of the German Protestant Institute for the Archaeology of the Holy Land in 'Ammān, for their generous aid, and Dr. Gerrit van der Kooij, who advised us in the dating of the excavated pottery.



2. Tall Zar'a: northern section of the sondage 2001-2002.

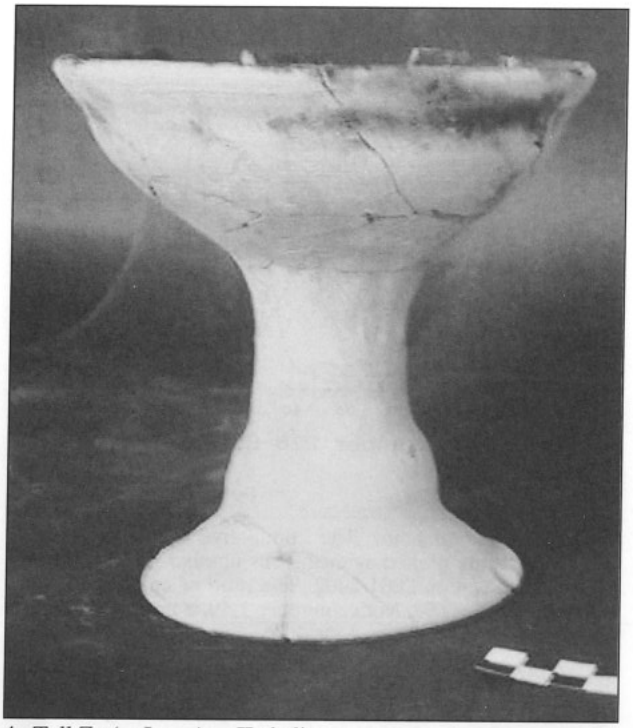


3. Tall Zar'a: Late Roman/Early Byzantine cooking pot.

appeared that these walls had not been part of an ancient settlement, but that they had been built as terrace walls along the edge of the plateau (walls 1, 2 and 3). Wall 1 is the earliest one of the three. From the ceramic finds between the stones of the wall and in the foundation trench, the youngest of which date to the Early Islamic period, it is to be concluded that the wall has been built in Early Medieval times or later, as well as the cobblestone floor inside the wall on the plateau. Walls 2 and 3, situated more to the West are built later, apparently when the soil moved over the top of wall 1 down hill. An older wall (wall 6), situated below the cobblestone floor, may also be dated to Early Medieval times or later, because of the Early Islamic ceramic finds connected to it.

The foundation trench for wall 2 had been dug into a yellowish sandy deposit on a hard packed loamy floor, which was bounded on the North by a wall. On this floor the remains of two bread ovens were found (*tannūr;* Ø 76cm and 48cm), each set on a small cobblestone floor. The wall of one of these ovens still stood up to height of 0.36 m and inside were the remains of a Late Roman/Early Byzantine cooking pot (**Fig. 3**), apparently once placed into the hot ashes in the oven after the baking of bread had been completed.

The foundation trench for wall 1 had been dug through a 1.50m thick deposit with Roman-Early Islamic finds down into the layers of the Iron Age. The Iron Age stratum is ca. 1.30m thick and consists of six successive floors (fl. A-F). These floors could be studied properly in the NE-quarter of the sondage, as in the remaining part of the sondage they were largely destroyed by digging in various periods. The two upper floors (A and B) were light-grey coloured and ca. 0.04m thick and they were separated by a 0.02-0.08 thick deposit. These floors were bounded on the south and the west by a ca. 0.56m wide wall of boulders and cobbles (walls 8 and 9). By the finds on these floors and in the collapse of the walls, they may be dated to the IA IIa-b periods (**Fig. 4**). Circa. 0.40m below a floor (fl. C) was found in which there were two ash pits (Ø 0.55 and 0.75m) and in one of them was the remains of a Late Bronze/Early Iron Age cooking pot (**Fig. 5**). On this floor there was a ca. 0.04-0.12m thick deposit, on which was a 0.04-0.06m thick layer of ash. Circa. 0.15m below floor C, a light-grey coloured 0.02m thick floor with ash pits was found (fl. D), that was bounded on the south and west by wall 11 (w. 11); to its west a 0.5m wide annex is located with floor D1 and wall 10. Circa. 0.1m beneath, another light-grey coloured, ca. 0.02m thick floor (floor E; **Fig. 6**) was excavated, on which was found a large millstone and five ash



4. Tall Zar'a: Iron Age II chalice.



5. Tall Zar'a: Late Bronze/Early Iron Age cooking pot.



6. Tall Zar'a: sondage 2001-2002, Early Iron Age house, floor E.

pits. In the centre of the northern side of the field are the remains of wall 14 (w. 14); the foundation trench on its eastern side is covered with floor G; on its western side the light-grey coloured, ca. 0.02m thick floor (fl. F) is on a lower level. The floors C, D, D1, E, F and G and walls 10, 11 and 14 may be dated to Iron Age I by their finds.

Floor F, and probably also floor E, sealed a large pit, that extended in the major area of the field. In this pit, besides ceramic finds of Iron Age I, many sherds dating to the Late Bronze Age I-II and some dating to the Middle Bronze Age IIc were found. This pit, that in some places is even more than one meter deep under the level of floor F, has been dug in a thick deposit of yellowish loamy soil and cut through a 0.90m wide, north-south mudbrick wall 13 (w. 13). In the south section of the sondage, this wall may be seen standing 0.70m high on a foundation of two layers of boulders and cobbles (**Fig. 7**), and the loamy soil is deposited over the remains of this wall. In the sondage's north section a debris of mudbricks can be seen, that may have belonged to wall 13. Also in the N-E area of the sondage a debris of mudbricks was excavated, that may have come from a wall (wall 12?). It is reasonable to suppose that the thick deposit of loamy soil in which the mudbricks and wall 13 are found, does date to the Late Bronze Age, because in the lower part of this deposit reached by the sondage only ceramics from the



7. Tall Zar'a: southern section of the sondage 2001-2002, mudbrick wall (wall 13).

Middle Bronze Age IIc and Late Bronze Age I-II are found.

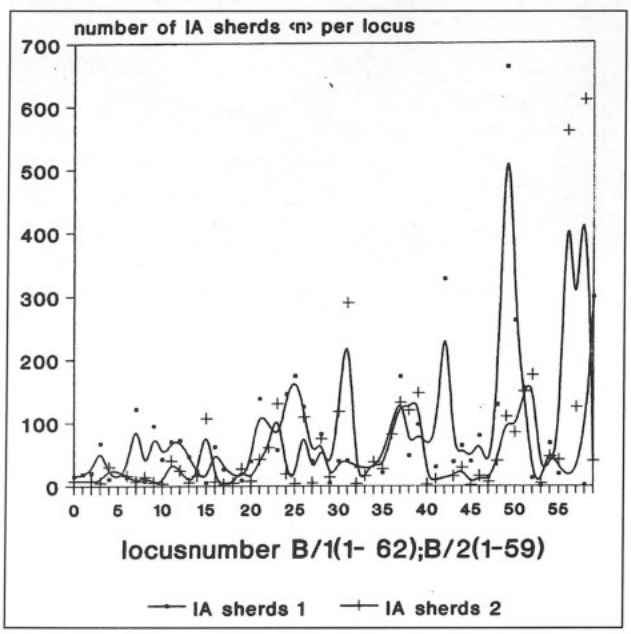
Preliminary Conclusion

It is supposed that this part of the tall has become deserted in the course of Iron Age II. There are no traces of any destruction. Perhaps there may be a connection to the deportation of the population by Tiglath-Pileser after 732BC as it seems to be the case elsewhere in southern Syria. Probably after this event, there were no new settlers in the following centuries, as in the sondage there were no ceramics found from Iron Age IIc or the so-called Assyrian period.
(Karel Vriezen)

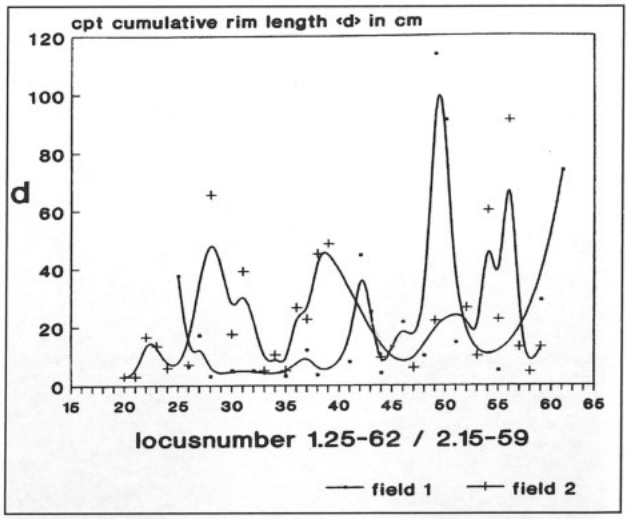
II- Sherds Do Have Their Number

Introduction

This section of the report is an archaeometric study on site related cookingpot types based on cooking pot sherds from the remains of an Early Iron Age house in Tall Zar'a (TZ). Statistical analysis from sherds is a standard procedure in archaeology. Generally in these analyses the total yield of potsherds per field and per locus is studied. The rich find of cooking pot sherds in TZ was quite surprising (see **Figs. 8 and 9**). Cooking pot sherds,



8. Frequency diagram of Iron Age (IA) sherds field 1 and field 2/ Tall Zar'a (TZ). Number of total IA sherds plotted per locus.



9. Cooking pot diagram. The cumulative length of the rim fragments are plotted against locus number. Data from Tall Zar'a excavation 2001/2002. The ratio of cpt sherds vs IA sherds is 15- 20%. Notice number 1.49, a large pit, exceeds with 40 %.

as compared to other IA sherds, may be easily recognised by form, hardness, temper and characteristics of firing. The intriguing question is, whether the disappearance of one or more cooking pots may be defined by some form of relationship? The process of the disappearance of ceramic fragments from an archaeological site can be described by a mathematical model. However, finding the right parameters determining the process is difficult.

It may be clear, that a thorough measurement of sherd features[2] is useful, i.e. height and length of the rim sherds; their diameter from sherd curvature; the cumulative length of the rim as an indirect size of the circumference, and the estimated surface area of all body sherds excavated per locus. A theoretical approximation of the surface area of the average cooking pot by calculating the surface area of an open spherical body[3] [= ca 0,22m^2] is also helpful to estimate the original surface area of a series of cooking pots.

The data of TZ were matched afterwards with the results of H.J. Franken from Dayr 'Allā (DA) and with the studies of R.H. Dornemann. The cooking pot sherds under discussion date from the end of Late Bronze until and including the Early Iron Age (13th-10th century BC).

In Search of the Mathematics Behind the Ceramics

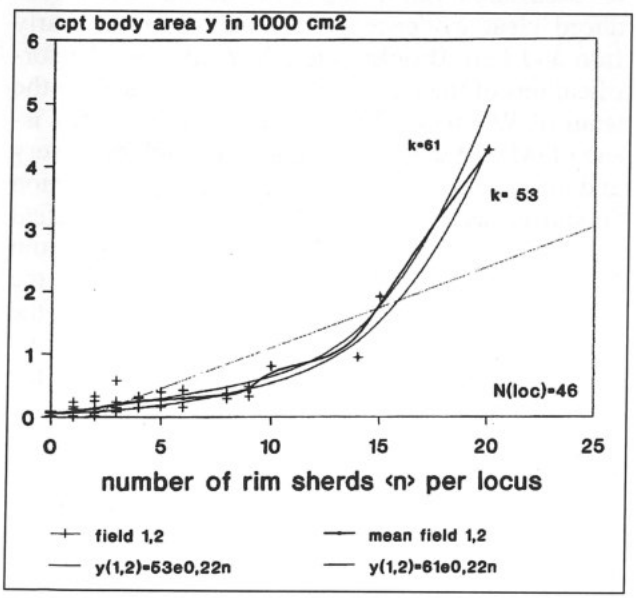
By means of a graphical program[4] correlations

2. See Franken and Kalsbeek, 1969: 119-126. See also Dornemann, 1983: 145-161, with Sequences I and II. Franken argued in his report of Dayr 'Allā , that a careful study of morphological and mineral composition of sherds can offer a better insight in the typology of current ceramic Iron Age repertoires locally, but also detect influences and differences outside the excavated region.
3. The surface area is calculated with the formula of an open spherical segment: $O = \pi * (h^2_{cpt} + \rho^2_{cpt})$; $h_{cpt} = 2\rho / 1{,}75$
4. With the help of computer software Harvard Graphics 2.3,Copyright 1990, Software Publishing Company USA.

have been made between the various cooking pot parameters. To my surprise a correlation was disclosed between the total surface area of the excavated cooking pot fragments and the number of non-matching cooking pot rim sherds per locus. The scattergram showed a non-linear pattern which could be approached at best by an exponential curve (**Fig. 10**). This curve is to be considered as representing the mean cooking pot form/type characteristics for Tall Zar'a and is described by the formula:

(1) $a\text{-}x = ((h_r * 2\pi\rho)/4) * e^{c*0,22*(n)}$

in which < a – x > indicates the recovered surface area of rim and body sherds (< a > the original surface area of all the pots and < x > what has disappeared); $< (h_r * 2\pi\rho)/4 >$ is a field constant with the dimension cm^2 [$< h_r >$ is the rim height in cm and $<2\pi\rho>$ is the rim circumference in cm]; < c*0,22 > is the assumed body surface of a mean cooking pot in m^2; the value < c > depends of the spread of rim diameters of cooking pots known in archaeological studies (Ø 18-50cm) and is varying between 0,7-1,4 / m^2 (for this study 1,0 / m^2), and < n > is the number of non-matching rim fragments. Notice that both field constants express standard cooking pot properties: the rim[5] — and body — surface area of an average sized cooking pot. When < c *0,22 > is multiplied with < n > an estimate can be made of the total surface area of an initial number of cooking pots for a specific locus at $< t_0 >$.



10. Relation of recovered cooking pot wall areas to the number of non matching rim sherds. The best fit of the observed data is an exponential curve: $y = a\text{-}x = [(h_r * 2\pi\rho)/4]\ e^{c*0.,22*n}$. The values of the field constant $< k_{1,2} >$ [$(h_r * 2\pi\rho)/4$] are 53-61cm^2 respectively. For comparison a linear trend is included.

The depicted graph stands for a population of cooking pots, ever in use at the site on $< t_0 >$. Of course there will be some difference in form and size of cooking pots (standard deviation), but the averaged curve of the graph shows an exponential path and definitely not a straight line. The empirical formula can be connected with the theoretical formula of fractional disappearance < k > which defined the transfer in units of time < t > of substances < a > from one compartment to another by an accidental loss or a continued process of decay:

(2) $x = a\,(1 - e^{-k*t})$ **or** $a\text{–}x = a * e^{-k*t}$

in which < k > is the disappearance constant and < t > elapsed time in years. The factor < a-x > and < a > have been mentioned before.

When formula (1) and (2) are substituted the value of < k > can be calculated:

(3) $k = [(\ln n - c*0,22* n) - \ln (h_r * \rho) / 2(h^2 + \rho^2)] / t$

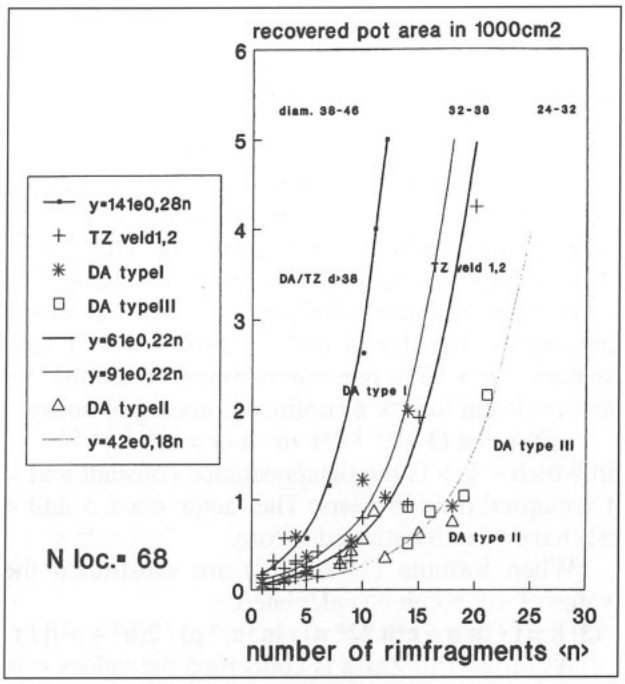
As far as Tall Zar'a is concerned the values $< h_r >$ and < ρ > are ca. 2cm and 17cm; the average height < h > of the pot is ca. 20cm and < t > is 3100 ± 150 years (= 1250-950BC), based on dating and typology of the Iron Age sherds of TZ. The value of < k > only depends of < n > and is varying from 0,78 – 1,42 E-3 / y with a mean value of 1,1 ± 0,3 E-3 / y. There is some fluctuation with a factor 2 or less, which is not fully understood. Obviously a higher number of rim fragments < n > means lower values of the disappearance constant! Evidently the rate of dissipation slows down when a greater number of cooking pots have to be considered on the site (locus). The occurrence of a straight line in the scattergram should have resulted in a more constant value of < k > of roughly: 1,0 E-3 / y. By modifying formula (2) a Cooking Pot Recovery Index (CPRI) can be calculated:

(4) $CPRI = 100 * (a - x)/a = 100 * e^{-k*t} = e^{4,6-k*t}\ (\%)$

The mean recovered mass of cooking pots is ca. 5% (varying between 1,6 and 9% depending on the amount of non-matching rim fragments).

When drawing the empirical formula (1) for different values of the cooking pot diameter (34 ± 16cm), of the mean cooking pot surface area (0,22 ± 0,6m^2), of the height of the rim (1-4cm) and of the number not matching rim fragments per locus, a range of simulation graphs arise (**Fig. 11**) called a matrix. The curves of this matrix feature a decline of diameter and surface area of the cooking pots from the left to the right. They have also a steeper slope on the left. This matrix can be used as a reference in order to compare the cooking pot sherds/

5. With emphasis on the rim. In this context the bottom of the cooking pot is not taken into account, often the weakest link in the life of the pot.



11. Comparison of the Tall Zar'a data with the Dayr 'Allā data (Franken 1969). Cooking pot surface areas are related to locus numbers of both sites. The calculated curves form a matrix of simulation curves based on different values of cpt. diameter, rim height and mean calculated areas of cooking pot sizes. Data of DA type I/II are in close agreement with TZ field 1 and 2.

surface areas of different sites with each other by projecting the data into the simulation matrix. This exercise has been executed by comparison of cooking pot finds from the Tall Zar'a sondage (field 1, 2) with those of the Dayr 'Allā excavations of 1960-1967[6]. As for Tall Zar'a and Dayr 'Allā three cooking pot types can be identified. Franken mentioned three types: DA type I= Iron Age I a-b, DA type II= Iron Age Ib and DA type III= Iron Age Ib. The curve of the cooking pot finds of TZ field 1,2 coincides almost with that of DA type I/ type II (Dayr 'Allā: phase A-L), from which it may be obvious: TZ field 1,2 cooking pots stands for Iron Age I / I a-b[7]. The curvatures of DA type II (small)/ DA type III coincides with the curve belonging to small cooking pots surface areas (0,18 cm^2). Finally, a small number of data of large cooking pots is visible at the left of graph 4 for both TZ and DA (> 0,28m^2 with Ø 46cm), this is probably the remains of Late Bronze II cooking pots.

Conclusions

Quantities of cooking pot sherds sometimes contain more information than is obvious at first sight. Counting and measuring is a typical archaeometric approach, which sometimes offers interesting insights into the history and coherence of sherds. As Dornemann argued in his survey (Dornemann 1983: 145-161 with Sequences I and II), there is a substantial need of certain uniformity in classifying different ceramic Transjordanian repertoires. This mathematical use of data may be a start to promote such uniform classification. Working out mathematical models for other ceramic forms like bowls, juglets and storage jars can be a further step in defining the proportions of the various ceramic types within ceramic repertoires. This would eventually refine the chronological devices suggested by H.J. Franken (Franken and Steiner 1990: 67-75). By comparing discoveries from other archaeological sites like this, specific mathematical methods can be controlled and improved. Then an adequate instrument may be developed to contribute to preliminary outcome about the nature and period of discovered cooking pot repertoires.
(Jan Dijkstra)

III- Tall Zar'a = Gadara in the Context of the Late Bronze Age.

Canaan as an Egyptian Province During the New Kingdom

The survey in the Wādī al-'Arab of the site of Tall Zar'a and its environment and the first seasons of excavation (2001-2004) at the tall itself produced clear evidence of occupation in the Early Iron and Late Bronze Ages. In particular, the fortifications of the Late Bronze Age excavated by the team of Wuppertal University (see also in this issue of ADAJ) deserve attention. Though discovery and investigations just have started, the question should be asked whether this significant fortified city from the second half of the 2nd millennium BC, situated along a route which leads from the Jordan Valley through the Wādī al-'Arab to the Transjordanian plateau, plays a role in the historical sources of the period. The road through the Wādī al-'Arab provided for an easy approach to southern Syria passing the fords in the Yarmūk estuary at Tall ash-Shihāb or Dar'ā.

During the larger part of the Late Bronze Period the southern areas of the Levant — usually known as Canaan and in Egyptian sources subsumed under names such as Lower-Rethenu or Khuru — were more or less a colony if not a province of the New Kingdom. Biblical tradition preserves a memory of this in grouping Canaan together with

6. Data taken from Franken and Kalsbeek 1969: 119-126.
7. This statement is based on the DA dating as well as the preliminary results of the TZ dating.

Egypt, Nubia and Punt (Gen.10:7). In a series of campaigns which took them repeatedly to Qadesh at the Orontes and farther, the pharaohs Tuthmosis III and Amenophis II secured the area south of the line between Tyre and Damascus (Upe) and, with varying fortunes, this situation of occupation was maintained until and including Ramesses III of the 20th Dynasty and perhaps even after him.

The extensive topographical lists of Tuthmosis III and, presumably also those of Amenophis II show in slightly different versions a system of itineraries and military bases, which lie concentrated in the coastal area of northern Palestine, around the Lake Kinneret and Southern Syria between the Yarmūk estuary and Damascus (Upe). Though not every detail of their systematics is transparent, it may be observed that it was intended to be in control of the approaches to the borderlands of northern Canaan and southern Syria. There we find the majority of bases securing Egyptian rule in the area of the Levant.

It is far from certain whether Tuthmosis III or one of his successors, despite the propaganda of their war inscriptions, adorned or not with topographical lists featuring subdued countries and conquered cities, ever controlled for a longer period Upper-Rethenu or Northern Syria. It is evident that they showed their presence there at irregular intervals and even collected tribute from the princes of Amurru, Ugarit and other Syrian kingdoms. It does not infer however, that they set up an administration supported by military bases and fortresses as they did in Northern Sinai and Lower-Rethenu/ Canaan. The campaigns of Horemheb, which took him from Byblos to Kargemish in order to quell the political revolts in the Levant in the aftermath of the Amarna Period, achieved lasting success in Syria either[8].

Gadara During the 19th Dynasty

Sethi I - as co-regent of his aged father Ramesses I, the actual successor of Horemheb — continued these political and military ambitions in his own first year as sole ruler. We find depicted on the eastern side of the North Wall of the Great Hall or Hypostyle in the Temple of Amun at Karnak a splendid summary of this campaign. The attack on and conquest of the city of Yanu'am illustrated here, corresponds with the campaign as described and commemorated on the larger stela of Year 1 discovered at the site of ancient Beth-Shean (Tall al-Ḥuṣn):

On this day one came to speak to His Majesty: "The wretched foe who is in the town of Hammat has gathered many people around him in order to seize the town of Beth-Shean. He made a pact with them of Pahil (Pella) and does not allow the prince of Rehob to go outside." Thereupon His Majesty sent from his first army the division of 'Amun, the Mighty Archer' to the town of Hammat, from his first army the division of 'Re, Plentiful of Courage' to the town of Beth-Shean and from his first army the division of 'Seth, the Strong Archer' to the town of Yanu'am. Not a day had passed or they were overthrown by the glory of His Majesty...

One has the impression that Sethi I used this local conflict as a pretext to reinstate the military base of Beth-Shean and to restore order in surrounding areas. He interfered apparently in a local war between the rulers of Hammat and Pahil (Pella) on the one hand and those of Beth-Shean and Rehob (*Tel Rehov*) on the other, presumably a conflict about the control of the fords in the Jordan River, more in particular the road, which runs through the Valley of Beth-Shean, and after crossing the Jordan River, leads to the plateau of Transjordan and southern Syria.

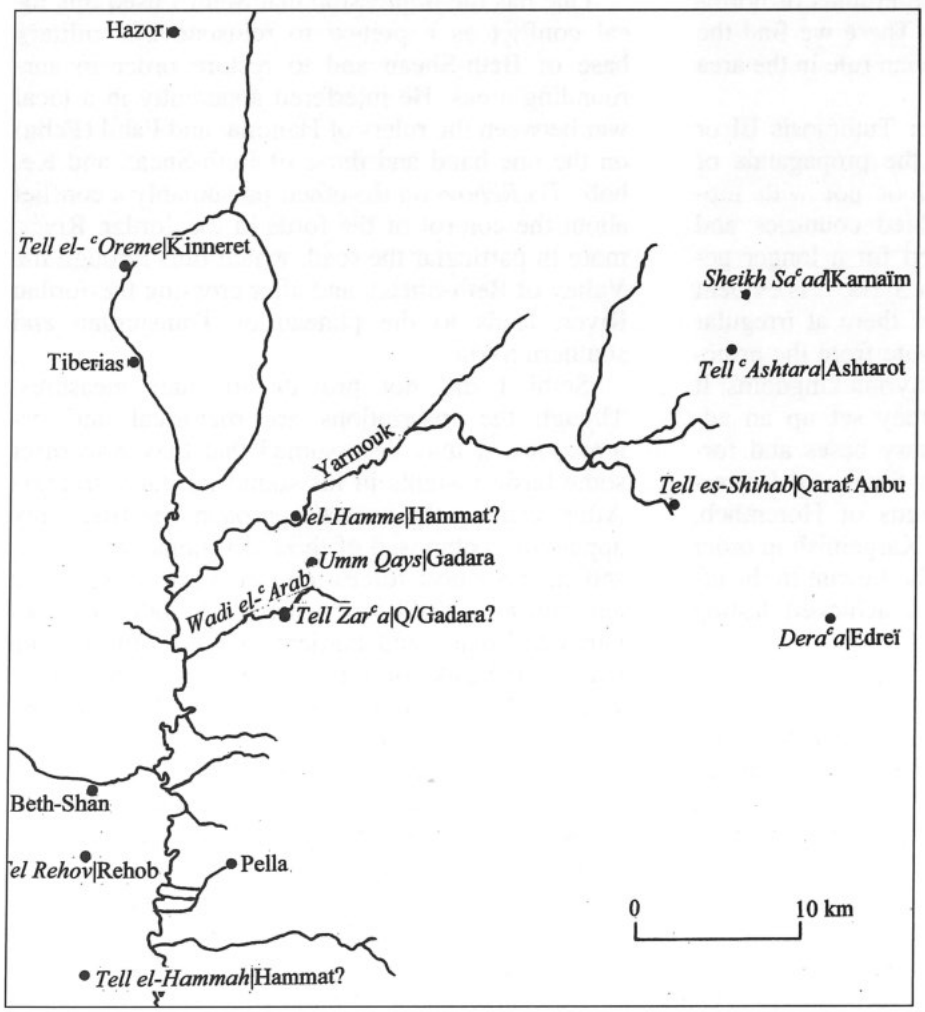
Sethi I did not provide for half measures. Though the inscriptions are rhetorical and ostentatious, it may be assumed that they also offer some basic insights in his sound military strategy. After securing the coastal approach, the first army apparently composed of three divisions, divided itself in three task forces, one of which is left as a garrison at Beth-Shean[9] whereas the other two secured the roads and borders to the north on both sides of the Lake of Kinneret and the River Jordan. Though Yanu'am is often mentioned in the inscriptions and especially in topographical lists of the New Kingdom, the site of this town has as yet not been identified conclusively. Because of associations with known cities in southern Syria and Lebanon, a localization in the northern outskirts of the Jordan Valley or elsewhere in southern Lebanon appears to be the best option (**Fig. 13**)[10].

8. His campaign was probably related to the revolts in this area against the Hittite rule ca. 1315 BC, see the bowl of Sen-Nefer, Conrad 1985: 540-541; Redford 1992: 177.
9. The renovation of Beth-Shean in Level VI during which the alleged temple of Sethi I was modified and received a closed shrine among other Egyptian facets, was probably related to this historical events. The temple was now dedicated to Re-Harachti. The ca. 44cm high limestone Horus bird could refer to this god venerated in the restored naos, see W. Zwickel 1994: 186-191.
10. See among others Albright, AASOR 6 (1925-26): 18-23; Redford 1992: 181, but also the doubts expressed by Ahituv 1984: 199-200 no. 620 *pace* the identification with tall an-na'am about 20km north of Beth-Shean (Noth 1971: 27) or with nearby Tall al-'Ubaydiyya (Aharoni *et al.* 1979: 443). Our map acknowledges the different possibilities of locating Yanu'am in the southern Lebanon.

Tuthmosis III took perhaps the same road on his way north, setting up the stela, of which a fragment was discovered in Kinneret 'Tall al-'Oreme' (Albright and Rowe 1928: 286-287, Plate XXIX: 2).

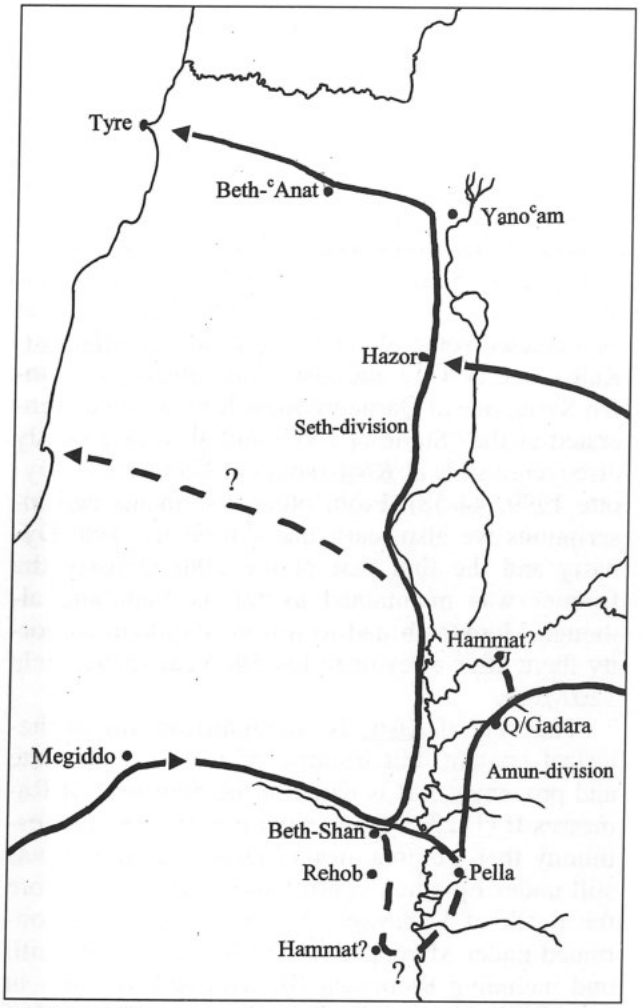
Because according to the larger Beth-Shean stela of Sethi I, the immediate threat came from the other side of the Jordan, was a matter of course that one of the divisions — actually the Amun-division — was sent against Hammat and Pahil. A direct though silent witness that Sethi pacified cities in the Yarmūk estuary, is the stela found at Tall ash-Shihāb (Porter and Moss 1927: VII, 383; Kitchen 1969: I,17). Unfortunately only the upper part survived on which Sethi I is shown in front of Amun-Re, Lord of Heaven, Lord of the Two Lands and the goddess Muth. The scene resembles strongly the similar scene of Sethi I before Re-Harachte on the larger Beth-Shean stela. Its dedication to Amun-Re' is no coincidence, if one realizes that the larger Beth-Shean stela is devoted to Re-Harachte. It is obvious that the different stelae relate to the different military operations of the divisions in Sethi Ist's army. The action of the Amun-division in the Yarmūk area between Pahil/Fa'il (Pella) and Tall ash-Shihāb brings us perhaps also close to Tall Zar'a. Even more if we may identify this Hammat with the site of al-Hammah in the lower Yarmūk Valley as others have done before us, a town just north of Umm Qays/Gadara, the Hammath-Gader from later Jewish sources and the Ammatha of Byzantine and Arab tradition[11].

*In Search of Tall Zar'a in the Egyptian Topography (***Figs. 12 and 13***)*



12. Map: toponyms and identifications.

11. See, for instance A. Rowe 1930: 25-26, fig 4. Unfortunately, the archaeological evidence as far as known is not immediately in favour of such an identification. Glueck (1932) and Albright (1929) noted remains of an Early/Middle Bronze inhabitation, supported by later excavations of the synagogue and the Roman-Byzantine hot bath installations (Sukenik 1932; Hirshfeld and Solar 1979-1986), but no Late Bronze occupation of the site has been attested so far. A majority of scholars identifies this pharaonic Hammat with Tall al-Hammah, 16km south of Beth-Shean (Albright 1925-26; Zori 1977; Gophna and Porath, Survey 1967-68; Cahill and Tarler 1984; Ahituv 1984: 113, although he identifies Thutmosis III hamatu (I:16a,c I:16b, V:3) with Hamath-Gader on the Yarmūk River.



13. Map: military campaign in the first year of Sethi I.

The starting point for our quest to find a suitable candidate for Tall Zar'a was the friezes with scenes which Sethi I had drawn and sculptured on the North Wall of the Great Hypostyle in the Temple of Karnak. In these vividly illustrated inscriptions about his first campaign, we find depicted next to Yanu'am a partly destroyed town *qa-dú-rù*[12], more precisely called the city *qa-dú-rù m p3 t3 n ha-an-má* 'Qaduru in the land of Hanma'. If in the lower scenes on the wall the battle with the Shasu-bedouins in Sinai and then the assault on Pi-Canaan (= Gaza) along the Mediterranean coast has been depicted, it seems obvious to conclude that also the higher frieze of scenes was similarly South — North orientated, that is: the town between the cedar woods and Yanucam lies further to the North or East. Helck identified the town with the predecessor of Umm Qays/ Gadara (Helck 1962: 202-203), but if our observation is correct, the site should be located more to the north in a wooded area like Yanu'am. Beyond the submissive chiefs of the Lebanon, some are cutting trees for the pharaoh, perhaps cedars for the bark of Amun[13]. Perhaps, the same city is also mentioned in the lists of Ramesses II in the Luxor Temple, among a series of toponyms, of which Tahsi (biblical Tahash, Amarna Tahši) is well known[14]. If so, this implies also a locality for Yanu'am in the Lebanon area.

In all probability however, there is also a differently spelled toponym *qa/gá-da-ra* attested in the lists of Sethi I on the same North Wall; in any case, in one of the two versions found on either side of the entrance[15]. Analysis of these lists shows that they are composed of several groups of toponyms. The core of the lists consists of the four towns which Sethi I mentioned in his first Beth-Shean stela (see quotation above). In the minor lists in the Abydos Temple they occur even on top of the lists! A separate group is the list of coastal cities, which runs from Accre to Tyre and Usu = inner Tyre. This is in consonance with the strategy of Sethi I, who after the reconquest of Yanucam and Qaduru/ Qadruru, apparently by means of the Seth-division approaching from the inland of Lebanon, secured the coastal area from Accre to Tyre. In memory of these martial exploits he also left a stela at Tyre[16]. In the light of this grouping, it seems a matter of course to assume that the lists continue with towns in the inlands of southern Syria where the Amun-division was sent. About Beth-Anat scholarly opinions differ. The majority of scholars locate it in northern Canaan /southern Lebanon (later the highlands of Galilee), with Yanu'am and Tyre forming a kind of northern borderline established after the

12. My system of transcription of Egyptian group writing follows with some slight modifications that of Hoch 1994: 506-512.
13. ANET 3, 254c; Kitchen 1969- I, 13, 8-9.
14. Ahituv 1984: 187; see for this toponym Kitchen 1969- II, 177, 23-27 and 178, 1-5 if it be accepted that the rendering *qa-ad-rú-rù** is correct. In this case, it is perhaps variant of the same name. The centre of the cartouche however, is damaged and a rendering *qa-dú-rù* also plausible. If the variant *qadruru** for *qaduru** exists one could think of a derivate from קדר 'to be black'; also a relation with קטר cannot be excluded, compare the Semitic loan *qa-da-rù-tá* 'incense' (Sivan-Kochavi 1992: 85; Hoch 1994, 305 No. 440). Semitic toponyms with קטר are possible, see Qitron=Qata(r)t in Zebulon (Judges 1:30, Joshua 19:15). Martin Noth suggested identification with Kafr Qatra (Noth 1971: 31-32; Helck 1962: 203).
15. The rendering is accepted by Simons 1937, 140 (in the form *q-d-[<w>-r]*); Helck 1962: 202-203 (as *ga-da-ra*); Kitchen 1969- I, 29-32. Because in both lists the name is damaged, *qa-dú-ra* in stead of *qa-da-ra* cannot be excluded.
16. Unfortunately, an only partially preserved, mainly rhetorical stela, see Chéhab 1969: 32, Pl VIII 3; Kitchen 1969- I, 117.

first campaign.

The other toponyms, as far as related to Canaan and the Levant, were presumably on the other side of Lake Kinneret closing the provisional border at Hazor from the East. Among the toponyms on the eastside of Lake Kinneret, *Qarat ᶜanbu** has been identified with Tall ash-Shihāb in the Yarmūk Valley. This equation of *Qarat ᶜanbu** and *ᶜênu ᶜanabi** (the Heni Anabi of the Amarna letter EA 256: 26) as the site, where Sethi I or more likely his Amun-division set up the stela for Amun-Re, has been broadly accepted, though not conclusively proven. Perhaps, this town was the farthest point of this punitive expedition and from there made the Amun-division the pincer movement into the direction of Hazor. This might explain why a city such as Astartu stayed out off sight during this first campaign. It is not simply begging the question as to whether the Late Bronze pharaonic Qa/Gádara in the region of the Yarmūk in one way or another is related to later Hellenistic-Roman-Byzantine Gadara/Umm Qays. This more recent city however, has no clear vestiges of occupation before the Hellenistic Period. The largest tall in the vicinity where occupational levels from the Early Bronze Age untill and including the first part of Iron Period II are attested, is Tall Zar'a. The question whether Tall Zar'a could have been ancient Q/ Gadara started to force itself on us, but a definitive answer should await more evidence. It implies for instance, that the inhabitants transferred the name of the old city to the new city of Gadara in Hellenistic times[18].

Gadara in Later Egyptian Texts

Gadara is not mentioned anywhere else in the lists of Sethi I. Neither on the Qurneh-sphinx from the Mortuary Temple of Sethi I, nor in the Abydos Temple, but this is perhaps due to the fragmentary state of these lists. From the reign of Ramesses II we possess quite a number of topographical lists, but they are for the greater part fragmentary and in some cases Semitic names have been replaced by new Nubian toponyms. For our investigation they offer little additional information. The first series of Sethi I: Pahil, Hammat, Beth-Shean and Yanu'am extended with the coastal cities and an occasional Transjordanian town (Qarat ᶜAnbu) were taken over by Ramesses II. It is certain that Ramesses II was able to consolidate and even to expand the territories conquered by Sethi I before and after the Battle of Qadesh (1274 BC). Not only did he set up his own stelae at Beth-Shean, but he also erected some along the coastal road (Nahr al-Kelb), one at Tyre and also some others in southern Syria, one at Qarnaim/Shaykh Sa'ad (later venerated as the "Stone of Job") and also the recently discovered stela at *Kiswe* south of Damascus (Yoyotte 1999: 44-58). From other documents and inscriptions we also learn that during the 19th Dynasty and the first part of the 20th Dynasty the frontier was maintained as far as Yanu'am, although Merenptah had to restore Egyptian authority there after a revolt in his 5th Year (Israël-stela 1207 BC).

The stela of *Kiswe* is not significant for its rhetorical content, but because of its particular date and provenance. It is dated in the 56th year of Ramesses II (1223 BC). As such it is an eloquent testimony that the area around Damascus (Upe) was still under Egyptian control about ten years before the death of Ramesses II, a situation to be continued under Merenptah[19] and his successors until and including Ramesses III, who had to admit in his 8th year (1176 BC) that the enemy took hold of former Amurru. He was forced to fall back to the military base at Beth-Shean which was renovated by him and became the seat of the Egyptian governor[20]. But before this beginning of the end of Egyptian rule in Canaan, there is evidence that the Ramessides had a number of other advanced bases and fortresses in the area supporting Egyptian administration (e.g. Megiddo, Jaffa, Tyre, Yanu'am and even in Upe).

Finally, we mention in support of our identification of *Tall Zar'a* as Gadara, a relevant passage

17. Ahituv 1984: 127; Kitchen 1992: 26. The town is also attested under Ramesses II (List XXIII+XXIV no 41, pAnast I, 22:4).
18. It is well known that such transfers of names took place, in particular if the new city replaced the old one at a short distance (e.a. Beth-Shean), but *Tall Zar'a* is located in the valley and Gadara is ca. 5km to the north on the ridge between the *Wādī al-'Arab* and the Yarmūk Valley. An interesting example of such a wandering toponym over a larger distance is Late Bronze-Early Hellenistic Paphos on Cyprus. It became Palaipaphos after foundation of the new harbour town Nea Paphos, 15km to the west of ancient Paphos and nowadays known as Paphos instead of the ancient centre of the Paphian Kingdom. Another question still to be answered is, how this name of Gadar(a) was kept alive during the occupational gap of four centuries from Iron II to Hellenistic times.
19. P. Anastasi III 1, 9-10; 7,10-11 mentions a certain Amenem-opet as royal overseer in the foreign lands from Sile to Upe. Further, there is a town called 'Town of Merenptah Hotep-Maat-Re in land of Aram' where an overseer of the stables, Pa-Mer-Khetem, son of Ani was staying (pAn III 5, 4ff), but who returned carrying letters of commander Pa-Re-em-heb (ANET 3, 258-9). It is suggestive to identify this town with the town called 'Rameses-Meri-Amun in Upe' , which is mentioned in the diplomatic correspondence of Ramesses II with the Hittite Court.

from the 'Satirical Letter' written by Hori to Amenemopet, a literary document dating from the beginning of the 12th century BC[21]. The author embarks in pAnast I:21, 2 on another subject describing a kind of itinerary. He leads us along Byblos, Beirout, Sidon, Sarepta, passes the river Litani, mentions Usu, that is inner-Tyre, and to Tyre-harbour on the sea-shore. At Accre he turns inland. From what follows it is evident that he moves into the direction of the River Jordan and the other side of the Jordan. After mentioning the road branching off to Hazor, he continues his way to Hammat. This may be either the Hammat south of Beth-Shean or a Hammat on the other side of the Jordan. After Hammat there is the remarkable sequence *há-má-ta da-ga-ra (det) da-ga-ar-'i-ir (det)* (usually read as Hamat, Dagan and Dagan-el). I wonder whether the strange sequence Dagan and Dagan-el contains a dittography and I suggest therefore a slight correction interchanging the first two groups of *da-ga-ra* restoring the sequence *há-má-ta ga!-da!-ra.* This name is comparable to the well known topographical combination Hammath-Gader from the Talmud and Midrash in order to distinguish this Hammath from others. But even if we should read here two separate names, it is probable that Hammat on the Yarmūk is meant, followed by nearby Gadara and the still unknown town of Dagan-el, as the author calls it, the parade-ground of every *mahir* (kind of soldier), suggesting that we deal here with an important military approach.

Conclusion

In conclusion it may be observed that in spite of the fact that the author of the Satirical Letter mentioned a road branching off to Hazor, he continued to describe the road to Syria passing the River Jordan below the Lake Kinneret through the Valley of Beth-Shean and only from there turned northwards into Syria. It could imply that the author was familiar with a military road passing by Gadara (eventually Hammat Gadara) to the area north of the Yarmūk, which he describes in the next paragraph (22.2). Gadara, which appears on the map of the ancient Near East in the reign of Sethi I (ca 1293 BC), is known until the beginning of the Early Iron Period (pAnast I:21.2). In all probability, this town may be located at the site of Tall Zar'a as the Late Bronze and Early Iron Age predecessor of the more recent Gadara/Umm Qays

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Bibliography:

Aharoni, Y.
1979 *Land of the Bible.* Philadelphia: The Westminster Press.

Ahituv, S.
1984 *Canaanite Toponyms in ancient Egyptian Documents.* Leiden: Brill.

Albright, W.F. and Rowe, A.
1928 A Royal Stele of the New Empire from Galilee. *Journal of Egyptian Archaeology* 14: 286-287.

Allen, J.P.
2002 The Craft of the Scribe (3.2) (Papyrus Anastasi I), in W.W. Hallo (ed.), *The Context of Scripture. Archival Documents from the Biblical World.* Leiden: Brill.

Conrad, D.
1985 Historisch-Chronologische Texte III, in O. Kaiser (ed.), *Texte aus der Umwelt des Alten Testaments.* Gütersloh: Mohn.

Chéhab, M.
1969 Noms de personnalités égyptiennes découverts au Liban. *Bulletin du Musée de Beyrouth* 22: 1-47.

Dornemann, R.H.
1983 *The Archeology of the Transjordan in the Bronze and Iron Ages.* Milwaukee: Milwaukee Public Museum.

Finkelstein, I.
1995 The date of the Settlement of the Philistines in Canaan. *Tel Aviv* 22: 213-239.

Fischer-Elfert, H.W.
1986 *Die Satirische Streitschrift des Papyrus Anastasi I. Übersetzung und Kommentar* (Ägyptologische Abhandlungen 44). Wiesbaden: Harrasowitz.

Franken, H.J. and Kalsbeek, J.
1969 *Excavations at Deir 'Alla I. A Stratigraphical and Analytic Study of the Early Iron Age Pottery.* Leiden: Brill.

Franken, H.J. and Steiner, M.L.
1990 *Excavations in Jerusalem 1961-1967, Vol. II. The Iron Age Extramural Quarter on the South-East Hill.* Oxford: Oxford University Press.

Helck, W.
1962 *Die Beziehungen Ägyptens zu Vorderasien im 3. und*

20. See ANET 3: 262. If the title "Lord of the Jubilee" found on one of de limestone doorposts discovered at Beth-Shean applies to Ramesses III, it may be assumed that Egyptian rule of northern Canaan lasted even until the second part of the 12th century BC; see for the rather late collapse of Egyptian rule and administration in Canaan, I Finkelstein 1995: 213-239.
21. Fischer-Elfert 1986; other translations J.A. Wilson, ANET 3: 475-479; Allen 2002: 3, 9-14; Wente 1990: 98-110.

2. Jahrtausend v. Chr. (Ägyptologische Abhandlungen 5). Wiesbaden: Harrassowitz.

Hoch, J.E.
1994 *Semitic Words in Egyptian Texts of the New Kingdom and the Third Intermediate Period.* Princeton: Princeton University Press.

Kitchen, K.A. (ed.)
1969- *Ramesside Inscriptions* (7 vols.) London: Blackwell.

Kitchen, K.A.
1992 Egyptian Evidence on Ancient Jordan. Pp. 21-34. In P. Bienkowski (ed.), *Edom and Moab. The beginning of the Iron Age in Southern Jordan.* (Sheffield Archaeological Monographs 7). Sheffield: Collis.

Murnane, W.J.
1985 *The Road to Kadesh.* Chicago: Oriental Institute.

Noth, M.
1971 *Aufsätze zur biblischen Landes- und Altertumskunde 2.* Neukirchen-Vluyn: Neukirchener Verlag.

Porter, B. and Moss, R.
1927- *Topographical Bibliography of ancient Egyptian Hieroglyphic Texts, Reliefs and Paintings* (7 Vols). Oxford: Clarendon Press.

Redford, D.B.
1992 *Egypt, Canaan and Israel in ancient Times.* Princeton: Princeton University Press.

Rowe, A.
1930 *The Topography and History of Beth-Shan.* Philadelphia: University Press/University of Pennsylvania Museum.

Simons, J.
1937 *Handbook for the Study of the Egyptian Topographical Lists relating to Western Asia.* Leiden: Brill.

Sivan, D. and Cochavi-Rainey, Z.
1992 *West Semitic Vocabulary in Egyptian Script of the 14th to the 10th Centuries BCE* (Studies by the Department of Bible and Ancient Near East VI). Beer-Sheva: Ben-Gurion University of the Negev Press.

Wente, E.F.
1990 *Letters from Ancient Egypt* (Writings from the Ancient World/Society of Biblical Literature 7). Atlanta: Scholars Press.

Yoyotte, J.
1999 La stèle de Ramsès II à Keswé et sa signification historique*. *Bulletin de la Société Francaise d'Égyptologie* 140: 44-58.

Zwickel, W.
1994 *Der Tempelkult in Kanaan und Israel* (Forschungen zum Alten Testament 10). Tübingen: Mohr.

THE FIRST PRELIMINARY REPORT OF THE WĀDĪ AR-RAYYĀN ARCHAEOLOGICAL PROJECT[1]: THE SURVEY OF AL-KHAWĀRIJ

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Introduction

Over the last twenty-five years, since the Hennessy's excavations at Tulaylāt al-Ghassūl, there has been renewed interest in the protohistoric development of Jordan, and the Chalcolithic period in particular. Hennessy's excavations sought to address specific questions concerning the development of the site of al-Ghassūl, the 'type site' of the Chalcolithic, and the ways in which Chalcolithic communities managed their environment. Excavations since this time, both at al-Ghassūl and elsewhere, have enabled a much broader understanding of the period within the Jordan Valley. Much less attention has been paid to the upland regions.

With notable exceptions (Ibrahim 1972, 1974, 1975; Lamprichs 1998; Banning *et al.* 1998, 2004) most excavations in Jordan have concentrated on lowland areas (e.g. al-Ghassūl, Abū Ḥāmid etc.). These lowland excavations have clearly demonstrated the importance of olive cultivation during the Chalcolithic (Neef 1990; Meadows 2001). We know that olives tend to grow best at higher altitudes and this would suggest that high altitude regions were widely exploited in the Chalcolithic, and yet high altitude regions have remained underexplored. The Wādī ar-Rayyān Archaeological Project (WRAP) aims to redress the imbalance.

During the Wādī al-Yābis survey conducted by Jonathan Mabry and Gaetano Palumbo (Mabry and Palumbo 1988; Palumbo *et al.* 1990) two Chalco-Early Bronze Age sites were located – Jilmit ash-Shariyya (WY 120) and al-Khawārij (WY 116)[7]. These sites form the basis of WRAP, begun by the University of Sydney in 2003. The site of al-Khawārij is located 1.75km from the modern village of Ḥalāwa on a wide flat terrace overlooking the Wādī an Nawm, while Jilmit ash-Shariyya lies on the opposite side of the Wādī an-Nawm in a modern olive grove near Tall ar-Rās. The area was surveyed by Nelson Glueck in his early surveys of the region (Glueck 1951). While Glueck mentions the classical period remains at Dayr al-Ḥalāwa (his site 235) and the dolmen field, he appears to have missed the Chalcolithic site associated with it (1951: 223-224).

During a first visit to both sites in 2001 a considerable number of rock-cut pits and installations on the surface were noted, in addition to Chalco-EBA ceramics, and a large number of chipped stone tools and groundstone pieces. Al-Khawārij appeared to be the larger of the two sites and was not affected by modern olive cultivation. It was clear that the site held considerable potential for excavation that could provide evidence for agricultural processing and ancient olive cultivation[8].

A First Season of Work

The first season of work[9] consisted of an intensive survey of al-Khawārij in November-

1. We particularly thank, Dr Fawwaz Al-Khraysheh, Director General of the Department of Antiquities and his staff in the 'Ammān and 'Ajlūn offices for generous assistance during our time in Jordan. The Wādī ar-Rayyān Archaeological Project is funded by the Australian Research Council. A reconnaissance survey in 2001 was funded by the Australian Academy of the Humanities. The project is based at the University of Sydney, Australia and we thank His Excellency, John Tilemann, and his staff at the Australian Embassy in 'Ammān, for invaluable logistic support.
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7. I would like to thank Jonathan Mabry and Gaetano Palumbo for their kind assistance and advice while setting up the project.
8. For further discussion of research ideas see Lovell (2002).
9. Dr. Jaimie Lovell (Director), Mr. Adeib I. Abu Shmeis (Dept of Antiquities Representative), Dr. Bruce McLaren (Field Director), Mr. Kerry Platt (Surveyor), Mr. Angus Browne (Archaeologist and photographer), Mr. Tobias Richter (Chipped stone), Mr. Jamie Fraser (Archaeologist and draftsperson), Ms. Melissa Kennedy (Student and draftsperson), Ms. I. Katherine McRae (Student, ground stone and draftsperson), Mrs. Patty Henderson (Assistant) and Mr. Aladdin Madi (Camp Manager). Special thanks to Kat McRae, Mel Kennedy and Jamie Fraser for the drawings reproduced here.

December 2003. The aim was to map the frequency of artefact scatters and to produce a detailed map of the visible surface features. As we indicated above, a number of surface features had already been noted during previous visits to the site and it was therefore important to measure the extent and frequency of these features in order to help define the boundaries of the site. In addition, a detailed map of these features will allow later excavated material to be more easily contextualised.

A subsequent aim was to plot any evidence of artefacts dating to periods other than the Chalco-EB. In previous visits to the site Byzantine sherds were noted only in very small numbers but nevertheless it was considered important to be able to reduce the risk of excavating in areas where there may be later material. Thus the objective of this season was to isolate clean scatters of Chalco-EB material where there were significant surface features in order to best locate areas for excavation in 2004. A subsidiary, but nonetheless vital, objective was to talk to all local land-owners regarding future excavation.

Methodology

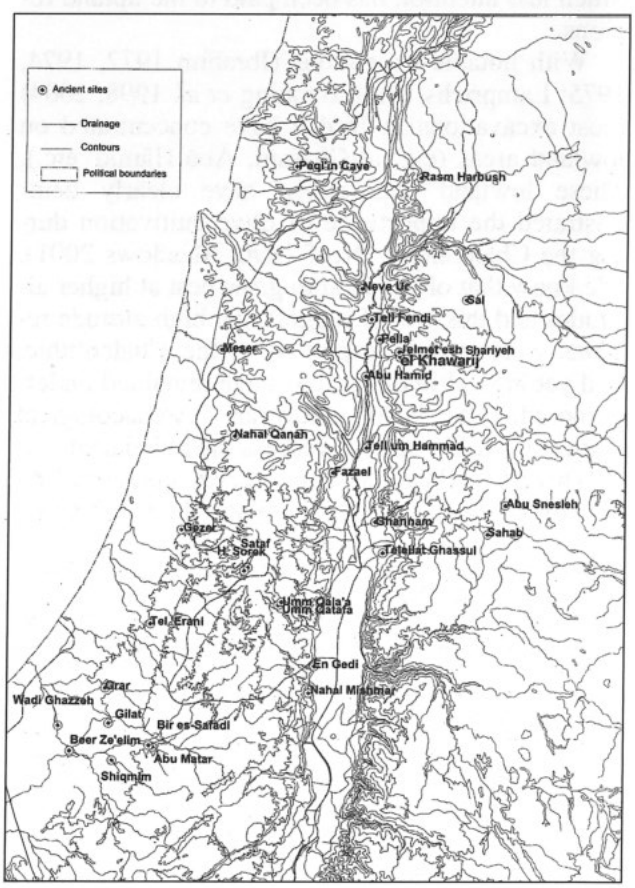
Given that we wished to establish artefact frequency it was important to generate a consistent measure of artefact numbers. Thus each unit of the survey area had to be dealt with in exactly the same way with walkers spaced evenly across the units. It was decided to grid the site into 50 x 50m units, and to walk each unit spaced 10m apart. The grid was established first by the surveyor and an assistant. Corner points for each 50 x 50m unit were marked in spray paint and a survey ribbon was tied to a nearby tree. While it was important that grid numbers were clearly legible, every effort was made to make as little impact on the environment as possible.

Units were named according to their northeast corner point. A team member was positioned at 5m, 15m, 25m, 35m and 45m from the southwest to southeast corner of the unit and each team member was equipped with a plastic bag and a 'tally counter'. The team members then walked in a northerly direction along their transect, remaining 10m apart. The tally counters were used to count every artefact noted by the team member within the space 1m to the west and 1m to the east of their transect line (thus the team member was only counting artefacts within a 50 x 2m area, and of a total unit (2500m^2) only 500m^2 was actually covered and 'counted', *i.e.* a unit consisted of 5 transects, equivalent to area of 50 x 10m). The counts of artefacts for whole units therefore provides a figure for the density of artefacts across the landscape. A selective sample of the artefacts was collected for the typological and chronological study.

In addition to counting artefacts any features (visible surface fixtures, for instance a wall, a dolmen or any cut in the bedrock like a cup-hole or a vat) within the unit were located on a sketch plan by the field director and later planned and/or plotted. By the end of the 5 weeks an area of 2.35ha was intensively surveyed in this way (*i.e.* 94 units) and ca 900 features were recorded.

Results

Al-Khawārij appears to exhibit artefacts along the length and breadth of the long terrace described by Palumbo *et al.* in their original preliminary publication (1990: 101). We felt confident that we had located the extent of major occupation as significant drop-off in artefact densities was noted at the edges of our survey area (**Fig. 1**). We highlighted three major areas where dense artefact scatters coincided with the remains of rectilinear structures. However, it is likely that the Chalco-EB inhabitants used land well beyond the survey area. Certainly some of the rock cut features and extant



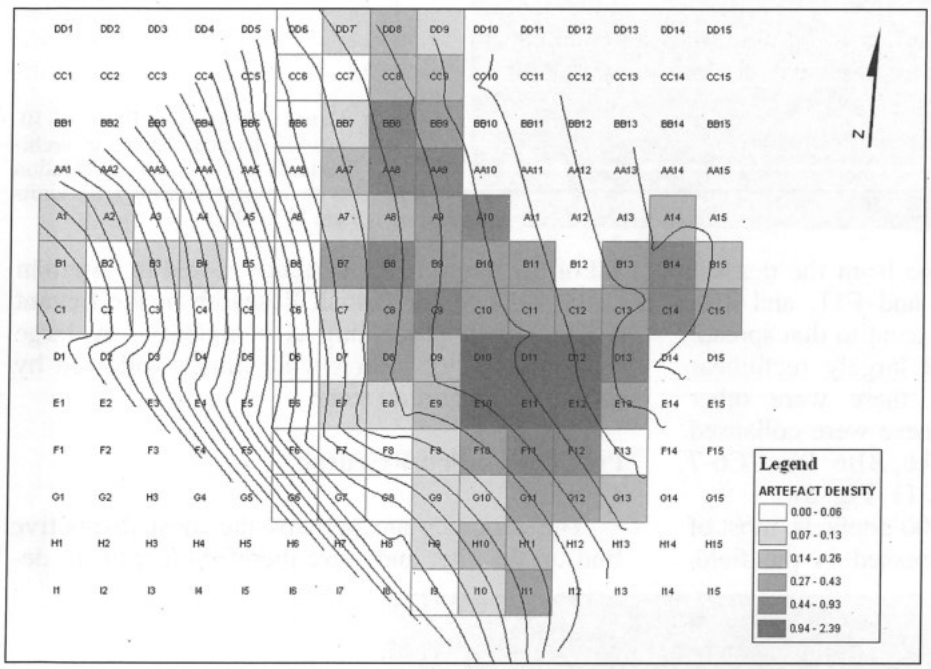
1. Map of southern Levant showing location of al-Khawārij and Jilmit ash-Shariya, Wādī ar-Rayyān.

walls date to post EBA times, and there is evidence of Byzantine cisterns and wellheads within our survey area, but the vast majority of artefacts recovered dated to the Chalco-EB periods.

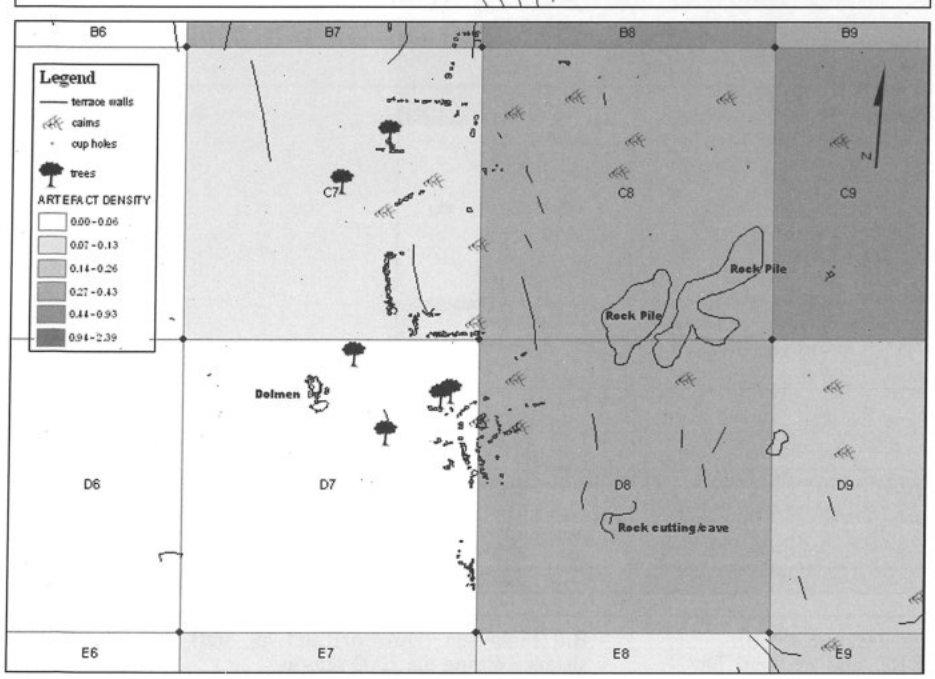
The area was certainly used by locals while we were conducting the survey. We met several shepherds and local farmers who made use of the land during our time there, and by the end of our survey winter ploughing was just beginning (see below).

As can be clearly seen from (**Fig. 2**), the units with the highest densities of artefacts were D10, D11, D12, E10, E11 and E12. These units were located in the southern portion of the site, divided from the terrace by a gully that ran down to the Wādī an-Nawm. Occupation of the site was therefore not limited to the flat terrace (where high densities were also recorded in units B8, C8 and C9 and BB8 and AA8-9), but extended south of the gully on this slightly higher spur, which overlooked the wadi and the northern area of the site. These two areas came to be referred to as 'the terrace' and 'the spur'.

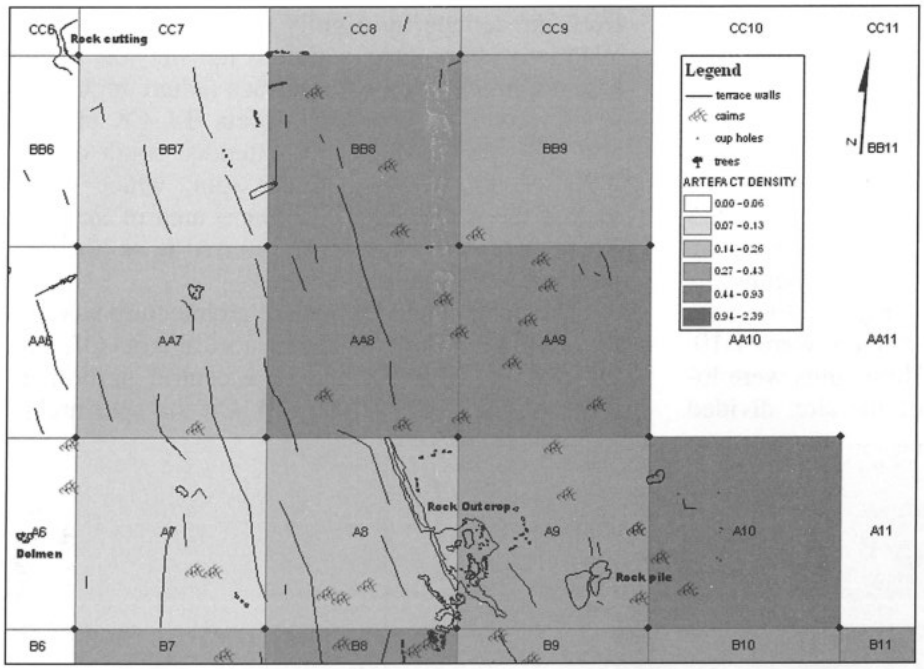
The main concentrations of architecture were in the southern portion of the terrace, in units C7, C8, D7 and D8 (**Fig. 3**), and in a central portion in units A8, B8 and A9 (**Fig. 4**). On the spur archi-



2. Plan of al-Khawārij survey area, showing units shaded according to artefact densities (note contours are 35 m apart and schematic, derived from EDM points and units are 50 x 50m).



3. Detail of units C7-8 and D7-8, southern terrace, showing architectural remains in association with artefact density (NB Units are 50 x 50m).



4. Detail of units BB7-9-A7-10, central terrace, showing architectural remains in association with artefact density (NB Units are 50 x 50m).

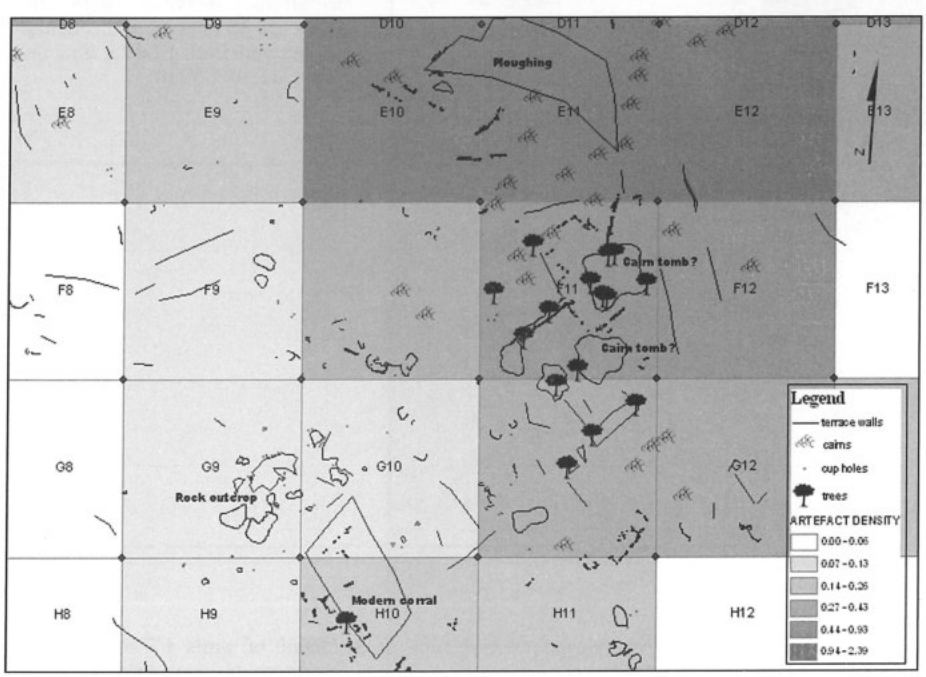
tecture was visible up the slope from the densest artefact spread (units E10-11 and F11, and also G10 and G11 – **Fig. 5**) and adjacent to that spread. In addition to these traces of largely rectilinear stone architectural features[10], there were other stone built features of note. These were collapsed dolmens (noted in units A6, AA6, BB6, B7, CC6-7 and D7) and cairn tombs (unit F11, **Fig. 5**).

In total we collected circa 900 artefacts, most of which were preliminarily processed in the field. All of the artefacts are currently stored in 'Ammān at the Council for British Research in the Levant (CBRL) until processing is complete[11]. A large proportion of the artefacts are lithics, followed by ceramics and ground stone.

Post-Excavation Research

Ceramics

The ceramics are perhaps the most distinctive find on the site, and were therefore helpful in de-



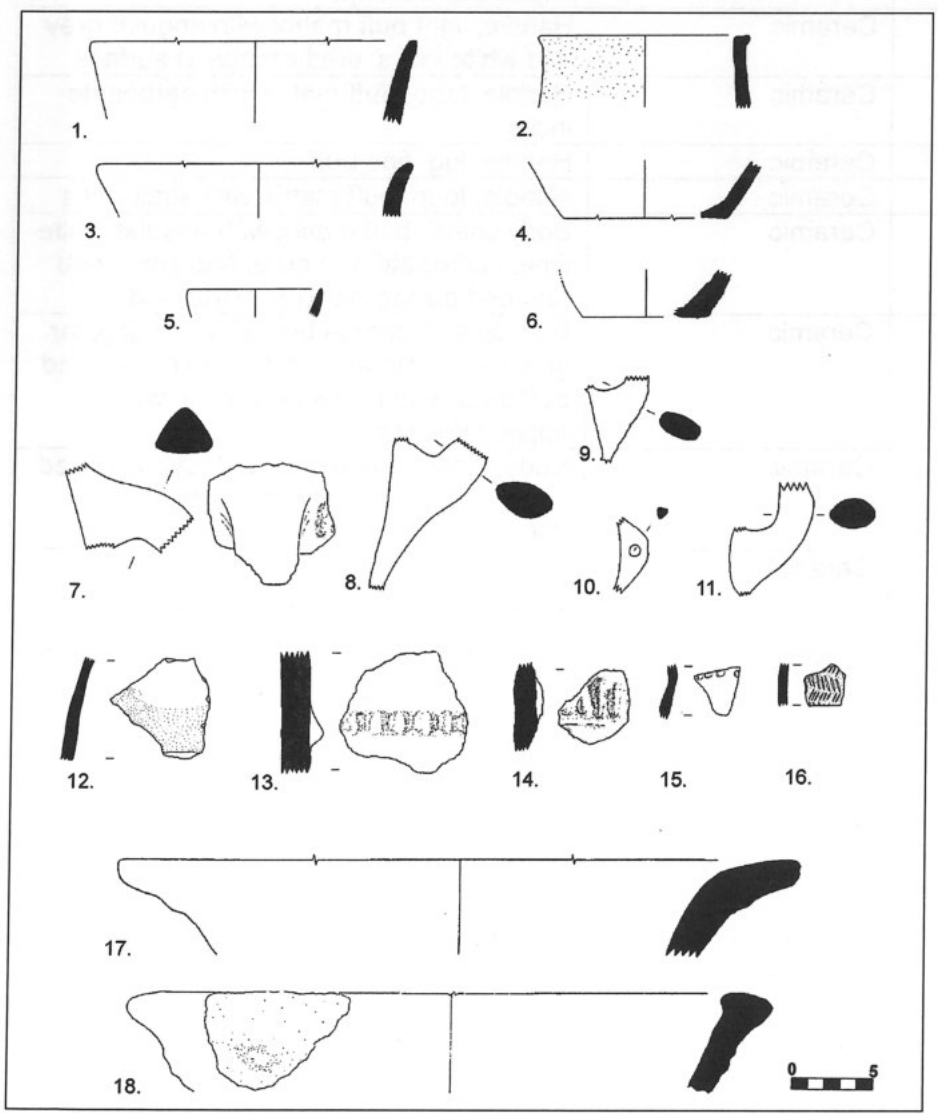
5. Detail of units E9-12 – H9-12, spur, showing architectural remains in association with artefact density (NB Units are 50 x 50m).

10. We did locate one circular wall feature (feature 455/6).

11. The WRAP is affiliated with the CBRL, and we thank Dr. Bill Finlayson (Director) and his staff for valuable assistance during the 2003 season.

termining the date of artefact scatters in general. However, as is common in survey work, the ceramics were often highly abraded by plough-agriculture or affected by other surface processes. The orange-red fabrics made up most of the ceramics and this possibly accounts for the fact that they were less common in the survey sample; they may have been difficult to see against the *terra rosa* soil. The distinction between the latest Chalcolithic and earliest Early Bronze Age continues to be illusive. Material from survey is notoriously difficult to date precisely and practitioners often fall back on 'Chalco-EB', thus creating a wealth of sites that span a very long time period. It is suggested here that this site may relate to other sites in the Wādī al-'Arab that Hanbury-Tenison tentatively termed "post Ghassulian" (Hanbury-Tension *et al.* 1984). 'Diagnostic' pieces within our sample were extremely infrequent and paint and slip rarely survived. Nevertheless it was possible to preliminarily date most sherds, via their fabric and manufacture, on the basis of comparison with nearby tall sites and sequences.

The majority of the sherds were dated to the late prehistoric. While in some cases it was possible to place them clearly within a late Chalcolithic phase, in other cases the term Chalco-EB was used. Within the diagnostic Chalcolithic and Chalco-EB material the most commonly identified types were jars (**Fig. 6: 3, 16-17**) and handles (**Fig. 6: 7-11**), these made up 90% of the collected sample. Whilst this may have been affected by visibility on the ground, it seemed to be mirrored by the number of body sherds from jars (**Fig. 6: 13-14**). Bowls (**Fig. 6: 5**) and basins (**Fig. 6: 1**) were also noted. Painted (**Fig. 6: 12**) and incised/slipped pieces (see **Fig. 6: 16**) were rare, the latter perhaps argue for a limited earlier Late Neolithic/Early Chalcolithic use of the site. In terms of spatial distribution there was a heavier concentration of ceramic artefacts in the

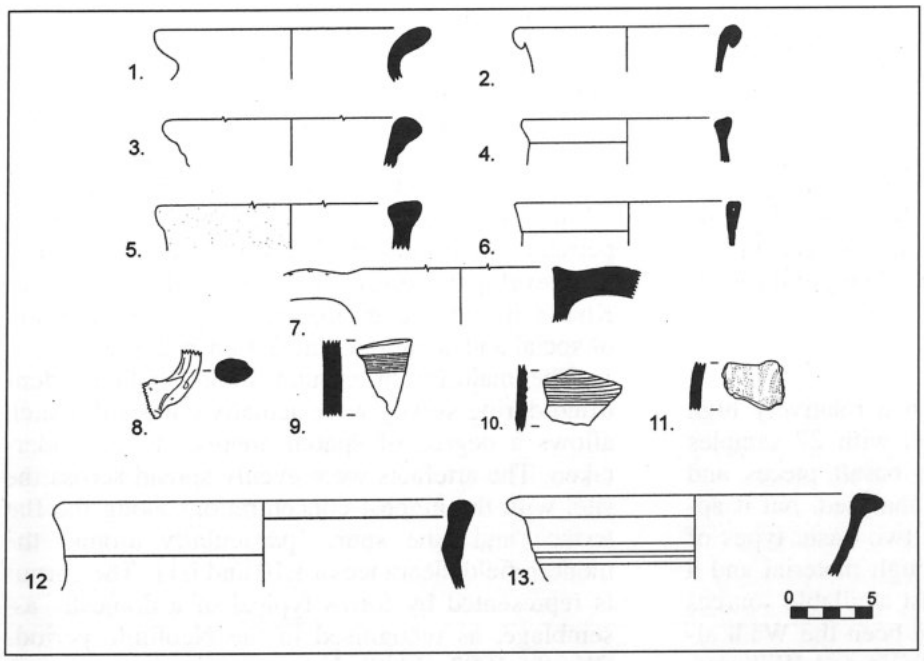


6. Chalcolithic – Early Bronze Age ceramics from al-Khawārij.

Figure	Unit	Cat No	Artefact Category	Description
6.1	D10	50	Ceramic	Basin, coarse orange buff matrix with shell incl.s
6.2	BB8	34	Ceramic	Jar / fen. stand, buff matrix with angular carbonate, red grog and shell incl.s; traces of red slip ext.
6.3	D12	54	Ceramic	Jar, necked, buff fabric
6.4	D11	155	Ceramic	Base, flat, fine buff with small sub rounded grey and white incl.s; orange slip ext./int.
6.5	D9	100	Ceramic	Bowl, small, orange buff with some small sub rounded white lime and carbonate incl.s
6.6	B9	36	Ceramic	Base, rough, buff matrix with many shell and carbonate incl.s; fired greyish at core
6.7	C11	130	Ceramic	Handle, coarse buff with many large sub angular grey carbonates and white lime incl.s and some red incl.s; applied / impressed dec. ext
6.8	B9	15	Ceramic	Handle, light buff matrix with angular grey and white incl.s; fired orange at surface
6.9	B9	6	Ceramic	Handle, loop, buff matrix with carbonate incl.s
6.10	D11	183	Ceramic	Handle, lug, fine buff
6.11	B8	86	Ceramic	Handle, loop, buff matrix with shell incl.s
6.12	C15	81	Ceramic	Body sherd, buff matirx with angular white lime, carbonate and grog, and some sub rounded quartz incl.; red bands ext.
6.13	E12	58	Ceramic	Body sherd, coarse buff with sub angular grey carbonate and white lime incl.s; fired buff throughout, orange slip int. with applied dec ext.
6.14	A9	26	Ceramic	Body sherd, coarse buff with sub rounded and sub angular chert incl.s thumb imp dec
6.15	C8	47	Ceramic	Body sherd, dark grey buff matrix with angular white lime and grog incl.; fired orange at core, incised dot dec. ext
6.16	+	172	Ceramic	Body sherd, buff matrix with basalt incl.s; fired orange at surf int, incised dec. and red slipped ext
6.17	A8	93	Ceramic	Jar, storage, coarse buff
6.18	AA9	8	Ceramic	Jar, storage, coarse orange - grey buff with large carbonate incl.s and applied imp. dec., traces of self slip.

south of the site (units D-H), but despite this there was approximately the same proportion of open to closed vessels in each area.

Figure 7 shows a sample of the later material, ranging from the Middle Bronze to the more recent periods. Parallels, where available, are listed against the caption in the table. In terms of spatial distribution across the site the highest concentration of Roman/Byzantine sherds came from the top of the hill overlooking the terrace (A2-3 and B1-3), but there were also some higher concentrations on the spur that largely corresponded with the plough



7. Later period ceramics from al-Khawārij.

Figure	Unit	Cat No	Artefact Category	Description
7.1	E12	61	Ceramic	Jar, outflaring rim, fairly finely levigated buff fabric, MBA(?)
7.2	E12	85	Ceramic	Jar, tall neck, fairly finely levigated buff fabric, IA(?), cf *Pella II* pl. 52.15; 67.8
7.3	E12	151	Ceramic	Jar, tall neck, fairly finely levigated buff fabric, MBA Amiran 1969: pl. 32.1
7.4	AA8	13	Ceramic	Jar, short neck, hard fired orange buff with grey core, Byzantine, cf *Pella II* 111.2
7.5	D10	57	Ceramic	Rim, African Red Slip, Roman
7.6	B1	14	Ceramic	Jar, rim? Hard fired orange buff with grey core Late Hellenistic - Byz (?), cf *Pella II* 78.8
7.7	F11	153	Ceramic	Jar, handled, hard fired orange buff, Byzantine (?)
7.8	B2	19	Ceramic	Handle, loop frag., creamy orange buff, Roman / Byzantine (?)
7.9	A2	2	Ceramic	Body sherd, biscuit buff fabric with combed incision, *Pella II* pl. 26.13
7.10	B8	48	Ceramic	Body sherd, hard biscuit fired orange, grey at core, ribbed surface, Byzantine
7.11	+	162	Ceramic	Body sherd, buff with white slip and brown painted dec, Mamluk
7.12	E12	87	Ceramic	Jar, hard fired buff, IA, see *Pella II p. 51.1/4*
7.13	AA7	168	Ceramic	Bowl, Orange buff, grey ext, mod./medieval (?)

zone and unit B14. In no case was there architecture that could be associated with these concentrations. We also encountered a small amount of Middle-Late Bronze Age and some Iron Age material. This was much more localised, especially around the units of E11, F11 and G11-12 suggesting that the architecture noted in G11 and H11 (**Fig. 5**) may, in fact, date to a later period.

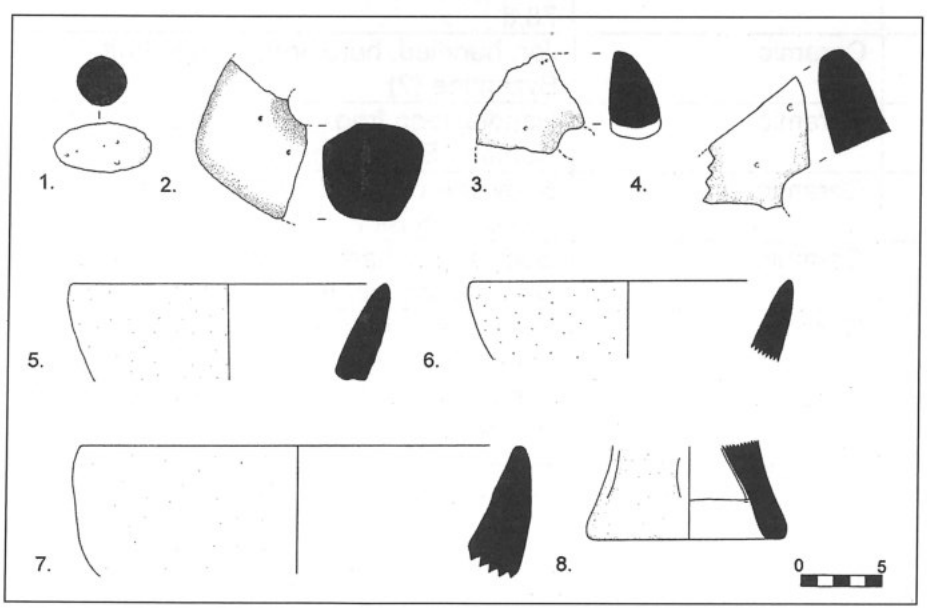
In general, it may be stated that our impression is that while Chalco-EB material was found right across the site, the later material is present as very low density 'background noise' in most areas. There are some areas where higher concentrations of MB-LB and Iron material were found (southern spur area), and Roman/Byzantine material was slightly more prevalent on the hill top area and on the very tip of the spur, where a late period well-head was also located.

Ground Stone

There appears to have been a relatively high number of ground stone items, with 27 samples picked up. Most of these are basalt pieces and have not yet been adequately analysed, but it appears that the corpus includes two basic types of raw material: a large-pored, rough material and a finer grained-basalt. The closest available sources for basalt would probably have been the Wādī al-'Arab and Sal outcrops (see Philip and Williams-Thorpe 1993: 15, fig. 1), although it is clear from recent work on basalt provenance that sites of this period are procuring at least some of their basalt or basalt vessels from sources well beyond their normal catchment area (Philip and Williams-Thorpe 2001).

In general the large-pored material noted above appears to have been used for large querns, but it was also picked up in the form of small fragments. The finer grained material appears to have been more commonly observed in bowls and fenestrated stands. This is consistent with other Chalcolithic-Early Bronze Age assemblages where the very porous material appears to be reserved for querns (see Philip and Williams-Thorpe 2001: 26), agricultural tools and occasionally grinding stones and pestles (see also Epstein 1998: 231ff). Given the increasingly complex picture of procurement and production of ground stone in the later prehistoric periods (Philip and Williams-Thorpe 1993, 2001) the developing study of the ground stone at al-Khawārij will be an important aspect in the study of social and economic interaction at the site.

The majority of ground stone artefacts identified during survey were actually collected, which allows a degree of spatial analysis to be undertaken. The artefacts were evenly spread across the site, with the highest concentrations along the flat terrace and "the spur," particularly around the modern field clearance of E10 and E11. The corpus is represented by forms typical of a domestic assemblage, as recognised in the Neolithic periods (Wright 1993, 2000), but as yet inadequately examined in a Chalcolithic-Early Bronze Age context[12]. Among the items collected were a number of V-shaped bowl fragments, typical of the Chalcolithic (**Fig. 8: 5-6**), rounded bowls (**Fig. 8: 7**), loom-weights or *dibble* sticks/'digging-stick weights' (**Fig. 8: 2-3**; *cf* Epstein 1998: 236), a grinding pellet (**Fig. 8: 1**) and a fenestrated stand (**Fig. 8: 8**). It should be noted that most of the bowl fragments were rims, however one – as yet – unidentified fragment may be identified as the foot of a fenestrated or "footed" bowl another form confined to the Chalcolithic.



8. Ground stone from al-Khawārij.

12. Although note Wright *et al.* in press.

Figure	Unit	Cat. No.	Artefact category	Description
8.1	A14	94	Ground stone	Basalt pounder or pellet shaped piece
8.2	B9	7	Ground stone	Squared perforated basalt piece, loom weight (?)
8.3	A9	25	Ground stone	Perforated basalt piece, loom weight (?)
8.4	B7	90	Ground stone	Squared perforated basalt door socket or loom weight
8.5	AA9	9	Ground stone	Fine basalt V-shaped bowl, rim abraded
8.6	C15	182	Ground stone	Fine basalt V-shaped bowl
8.7	D8	91	Ground stone	Basalt round-sided bowl
8.8	C9	10	Ground stone	Basalt fenestrated stand

Despite the variation of ground stone vessels and tools collected from al-Khawārij the corpus is best represented by 'V'-shaped or rounded bowls and querns. The majority of quern fragments, with the three perforated pieces, were collected along the flat terrace. Querns were produced specifically for the purpose of milling and it has been postulated that variations of these were used as crushing basins in the production of oil (Epstein 1993: 136). Given the porous nature of the quern fragments collected from al-Khawārij this is unlikely, however all of the quern fragments were collected from areas near to rock outcrops with cup holes and vats spread across the terrace. The highest concentration of bowls on the other hand is along "the spur" and all bowls were picked up in squares with associated architecture. The fenestrated stand was collected just east of two rock piles in C8. It is possible these are cairn tombs similar to those in F11 and the presence of the fenestrated stand may be significant.

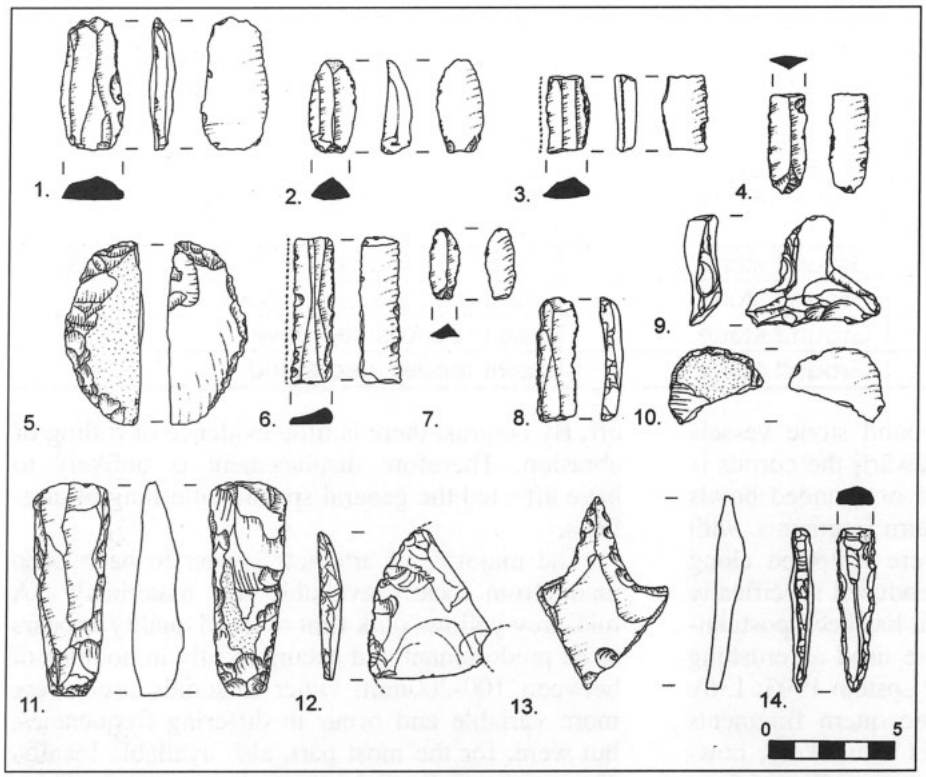
Chipped Stone

The chipped stone material represents the majority of materials collected. Every effort was made to analyse their character and spatial distribution. Thus far nearly two thirds of the material has been completely analysed[13], and the majority of these pieces were broken or fragmentary which sometimes precluded full typological classification. As noted above, this is probably a result of recent plough or other agricultural processes. There was also evidence of thermal damage on a large number of pieces from grass fires or agricultural burnoff. By contrast there is little evidence of rolling or abrasion. Therefore displacement is unlikely to have affected the general spatial patterning of artefacts.

The majority of artefacts appear to have been made from locally available raw materials[14]. A mid-grey yellow/ pink flint of good quality appears to be predominant and occurs locally in nodules of between 100-200mm. Other materials used were more variable and occur in differing frequencies, but were, for the most part, also available locally. The nature of the pick-up precludes statistical patterning but it is possible that an orange-brown, coarse flint was preferred for the manufacture of axes and chisels.

A total of 460 retouched pieces were collected, and although the assemblage was dominated by 'ad hoc' tools, a number of more formal tool types were also present. Backed and unbacked blades were the single most abundant type (see **Fig. 9: 1, 2, 4**). A few regular, fairly narrow blades (often referred to as 'Canaanean blades') were identified[15] as well as 2 arched-backed blades, and some 15 straight-backed blades (**Fig. 9: 8**). The vast majority were simply retouched blades. Bladelets were also present (**Fig. 9: 7**), with one example identified as a microendscraper[16]. Sickle blades and segments (e.g. **Fig. 9: 3, 6**) were identified via the presence of gloss. Both backed and unbacked sickle blades were present. Most backed sickles were prismatic, double truncated segments displaying gloss and use-related, fine retouch along the non-backed edge. This would seem to point to a Chalcolithic date (see Rosen 1997: 60).

13. The typological classification is based on Rosen (1997: 40), while attribute description is orientated on Inizan *et al.* (1992). Due to the strategy little can be said about the technological aspect of chipped stone tool production. This will be addressed via the examination of the excavated assemblage.
14. The local character of the assemblage was determined by a brief raw material survey of the Wādī an-Nawm. Nodules of materials used on site occur here in exposed wadi sections and on the floor of the wadi bed. Identification was based on hand-lense observation and colour comparisons of the parent material and the cortex. Although this method can be seen as a fairly rough analysis (Odell 2003) it is nevertheless likely that the identified localities were locations of raw material procurement.
15. For a discussion of 'Canaanean' blades within Chalcolithic contexts see Rowan and Levy 1994, but see also Rosen 1997: 101, n. 2.

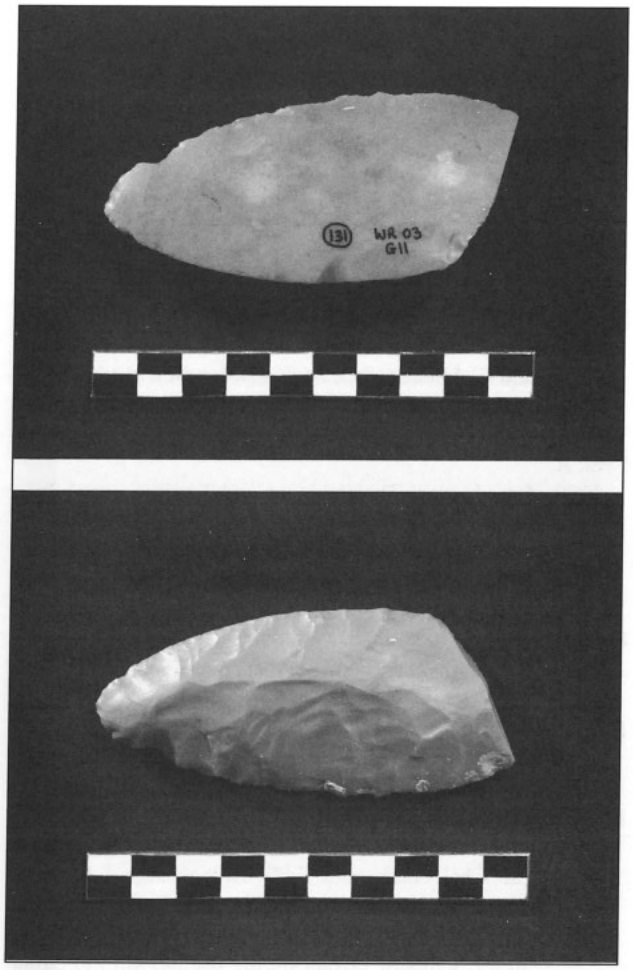


9. Lithics from al-Khawārij.

Figure	Unit	Cat No.	Artefact category	Description
9.1	E12	1246	Lithic	Simple, non-prismatic retouched blade
9.2	E12	1209	Lithic	Simple retouched blade
9.3	D12	1359	Lithic	Backed and truncated sickle blade segment
9.4	E12	1248	Lithic	Prismatic, simple retouched blade
9.5	D10	1204	Lithic	Tabular scraper-knife
9.6	B8	1254	Lithic	Backed and truncated sickle blade segment
9.7	B7	1262	Lithic	Retouched bladelet
9.8	E10	1010	Lithic	Straight-backed blade
9.9	D11	(184)	Lithic	T-shaped piece
9.10	E10	1263	Lithic	Tabular scraper fragment
9.11	+	1217	Lithic	Straight edge axe
9.12	E12	(171)	Lithic	Holed Disc
9.13	G11	1231	Lithic	Drill
9.14	C10	(140)	Lithic	Chisel

Borers (**Fig. 9: 13**) and scrapers were present in moderate numbers. Amongst the borer group a microlithic drill is notable. This appears as somewhat unusual as such pieces are commonly thought to be restricted to Gaza and the Negev (Rosen 1997: 71). Tabular scrapers (**Fig. 9: 5, 10**) appear in a variety of forms, although not in large numbers, and are all made of the same raw material – a local dark – brown nodular flint. The classification of these pieces was sometimes difficult due to their often fragmentary nature. No classic fanscrapers were found.

Three unifacial invasively retouched knives were collected. All of these knives were remarkably uniform in colour and showed a high complexity of the dorsal removals. Both these aspects in addition with the absence of macroscopic use-wear may indicate that these artefacts had a special significance and may have had a non-utilitarian function. The finest example (**Fig. 10**) was found in unit G11, in close proximity to the cairn tombs (see **Fig. 5**).



10.Unifacial knife, from unit G11.

The other notable class is the discs and holed tools (**Fig. 9: 12**). These rare artefacts are restricted to the Chalcolithic period (see Noy in Epstein 1998: 282-3). Their frequency at al-Khawārij (5 pieces evenly spread across the site) reinforces the Chalcolithic date of the assemblage. All of these tools were made from locally available material. 63 scrapers, 43 notches and denticulates, and 107 retouched flakes or pieces have been recorded in the survey collection. There is a great deal of variation across these 3 classes in form, as well as location of retouch types and retouch location.

Celts are common, particularly chisels (**Fig. 9: 14**), but also axes (**Fig. 9: 11**) and adzes. In one case we have a miniature axe from unit E12, northeast of the cairn tombs, which appears unused. The celts appear to have been made on site from local materials (evidenced by the presence of roughouts) and may have been connected with the agricultural or horticultural activity at the site. Levy has suggested these pieces were used as parts of hoes (Levy 1995: 230). However their relative size appears unsuitable for this kind of function. Based on the working hypothesis that settlement at al-Khawārij may be related to olive production one might be tempted to think that these tools were involved in pruning trees, digging or other activities typical of this kind of horticulture.

Apart from a few isolated Middle Palaeolithic tools, as well as one 'T'-shaped artefact (**Fig. 9: 9**) that may date to the early Islamic period (see Betts in Helms 1990: 159-168), the material is generally late prehistoric. The abundance of non-formal tools, such as simple retouched flakes, scrapers and notches/denticulates in conjunction with the presence of straight-backed, prismatic sickle blades and holed discs is consistent with a Chalcolithic assemblage. The low frequency of narrow, elongated prismatic blades, often referred to as 'Cananean blades', may indicate a transitional phase.

In the context of the sampling strategy, reliance on spatial patterns is clearly unwarranted, nevertheless some intriguing patterns did emerge that may repay evaluation during the later study of material from excavated contexts. For instance, it seems that the more northerly squares (DD-D) turned out significantly higher numbers of sickle blades when compared to the collection of materials from the spur to the south (squares E-I). In fact only one unbacked glossed blade was picked up in F9. This may relate to a higher intensity of harvesting or plant cutting activity towards the northern area of the site. In addition, celt roughouts only occur in the northern section of the site in areas AA8-9 and BB9, and C10, D8 and D10-11. Given that the overall frequencies of chipped stone artefacts indicate a high level of activity, or at least disposal, in this area it may be that one part of the lithic manufacture took place here. However, evidence for lithic production, apart from the celt roughouts, is ambiguous at this stage.

Discussion

The process of intensive site walking was extremely valuable in developing intimate knowledge of the site itself and issues that will direct later excavations. This is not to say that patterns on the surface are expected to reflect a direct relationship with the material below the surface. Indeed it is expected that more recent events in the life of the landscape will have considerably influenced taphonomy. For instance, the highest densities of artefacts were noted in the units that are known to be under cultivation today. The plough clearly has had a considerable effect on artefact visibility. Equally, modern activity has affected architectural remains, as the highest densities of stone cairns correlate with the edges of regions with the most

frequent architectural remains (units B8-9, AA8-9 and E11). Beyond this there will be other local geographic and geological issues that will influence erosion and artefact displacement.

The true value of field walking will only be tested with extensive excavation across all areas of the site. The foregoing discussion has pointed to valuable research questions and has underlined the potential of the site. It is our hope that excavations in 2004 will be able to further contribute to the question of late prehistoric olive production and the Chalco-EBA transition.

References

Banning, E., Blackham, M. and Lasby, D.
1998 Excavations at WZ 121, A Chalcolithic Site at Tubna, in Wadi Ziqlab. *ADAJ* 42: 141-59.

Banning, E.B., Gibbs, K., Gregg, M., Kadowaki, S. and Maher, L.
2004 Project gallery: Excavations at a Late Neolithic site in Wadi Ziqlab, northern Jordan. *Antiquity* 78/302.

Helms, S.W.
1990 *Early Islamic architecture of the desert : a Bedouin station in Eastern Jordan.* Edinburgh : Edinburgh University Press.

Epstein, C.
1993 Oil Production in the Golan Heights during the Chalcolithic Period. *Tel Aviv* 20: 133-146.
1998 *The Chalcolithic Culture of the Golan. Jerusalem:* Israel Antiquities Authority.

Gilead, I.
The Microendscraper: A new tool type of the Chalcolithic Period. *Tel Aviv* 11:3-10.

Glueck, N.
1951 *Explorations in Palestine,* IV. ASOR Annuals vols XXV-XXVIII.

Hanbury-Tenison, J.W., Hart, S., Watson, P. and Falkner, R.K.
1984 The Wadi Arab Survey 1983. *ADAJ* 28: 385-423.

Ibrahim, M.
1972 Archaeological Excavations at Sahab, 1972. *ADAJ* 17: 23-36.
1974 Second Season of Excavations at Sahab, 1973. *ADAJ* 19: 55-61.
1975 Third Season of Excavations at Sahab, 1975 (Preliminary Report). *ADAJ* 20: 69-82.

Inizan, M.-L., Roche, H. and Tixier, J.
1992 *Technology of Knapped Stone.* Meudon: CREP.

Lamprichs, R.
1998 *Abu Snesleh. Ergebenisse der Ausgrabungen 1990 und 1992.* Leidorf : Rahden/Westf, Orient-Archäologie Band 1.

Lovell, J.L.
2002 Shifting Subsistence Patterns: Some ideas about the end of the Chalcolithic in the southern Levant. *Paléorient* 28/1: 89-102.

Mabry, J. and Palumbo, G.
1988 The 1987 Wadi el-Yabis Survey. *ADAJ* 32: 275-304.

Meadows, J.
2001 Olive domestication in the Jordan Valley. Pp. 1-14 in L. Hopkins and A. Parker (eds.), *The Ancient Near East: An Australian Postgraduate Perspective.* Sydney: Sydney University Archaeological Methods Series 7.

Mortensen, P. and Theusen, I.
1998 The Prehistoric Periods. Pp. 85-99 in M. Piccirillo and E. Alliata (eds.), *Mount Nebo: New Archaeological Excavations 1967-1997.* Jerusalem : Studium Biblicum Francisanum.

Neef, R.
1990 Introduction, Development and Environmental Implications of olive culture: The evidence from Jordan. Pp. 295-306 in Bottema *et al.* (eds.), *Man's Role in the Shaping of the Eastern Mediterranean Landscape.* Rotterdam: A.A. Balkema.

Odell, G.H.
2003 *Lithic Analysis.* Kluwer Academic/ Plenum Publishers.

Palumbo, G., Mabry, J and Kuijt, I.
1990 The Wadi el-Yabis Survey: Report on the 1989 Field Season. *ADAJ* 34: 95-118.

Philip, G. and Williams-Thorpe, O.
1993 A provenance study of Jordanian basalt vessels of the Chalcolithic and Early Bronze Age I Periods. *Paléorient* 19: 51-63.
2001 The Production and Consumption of basalt artefacts in the southern Levant during the 5th-4th millennia B.C: a geochemical and petrographic investigation. Pp. 11-30 in. A. Millard (ed.), *Archaeological Sciences 1997: Proceedings of the Conference held at the University of Durham 2nd-4th September 1997.* BAR Int. Series 939.

Rosen, S.A.
1997 *Lithics after the Stone Age.* Walnut Creek, London and New Delhi: AltaMira Press.

Rowan, Y. and Levy, T.E.
1994 Proto-Canaanean Blades of the Chalcolithic. *Levant* 26: 167-74.

Wright, K.I.
1993 Early Holocene Ground Stone Assemblages in the Levant. *Levant 25*: 93-111.
2000 The Social Origins of Cooking and Dining in Early Villages of Western Asia. *Proceedings of the Prehistoric Society* 66: 89-121.

Wright, K.I., Qadi, N., Ibrahim, K. and Mustafa, H.
in press Ground stone artefacts. In G. Dollfus, and Z. Kafafi (eds.), *Fouilles à Abu Hamid 1986-7.* Paris: Editions de Recherche sur les Civilisations.

TALL DHĪBĀN 2004 PILOT SEASON: PROSPECTION, PRESERVATION, AND PLANNING

Benjamin Porter, Bruce Routledge, Danielle Steen, Carla Parlsow, Lidewijde de Jong, and William Zimmerle

Introduction

The Dhībān Archaeological Project seeks to develop strategies for ensuring the long-term sustainability of archaeological research and archaeological landscapes in Jordan by integrating traditional research questions with site development. These two activities converge at Dhībān on the question of local connections to place in the face of long-term and apparently radical changes in the modes and intensity of dwelling, land-use, and collective identification. Even when apparently abandoned, Dhībān has remained a place of significant human activity, as is attested by the history of the Banī Ḥamīda tribe who settled the modern town in the early twentieth century after more than a century of seasonal use of the site. This long term pattern of attachment to place manifest through widely divergent intensities and modes of settlement is a central characteristic of Jordanian history and one of the distinct intellectual insights to be gained from its archaeological record. What follows is a report of the pilot season of the Tall Dhībān Project undertaken from June 2-26, 2004[1].

Context and Previous Investigations

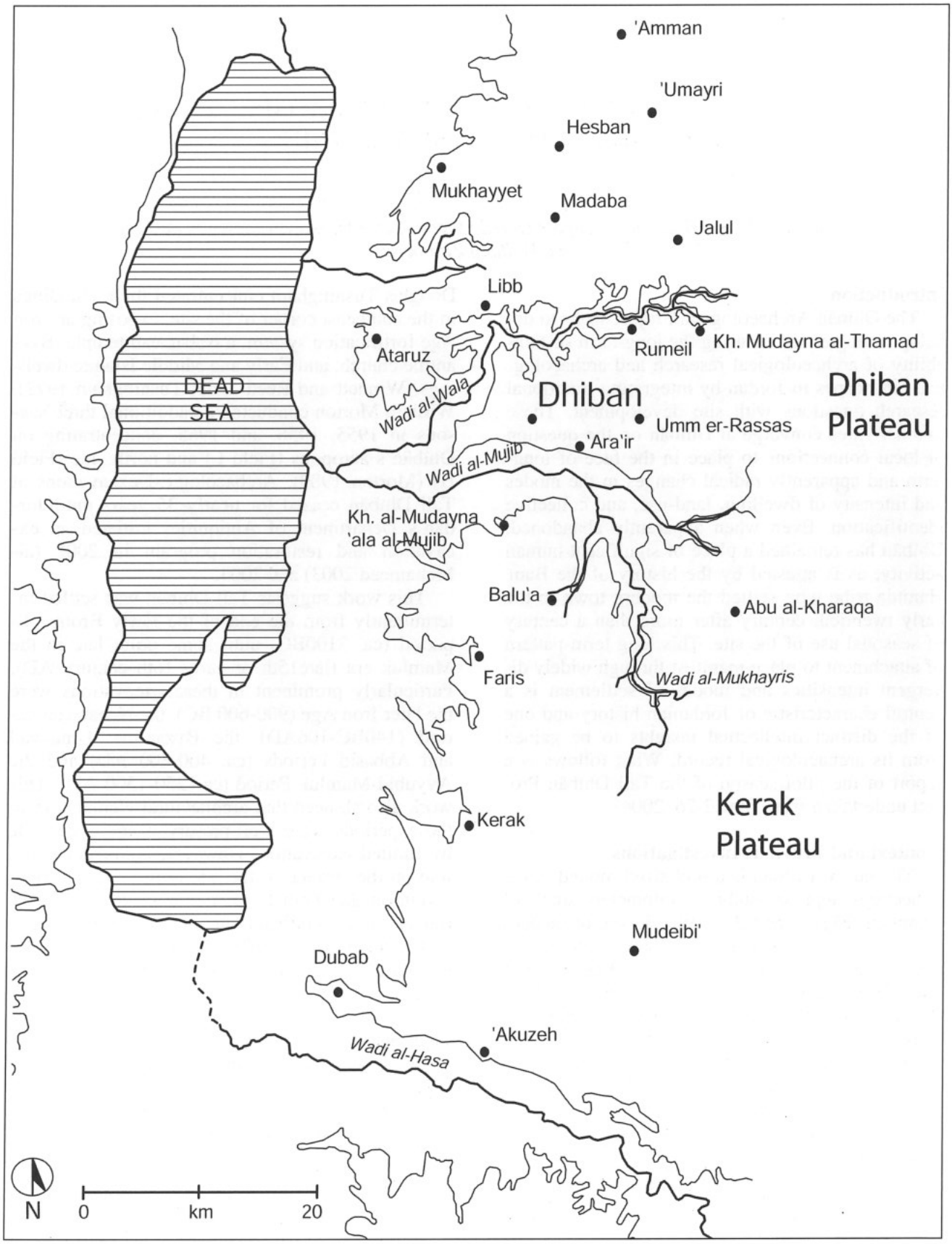
The tall of Dhībān is a mid-sized mound of ca. 5 hectares approximately 70 kilometers south of 'Ammān (**Figs. 1 and 2**). While devoid of modern settlement, the mound is immediately adjacent to the modern community of Dhībān (**Fig. 3**). The site is well-known from both the discovery of the Mesha' Inscription in 1868 as well as for the pioneering excavations of the American Schools of Oriental Research from 1950 to 1953 and again, in 1955 and 1956. Fred Winnett, William Reed, and Douglas Tushingham concentrated their soundings in the southeast corner of the site, exposing an Iron Age fortification system, a Nabataean temple, Byzantine church, and Early and Middle Islamic dwellings (Winnett and Reed 1965; Tushingham 1972). William Morton conducted an additional three seasons in 1955, 1956, and 1965, concentrating on Dhībān's acropolis (Field L) and north side (Field H) (Morton 1989). Archaeological excavations at Tall Dhībān ceased for nearly 35 years until Jordan's Department of Antiquities initiated an excavation and restoration program in 2002 (al-Mahameed 2003) and 2004.

This work suggests Tall Dhībān was settled intermittently from the end of the Early Bronze 1b period (ca. 3100BC) until some point late in the Mamluk era (late15th or early 16th century AD). Particularly prominent in these excavations were the later Iron Age (900-600 BC), the Nabataean period (140BC-106AD), the Byzantine, Umayyad and Abbasid Periods (ca. 400-800 AD) and the Ayyubid-Mamluk Period (ca.1250-1500 AD). This work also showed that architectural elements from these periods were well-preserved and accessible by limited excavation. However, architecture visible on the surface of the site is in relatively poor condition due both to G. Lancaster-Harding's removal of a significant number of above ground walls and arches in 1949[2] and to the lack of post-excavation conservation on the part of earlier excavators.

2004 Season Objectives

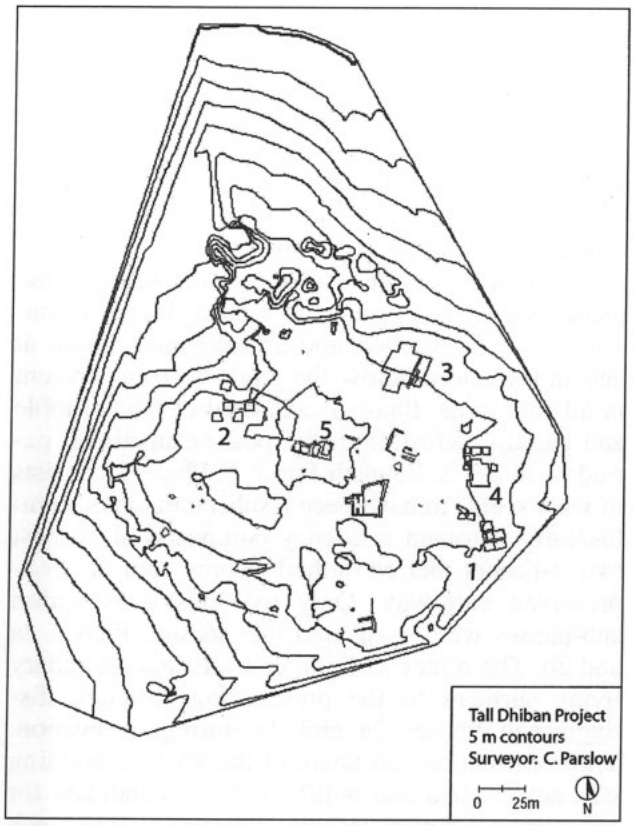
Four objectives shaped this year's research design:

1. The University of Liverpool, the University of Pennsylvania, Stanford University, and the National Science Foundation sponsored the Dhiban Archaeological Project in 2004. Staff included Dr. Bruce Routledge (U. Liverpool, Director), Benjamin Porter (U. Pennsylvania, Associate Director), Danielle Steen (Stanford U. Associate Director), Ali al-Khayyat (Department of Antiquities representative), Reem Shqour (Department of Antiquities representative), Lidewijde de Jong (Stanford U.), Jack Green (U.C. London), Aubrey Baadsgaard (U. Pennsylvania), William Zimmerle (U. Pennsylvania), Carla Parslow (U. Toronto), John Hakes (U. Liverpool), Jennifer Jacobs (U. of Pennsylvania) and Jamie Porter (Montana State U.).
2. Lancaster-Harding, then director of Jordan's Department of Antiquities, apparently stripped the stone and had it donated for the construction of a nearby road in order to render Dhiban more attractive to archaeologists interested in the site's pre-Islamic layers (Winnett 1964: 11).

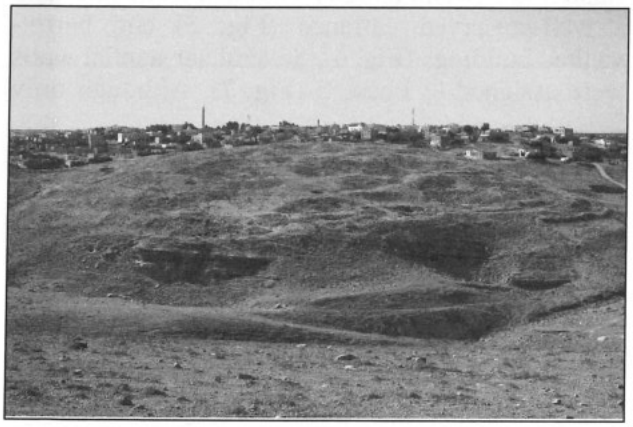


1. Map of Central Jordan.

1. To produce an accurate and up-to-date topographic map of Tall Dhībān in a digital format as the basis for developing a GIS database of cultural resources in the immediate vicinity of Dhībān.
2. To perform a Ground Penetrating Radar (GPR) survey of several open areas on the central and southern portions of the site in order to locate coherent architectural units from the latest phases of occupation on the tall suitable for exposure and reconstruction for site interpretation.
3. To conduct trial excavations to the west of William Morton's unpublished Area L excavations of 1955, 1956, and 1965 in order to test the viability of opening up this area on a large scale.
4. To gather preliminary data that would facilitate future collaboration with the Department of Antiquities in establishing a plan for the preservation and development of the site for domestic and international tourism.



2. Tall Dhībān topographic map detailing past and present excavation areas and visible surface architecture. 1. ASOR soundings (Winnett, Reed, and Tushingham, 1950-1953); 2. Field H (Morton, 1955-1956); 3. Field L (Morton, 1955-1956, 1965; Routledge *et al.*, 2004); 4. Jordanian Department of Antiquities' excavations (2002, 2004); 5. partially exposed Mamluk-Ottoman house.



3. Tall Dhībān from the north (Photo: J. Porter).

These objectives were selected in order to gather the necessary information for a viable long-term field project. All objectives were addressed to varying degrees and results are described in greater detail in the following sections.

Site Mapping

A total station survey was undertaken under the supervision of C. Parslow and B. Porter for the duration of the field season[3]. The goals of this survey were multiple: 1) record a topographic map of the site; 2) establish a five-meter grid system for excavation units; 3) record previously excavated architectural units, and 4) map all extant unexcavated surface architecture. 85% of the site was recorded this season, an additional two weeks of mapping will be necessary before the mapping component of this project is completed.

The result of this survey was a fully GIS-referencable map where all natural and cultural features as well as material culture can be recorded with precision for research and publication (**Fig. 4**). In particular, the collected data will help identify sub-surface features that are potential candidates for prospection.

Ground Penetrating Radar (GPR) Survey

A GPR survey of selected areas of the site was performed under the supervision of John Hakes and Bruce Routledge for a ten-day period of the season. This survey was conducted with the goal

3. The University of Pennsylvania's Museum's Applied Science Center (MASCA) kindly provided the surveying equipment free of charge. We would like to thank MASCA's director Dr. Stuart Fleming for their help in securing surveying equipment. The team used a TopCon GTS-3B and a Zire 71 Palm Pilot as a data collector supported by ShootPoints software, designed by Dr. W. R. Fitts. ShootPoints software is available free of charge from MASCA by contacting Dr. Fitts at wfitts@sas.upenn.edu. Data was collected as text files and downloaded daily into VectorWorks software. A datum point was established at the highest point of the site with a height of 750 meters above sea level.



4. John Hakes and Bruce Routledge conducting the ground penetrating radar survey.

of identifying sub-surface architectural units. A total area of ca. 1000 square meters was investigated to determine the nature and extent of architectural units lying at a depth of up to three meters beneath topsoil. The selected areas were cleared of all debris and a reference grid of one-meter intervals was established. Data was collected using a Pulse EKKO 100 GPR and a Noggin 500 GPR, both of which interfaced with field computers that provided immediate results for preliminary analysis. Results from this survey were hampered by the density of rock-fall found immediately below the surface in all areas surveyed. Efforts to filter out this "noise" are still underway, but preliminary observations indicate the presence of a large courtyard with a central cistern adjacent to late Mamluk or early Ottoman barrel vaulted buildings visible on the surface. Information from this survey will be integrated into the site map and analyzed alongside extant surface remains to facilitate testing by selective excavation in subsequent seasons.

Excavations

Four (4) five-by-five meter units were excavated at the site's acropolis where the largely unpublished work of William Morton suggested well-preserved and well-stratified deposits from the Early Bronze Age through Ottoman periods. Excavation of these units extended for the duration of the season. Routledge and Steen supervised the area and DeJong, Green, Shgour, Zimmerlee, and Baadsgaard supervised individual units. Unit supervisors recorded their results in a modified version of the Mādabā Plains Project record keeping system. All soil, wall, and installation loci as well as individual objects and samples were recorded with the TopCon GTS-3B and integrated into the site map. Excavated soil was sieved using 5mm mesh screen, guaranteeing maximum recovery of all artifacts and ecofacts. All objects and samples were properly registered and recorded in the project database. A soil sample was collected from each locus in order to retrieve palaeobotanical samples by means of water flotation. J. Porter was responsible for excavation photography using a combination of digital, SLR, and video camera platforms. At the end of the season, all units were backfilled to preserve excavated features for preservation in subsequent seasons.

To summarize our results, two (2) stratigraphic phases were discovered this season. Phase 1 consisted of a destruction and abandonment phase at and immediately below the site's surface. Present in all four units, Phase 1 consisted of stone rubble and cultural debris from the post-occupational period of Phase 2. Beneath Phase 1, Phase 2 consists of what seems to have been a substantial late Mamluk/early Ottoman residency composed of at least two adjacent barrel-vaulted rooms and a well-preserved entryway. Only two post-construction sub-phases were excavated this season, Phases 2a and 2b. The minor addition of walls and secondary living surfaces to the pre-existing structure distinguished Phases 2a and 2b during excavation. The construction sub-phase of the Phase 2 building was not reached and will be a likely candidate for excavation in future seasons. The results from each phase are described in more detail in the following sub-sections.

Phase 2

Phase 2 is an occupation phase containing a substantial late Mamluk/early Ottoman residency with a well-preserved entrance (**Fig. 5**) and barrel-vaulted buildings (**Fig. 6**). Several substantial walls were assigned to Phase 2 (**Fig. 7**). Although only



5. Walls BS44.005, BS44.009, and BS44.013 in Unit BS44 from the south (Photo: J. Porter).



6. Walls BR43.002, BR43.003, and BR43.009 in Unit BR43 from the north (Photo: J. Porter).

partially exposed in excavated soundings, the east-west walls of this phase (BR43.002/ BR43.009 and BS44.009) are visible on the surface, continuing well beyond the limits of the 2004 soundings and apparently running relatively parallel to each other. These walls share a common construction pattern of two abutting rows with an inner rubble fill. The exposed portions of these walls indicate that each abutting row arched in the opposite direction, and likely formed two abutting barrel arches running from wall BS44.009 to wall BR43.009 and from BR43.002 to an as yet undiscovered east-west wall located south of unit BR43. The discovery of an infilled window (locus BR43.022) in wall BR43.002 suggests the wall was reused over multiple occupational periods (see Phase 2b discussion). Running parallel to wall BS44.009 is east-west wall BS44.013, with the intervening space constituting an entrance to the residency complete with recessed doorjambs and a pivot socket. A collapsed arch visible at the eastern end of the southern section of unit BS44 suggests that one encountered a corridor turning sharply to the right (south) immediately upon passing through this door-way. North-south wall BS44.005 partially abuts wall BS44.013 on its north face, forming a room on the northeast side of unit BS44. The north-south wall BR43.003 abuts wall BR43.002 on its south face, dividing the southern half of unit BR43 into two rooms. The north-south wall BR43.020, visible in the western section of the units, abuts Wall BR43.009 on its north face and hence ends or subdivides the room on the northern half of BR43. Further west, Walls BR42.017 and BR42.018 abut each other and a threshold may be present. Two north-south Walls BR41.009 and BR41.013 run parallel to each other and may abut a prominent east-west Wall BR41.003 that is visible on the surface (not illustrated).

Unfortunately, the construction sub-phase for most of these walls was not reached during the 2004 season, making it impossible at this time either to date their construction or to determine if they were built contemporaneously. The post-construction cultural deposits associated with these walls, however, do permit further insight into the later occupation of the building.

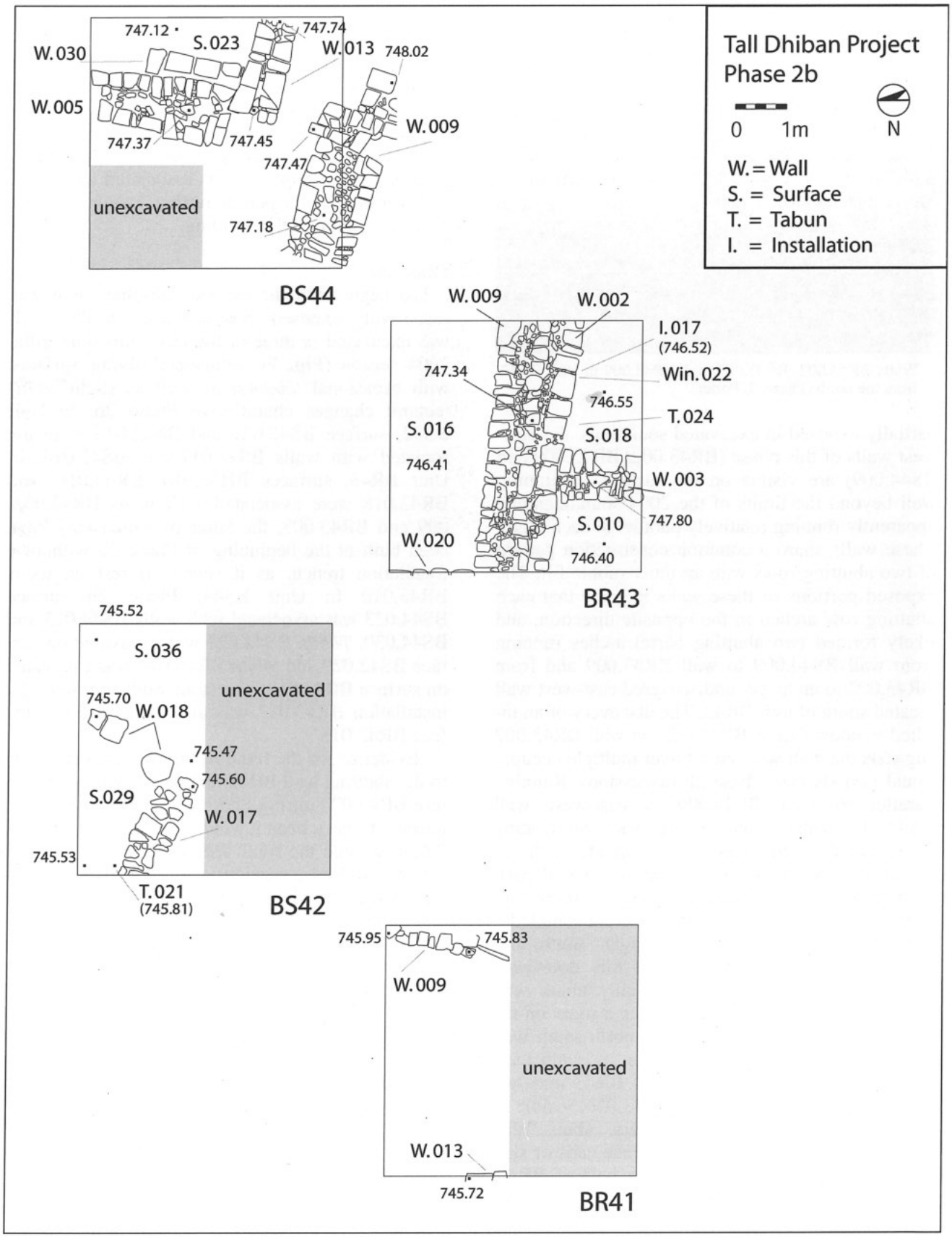
Phase 2b

To begin with the earliest sub-phase that was extensively exposed, post-construction Phase 2b was excavated in three of the four units during the 2004 season (**Fig. 7**). Ephemeral living surfaces with occasional *ṭābūn*(s) as well as slight architectural changes characterize Phase 2b. In Unit BS42, surface BS42.029 and BS42.036 were associated with walls BS42.017 and BS42.018. In Unit BR43, surfaces BR43.010, BR43.016, and BR43.018 were associated with walls BR43.002/ 009 and BR43.003, the latter of which may have been built at the beginning of Phase 2b without a foundation trench, as it seems to rest on locus BR43.010 In Unit BS44, Phase 2b surface BS44.023 was associated with walls BS44.013 and BS44.030. *Ṭābūn* BS42.021 was excavated on surface BS42.029 and *ṭābūn* BR43.024 was excavated on surface BR43.018. The stone-built semi-circular installation BR43.017 was also excavated on surface BR43.018

Evidence for the relationship of wall BR43.002 to the abutting wall BR43.009 was provided by feature BR43.022 during Phase 2b. Feature BR43.022 appears to have been a window measuring 0.43m x 0.60m set into the south face of wall BR43.002. If this was indeed a window, then its external access was blocked by the construction of wall BR43.009 up against BR43.002. It was subsequently in-filled by locus BR43.023, whose matrix was consistent with the adjacent fill BR43.011, a layer covering the Phase 2b surface (BR43.018) south of Wall BR43.002. Clearly, feature BR43.022 was not in use during the subsequent Phase 2a. Furthermore, if our interpretation of BR43.022 as a window is correct, then wall BR43.009 and the vaulted ceiling it supported post-date wall BR 43.002 and its vaulted ceiling. Of course, further excavation below Phase 2b is required before this interpretation can be confirmed.

Phase 2a

Post-construction Phase 2a was excavated in all four units during the 2004 season. Thick fill de-



7. Map of excavated units.

posits separated Phase 2a from Phase 2b. Like Phase 2b, Phase 2a consists of living surfaces with occasional *ṭābūn*(s) as well as slight architectural changes. In Unit BR41, a Phase 2a surface BR41.012/BR41.016 ran up to walls BR41.009 and BR41.013 consisting of flagstones, plaster, and beaten earth. Phase 2a was identified in Unit BS42's surface BS42.011, a sloping 5cm thick, compacted surface extant in the northwest corner of the unit. No walls were associated with this surface and none were assigned to this phase.

Phase 2a in Unit BR43 was excavated in two surfaces associated with the upper levels of walls BR43.002/009 and BR43.003. Surface BR43.007 was excavated in the southwest corner of the unit and surface BR43.015 was excavated north of Walls BR43.002/009. At some point in the transition from Phase 2b to 2a in Unit BR43, an opening in wall BR43.003 that may have served as a narrow doorway appears to have been blocked-up. In Unit BS44 surface BS44.018 was excavated between walls BS44.005/ BS44.030 and BS44.013, and above Phase 2b surface BS44.023. Surface BS44.035 was located between walls BS44.009 and BS44.013, and east of threshold BS44.027. *Ṭābūn* BS44.017 was partly built over the top of wall BS44.030, which was flush with a plastered surface in this sub-phase. *Ṭābūn* BS44.032 was excavated on surface BS44.035, immediately inside the doorway, and a door socket was found associated with threshold BS44.027.

Phase 1

Phase 1 is a destruction and abandonment phase at or immediately below the site's surface. Present in all four units and between 0.6 and 1 meter thick, Phase 1 consists of stone rubble and cultural debris from post-occupation activity following Phase 2. A combination of natural and human activities shaped Phase 1's matrix. Slope erosion moving from east to west moved materials from higher to lower levels. Additionally, pockets of homogenous soil matrices throughout the area are likely the result of periodic cistern cleaning. Ceramic, glass, and metal fragments from multiple time periods were recovered from Phase 1.

Objects

Objects and samples were recovered from Phases 1 and 2 and assigned unique identification numbers. A selection of objects useful in assigning a secure date to each phase is presented in **Figs. 8-9, Table 1, 2** and a brief discussion of the ceramic and glass objects are presented below. Objects and samples collected but not discussed here include architectural and metal fragments, spindle whorls and loom weights, groundstones, and beads. All faunal evidence and a soil sample from each excavated loci was collected for subsequent analysis.

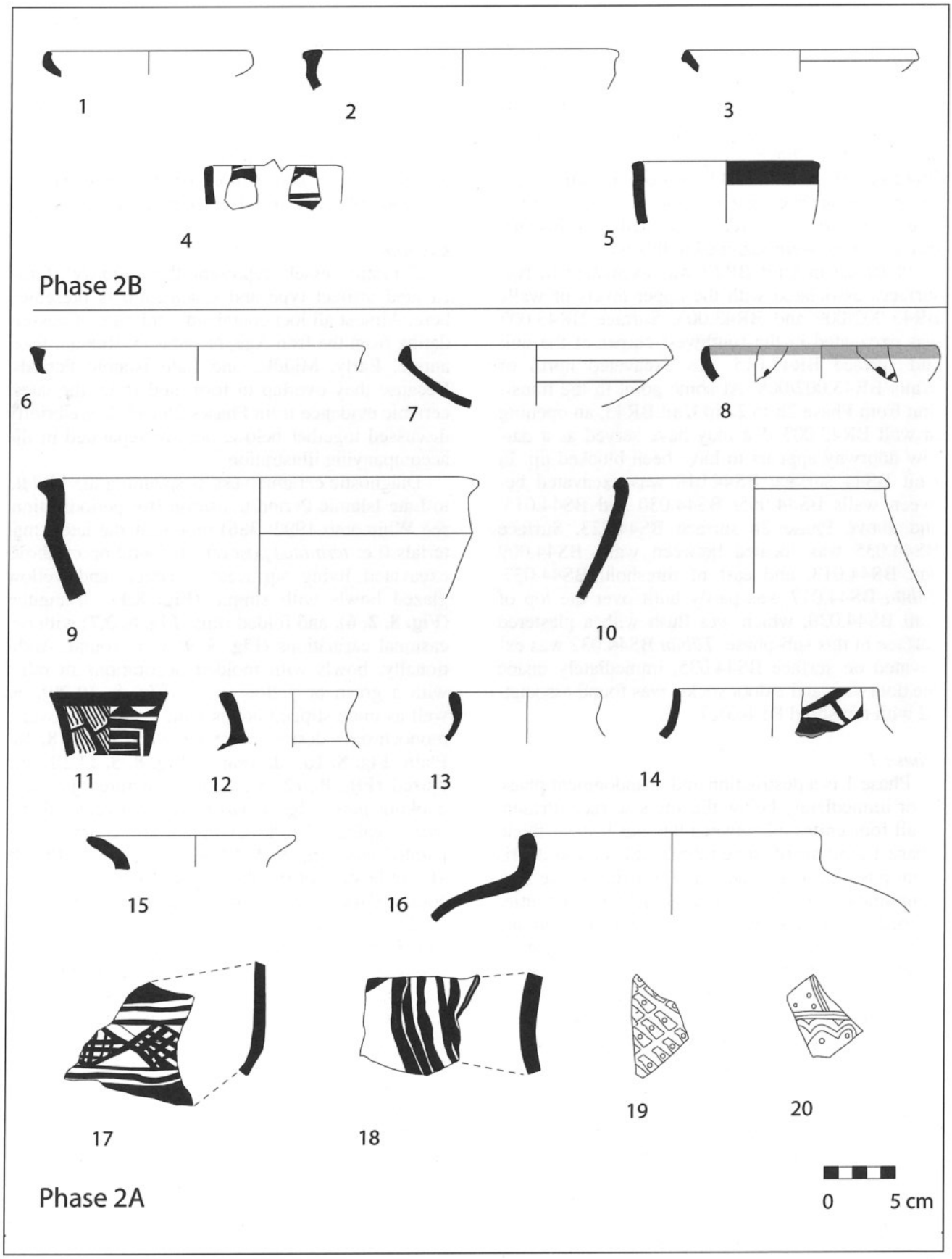
Ceramic

Ceramic vessels represent the majority of excavated artifact type and a selection is presented here. Almost all loci contained a mixture of vessels dating from the Iron Age, Nabataean, Roman, Byzantine, Early, Middle, and Late Islamic Periods. Because they overlap in form and style, the latest ceramic evidence from Phases 2b and 2a are briefly discussed together below, but are separated in the accompanying illustration.

Diagnostic ceramic vessels spanning the Middle to Late Islamic Period transition (for periodization, see Whitcomb 1992: 386) represent the latest materials (i.e. *terminus post quem*) found on or above excavated living surfaces[4]. Green and yellow glazed bowls with simple (**Fig. 8.1**), triangular (**Fig. 8. 2, 6**), and folded rims (**Fig. 8. 3,7**) with occasional carinations (**Fig. 8. 9**) were found. Additionally, bowls with molded decorations in relief with a green or yellow glaze (**Fig. 8. 19-20**), as well as underslipped bowls with clear glaze over a monochrome design, were recovered (**Fig. 8. 8**). Plain (**Fig. 8. 16**), decorated (**Fig. 8. 5, 11,18**) and glazed (**Fig. 8. 12**) wheel-manufactured jars and cooking pots (**Fig. 8. 15**) were discovered alongside typical hand-manufactured geometrically painted jars (**Fig. 8. 4, 14, 17**). Sugar jars (**Fig. 8. 10**), indicative of the thriving sugar industry in the Jordan Valley, were present as well.

Two nearly complete lamps were excavated. The first is a mould-manufactured lamp bearing a geometric design in relief, a tall conical handle, and a flat base; the wick hole is absent (**Fig. 9.1**). This lamp was excavated in the fill above Phase 2A surface BS44.035 between walls BS44.009 and BS44.013, and east of threshold BS44.027. The second lamp is wheel-manufactured, but lacks any decoration or glaze (**Fig. 9.2**). The lamp is open, finished with a ring base, and exhibits a long, pinched nozzle and an inner reservoir; there is no

4. Unfortunately, there is no space here for a discussion of vessel characteristics. For parallels from other well-stratified and published contexts, see Karak Castle (Brown 1989), the Karak Plateau Survey (Brown 1991); Tilāl Abū Qa'dān and Abū Sarbūṭ (Franken and Kalsbeek 1975); Khirbat Fāris (Johns *et al.* 1989; McQuitty and Falkner 1993); al-Burj al-Aḥmar (Pringle 1986); Hama (Poulsen 1957); Ḥisbān (Sauer 1973 and 1994); and Pella (Walmsley and Smith 1992).



8. Ceramic vessels from Phases 2b and 2a.

Table 1: Ware and surface treatment descriptions for Fig. 8 examples.

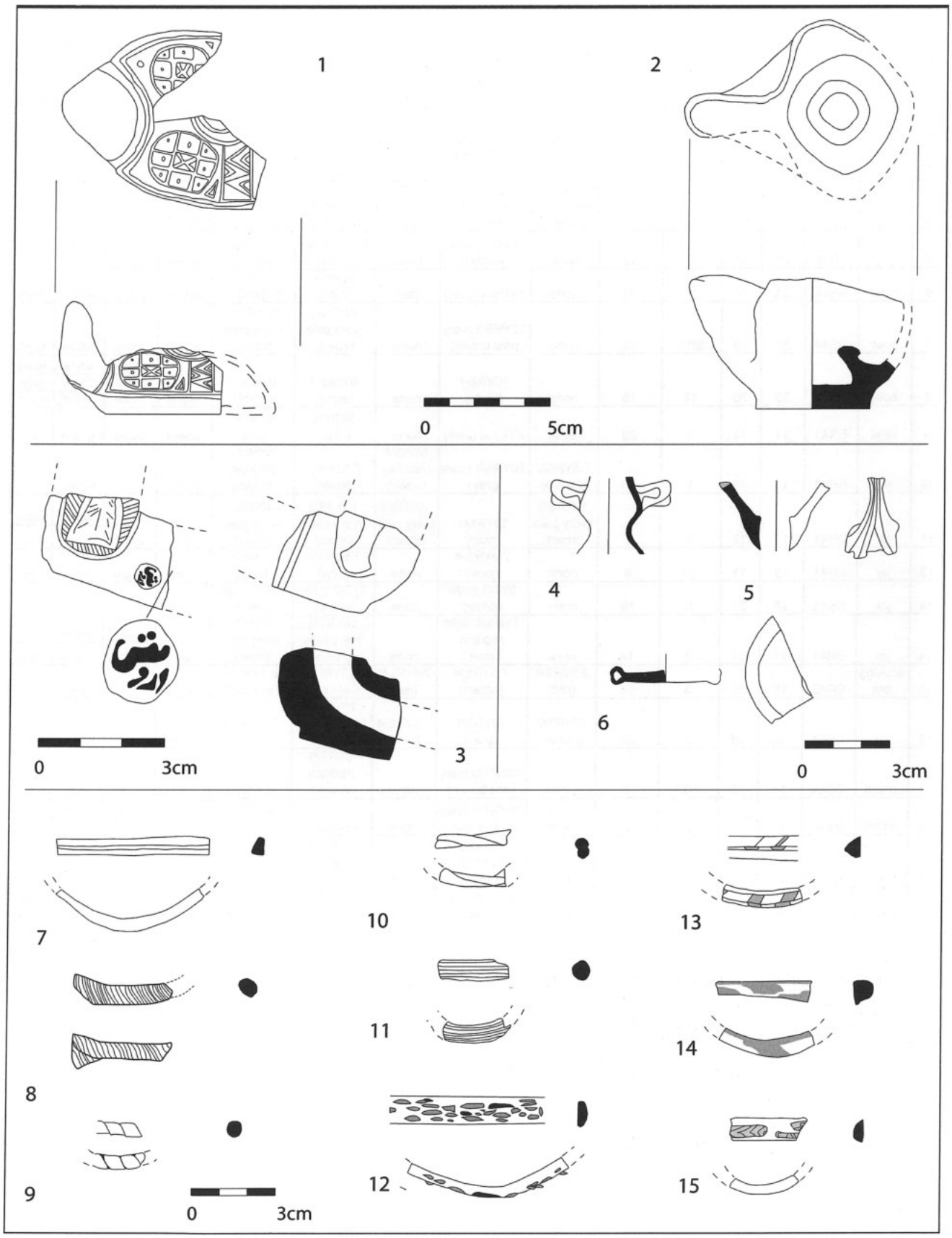
No.	Type	Unit	Locus	Pail	Number	Dm (cm)	Fabric Color			Surface Color		Wheel/ Hand	Treatment		
							Exterior	Core	Interior	Exterior	Interior		Type	Color	Ex/In
1	bowl	BS44	23	41	1	14	none	7.5YR8/4 (pink)	none	10YR8/4 (pale brown)	10YR8/4 (pale brown)	wheel	glaze	yellow	ex/in
2	bowl	BS44	23	49	1	20	none	10YR8/4 (pale brown)	none	10YR8/4 (pale brown)	10YR8/4 (pale brown)	wheel	glaze	green	ex/in
3	bowl	BR43	10	33	1	16	none	10YR8/4 (pale brown)	none	unknown	uknown	wheel	glaze	green	ex/in
4	jug	BS42	15	51	12	?	10YR8/4 (very pale brown)	10YR5/1 (gray)	10YR6/3 (pale brown)	2.5YR7/6 (light red)	10YR6/3 (pale brown)	hand	paint	black	ex/in
5	jug	BS42	25	38	1	12	none	5Y8/2 (pale yellow)	none	5Y8/2 (pale yellow)	5Y8/2 (pale yellow)	wheel	slip paint	white black	ex/in ex
6	bowl	BS44	33	70	11	23	none	5YR8/4 (pink)	none	5YR8/4 (pink)	5YR8/4 (pink)	wheel	glaze	yellow	ex/in
7	bowl	BS44	33	70	8/18	18	none	10YR8/3 (very pale brown)	none	10YR8/3 (very pale brown)	10YR8/3 (very pale brown)	wheel	glaze	yellow	ex/in
8	bowl	BS44	33	70	17	16	none	10YR8/1 (white)	none	10YR8/1 (white)	10YR8/1 (white)	wheel	slip paint glaze	white black clear	ex/in ex/in ex/in
9	bowl	BR41	11	12	1	28	none	5YR7/4 (pink)	none	5YR7/4 (pink)	5YR7/4 (pink)	wheel	glaze	green	ex/in
10	jar	BR41	11	15	5	18	7.5YR5/2 (brown)	10YR4/1 (dark grey)	5YR5/4 (reddish brown)	7.5YR5/2 (brown)	5YR5/4 (reddish brown)	wheel	none		
11	jar	BR41	11	12	7	8	10YR8/3 (very pale brown)	10YR5/1 (gray)	10YR8/3 (very pale brown)	10YR8/3 (very pale brown)	10YR8/3 (very pale brown)	wheel	slip paint	white red	ex/in ex/in
12	jar	BR41	11	11	13	9	none	7.5YR7/4 (pink)	none	7.5YR7/4 (pink)	7.5YR7/4 (pink)	wheel	glaze	green	ex
13	jar	BS44	15	25	5	10	none	5Y7/3 (pale yellow)	none	5Y8/2 (pale yellow)	5Y8/2 (pale yellow)	wheel	none		
14	jar	BR41	11	11	8	14	none	5YR6/4 (light reddish brown)	none	10YR7/3 (very pale brown)	10YR7/3 (very pale brown)	hand	slip paint	white black	ex ex
15	cooking pot	BR43	15	30	3	14	2.5YR5/6 (red)	7.5YR5/4 (brown)	2.5YR5/6 (red)	2.5YR7/6 (light red)	2.5YR7/6 (light red)	wheel	none		
16	jar	BS44	16	26	3	20	10YR5/3 (brown)	10YR5/1 (gray)	7.5YR8/4 (pink)	10YR8/3 (very pale brown)	7.5YR8/4 (pink)	wheel	none		
17	sherd	BS44	15	23	7/23	0	none	10YR7/3 (very pale brown)	none	5YR7/6 (reddish yellow)	7.5YR6/4 (light brown)	hand	paint	black	ex
18	sherd	BS44	15	19	2	0	none	10YR7/4 (very pale brown	none	unknown	10YR7/1 (light gray)	wheel	slip paint	white black	ex ex
19	sherd	BR41	11	15	6	0	none	5YR7/6 (reddish yellow)	none	5YR7/6 (reddish yellow)	5YR7/6 (reddish yellow)	wheel	glaze glaze molded	green yellow	in ex ex
20	sherd	BR41	6	17	10	?	none	10YR7/3 (very pale brown)	none	unknown	uknown	wheel	molded glaze	yellow	ex ex/in

Table 2: Object information for Fig. 9 examples.

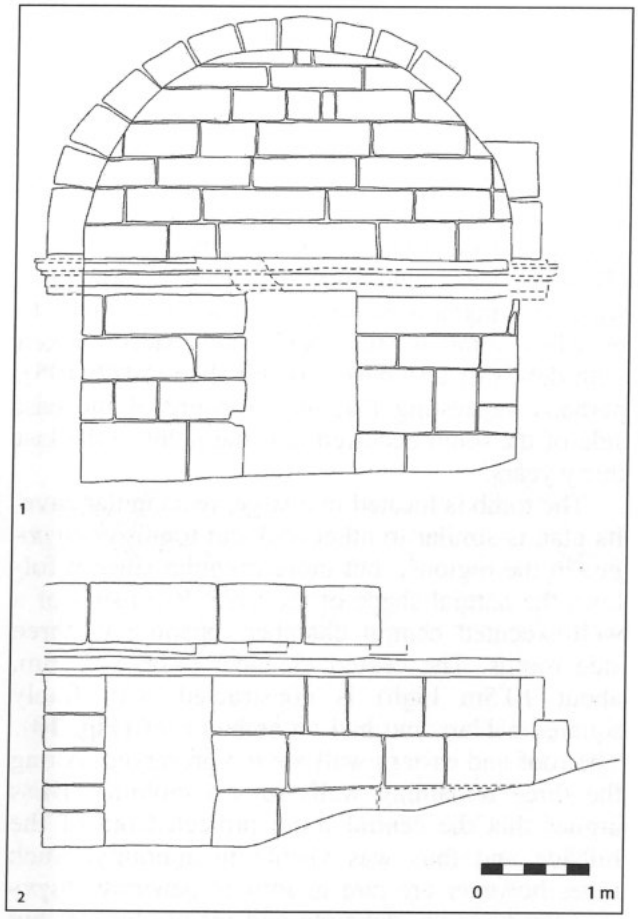
No.	Object	Material	Number	Unit	Locus	Pail
1	lamp	ceramic	44.027	BS44	21	48
2	lamp	ceramic	42.005	BS42	16	40
3	pipe	ceramic	44.003	BS44	12	20
4	vessel	glass	42.003	BS42	6	7
5	vessel	glass	44.042	BS44	23	44
6	vessel	glass	42.007	BS42	15	51
7	bracelet	glass	43.024	BR43	11	27
8	bracelet	glass	43.003	BR43	4	3
9	bracelet	glass	44.031	BS44	24	55
10	bracelet	glass	44.013	BS44	20	39
11	bracelet	glass	44.018	BS44	1	43
12	bracelet	glass	44.039	BS44	1	66
13	bracelet	glass	44.030	BS44	1	52
14	bracelet	glass	44.040	BS44	33	70
15	bracelet	glass	43.030	BR43	12	23

indication that a loop handle extended from the inner reservoir to the outer bowl, as is characteristic of medieval lamps with inner reservoirs (e.g. Poulsen 1957, Fig. 1064). This lamp was excavated in a context associated with *ṭābūn* BS42.021 and above Phase 2b surface BS42.029. Although different in form and style, both lamps bear features characteristic of medieval lamps (e.g. mould-manufacturing, geometric designs, conical handles, and inner reservoirs) and parallel other excavated examples at medieval sites throughout the Levant (e.g. Hama (ibid.); Beth Shean (Hadad 1999)).

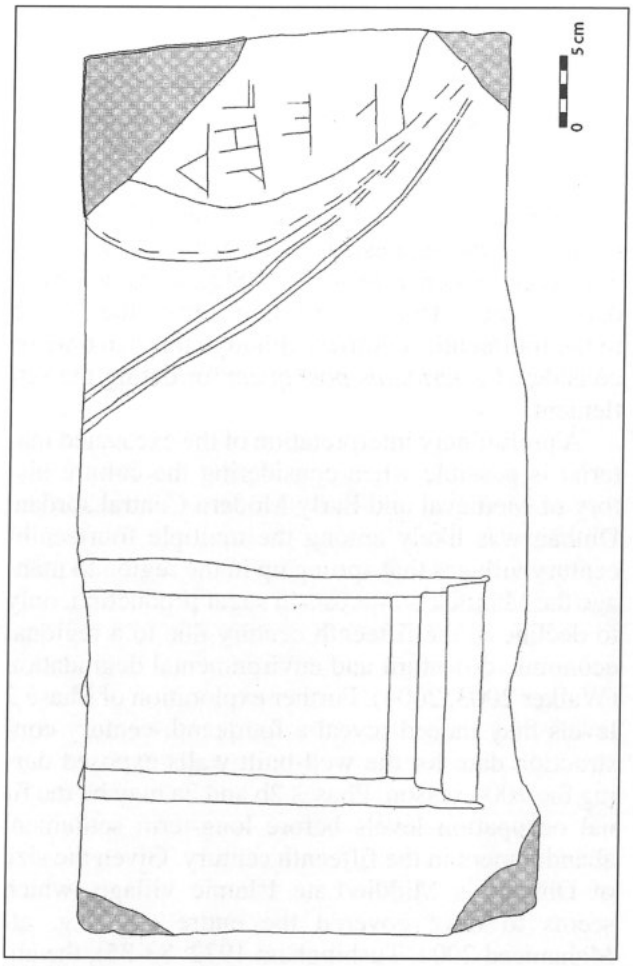
One broken ceramic pipe was excavated in a Phase 1 fill in Unit BS44 bearing a decoration on both sides and a maker's mark reading "Darwish"



9. Ceramic and glass objects from Phases 2b, 2a and 1.



10. West (1) and north (2) sections of the Roman tomb's central chamber.



11. Nabataean inscription.

(**Fig. 9.3**)[5]. Only the junction between the pipe's bowl and stem was recovered. The pipe was heavily burnished with a dark red slip and a notch on the end leading to the stem. Although incomplete, this pipe likely fits with one of Simpson's red-slipped and burnished categories (Groups 4-8) from his Belmont Castle corpus, dating from the late eighteenth to the nineteenth centuries AD (Simpson 2000; 2002 (esp. Fig. 3.21))[6].

Glass

Glass vessel and bracelet fragments were found in all phases of excavation. A selection of these items is illustrated here. No complete glass vessel was discovered; handles (**Fig. 9.4, 5**) and bases (**Fig. 9. 6**) were common. Rounded, semi-circular, and obliquely pointed monochrome and polychrome bracelet fragments were extant throughout all phases. Simple monochrome (**Fig. 9. 7**) and bichrome (**Fig. 9. 13**), twisted monochrome (**Fig. 9. 8-11**), speck (**Fig. 9. 12**), mosaic eye (**Fig. 9. 14**), and patch patterns (**Fig. 9. 15**) are represented in the bracelet corpus[7].

Dating and Interpretation

Without further excavation, precise dating of the phases described above is difficult. No objects such as coins or inscriptions were excavated that could provide absolute dates for these phases. Ceramic vessels, and to some extent, the glass bracelets do provide some help with assigning relative dates to each phase. As mentioned earlier, it is impossible at this time to assign a date for the construction of Phase 2 as the foundation of these walls have yet to be reached. Evidence from post-construction Phases 2b and 2a suggest a date between the late thirteenth and fifteenth centuries AD, if not slightly later. At this point in time, published evidence is insufficient to date when diagnostic ceramic forms such as wheel-made glazed bowls and hand-made geometrically painted jars ceased to be manufactured in

5. Thanks to Ahmed Momani for his help in translating the maker's mark.
6. Thanks to Uzi Baram who examined a drawing of the pipe and offered parallels examples in the literature.
7. See Spaer 1992 for a detailed study of Islamic glass bracelets.

Central Jordan (see Brown 1992, Johns 1998, Milwright 2000, Walmsley 2001: 545-552). Indeed, some evidence suggests that these wares continued to be manufactured at least into the seventeenth century (e.g. Ziadeh 1995). Likewise, disciplinary knowledge of the glass bracelet corpus is not so developed that a date other than "Mamluk" or "Ottoman" can be suggested. Tushingham (1972: 84) cites coin evidence from the ASOR excavations to date the equivalent of our Phase 2 from the twelfth to the fourteenth centuries, although this can only be considered a *terminus post quem* for dating the settlement.

A preliminary interpretation of the excavated material is possible when considering the culture history of Medieval and Early Modern Central Jordan. Dhībān was likely among the multiple fourteenth-century villages that sprung up in the region to manage the Mamluk's interests in sugar production, only to decline in the fifteenth century due to a regional economic downturn and environmental degradation (Walker 2003, 2004). Further exploration of Phase 2 levels may indeed reveal a fourteenth-century construction date for the well-built walls exposed during the 2004 season. Phases 2b and 2a may be the final occupation levels before long-term settlement abandonment in the fifteenth century. Given the size of Dhībān 's Middle/Late Islamic village, which seems to have covered the entire tell (e.g. al-Mahameed 2003, Tushingham 1972: 83-85), the absence of Dhībān from the 1538 and 1596 Ottoman *defter* for Transjordan (see Hutteroth and Abdulfattah 1977) would seem to favor a pre-sixteenth century abandonment of the village.

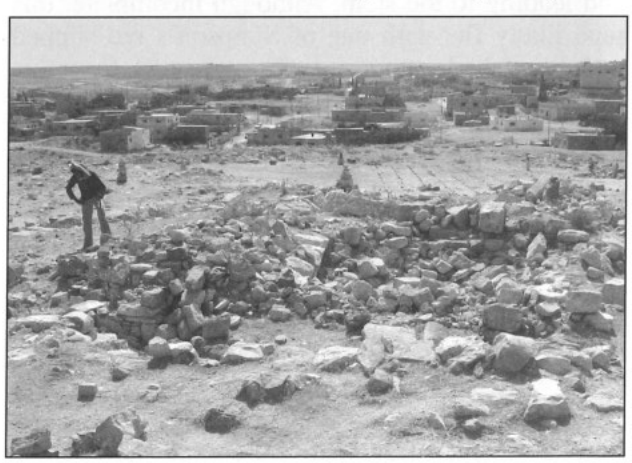
A date for Phase 1 is equally problematic as the ceramic evidence was mixed and the latest evidence spanned the early Ottoman to Hashemite Periods. The pipe does point to an eighteenth or nineteenth-century date, suggesting that limited occupation of the site took place even though substantial architectural remains have not been identified (cf. Tushingham 1972: 84-85). Travelers' accounts certainly indicate that Tall Dhībān was a seasonal encampment for the Bani Hamida before the modern community was established at the beginning of the twentieth century AD (see Graham 1989: 45-52).

Roman Tomb

A large Roman tomb on the eastern edge of the site was investigated, drawn, and photographed in the final week of the season. This is almost certainly the tomb described briefly by Fredrick Bliss in 1895 (Bliss 1895: 227-228). While the main components of the tomb remain much as Bliss described, its situation has changed in that the eastern side of the main chamber is now exposed to the air, rather than in-filled with collapsed stone. In his brief report on a large Roman or Byzantine tomb (Tomb H) was found between the tell and the highway, Tushingham mentions that what he takes to be Bliss' tomb is still visible but "badly choked with debris of all kinds" (Tushingham 1972: 105), perhaps suggesting that the exposure of the east side of the tomb occurred at some point in the last thirty years.

The tomb is located in a large, rectangular cave. Its plan is similar to other rock-cut tombs or *hypogea* in the region[8], but more irregular since it follows the natural shape of the cave. It consists of a well-executed central chamber, opening to three side rooms. The central chamber (4.66 x 4.16m, about 10.5m high) is constructed with finely squared ashlars and had an arched roof (**Fig. 10**). The roof and eastern wall are not preserved. Along the three remaining walls runs a molding. Bliss argues that the central room projected out of the hillside and thus was visible in antiquity. Such types however are rare in Jordan; generally *hypogea* can have an elaborate and visible facade, but the actual burial space is underground and hidden. It is not unlikely that this central room was buried and that there once was a kind of dromos, or long corridor leading to the room[9].

The northern room is long and irregular (17.85



12. A collapsed Late Mamluk or Ottoman barrel vaulted building, located east of Field L, has been targeted for reconstruction (Photo: J. Porter).

8. Many tombs have been identified in the region, see for instance at Tell el-'Umeiri (Herr *et.al.* 1991, 356-369), Hesbon (Boraas and Horn, 1973) and Abila (overview in Wineland 2001). For a general overview see Kuhnen 1990.

9. This is common for rock-cut graves in the Roman/Byzantine period, see for instance at Pella (McNicoll 1992, 124, 132-134).

x 1.72-2.86m wide). It has 6 loculi or niches cut into the east wall that are accessible from the short side (1.45-2 x 0.55-0.70m, about 0.50m deep). These rectangular loculi are cut out in the bedrock and have ridges along the sides (about 10 cm thick) on top of which stone closing-slabs would have originally rested. One loculus still had one of the original closing slabs. A larger niche in the western wall might have served as burial space as well, perhaps for a standing sarcophagus.

The western room (13.35 x 4.20-3.52m) is the central burial space. It is rectangular and less irregular than the other rooms, with three loculi accessible from the short side (one in the northwest with two original closing slabs). Four rectangular niches may have served as burial space, since one contained a sarcophagus in the time Bliss entered the tomb[10]. This room was re-used in later periods as evidenced by supporting and securing of the roof. An arch extends diagonally over the eastern part of the roof and in the middle of the room two pillars are made of re-used stones in support of the roof. Two stone sarcophagi (undecorated) were used in these pillars. This could indicate that the tomb was no longer used as a tomb, but as a house, stable or storage space[11].

The southern room (5.67+ x 8.50-1.19 m) curved to the west and has an opening towards the western room. The full extent could not be measured as it was buried in modern debris and ancient collapse. It has three loculi; two accessible from the short side in the southern part of the room and one accessible from the long side in the west.

Large tombs like these are common in the Near East from the Nabataean through to Byzantine periods, and generally interpreted as family tombs. Without finds, decoration or inscriptions they are very difficult to date. The shape, well-executed central room with simple decoration might point to a Roman date. Tombs like this however are generally reused for centuries. The tomb is robbed, but careful excavation might yield some finds that the robbers left or did not find, as well as clues about the later periods of use. The tomb is well kept, and especially the central room is worth restoring as part of the archaeological zone in Dhībān . Future work here will require stabilization of the tomb's ceiling as well as removal of recently deposited debris.

Nabataean Inscription

A Nabataean inscription was discovered inside a partly collapsed building located in the center of the tall during general cleaning (**Fig. 11**). The stone was only partially complete and the inscription was heavily damaged. On the stone's extreme right, a medallion circumscribed a heavily damaged inscription. On the stone's extreme left, the base of a false door characteristic of Nabataean imagery permitted an approximate date for the stone's cutting. A preliminary study suggests the medallion that circumscribes the inscription is a badly damaged Nabataean inscription. The stone bears six non-connective inscribed letters amidst a series of striation marks running across the inscription. The six letters were identified and no complete words are present. Four of the six letters were identified as early Nabataean script.

Starting from the top of the stone and reading downward from the right to the left, the first letter is read as a Nabataean *'Alif*. This *'Alif*, with its triangular form and a short extension line protruding from its right side, is similar in form to the *'Alifs* found in the Nabataean inscriptions from Ḥaurān (Cantineau 1932: 12), the Sinai (Cantineau 1930: 29-30); and an incantation text found at Ḥorvat Raqīq, near Beersheba, which is the earliest Nabataean cursive script known to date (ca. 125-100 BC) (Gruendler 1993: 7, 32 (N2); Naveh 1987: 156).

Reading downward, the first letter of the second line of the inscription is a Nabataean *Sīn/$īn*. The form of the *Sīn/$īn* is a vertical line with two parallel lines extending from its right side angularly. This *Sīn/$īn* is similar to the form found in the inscription on the statue of Rabb'el from Petra (c. 66 BC) (Gruendler 1993: 8, 65 (N5)), the temple inscription of al-Shugāfiya, near the Wādī Tumīlat (ca. 77-48 BC) (Gruendler 1993: 8, 65 (N4)), and differs only slightly from the form found in the Nabataean dedicatory inscription at Aṣlaḥ (ca. 90 BC) (Gruendler 1993: 8, 65 (N3); Naveh 1987: 156). The second letter of line two reads as a Nabataean *Ḥā'/Khā'*, whose classic *Ḥ* form is also found in the Nabataean inscriptions from Petra (Cantineau 1930: 29-30; Gruendler 1993: 8, 49 (N5)), Ḥorvat Raqīq (Gruendler 1993: 7, 49 (N2)), Aṣlahā (Gruendler 1993: 7-8, 49 (N3)), and the grave of Kamkam in al-Hijr (Gruendler 1993: 8, 49 (N6)). The final letter of the second line is the Nabataean *Jīm* whose form is similar to the *Jim* found in the Nabataean inscriptions from Hauran (Cantineau: pp. 29-30) and Teima (Cantineau 1932: 40). Naveh recognizes this form as early Nabataean (J.

10. In the north of the room, Bliss 1895, 228.
11. Several caves used as seasonal dwellings in the Ottoman period were identified through the Madaba Plains project. One of these had a similar arch as the main room of the tomb in Dhiban; see Herr *et.al.* 1997, 292.

Naveh 1987: 137).

The remaining two letters of the inscription were not identified as Nabataean, but rather as letters from the Arabic script and are probably visible remnants of graffiti. The first letter is the Arabic *Sīn* and is inscribed as one would write it today in modern Arabic; however, one would expect this form to carry a connecting letter. This holds true for the final letter of the inscription which is an Arabic *Tā'/Thā'*, but again there is no connecting letter here. It is possible that the first of these letters is the Nabataean *'Ain* (Gruendler 1993: 76-77) and that the second letter is the Nabataean *Jīm* (Gruendler 1993: 10, 45 (N13)), but this is difficult to determine based on other attestations.

The stone is likely a remnant of a lintel for a Nabataean tomb. Although it is difficult to date this badly damaged inscription on the basis of paleography, it is believed that the forms identified reflect an early Nabataean script in light of their attestations cited above. Because the stone's findspot is currently located on the property of the site guard and is not within the domain of the excavation, the stone was returned to the house following documentation.

Conservation / Development

Because a primary component of research at Dhībān is site development, plans were made to rehabilitate architectural units beginning in subsequent field seasons. Two areas selected for rehabilitation were exposed in previous excavations: 1) the Iron Age monumental building exposed by William Morton in Field L and 2) the Field H Early Bronze and Iron Age gateway and fortifications. Because the exposed balks were heavily eroded and in danger of collapse, stone walls were constructed against them to prevent further damage. Features from earlier excavations were enclosed with loose rocks to protect them from damage. These walls are temporary and will be removed when a permanent solution is found.

Additionally, a collapsed Late Mamluk or early Ottoman barrel vaulted building, located east of Field L, has been targeted for reconstruction (**Fig. 12**). This building will be excavated during the next season and subsequently preserved. These projects, in addition to those undertaken by the Department of Antiquities' Madaba Office, will eventually restore several architectural features key to Dhībān 's development as a tourist destination.

Conclusion

The 2004 pilot season at Tall Dhībān determined that a long-term excavation and development project is feasible and worthwhile. Our immediate goals include completing the total station survey of the tall including a high-resolution topographic map and all architectural units visible on the surface; excavate and restore the Roman tomb on the tall's east side; excavate and restore the Mamluk/Ottoman building east of Field L; and initiate a 5km radius off-site survey. Over the long term, we hope our efforts will translate into a viable destination for domestic and international tourists.

Acknowledgments

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References

Bliss, F.
1895 Narrative of an Expedition to Moab and Gilead in March 1895. *Palestine Exploration Fund Quarterly Statement:* 203-234.

Brown, R.
1989 Excavations in the 14th Century A.D. Mamluk Palace at Kerak. *ADAJ* 33:287-304.
1991 Ceramics from the Kerak Plateau. Pp. 169-280 in J.M. Miller, (ed.), *Archaeological Survey of the Kerak Plateau. Atlanta:* Scholars Press.
1992 *Late Islamic Ceramic Production and Distribution in the Southern Levant: A Socio-economic and Political Interpretation.* Unpublished Ph.D. dissertation, S.U.N.Y. Binghampton.

Cantineau, J.
1930 *Le Nabateen I: Notions Generales-Ecriture Grammaire.* Paris: Librairie Ernest Leroux.
1932 *Le Nabateen II. Choix de Textes-Lexique.* Paris: Librairie Ernest Leroux.

Franken, H.J. and J. Kalsbeek
1975 *Potters of a Medieval Village in the Jordan Valley: Excavations at Tell Deir 'Alla: a Medieval Tell, Tell Abu Gourdan, Jordan.* Amsterdam: North-Holland Publishing.

Gruendler, B.
1993 *The Development of Arabic Scripts: From the Nabatean Era To the First Islamic Century According to Dated Texts.* Harvard Semitic Studies 43. Atlanta: Scholars Press.

Hadad, S.
1999 Oil Lamps from the Abbasid through the Mamluk Periods at Bet Shean, Israel. *Levant* 31: 203-224.

Hütteroth, W. and K. Abdulfattah
1977 *Historical Geography of Palestine, Transjordan, and Southern Sinai in the late Sixteenth Century.* Erlangen: Frankischen Geographischen Gesellschaft.

Johns, J.
1998 The Rise of Middle Islamic Hand-made Geometrically-Painted Ware in Bilâd al-Shâm. Pp. 65-93 in R.P. Gayraud (ed), *Colloque international d'archéologie islamique.IFAO, Le Caire, 3-7 février 1993.* Text arabe et études islamiques 36. Paris: Institut français d'archéologie islamiques.

Johns, J. *et. al*
1989 The Faris Project: Preliminary Report Upon the 1986 and 1988 Seasons. *Levant* 21: 63-95.

McQuitty, A. and R. Falkner
1993 The Faris Project: Preliminary Report on the 1989, 1990, and 1991 Seasons. *Levant* 25: 37-61.

al-Mahameed, B.
2003 Excavations at Tall Dhiban, 2002 Season (in Arabic). *ADAJ* 48: 71-76.

Milwright, M.
2000 Pottery of Bilad al-Sham in the Ottoman Period: a Review of the Published Archaeological Evidence. *Levant* 32: 189-208.

Morton, W.
1989 The 1954, 55, and 65 Excavations at Dhiban in Jordan. Pp. 239-246 in A. Dearman (ed.), *Studies in the Mesha Inscription and Moab.* Atlanta: Scholars Press.

Naveh, J.
1987 *Early History of the Alphabet. An Introduction to West Semitic Epigraphy and Palaeography.* Jerusalem: Magnes Press.
1957 Les Poteries. Pp. 177-283 in P. Riis and V. Poulsen (eds.), *Hama Fouilles et Recherches 1931-1938 IV.2: Les Verrerries et Poteries Medievales.* Copenhagen: Carlsberg Foundation.

Pringle, D.
1986 *The Red Tower (al-Burj al-Ahmar): Settlement in the Plain of Sharon at the Time of the Crusaders and Mamluks, A.D. 1099-1516.* London: British School of Archaeology in Jerusalem.

Sauer, J. A.
1973 *Heshbon Potter 1971: A Preliminary Report on the Pottery from the 1971 Excavations at Tell Heshban.* Berrien Springs (MI): Andrews University Press.
1994 The Pottery at Hesban and Its Relationships to the History of Jordan: An Interim Hesban Pottery Report, 1993. Pp. 225-282 in D. Merling and L. Geraty (eds.), *Hesban After 25 Years.* Berrien Springs: Andrews University.

Simpson, S.J.
2000 The Clay Pipes. Pp. 147-172 in R. Harper and D. Pringle (eds.), *Belmont Castle: The Excavation of a Crusader Stronghold in the Kingdom of Jerusalem.* Oxford: Oxford University Press.
2002 Ottoman Pipes from Zir'in (Tell Jezreel). *Levant* 34:159-172.

Spaer, M.
1992 The Islamic glass bracelets of Palestine: preliminary findings. *Journal of Glass Studies* 34: 44-62.

Tushingham, A.D.
1972 *The Excavations at Dibon (Dhiban) in Moab: The*

Third Campaign, 1952-1953. Cambridge: American Schools of Oriental Research.

Walker, B.

2003 Mamluk Investment in Southern Bilad al-Sham in the Eighth/Fourteenth Century: The Case of Hisban. *Journal of Near Eastern Studies 62*(4):241-261.

2004 Mamluk Investment in Transjordan: A "Boom and Bust" Economy. *Mamluk Studies Review* 8.2:119-139.

Walmsley, A.

2001 Fatamid, Ayyubid, and Mamluk Jordan and the Crusader Interlude. Pp. 515-560 in R. Adams, P. Bienkwoski, and B. MacDonald, (eds.), *The Archaeology of Jordan.* Sheffield: Sheffield Academic Press.

Walmsley, A. and R. Smith

1992 The Islamic Period: The Later Islamic Periods. Pp. 188-198 in A.W. McNicoll (ed.), *Pella In Jordan 2: The Second Interim Report of the Joint University of Sydney and College of Wooster Excavations at Pella 1982-1985.* Sydney: Mediterranean Archaeology.

Winnett, F. and W. Reed

1964 *The Excavations at Dibon (Dhiban) in Moab: the First and Second Campaigns.* Baltimore: J.H. Furst.

Ziadeh, G.

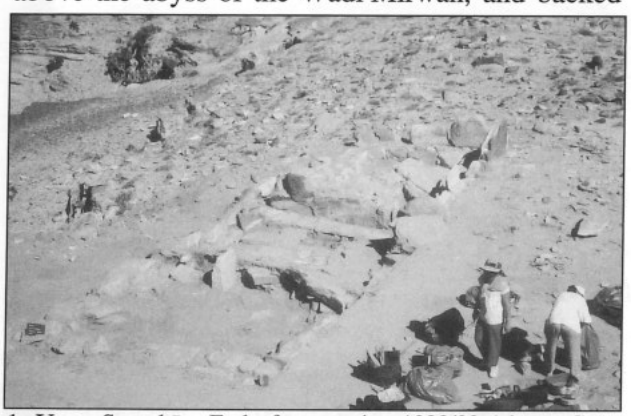
Ottoman Ceramics from Ti'innik, Palestine. *Levant* 27: 209-245.

EARLY BRONZE AGE UMM SAYSABĀN EXCAVATON CONTINUED IN 2001: INSIGHTS AND CONJECTURES

Manfred Lindner, Elisabeth Schreyer and Elisabeth Gunsam

Introduction

After the excavation in the settlement on Umm Saysabān by the Naturhistorische Gesellschaft (NHG) Nürnberg (Germany) directed by Manfred Lindner (Lindner *et al.* 2001: 287-310), the project was, on his behalf, carried on by another team from NHG in June 2001 (**Figs. 1, 2**). The settlement on the plateau of Umm Saysabān is located to the north of the ad-Dayr monument of Petra above the abyss of the Wādī Mirwān, and backed by the rock wall of Jabal ad-Dayr at 1000-1020m asl (**Fig. 3**). Two structures, rectilinear "broad-rooms", one with a door in the eastern wall, had been sounded and excavated. They seemed to belong to a longhouse of 10.30m length that may, after the "Arad type" architecture of one structure, have been originally used or planned as a dwelling but later used only for storage[1, 2].



1. Umm Saysabān. End of excavation 1998/99 (photo: Gunsam).



2. Localisation and end of excavation 2001 (photo: Gunsam).

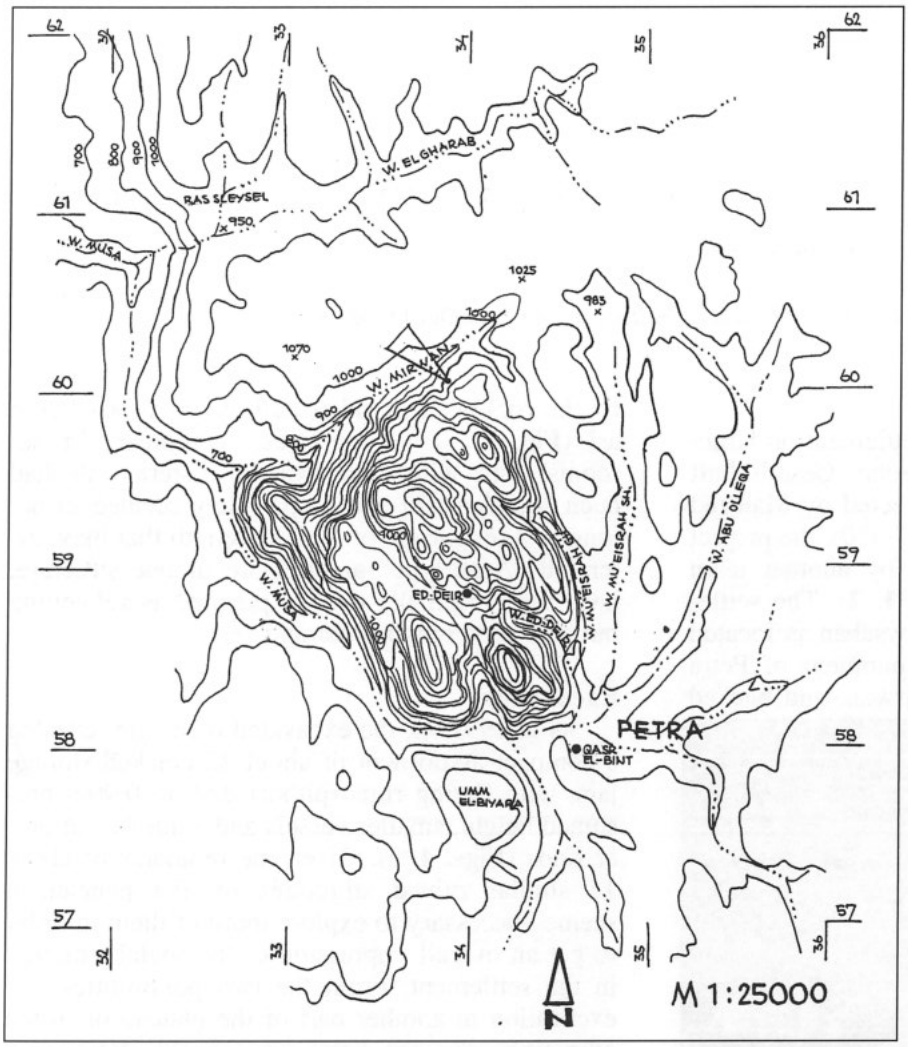
Excavation

As in 1997/98, the excavated rectangle revealed a compact assortment of about 22 cracked storage jars, with flaring rims (pithoi) 0.80 to 0.90m presumed height, smaller vessels and a number of other finds (**Figs. 4, 5**). Given the remnants of about 15 similar ruined structures on the plateau, it seemed necessary to explore more of them in order to get an overall impression of the social structure in the settlement. From the two possibilities, i.e. excavation in another part of the plateau or in the adjoining area, the latter was chosen. Because a prolongation to the south was to no avail, the new excavation area was placed 6m from the northern end of House 1 and also directed approximately towards the north (**Fig. 6**).

Beneath sand and debris in House 2, as it was called, bedrock was reached at a depth of 8cm, unfortunately preventing any stratigraphy but bearing witness to ample destruction of the exposed site at the rim of the plateau. The Ordovician sandstone slabs, which were still standing upright in House 1 had tumbled in House 2. Several were found lying inside the structure. There were no banks as in one of the previously excavated broadrooms. Seemingly the ground plan was not exactly aligned to House 1. Its size of 4.95 x 3.05m indicated that only part of the structure was revealed. In fact, a continuation towards the north was exposed, but

1. "The domestic architecture of EB II-III is characterized by rectilinear multi-roomed structures generally built of mud brick on stone foundations, sometimes with internal blanks" (Philip 2001: 180). Philip adds that locally available materials influenced the building practices.

2. Concerning House I and possibly others not yet explored, Holladay in another context suggested to differentiate between structures "primarily or completely relating to designed function; relating primarily to use function and final function" (1986: 108/109).



3. Location of Umm Saysabān. Palestine Map 1:25 000 (Gunsam).



4. Excavation in House 2, House 1 in background (photo: Schreyer). The excavation area showed the consequences of erosion and destruction.

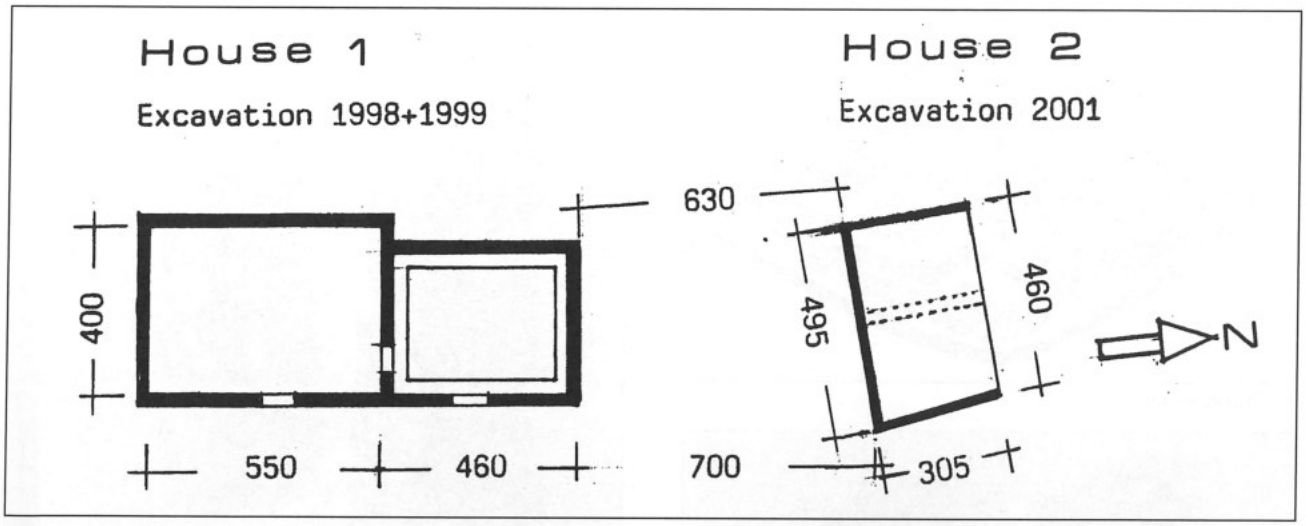


5. Detail of House 2 excavation (photo: Gunsam).

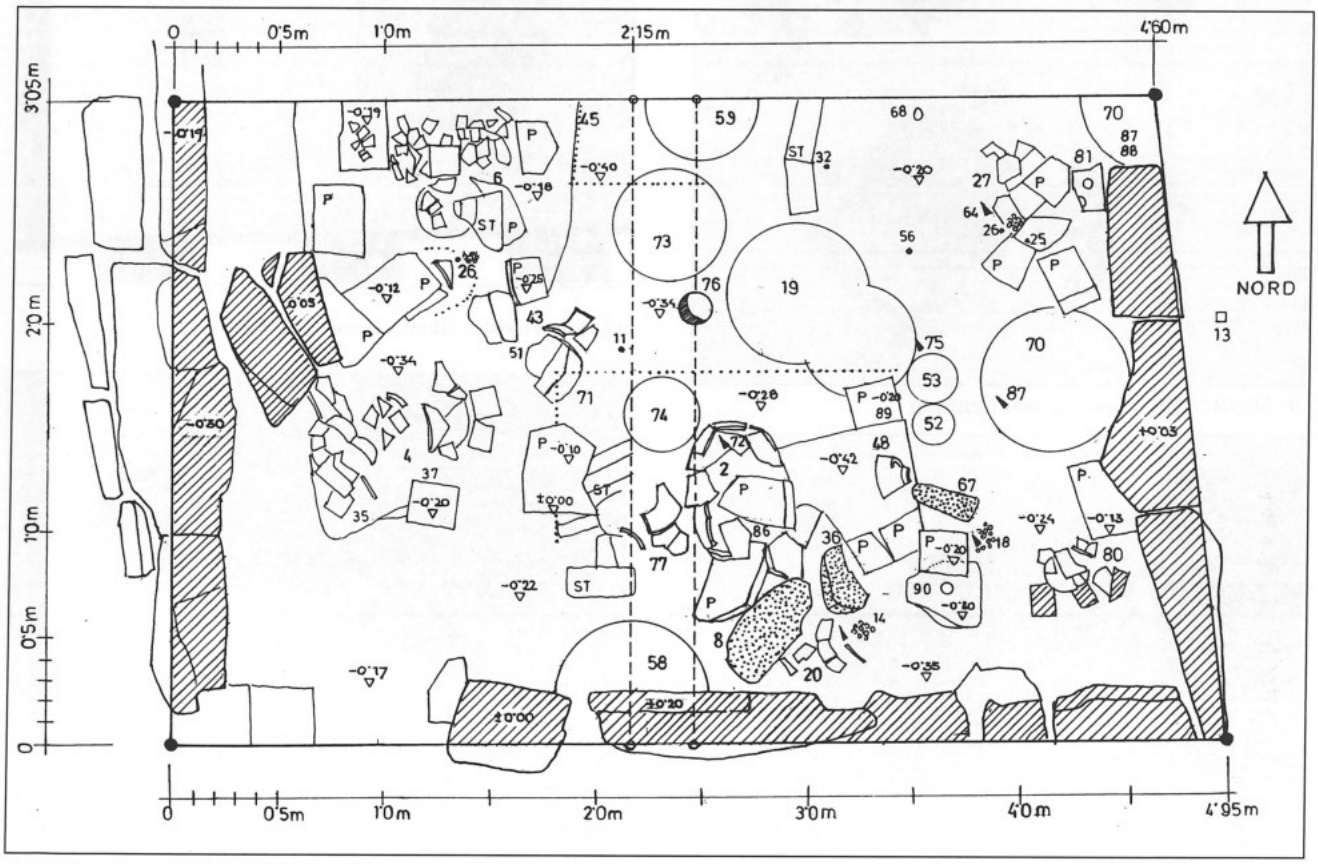
covered again. Bedrock fell down towards the east where it revealed, between tumbled wall and broken floor slabs, a concentration of cracked jars. It was in that part of the excavation that among others, Jar 2/4 and a corresponding bottom were verified as an example of the whole contents. House 2 was excavated in two squares with a bulk, which was removed later on. As there was no significant difference between the two halves the finds are listed for the whole excavated structure (**Fig. 7**).

Non Pottery Finds from House 2 (2001) (Figs. 8-14)

1. "Prayer stone" — Surface (**Fig. 8**).
2. Snail shells (*Trochoida seetzenii*).

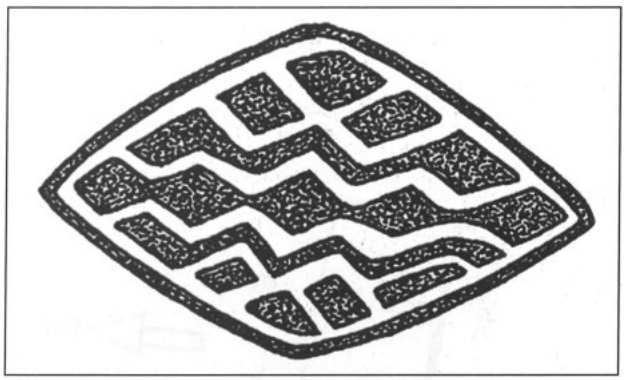


6. Locations of House 1 and 2 (Gunsam).

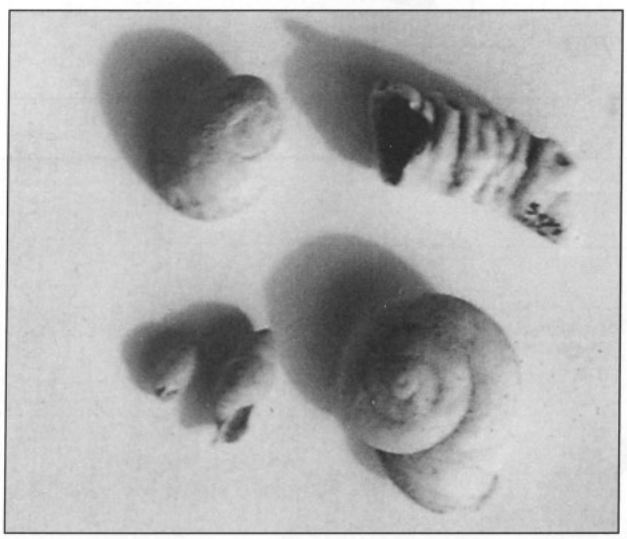


7. Excavation of House 2 (Gunsam).

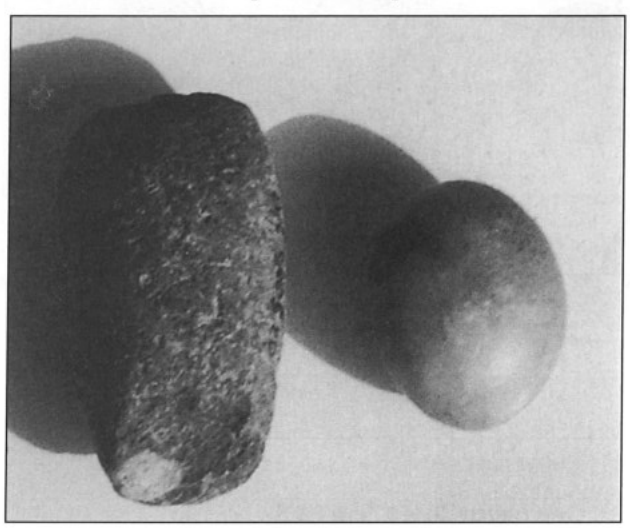
3. Shells of Buliminus sp. and Nerita sp. (from the Red Sea according to H.G.K. Gebel) (**Fig. 9**).
4. Undetermined fossil, perhaps a piece of coral (2/88) (**Fig. 9**).
5. Fire places of different sizes, one a larger burnt patch (2/71) (2/18/71).
6. Fragments of charcoal.
7. Depositions of finely grained loam (2/18).
8. One round lid of grey slate (2/86).
9. One quern 26 x 53cm (2/8).
10. One quern 10 x 34cm (2/67).
11. One rubbing stone (mano).
12. Stone chisel, used (2/51) (**Fig. 10**).
13. Rolled quartz pebbles, used (2/68).
14. Short "rods" of silicified stone fillings ca. 6cm long (broken) (**Fig. 11**).
15. Worked fragment of whitish stone (0.20 x 0.22m) 5cm thick (2/89).



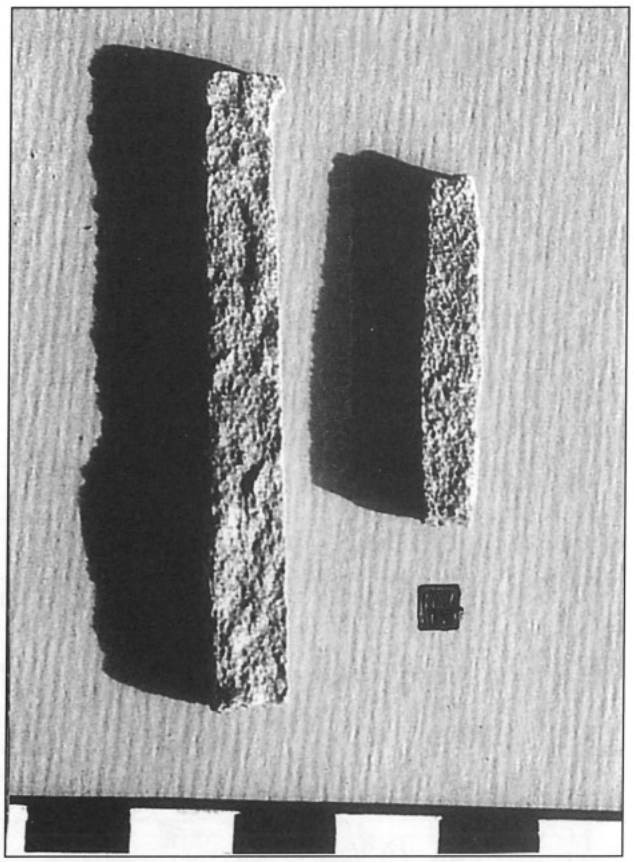
8. Prayer stone.



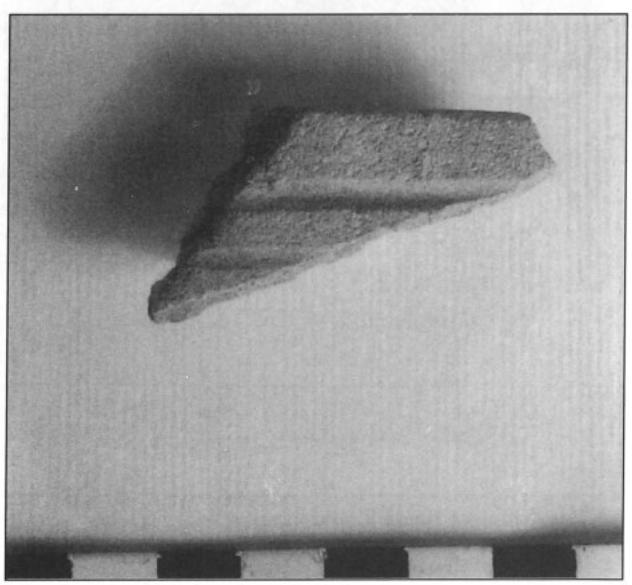
9. Shells of Buliminus sp. and Nerita sp.



10. Stone chisel.



11. Short rods of silicified stone fillings.



12. Undetermined fragment.

16. Whitish stone slab (0.36 x 0.30m) with socket (2/90).
17. Round socket (0.15 Ø, 0,13m deep) in bedrock (2/76).
18. Undetermined fragment, definitely not EBA (**Fig. 12**).
19. Naturally shattered flint sphere ("Hornknolle") (2/26) producing "debitage" (**Fig. 13**).
20. Worked white stone with a socket in the center (pivot?).
21. Small depot of ochre.
22. A couple of Nabataean sherds.

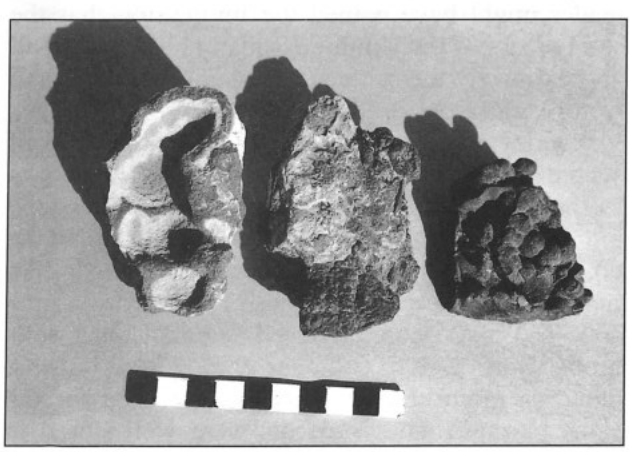


13. Naturally shattered flint sphere.

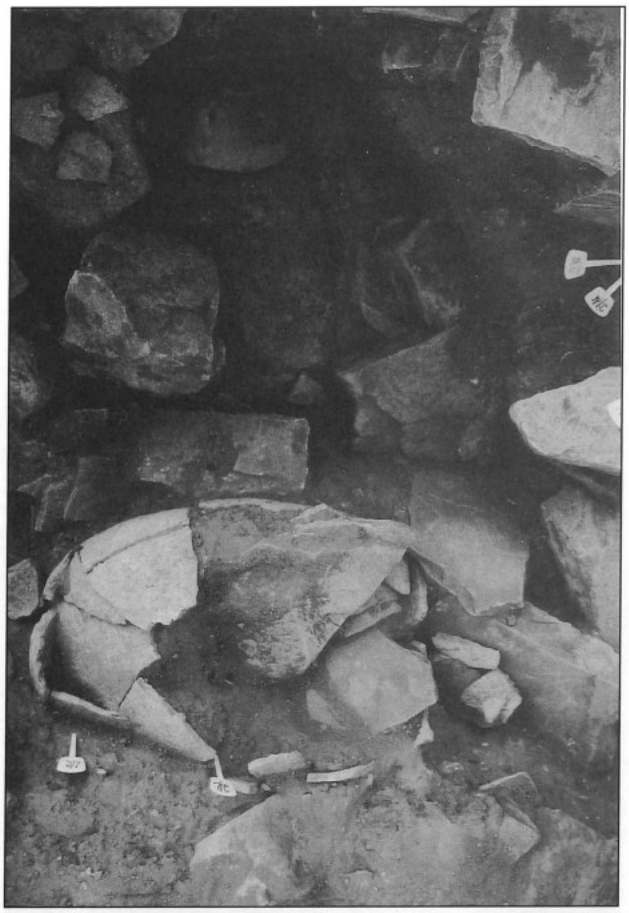
23. Lava encrusted sandstone (**Fig. 14**).

Observation

Compared with the big turnout of significant finds in 1998/99, the find material of 2001 was poor in variety as well as in number. The snail shells were the same as in House 1. The stone chisel and the rolled quartz pebbles, the only implements by the way, were not unexpected. Like a quern and a lid they had apparently survived due to their weight. Of interest might be the fragments of a worked flat stone, perhaps used for pivoting a door (?) and another worked stone presumably for erecting a roof pole as in House 1 (**Fig. 15**). The round socket in bedrock[3] was similarly seen at Khirbat al-Fīd (E. Gunsam pers. comm.) in an Early Bronze context north of Petra. The short silicified "Stäbchen" with a quadrilateral cross section were washed out of the sand. Grey lids of different diameters were found in greater number in House I. The loam might have belonged to wall or roof or ground floor. The lesser yield of significant finds is probably due to the exposed place, but perhaps also to a different furniture and equipment (**Fig. 16**).



14. Lava encrusted sandstone.



15. Storage jar in situ with a jug in background (photo: Gunsam).

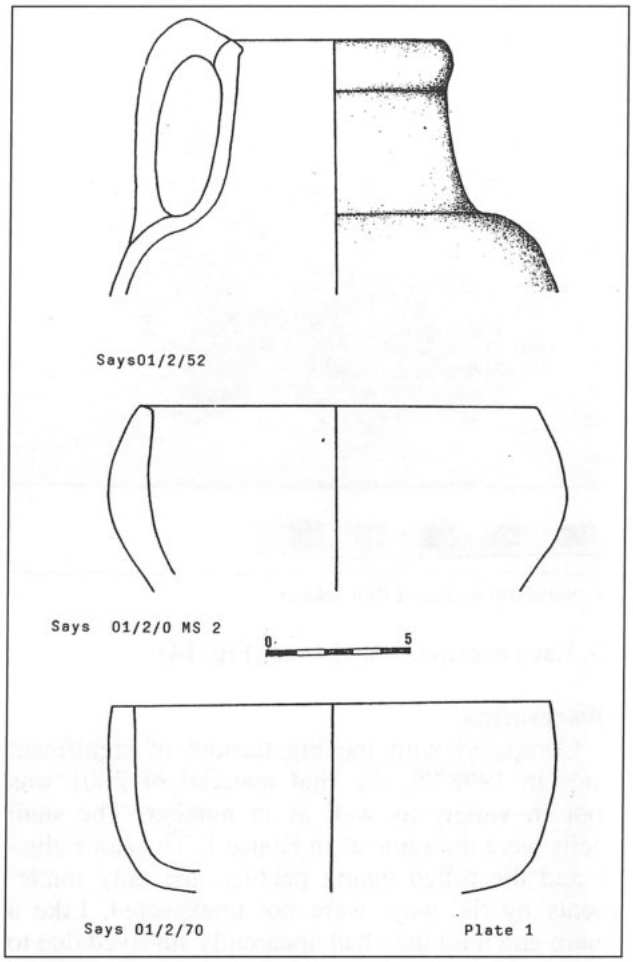
The Pottery of Umm Saysabān 2001 (Figs. 17-22)

The necked storage jars (pithoi) corresponded with the finds in House 1. They are obviously contemporaneous and were dated by H. Genz to "within the Early Bronze Age (3100-2700BC) in EBII/III". The difficulty of dating is explained by the peripheral location where, according to H. Genz, the development of new forms may have been slower. As far as could be made out, all vessels were handmade from red clay with fine to medium grits, none

3. The houses were erected on and partly sunk into a tableland of white Ordovician sandstone breaking and easily broken into large slabs. Fallen from higher up, pieces of it are encrusted with lava that had solified in pie-sized form. Massive examples of more than ashlar-size were used as corner stones in House I.



16. End of excavation House 2. Note the hole in white stone (photo: Gunsam).



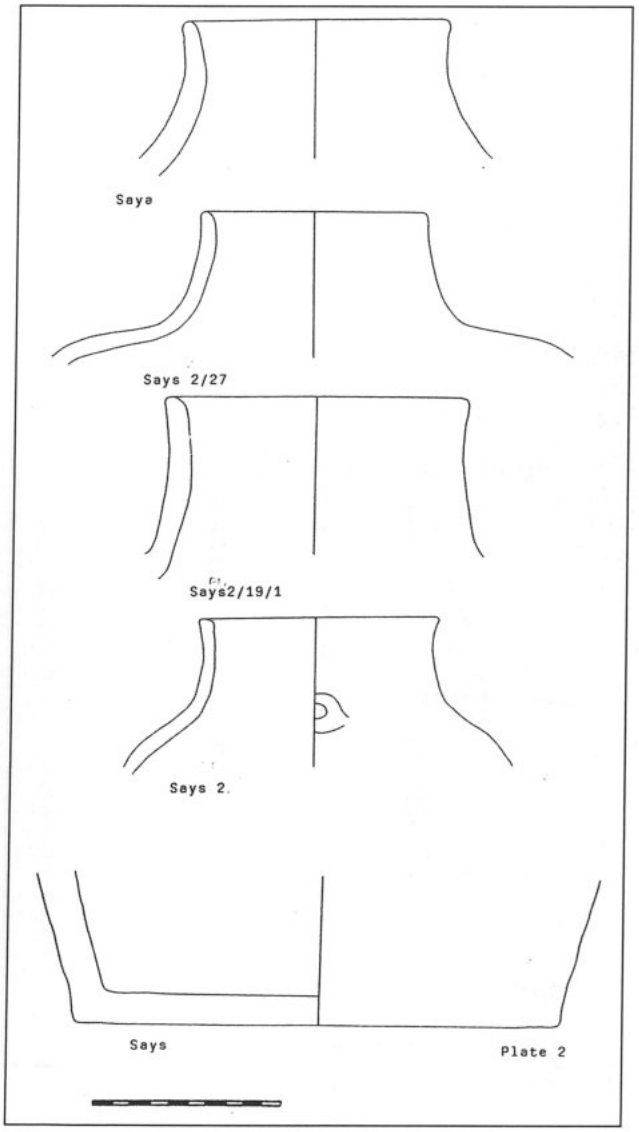
17. Pottery from Umm Saysabān.

of them organic. Apparently they were not home worked but rather made by iterant workers or in a workshop (Genz 2004)[4]. There were remarkable differences in the length and tilt of the necks. The apertures varied between 0.11 and 0.20cm. Surprisingly, several fragments belonged to vessels of estimated 0.60m corpus diameters. According to the number of presumed whole vessels they were originally stored with the lighter ones on top. Their fragments were of course found between the larger pithoi. The handling was alleviated by upturned ledges, one of them incised. A jug equipped with a loop handle, two bowls and a twin-bottle were stored household ware just as vessels with thin loops and lugs, all of them outside the storage pithos type. There were a few fragments of small spherical vessels but no cups to speak of and no platters to be identified. Contrary to House I and its surface no tabular scrapers were found in and around House II.

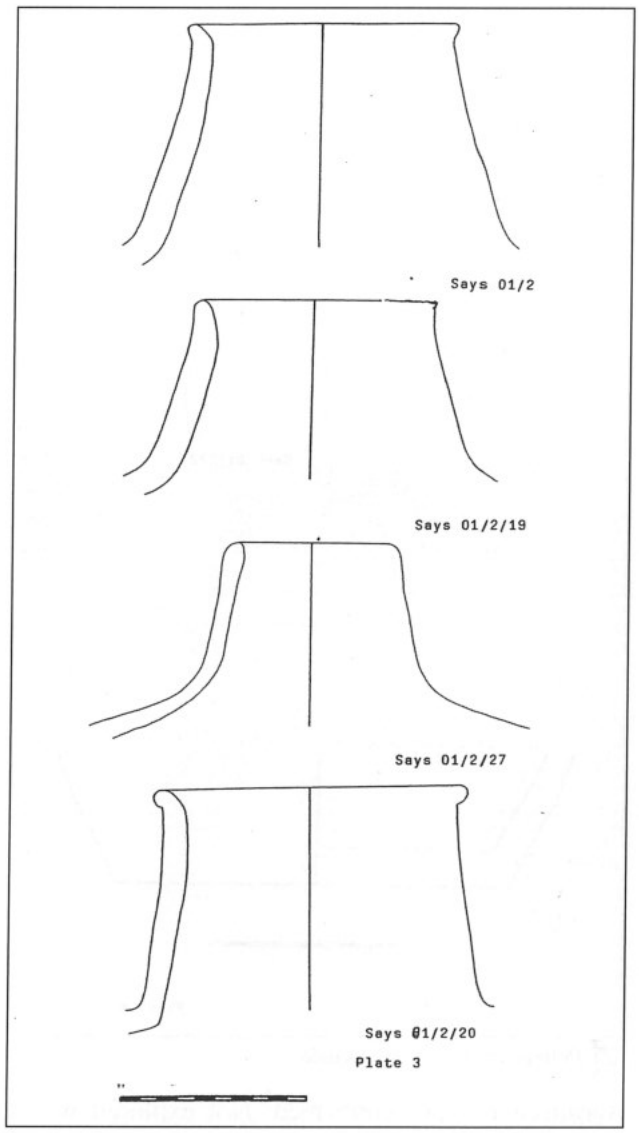
Discussion

In the first report on the 1997/98 project, the reader might have gained the impression that the storage jars of the Umm Saysabān plateau were all approximately the same size and configuration and were exclusively used for the storage of cereals, like barley or wheat (**Fig. 23**). With the openings of such different diameters and the variety of necks as to their length, tilt, and additionally the oversized pithoi, different contents of the vessels might be conjectured. It is true, short pieces of a bristle-like material were detected in House I after washing the soil. The microscope revealed "cubical plant cells probably of cereals" (Lindner *et al.* 2000), but that does not prove that all vessels were used for the same purpose, though cereals were well stored in the wind-protected place. Theoretically, peas, len-

4. Regrettably, Hermann Genz who analyzed the EB pottery of Umm Saysabān in 1998/99 was not available for this publication. While assessing and analyzing EB potmarks, he concludes that visible potmarks are quite plausibly connected with the contents of the vessels. There were no potmarks at the Umm Saysabān jars so far, but, as H. Genz suggests, unmarked vessels could be used for storing varying contents (Genz 2001: 226-227).



18. Pottery from Umm Saysabān.



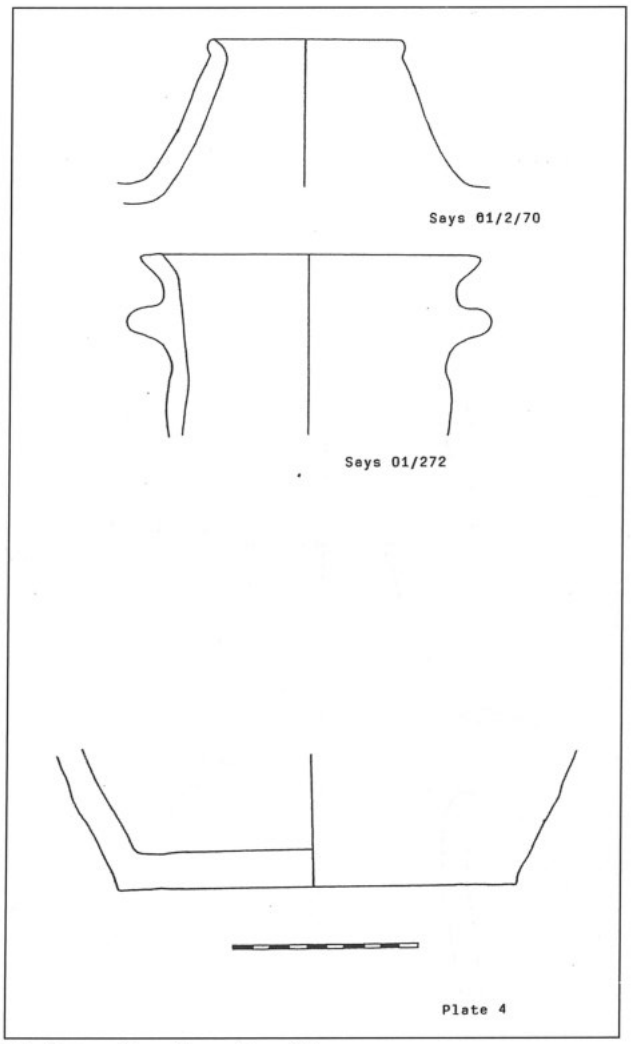
19. Pottery from Umm Saysabān.

tils, chick-peas, (nut?) oil or even wine could have been stored[5]. Unfortunately, no residues of contents were found among the heavily eroded fragments. Though the whole pottery assemblage testifies to storage, lastly we do not know what exactly was stored.

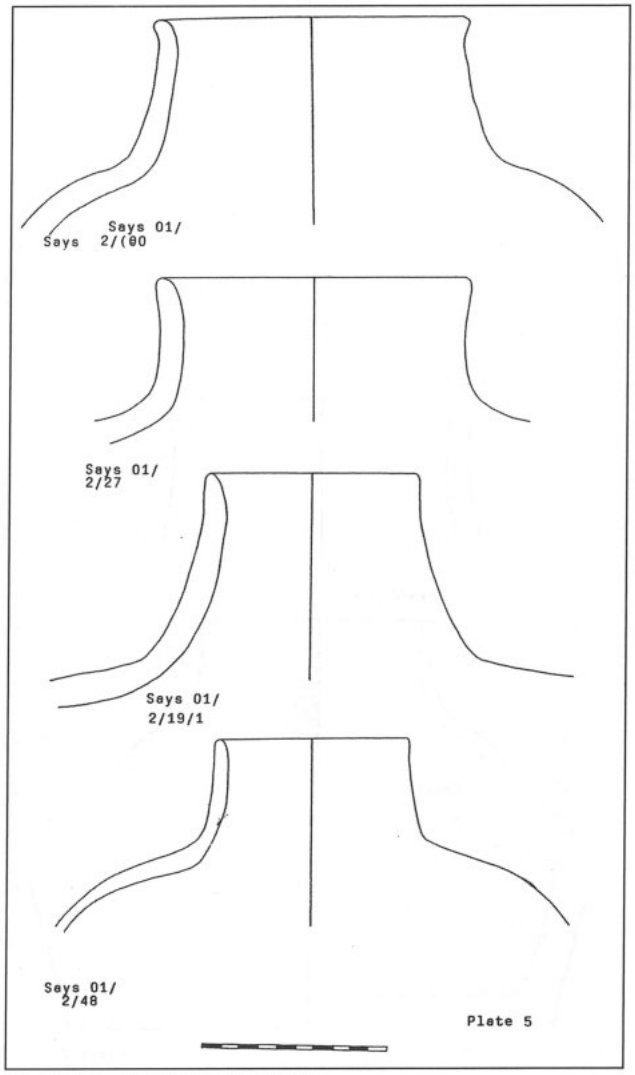
Previously it was assumed that the people on the plateau lived there only in summer and moved in winter to the warmer climate of lower valleys to the north of Umm Saysabān. However, it was suggested that the people of the Saysabān plateau might have lived there all year round, only leaving it for agricultural, herding and trading activities. By using movable tents, they might not have suffered from the accumulation of vermin. Additionally the number of the population was estimated to no more than 50 to 80 adults, conjecturally assuming that each family had their own storage facility, with animals and children, they would have lived in a crowded space.

Mineral deposits on a rock wall suggests water falling over a long time, and a large hole beneath is filled with heavy boulders. The hole would have allowed run-off water from (natural) catchments above to be stored. Originally the water ran down to the steep Wādī Umm Saysabān as it does now. Near the southern end of the plateau there is another run-off conducting water perhaps to a reservoir further down the mountain. The existence of a cistern to the north of the excavation area was

5. Admittedly, in a warmer climate, already in Neolithic and Chalcolithic periods cultivation of emmer, barley and lentils was practised. The inhabitants of the Umm Saysabān plateau might have at least known about possibilities, even if they could not realize them or not all of them (Bourke *et al.* 2003: 377).



20. Pottery from Umm Saysabān.

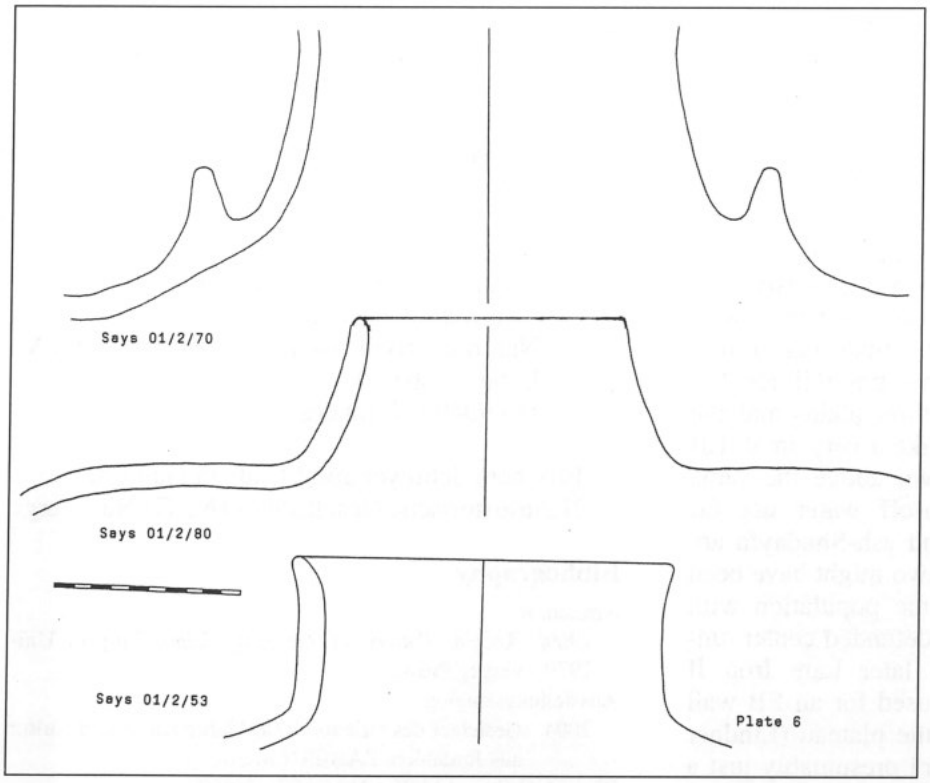


21. Pottery from Umm Saysabān.

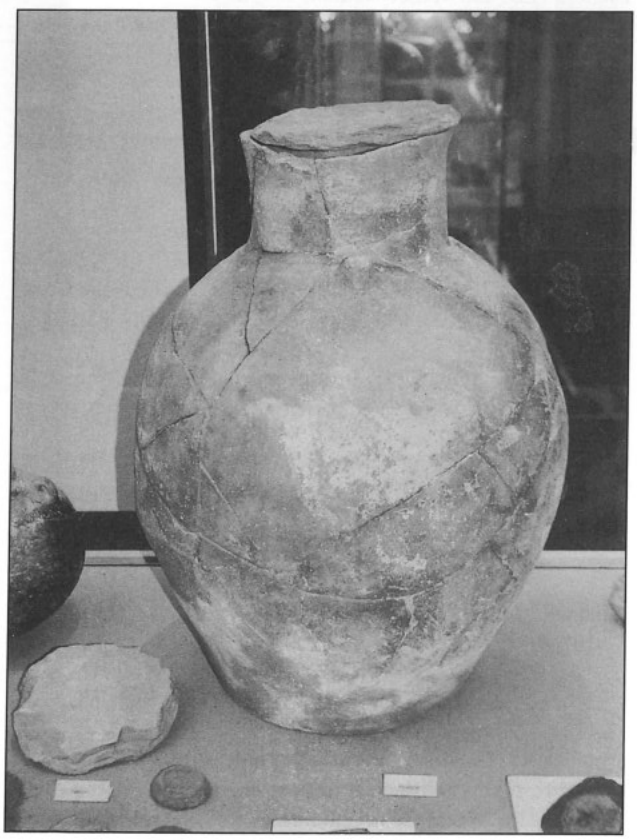
surmised but not confirmed. Not explored was a cave in the rock-wall.

Traces of house foundations to the northeast of the walled settlement were noted on the way to Rās al-Mu'ayṣra al-Gharbiyya (Lindner *et al.* 2000) (**Fig. 24**). Such an extension of the settlement with storage houses or dwellings, if verified, would require an entirely new analysis of the inhabitation of Umm Saysabān. The majority of the population might have lived outside the walled place, which would in this case have been a kind of "acropolis", a refuge and the storage center for an agricultural community.

When, why and how was the settlement of Umm Saysabān abandoned? No traces of a later occupation, except the use by Nabataean herders (and their successors to this day), were noticed .The "When" should have been still in the third millennium BC. The "Why" allows for different conjectures. Beside the fireplaces, which may be later, there are no remnants of a wanton destruction or an extensive fire. Other hazards like deforestation, climatic changes with lack of rain, leaching of soil, earthquakes and epidemics can be imagined. The people of Umm Saysabān might have moved to one of the other seven EB sites around Petra, but so far none have revealed a similar assortment of storage jars. The "How" is somewhat easier to answer. The storage jars were left, because they were too heavy, respectively too inconvenient to be carried. Possibly they were later cracked by treasure-hunting or curious herders. Did the people depart in summer or winter? One should assume in summer when the harvest had been brought in. They might have left burials behind them, but no graves were discovered at Umm Saysabān, where shafts or burial houses are still to be detected. Though Umm Saysabān cannot be (yet) called an urban settlement, its fate might be related to the decline of urban culture with the end of Early Bronze Age III and the simultaneous abandonment of "all

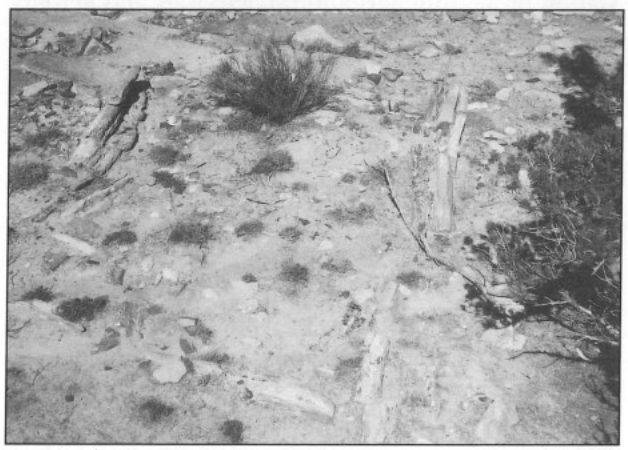


22. Pottery from Umm Saysabān.



23. Restored storage jar from Umm Saysabān and lid (photo: Lindner).

buildings" as attested again by S. Riehl recently (2004, 2: 101).



24. House foundation to the northeast of the walled settlement.

Conclusions

The continued excavation of Umm Saysabān in 2001 allows a few insights and some conjectures as to how people of the EBA lived in southern Jordan, respectively in the mountainous region to the north and south of Petra. In his article on the "Early Bronze I-III Ages" Graham Philip (2001: 163-269) regrets that "the material from southern Jordan suffers from the fact that the non-sedentary subsistence strategies most common in this area tend to produce impoverished ceramic repertoires" and "(EB) evidence from southern Jordan is both limited in quality and difficult to interpret". However, since 1988 till 1998 no less than eight new EBA

sites were discovered by the Naturhistorische Gesellschaft (NHG) Nürnberg directed by M. Lindner and subsequently with the (unstratified) pottery published (Lindner *et al.* 1990; Lindner and Genz 2000). The discovered EB sites vary extensively in all respects (Lindner *et al.* 2001: 307-308). They revealed all properties pertaining to non-urban settlements, but not all of them at the same place: at as-Sāda an unwalled but strategically defensive village of ca. 25 rectangular houses; at Ṣabrā (Rās Dakhlallah/Ṣabrā N) a relatively small plateau in a rockwall without any subsistence possibilities, but probably relying upon agricultural plains and the spring in the Wādī Ṣabrā just like a very small EB settlement (Ṣabrā 5) right down above the same wadi and profiting from run-off water not far away; Umm Babayn, Ḥāriq and ash-Shudayfa are so close together that the first two might have been "outposts" of one and the same population with ash-Shudayfa as the naturally defended center, unless the stone material of a later Late Iron II (Edomite) fort was originally used for an EB wall at the least protected side of the plateau (Lindner 2003); the saddle of Jabal Fidrā presumably just a station protecting agricultural activities and herders down in the valley while enjoying the shadow of a large open cave room from where a wide panorama could be overseen. Eventually the plateau of Umm Saysabān became most significant because it was possible to uncover several structures with a large amount of pottery, a stone-built wall with a postern gate and a supposed cistern collecting the run-off from a steep rockwall (Lindner *et al.* 2001; Lindner and Genz 2000; Lindner, Genz and Gunsam 2000).

The storage character of walled Umm Saysabān might be explained by gaining prosperity under the protection of chiefdoms. Their staple finance would be evidenced by intensified production, storage and transport possibilities (Philip 2001: 167). But according to its size it seems more realistic to think of "villages, complex and socially and economically diverse" as described by Schwarz and Falconer (1994). "Such a concept can be better related to a flexible, heteroarchical world of corporate villagers". The stone wall built around the lesser protected part of the location indicates a subsistence overload. If the existence of more house ruins outside the wall should be verified, the walled place on the plateau might be considered as the "acropolis" or the refuge that was used as a storage center.

Acknowledgements

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Bibliography

Amiran, R.
1969/1970 *Ancient Pottery of the Holy Land.* Rütgers University Press.

Ausstellungskatalog
2004 Gesichter des Orients. 10000 Jahre Kunst und Kultur aus Jordanien. ZABERN Mainz

Bienert, H.D. and Müller-Neuhof, B. (eds.)
2000 *At the Crossroads.* Essay on the Archaeology, History and Current Affairs of the Middle East, (47-61).

Bourke, S. *et al.*
2003 Preliminary Report on the University's Eighteens and Nineteenth Seasons of Excavations at Pella/Tabaqatfahl in 1996/97. *ADAJ* 47: 335-389.

MacDonald, B., Adams. R. and Bienkowski, P. (eds.)
2001 *The Archaeology of Jordan.* Sheffield.

Genz, H.
2004 Der Beginn des städtischen Lebens - Die frühe Bronzezeit in Jordanien. *Gesichter des Orients:* 95-102.

Holladay, J.S.
1986 The Stables of Ancient Israel. Pp. 108-109 in L.T. Gerartry and G. Harr (eds.), *The Archaeology of Jordan and Other Studies.*

Lindner, M., Farajat, S., Knauf, E.A and Zeitler, J.P.
1990 Es-Sadeh - A Lithic-Early Bronze-Iron II (Edomite) Nabateaean Site in Southern Jordan. Report on the Second Exploratory Campaign, 1988. *ADAJ* 34: 193-237.

Lindner, M. and Zeitler, J.P.
1997/98 Sabra. Entdeckung, Erforschung und Siedlungsgeschichte einer antiken Oasenstadt bei Petra (Jordanien). Afo 44/45

Lindner, M., Genz, H. and Gunsam, E.
2000 A Chalcolithic-Early Bronze Age Site on Top of Jabal Fidra, Southern Jordan. In: *At the Crossroads* 21-34.

Lindner, M. and Genz, H.
2000 Five Early Bronze Age Sites North of Petra: Newly Discovered in 1993-1997. Preliminary Report on Exploration Surveys of the Naturhistorische Ge-

sellschaft Nürnberg (NHG). In: At the Crossroads 47-61

Lindner, M., Hübner, U. and Genz, H.
2001 The Early Bronze Age Settlement of Umm Saysaban North of Petra and its Topographical Context. Report on the 1988/99 Survey. *ADAJ* 45: 287-310.

Lindner, M.
2003A Über Petra hinaus. Archäologische Erkundungen im südlichen Jordanien. Rahden/Westf.
2003B In press
Outlines of a Promising Archaeological Project: The as-Shudayfah Plateau North of Petra (Jordan). The Second International Conference on Science and Technology in Archaeology and Conservation. Zarqa-Jordan
(in preparation) Another Early Bronze Age Site in Southern Jordan: Ras Dakhlallah (Sabra N) Discovery, Description and Finds.

Neef, R.
2004 Umwelt, Ackerbau und Sammelwirtschaft vor 9000 Jahren - Ergebnisse der Archäobotanik. In: 10000 Jahre Kunst und Kultur aus Jordanien. Zabern: 67-71.

Philip, G.
2001 The Early Bronze I-III Ages. Pp. 163-232 in The Archaeology of Jordan.

Riehl, S.
2004 Archaeobotany at the Early Bronze Age Settlement of Kirbet es-Zera. A Preliminary Report. *ZDPV* 120/2: 102.

Schwartz, G.M. and Falconer, S.E.
Rural Approaches To Social Complexity. In Schwartz and Falconer (eds.), Archaeological Views from the Countryside. Smithonian Institution.

EXCAVATIONS AT LATE NEOLITHIC AL-BASĀTĪN IN WĀDĪ ZIQLĀP, NORTHERN JORDAN

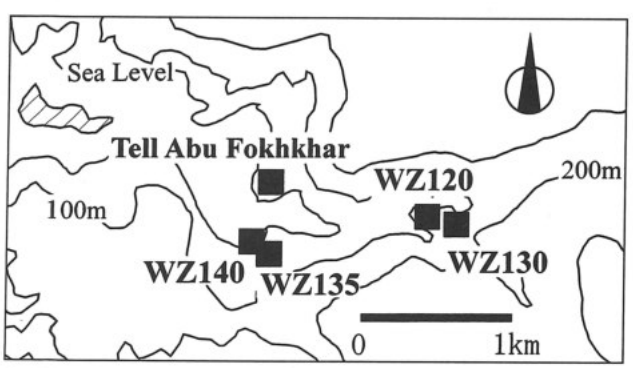
E.B. Banning, Kevin Gibbs and Seiji Kadowaki

The Wādī Ziqlāp Project of University of Toronto conducted two seasons of excavations at a Late Neolithic site, al-Basātīn (WZ 135/140), that the Wādī Ziqlāp survey discovered in 2000 (Maher and Banning 2001). The goals of the 2002 season were to determine the extent of the site, to discover whether architecture and features are present, and to obtain an adequate sample of material culture for comparison with site WZ 200. The 2004 season was to continue most of these goals as well as to expose a house structure and associated surfaces, if possible.

The Wādī Ziqlāp Project is an ongoing regional examination of changing landscapes, settlement and land use in Wādī Ziqlāp's drainage basin. The project's main focus has been the Neolithic period, but the work encompasses excavations at sites ranging from Epipalaeolithic to Early Bronze Age, along with survey work covering all pre-modern periods.

Site Contexts

The excavations are distributed over two sites. Site WZ 140, which was the original focus of the 2002 work, occurs about 0m ASL on a low slope or swale alongside the higher terrace, WZ 135, on the south side of Wādī Ziqlāp, opposite Tall Abū al-Fukhār (**Fig. 1**). When excavations revealed that the artifacts at WZ 140 were in colluvium most likely derived from WZ 135, the focus of remaining fieldwork shifted to the larger, upper terrace, around 25m ASL, at the latter site, and the 2004 field season resumed work at this upper terrace (**Fig. 2**).



1. Site distribution in the lower Wādī Ziqlāp.

Both these terraces are only 1km downstream from Neolithic Tall Rākān (WZ 120; Banning and Najjar 2000) and almost within sight of it. Because of the numerous springs in this part of the wadi, the stream of Wādī Ziqlāp is perennial here, encouraging fairly intensive modern land use, including pomegranate groves near the wadi channel and olive groves and almonds on and around both WZ 135 and WZ 140.

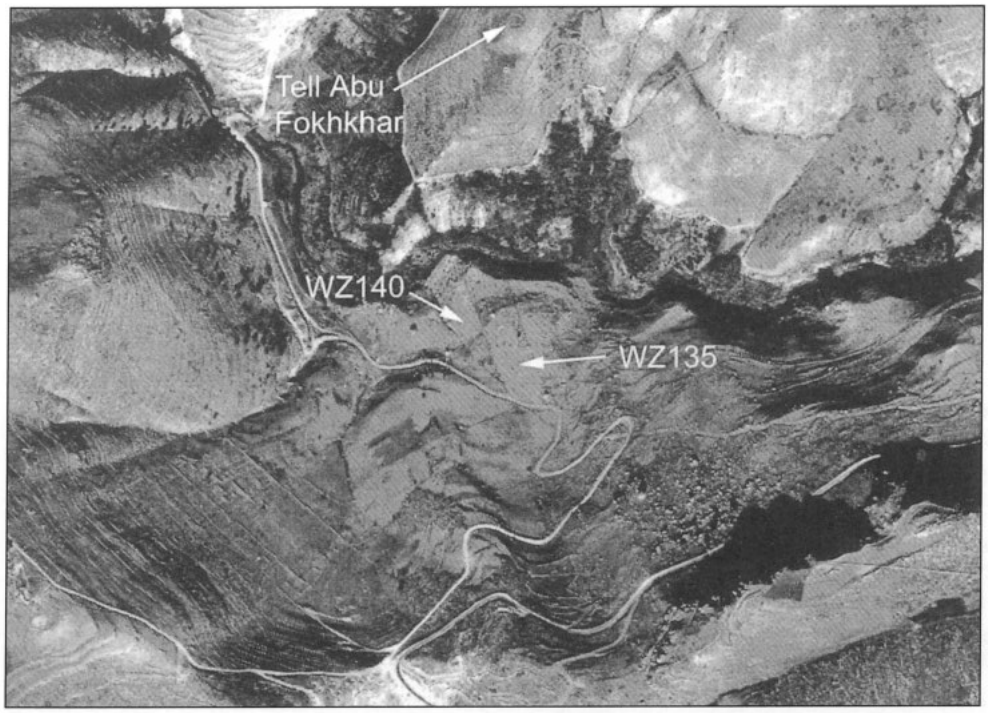
Methods

Excavations employed methods and recording system that the Wādī Ziqlāb Project has used for more than a decade. Excavation units were based on a nominal 3m x 3m grid, and provenience was based on the lithological characteristics of deposits and spatial extent within each unit. Excavators subdivided stratigraphic units vertically by ~5cm spits when there were no lithological grounds for changing locus. We collected numerous samples of sediment for pH, flotation, and micromorphological analysis, and screened all archaeological deposits below the plough zone. In most cases, this was 100% screening through a mesh with apertures approximately 3.5mm, but, for some sediments, like the plough zone, typically only 10% or 20% was screened, as indicated on field forms.

During excavation, we bagged approximately 750 liters of sediment for flotation. However, the results of flotation await analysis of the light and heavy fractions in Toronto. To date, the small number of samples that have been examined have yielded very little apart from small fragments of wood charcoal.

Excavation Plan and Stratigraphy

At the lower terrace, site WZ 140, most of the Neolithic material came from two deep soundings in Areas J15 and K15. These are low on the slope

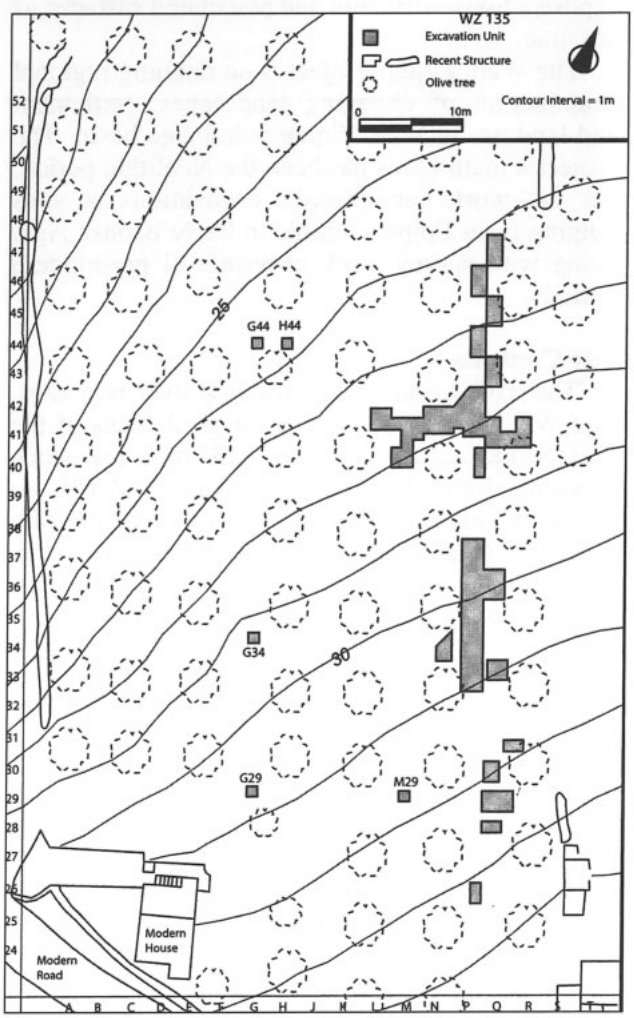


2. Aerial photo showing location of WZ135 and WZ140.

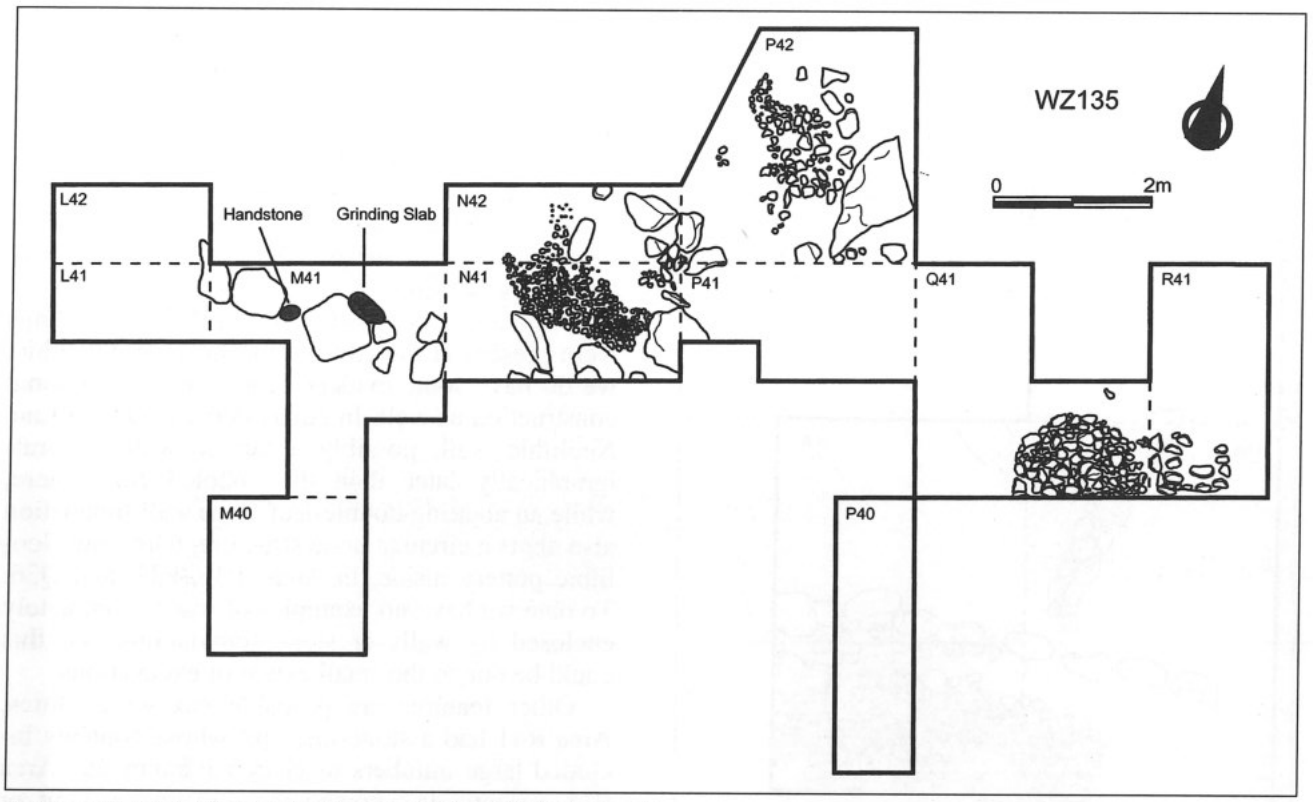
and the Areas closest to the test probe, G13 that produced a fair number of Neolithic artifacts in 2000. Most of the test units in WZ 140 produced Neolithic artifacts mixed with Epipalaeolithic or later artifacts in colluvium that probably derived from the upper terrace at WZ 135, or from an ancient extension of that terrace to the west, which erosion has now cut away. It is possible that the lower part of the slope, in the region of Areas G13, J15 and K15, has some *in situ* Neolithic deposits but if so, these are more than a metre deep and the probability of detecting undisturbed architecture without extensive excavation in this part of the site seems remote.

The most significant results of the 2002 season came from the most centrally placed excavation units in site WZ 135 (**Figs. 3 and 4**). Area M41 encountered two large, basalt grinding stones and many Neolithic artifacts, including adzes and sickle elements, but it and neighbouring L41, L42 and M40 appeared to be disturbed by ancient alluvial gullying that probably removed original Neolithic material and deposited other Neolithic artifacts from a short distance upslope along with alluvial gravels. Area N41, however, encountered a rectangular, cobble-paved floor, cut by a later pit at its northeast corner (**Fig. 4**), while Areas P41 and P40 uncovered several superimposed outdoor surfaces covered with Neolithic flakes, tools, sherds, and animal bone.

Excavations in 2004 began with new units in the vicinity of N41 and P41 and extending NNW:



3. Excavation units at WZ135.



4. Map of Late Neolithic architecture around Area N41 (Stratum I).

Areas Q41, P42, Q43, P44, Q45, P46, and Q47. Not surprisingly, units adjacent to those that yielded Neolithic surfaces had similar results. Area Q41 had a series of apparently outdoor surfaces and P42 had some of the surfaces, sloping downward over some bedrock.

The excavation units north of Q43, however, although containing some Neolithic material, exhibited signs of an ancient tributary wadi or gully, with substantial alluvial deposits in P44 in particular. They appeared to be off-site, and were closed on encountering culturally sterile deposits.

The excavators of the closed units moved to new ones upslope at R31, R41, Q28, Q29, Q30, Q31, N34, P33, Q33, Q36, P34, P35, P36, and P37. Area R41, like neighbouring Q41, yielded Late Neolithic surfaces and a stone-lined pit. Unit P36 and others later opened adjacent to it, contained Late Neolithic deposits and architecture (**Fig. 5**). Units farther upslope, however, showed evidence for later occupation.

It is now possible to identify two major strata at the site. Stratum I, found mainly in Areas near to and southeast of the main 2002 excavation units, contains features, architecture, and artifacts of the Late Neolithic. It appears to be the remains of a small, Late Neolithic farmstead with few buildings and artifacts that have parallels to Ṭabaqat al-Būma (WZ 200). Stratum II extends over an area upslope and overlies Stratum I in Areas P33 and P35. It contains Early Bronze Age sherds, including some possible Esdraelon ware. In Areas Q29 and Q30, Stratum II includes a substantial, curved stone wall with associated surfaces.

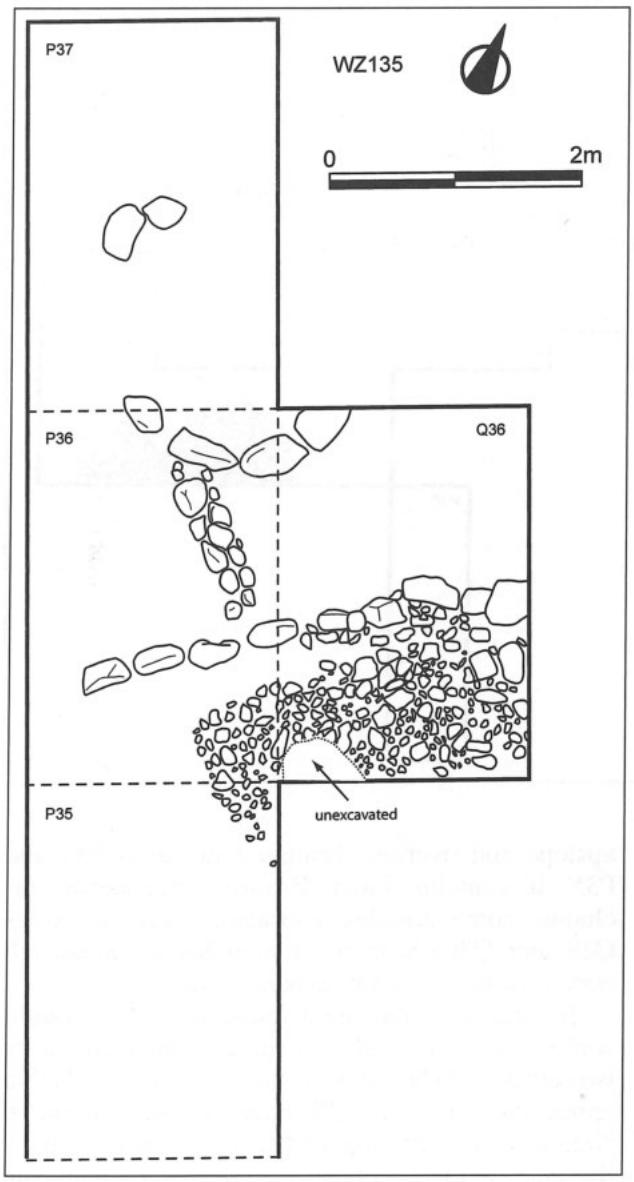
In Area P33, the stone foundation of a straight wall is associated with one surface, and covered by two other surfaces, that displayed many sherds that appear predominantly EB, many of them flat-lying. Neighbouring units opened in the attempt to trace the plan of the building, in Areas N34, P34, and Q33, yielded high densities of pottery, just as P33 did. A deeper sounding in part of P33 intercepted deposits containing Late Neolithic pottery.

Area P36 was highly disturbed by recent activity to considerable depth, but its deeper deposits contained parts of stone walls and fairly large amounts of Late Neolithic sherds and lithics, including denticulated sickle elements like those found frequently in Areas N42, N41, and P41. Additional units were opened in Areas P35, P37, and Q36 to expose more of the Neolithic deposits and architecture.

Stratum I

Stratum I deposits included remains of several buildings, cobbled surfaces, outdoor surfaces, and features.

Cobbled platforms or floors were a frequent fea-



5. Map of Late Neolithic architecture around Area P36 (Stratum I).

ture. The 2002 excavations revealed a cobbled floor in Area N41, with two rectilinear edges but no clear walls. A later pit cut through the northeast part of the floor.

Other cobbled surfaces, again without associated walls, appeared in Areas P41/Q41, P42, and P35/P36/Q36, suggesting that such features were common in the site's Late Neolithic phase (**Fig. 6**). These are similar in many respects to cobble floors in two structures from Late Neolithic Ṭabaqat al-Būma (WZ 200), except for the lack of enclosing walls. However, a cobbled platform that occurred in the final stratigraphic phase at Ṭabaqat al-Būma might be a close analogue.

At first we hypothesized that the walls had been simply robbed out, apart from some very large stones — indeed this may be the case in Area N41/N42 — but in others it appears that the cobbled surfaces had no associated walls of brick or stone. This suggests the possibility that they were either outdoor features of some kind or, more probably, the floors of tents or other insubstantial structures, similar to those that Dunand (1973) reconstructs for the wall-less plaster floors at roughly contemporary Byblos.

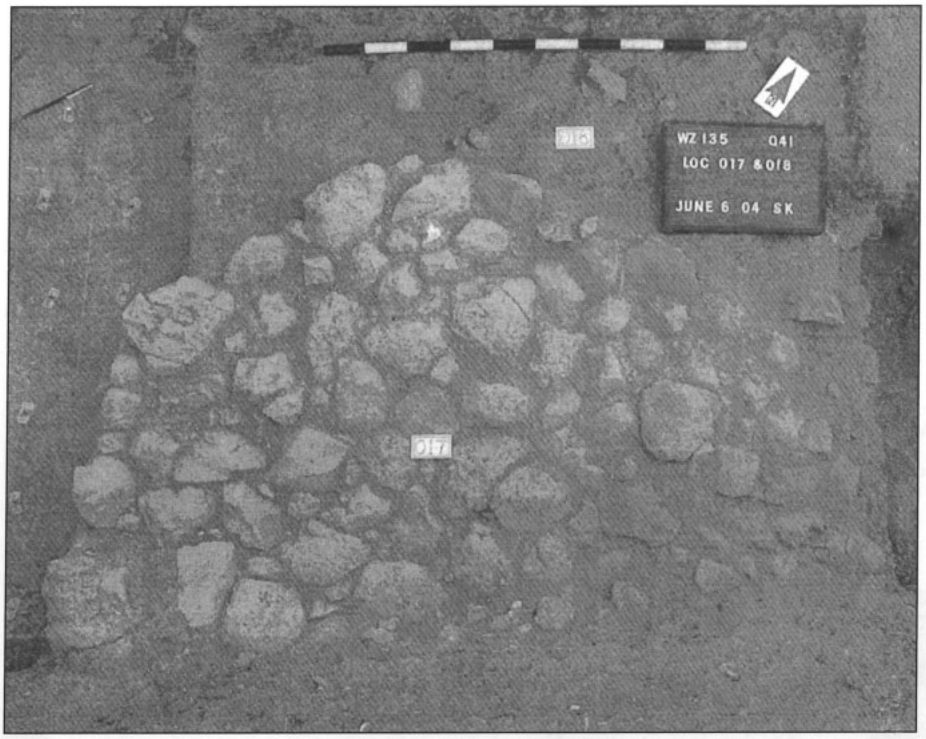
Although it is possible that wall-less buildings were present at the site during the Late Neolithic, we do have some evidence for more conventional construction as well. In Areas P36 and Q36, a Late Neolithic wall, possibly a terrace wall, is stratigraphically later than the cobbled floor there, while an abutting double-leaf stone wall foundation also abuts a circular stone structure, with Late Neolithic pottery inside, in Areas P36, P37, and Q36. To date we have no examples of rooms completely enclosed by walls or stone foundations, but this could be due to the small extent of excavations.

Other features are probable storage facilities. Area R41 had a stone-lined pit whose contents included large numbers of charcoal fragments. Area P35, meanwhile, showed the remains of a pit or silo feature with thick, white clay lining, that extended a short way into Area P36 to the west of the cobbled floor (**Fig. 7**).

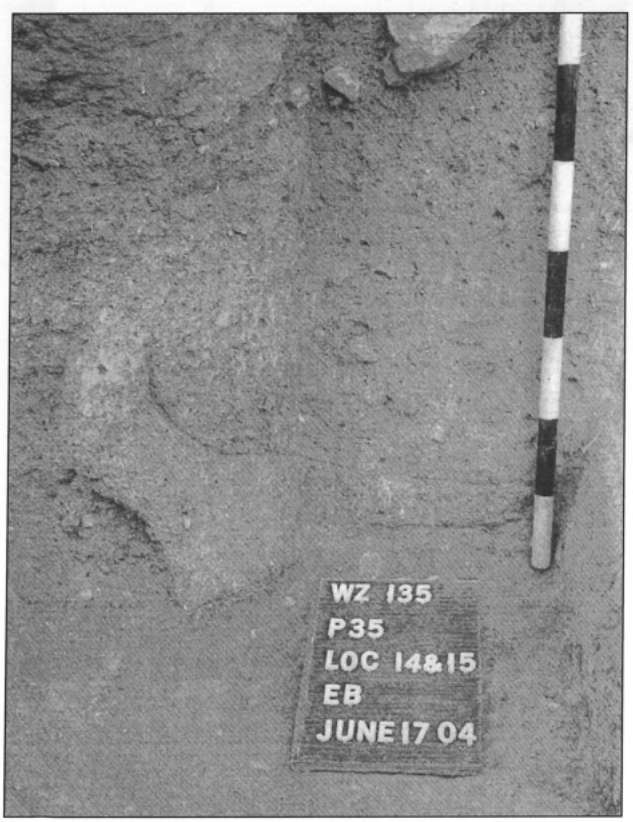
Stratum I is also notable for its well preserved, superimposed, outdoor surfaces. We piece-plotted artifacts and other debris on several such surfaces, principally in Areas P41 and Q41, and did extensive sampling for flotation and microrefuse from one surface in Areas Q41 and P42.

The chipped stone assemblage from Stratum I is characterized by several diagnostic Late Neolithic tool types (**Fig. 8**). These include sickle elements with denticulated edges, scrapers, denticulates, awls, axes/adzes/chisels, and bifacially flaked knives, in descending order of frequency.

Most sickle elements from the Late Neolithic contexts have a rectangular shape formed by steep retouch at one lateral edge and the truncation of both ends of blades or, more usually, rectangular flakes. The cutting edges of sickle elements have deep denticulations and often retain clear sickle sheen. The width of sickle elements varies considerably, but sickle elements from the same locus tend to be similar in size. For the most part, they conform to Gopher's type C or D, while some may constitute a new type, more blade-like than type D and not as steeply backed, but with more prominent denticulations than type C. A few artifacts from Areas P33, P41 and Q41 appear to be incomplete sickle elements; they are irregular blades with sev-



6. Late Neolithic stone platform in Area Q41 (Stratum I).



7. Mud plaster feature in Area P35.

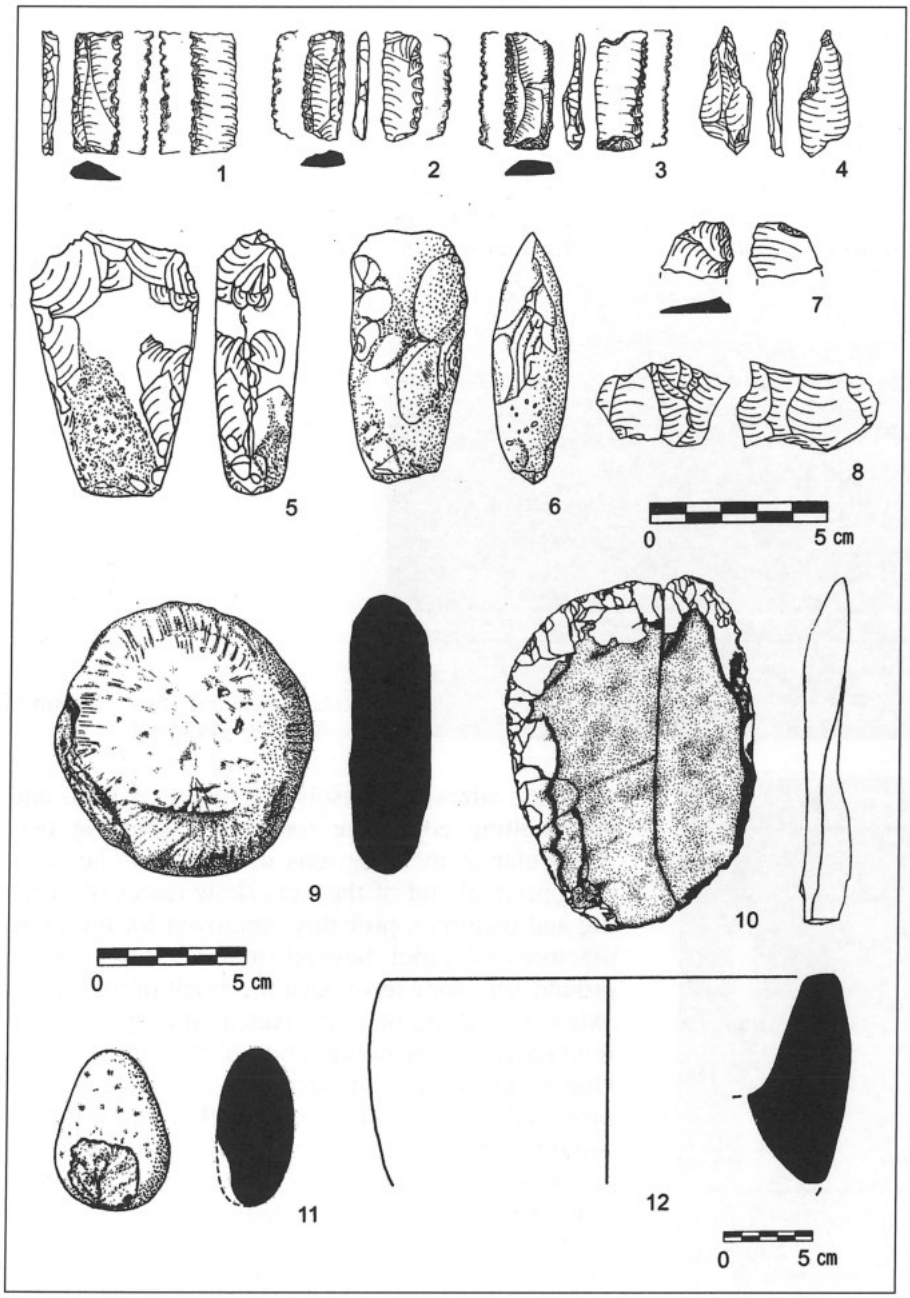
eral denticulations but no truncations or backing. If so, it suggests a surprising *chaîne opératoire*, with notching of denticulations before shaping of the blank.

Axes, adzes, or chisels are made on flint, and their cutting edges are formed by grinding perpendicular to the long axis of the tool. The sides and proximal end of the axes show traces of pecking and battering, probably employed for the manufacture of the tool. Several small flake scars at the ground edge may have been the result of use, while extensive flaking of some axes might represent the rejuvenation or remodification of the cutting edge. One broken tool from Area R41 appears to be the proximal end of a pick or adze that broke during use through a bending snap near the haft. The piece as found shows no use wear, which is consistent with its having been embedded in a socket or haft.

Awls are made on flakes except for one specimen from the 2002 field season that is a blade-awl with a dull point modified by rough retouch.

Two broken bifacial knives were recovered from the surface in both seasons. They have a very thin, lenticular section, and both surfaces are entirely covered with invasive retouch. Another bifacially flaked specimen from the 2002 season has a thicker lenticular section and a leaf-shaped plan form. One of the tips is dull and slightly ground, which may be the result of use or hafting.

Projectile points are very rare at the site. One possible transversal arrowhead from the 2002 season is very tiny but clearly has retouch on both sides that converges at the proximal end. The distal end is a cutting edge with some flaking scars that might be the result of use. One possible Nizzanim



8. Lithics from Stratum I at WZ135 and WZ140: 1-3 Denticulated sickle elements; 4 Borer; 5 and 6 Chipped and ground axes; 7 Obsidian flake; 8 Flake core; 9 Handstone. 10. Cortical scraper. 11. Pounder. 12. Limestone vessel. (1-9, 11, and 12 are from WZ 135. 10 is from WZ 140).

arrowhead was recovered in R41 in 2004. Its tip and base are formed by marginal retouch and it is similar to a point from Layer 2 at Munhata (Gopher 1989: fig. 37.14).

Debitage mainly consists of flakes, and cores are also dominated by flake cores, typically single-platform cores and change-of-orientation cores with multiple platforms. Few blades are present, but they are characterized by unidirectional scar pattern on the dorsal face and an absence of platform preparation. Several unipolar blade cores show that minimal core preparation was employed for blade production. The rare occurrence of trimming elements, such as core tablets or crested blades, also supports this conclusion.

Primary and secondary elements of debitage indicate several sources of flint raw materials, from water-worn flint cobbles to flint nodules that probably come from one of the outcrops of chalk and limestone about 500m northwest of the site or from a nearby source in Wādī Abū- Ziyād. The last two sources provide fine-grained flint nodules of dark brown colour, closely similar to the most frequently used flint materials of the assemblage, and a number of rectangular flakes and a few blades are made on this flint. The rectangular flakes and blades appear to have been modified into sickle elements, while large, amorphous flakes made on

local flint of coarse to medium grain often show various types of retouch from small continuous retouch to rough denticulations, indicating that they were used for a variety of purposes, probably as expedient tools. In general, the raw material of this assemblage is of much better quality than that of the bulk of tools from Ṭabaqat al-Būma.

Ground-stone artifacts from Stratum I include a pierced limestone disk, which might be a spindle whorl, from Area P33, the polished bit of a broken adze, some small pestles and broken hand stones, broken stone vessels, and, from the 2002 field season, one set of upper and lower milling stones found in Area M41 (**Fig. 4**). Most of these are of basalt, which would have been imported to the site, probably from the area east of Tall ash-Shūna North.

The Late Neolithic pottery is all handmade, and there is some evidence for coil construction. The fabrics are usually soft, grey-brown, dark grey, yellow or salmon-pink in colour, with poorly sorted angular inclusions of chert and limestone, and rounded argillaceous nodules. Many sherds show voids and clear evidence for fibrous temper, even though grit temper is more common. Some sherds appear not to have any intentional temper at all, but instead networks of fine internal cracks. Many others have dark or yellow cores and other evidence for poor firing. On some sherds, crazing or laminar spalling is evident. Although there are some better-made exceptions, in general, the pottery is rather crudely constructed and poorly fired, and is now so fragile that washing it is risky. Many of the fabrics, especially the salmon-coloured one, seem very similar to those found at Ṭabaqat al-Būma (WZ 200), although others differ.

The assemblage is very fragmented, but forms appear to include small cups and bowls, and small jars (**Fig. 9**). A few larger, thicker pieces, could be *ṭābūn* fragments, and some sherds are apparently from large jars. Bases are mainly flat or disk bases with a V-shaped profile. One base from WZ135 and another from WZ 140 show pebble impressions on the bottom, similar to examples from ʻAyn Raḥūb (Kafafi 1989) and the Wādī Rabāḥ stage at Munhata (Garfinkel 1992: fig. 132.5). These have not been found at Ṭabaqat al-Būma. Handles include loop handles with oval sections and some knobs and slight ledge handles, including one example of an interior ledge handle.

A rare but regularly occurring surface treatment is combing. Most often, this is a very rough combing, apparently to roughen the surface rather than to create a particular pattern. Some sherds show such roughening on both interior and exterior surfaces. Others show criss-cross combing, a pattern evocative of basketry and usually thought typical of Wādī Rabāḥ assemblages. This is one of the most common decorative treatments at Ṭabaqat al-Būma and WZ 310 (Banning *et al.* 1994, 1996), but is more rarer at al-Basātīn.

Other decorative and surface treatments at al-Basātīn include dentate-like rows of short incisions made with a comb. A small proportion of sherds show traces of red slip or paint. Still more rarer surface treatments include slipping and burnishing ("dark-faced burnished ware").

The excavations in both seasons recovered fragments of pierced ceramic disks, probably made from body sherds, with a biconically drilled hole (**Fig. 10: 2 and 3**). This is similar to several examples that occurred at Ṭabaqat al-Būma and WZ 310. These possibly served as spindle whorls.

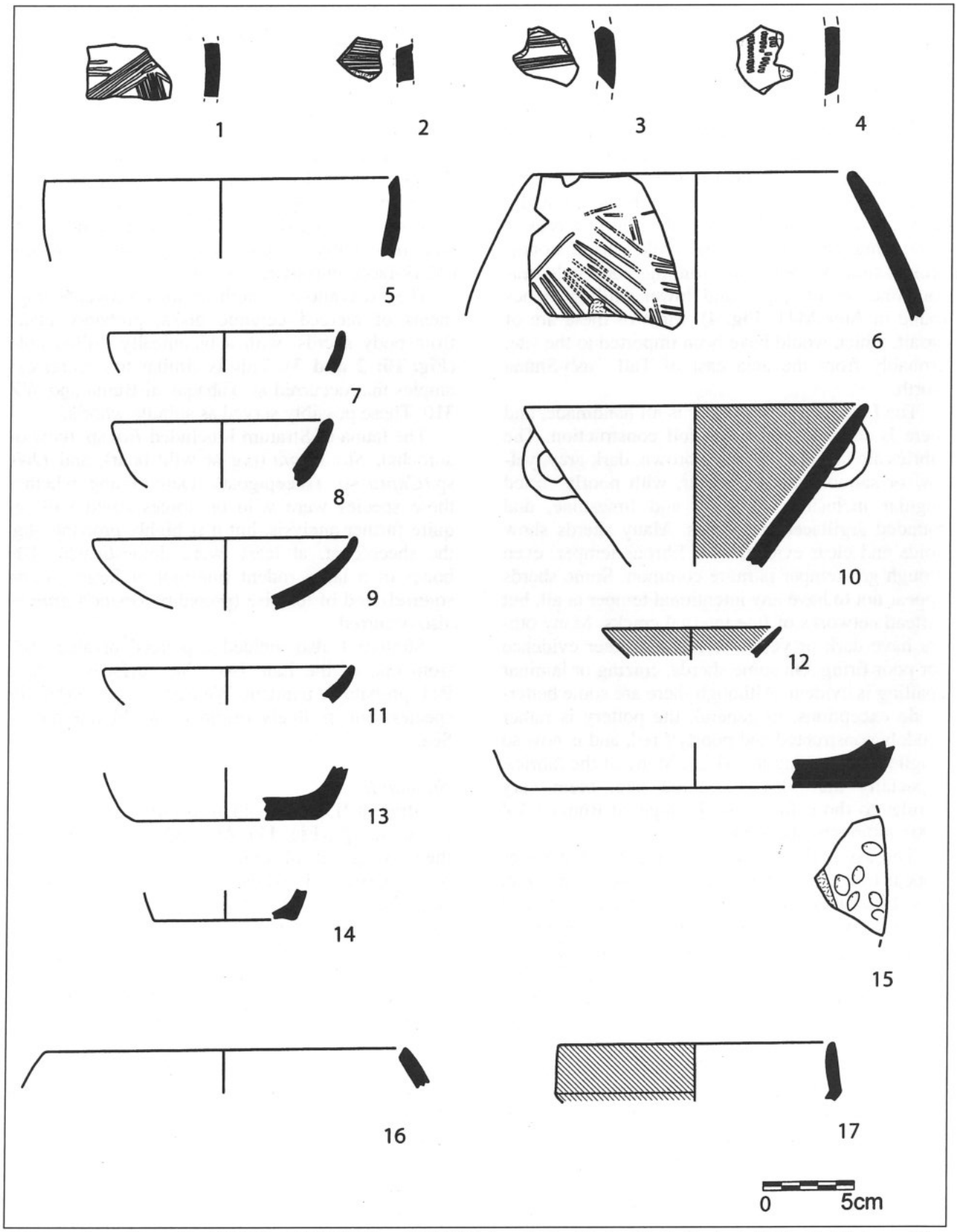
The fauna of Stratum I included *Bos* sp. (cow or aurochs), *Sus scrofa* (pig or wild boar), and *Ovis* sp./*Capra* sp. (sheep/goat). Determining whether these species were wild or domesticated will require further analysis, but it is highly probable that the sheep/goat, at least, were domesticated. The bones of a large rodent (marmot or large ground squirrel) and of tortoise (probably *Testudo graeca*) also occurred.

Stratum I also yielded a pierced bivalve shell from one of the Late Neolithic surfaces in Area P41, probably a pendant. We have yet to identify its species, but its likely origin is the Mediterranean Sea.

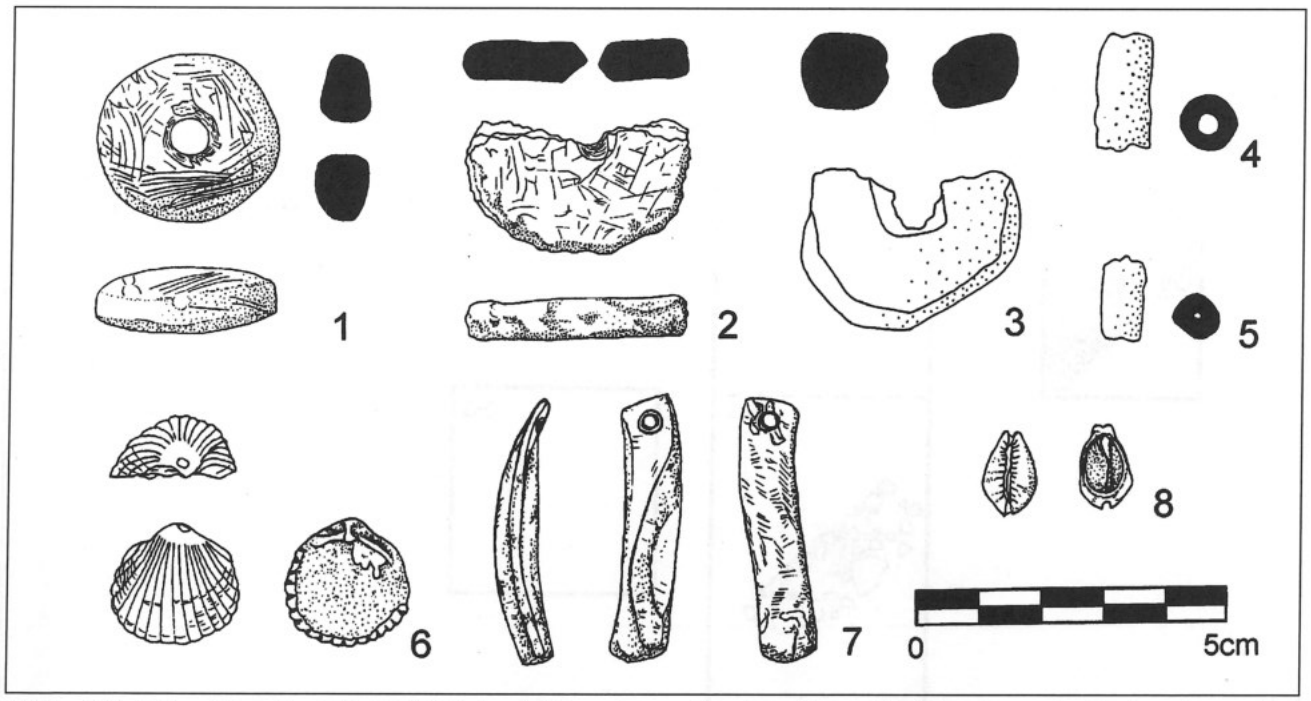
Stratum II

Stratum II deposits included remains of at least two buildings (**Fig. 11**). Areas Q29 and Q30, show the curving wall of a building that appears to have been constructed and used during the Early Bronze Age. This wall was not as well preserved in Q30, where it was closer to the surface and only preserved to the height of one course. In Q29, however, it reaches three courses in height and the curve begins to straighten out to the east, suggesting that this is the apsidal end of a long building oriented nearly parallel to the E-W line of our grid. A small stone feature was built against the inside of the south wall, and a hand stone and several flat-lying sherds occurred on a surface that appears to be associated with the bottom of the wall, and overlies the surface that goes under the wall. This building seems rather similar to apsidal buildings at such Early Bronze Age sites as Yiftahel and Tall Teo (Eisenberg *et al.* 2001: plan 3.9; Braun 1997: fig. 5.2).

Areas N33 and P33 exhibit the rectilinear stone



9. Pottery from Stratum I at WZ135 and WZ140. From WZ135: 1-4 combed and incised body sherds; 5, 7-9 bowls; 6 holemouth jar with incised decoration; 10-11 red slipped bowls; 13-14 bases; 15 pebble impressed base. From WZ140: 16 holemouth jar; 17 carinated bowl.



10. Small finds from Strata I and II at WZ 135: 1 and 2 Pierced stone discs from Stratum I; 3 Pierced ceramic disk from Stratum I; 4 and 5 Cylindrical fossils with natural longitudinal holes from Stratum III; 6 Pierced bivalve shell from Stratum I; 7 Shell ornament from Stratum III, 8 Sawn cowry shell from Stratum II.

foundation of what was probably a mud-brick structure, as fragments of mud brick occurred on a surface immediately down slope. This is a double-leaf, rubble-filled foundation, only one course in height. Further excavation in P34 and Q33 failed to find other walls of this building, although both uncovered surfaces with flat-lying pottery.

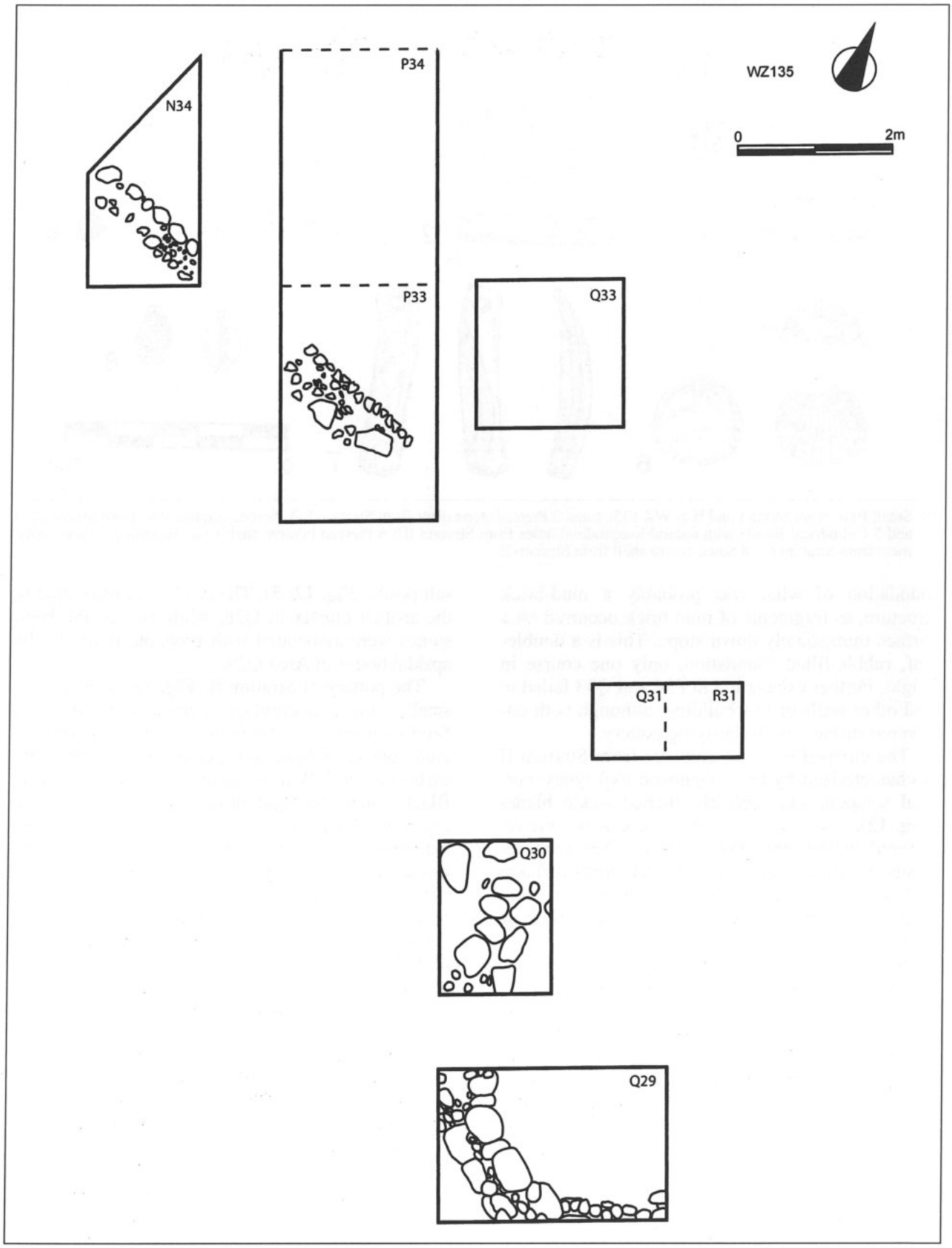
The chipped stone assemblage from Stratum II is characterized by two diagnostic tool types: cortical scrapers and regularly shaped sickle blades (**Fig. 12**). Two cortical scrapers or knives were recovered in P36 and P37 above the Neolithic deposits. Both are made on fairly flat, cortical flakes and show flat to semi-steep retouch on their sides (**Fig. 12: 3 and 4**). The sickle blades are made on very regular blades with a trapezoidal cross-section. The regular blades usually have a faceted striking platform and a wide flaking angle, indicating a specialized production technique, similar to Canaanean blade production (Rosen 1999).

These special blades were used as sickle elements with minor modification by snapping or truncation (**Fig. 12: 1**). Another type of sickle elements is a long sickle blade with a finely denticulated edge (**Fig. 12: 2**), which occurred in a cluster of artifacts in Area Q28, appearing somewhat similar to sickle elements from such sites as Tulaylāt al-Ghasūl (Gopher's type E).

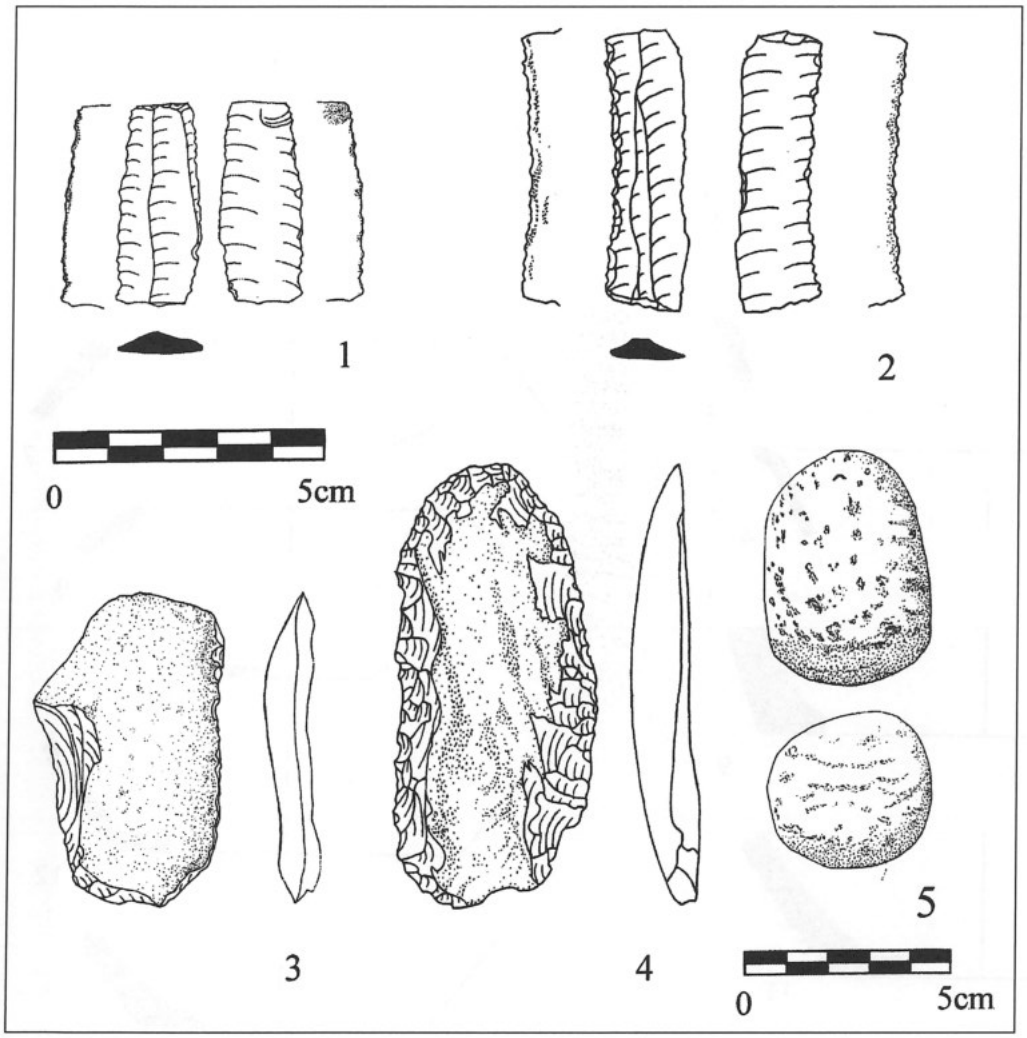
A small number of ground stone artifacts from Stratum II include several hand stones and one basalt pestle (**Fig. 12: 5**). The pestle was recovered in the artifact cluster in Q28, while two of the hand stones were associated with probable floors of the apsidal house in Area Q29.

The pottery of Stratum II (**Fig. 13**) constitutes a small, simple assemblage, generally much better fired than the Late Neolithic material. Fabrics include black, yellow, and greenish-grey, often with carbonate and flint inclusions of moderate size. Black cores and light brown or red surfaces are common. There are instances of red slip, and rare examples of red paint, but as yet we have found no painted patterns. Only a single, small body sherd of "grainwash" was found, distinguishing this site from Early Bronze components at nearby Tall Rākān (WZ 120 and WZ 130), where this was a common surface treatment.

Simple holemouth rims are common, and occasionally show a row of oblique impressions about 2cm below the rim. Holemouths slightly everted at the rim also appear to be fairly common. Other holemouth rims are thickened symmetrically or externally, the latter with regular impressions on the thickening. Everted and carinated bowls and a jar with a somewhat swollen neck are also found. Bases are generally thin disk bases with a V-shaped profile and the walls are prominently thickened toward the base. Handles include broad loop handles, and very shallow ledge handles or lugs, in one case on the carination of a bowl. Smaller loop handles



11. Early Bronze Age architecture from WZ135 (Stratum II).



12. Lithics from Stratum II at WZ 135: 1 and 2 Sickle elements made on regular blades; 3 and 4 Cortical scrapers; 5 Basalt pestle.

may come from juglets.

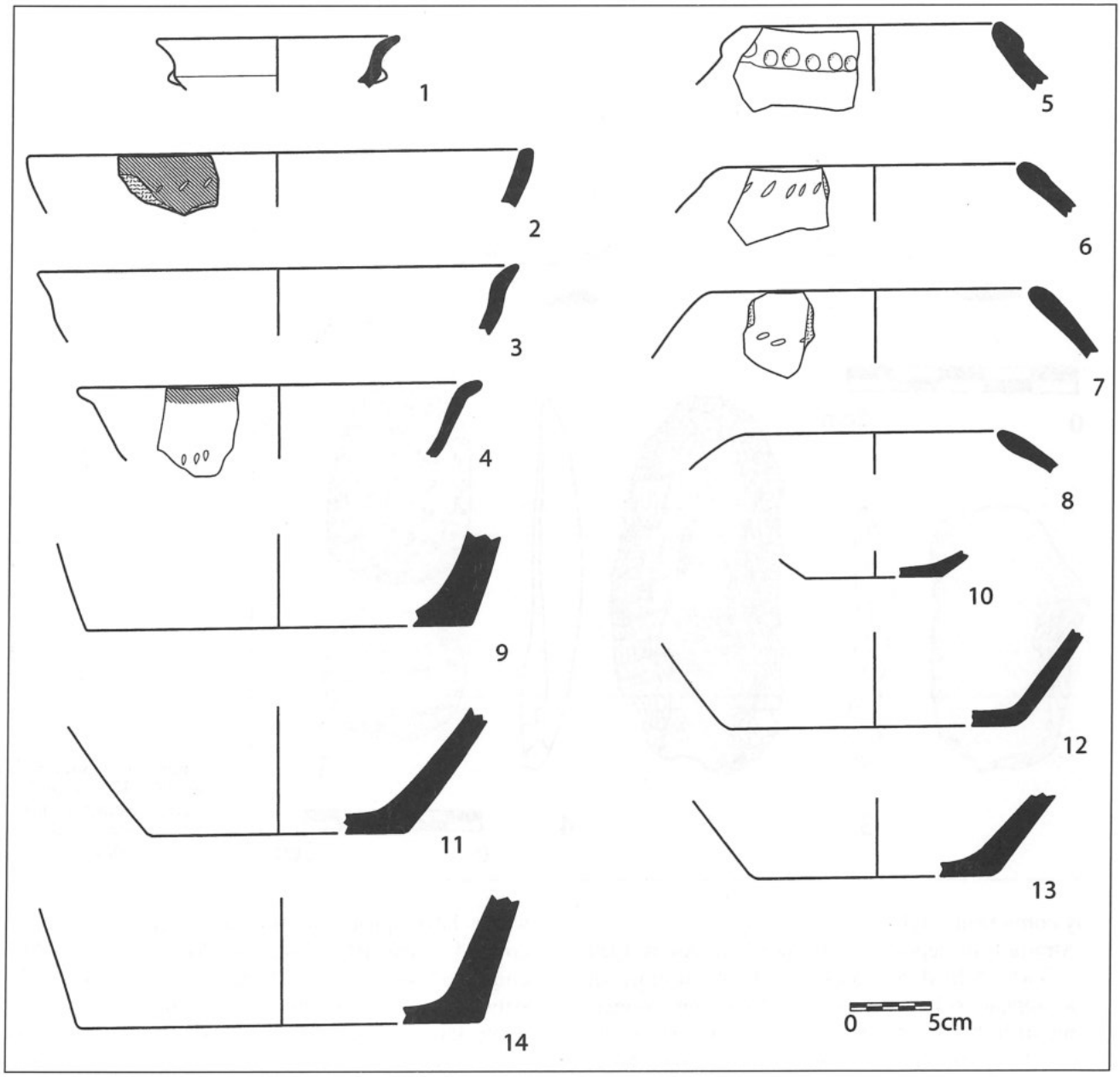
Stratum II deposits, especially in Areas Q29 and Q30, yielded an unusually large number of what appear to be truncated shafts of bird bones, along with fairly large numbers of cylindrical fossils with naturally-occurring longitudinal holes (**Fig. 10: 4 and 5**). This suggests the possibility that these had served as beads, perhaps all from the same necklace or some other item of apparel. Although the fossils, in particular, are not artefactual, it seems statistically unlikely that they would occur in such a high density, while they are rare elsewhere on the site, or in association with the truncated bird bones, unless they and the bird bones were used together. A sawn cowry shell from Area P33 (**Fig. 10: 8**) probably comes from decorated clothing and suggests connections as far as the Red Sea in this period.

Stratum III

The plough zone overlying the other deposits contains a mixture of artifacts of various periods, while later, probably Byzantine-era, field walls crossed Areas P41, Q41 and M40, and possibly employed stones robbed out of earlier Neolithic structures. The landowner says that he removed many large stones and outcropping walls by bulldozer when preparing his olive grove about 20 years ago. Aerial photographs of 1978 show traces of what appear to be walls and stone hut structures near the site, probably the features that the bulldozer removed, but these probably were of more recent date than the Neolithic.

Residual Material

Residual artifacts in various deposits, including surface finds, provide evidence for some Epipalaeolithic and Pre-Pottery Neolithic activity in the vicinity of the site. Of the chipped stone materials belonging to earlier periods, the majority consists of Epipalaeolithic artifacts, including retouched and unretouched bladelets and bladelet cores. The raw material of these Epipalaeolithic artifacts is almost uniformly the finely grained brown



13. Pottery from Stratum II at WZ135: 1-4 bowls; 5-7 holemouth jars with impressed decoration; 8 undecorated holemouth jar; 9-14 bases.

material.

There is also some indication of PPNB occupation on the terrace or nearby. One Amuq point found in 2002 is made on pink flint. The 2004 excavations also uncovered retouched pieces that look like the bases of Amuq points. An exhausted naviform core and a flaked adze also occurred on the surface near the modern road. Furthermore, the fragment of a limestone bracelet of PPNB type occurred on a Late Neolithic surface in Area Q41.

WZ 140

The chipped-stone assemblage of WZ 140 includes very few diagnostic tool types. These consist of one Levallois flake core, several Epipalaeolithic bladelet cores, one Late Neolithic sickle element with a denticulated edge (not including those found in 2000), and one cortical scraper.

The Levallois flake core was found in the topsoil, and has a heavily patinated surface that does not occur on other chipped-stone artifacts from this site. The Epipalaeolithic artifacts are also distinct from the majority of the assemblage in the use of fine-grained flint cobbles as raw material. Thus, it is likely that the assemblage of WZ 140 consists mainly of the Late Neolithic artifacts, as repre-

sented by sickle elements and cortical scraper, while the early material is residual and probably redeposited from some (perhaps destroyed) location upslope.

The sickle element recovered during the 2002 season is missing one end, but its rectangular shape is formed by steep retouch on one end and one lateral edge. Its cutting edge shows small denticulations and has a clear sheen.

Unlike typical Chalcolithic tabular scrapers, the cortical scraper is made on a large cortical flake of dark brown, fine-grained flint. The entire dorsal surface is covered by limestone cortex, and the tool edge shows flat retouch. It is generally similar to cortical scrapers found at Ṭabaqat al-Būma (WZ 200).

A number of flakes show various types of retouch, and some of them are classified as scrapers or denticulates. The abundance of retouched tools made on flakes seems to characterize this assemblage, much as in site WZ 135.

Debitage consists mainly of small flakes and chips made on various types of flint. It rarely includes primary elements or large flakes, and flint types are more diverse than in the WZ 135 assemblage. If, however, we consider the colluvial characteristics of the deposits at WZ 140, these traits could largely be the result of natural depositional processes.

The limited pottery assemblage from WZ140 is similar to the Late Neolithic material from WZ135. Fabrics are grey-brown, yellow, or salmon-pink in colour. Red slip and combing are the most common surface treatment. Much of the pottery is very fragmented and it is often difficult to identify forms with certainty, but bowls and holemouth jars seem to be the most common forms. A reddish yellow carinated bowl with a red slip on the exterior is a notable specimen. A couple of strap handles were recovered.

WZ 140 also yielded the remains of *Bos* sp., *Sus* sp., and *Ovis* sp./*Capra* sp., in addition to the bones of *Cervus* sp. (deer) and *Gazella* sp. (gazelle). Faunal remains were not very well preserved at the site, and the sample size is small.

Chronology

Although we have yet to obtain radiocarbon results from the samples we have submitted from al-Basātīn, comparisons with the rather well-dated assemblages from Ṭabaqat al-Būma help us to propose likely dates for al-Basātīn's Late Neolithic occupation. The posterior probabilities that result from a Bayesian analysis of the radiocarbon determinations from the second, third, and fourth Late Neolithic phases at Ṭabaqat al-Būma strongly suggest dates of about 5550, 5400, and 5200 cal BC, respectively (Banning n.d.; Blackham 2002: 74-76). Although analysis of the Late Neolithic artifacts from al-Basātīn is still in its preliminary stages, they show strong affinities to those of these phases at Ṭabaqat al-Būma.

Similarly, we as yet lack carbon dates on Stratum II at al-Basātīn, but this assemblage appears to belong to an early phase of the Early Bronze Age, as suggested by a large, simple ledge handle and some thickened holemouth rims. The sample of pottery does not appear similar to the Late Chalcolithic material from Tall Findī (WZ 126; Blackham *et al.* 1998) or earlier Chalcolithic pottery from Tubna (WZ 121), which the Wādī Ziqlāb Project excavated in 1995 (Banning *et al.* 1998). Yet it also differs in most respects from Early Bronze pottery (conventionally EB IB) from such nearby sites as Tall Rākān. Only a single grainwashed sherd occurred, however, quite unlike the situation at Tall Rākān, where a high percentage of the Early Bronze pottery had this surface treatment. Although the fairly small sample size is an issue, this dearth of grainwash surface treatment makes it unlikely that the stratum belongs to EB IB or EBII. Two sherds of carinated bowls, somewhat similar in form, but not fabric, to Esdraelon ware, and relatively frequent application of small, diagonal incisions below holemouth rims might indicate a date quite early in EB I. In the near future, we hope to have radiocarbon dates on olive pits from Stratum II to clarify its date.

Preliminary Conclusions

The 2002 and 2004 field seasons of the Wādī Ziqlāb Project made several important steps forward. The excavations at WZ 135 began to pin down the location of preserved occupation traces on the terrace, including well-preserved cobble floors and outdoor surfaces with dense Neolithic debris, part of at least one Late Neolithic structure, and some stone — or clay — lined pit features. Meanwhile, comparison of the assemblage with that of Ṭabaqat al-Būma and other near-contemporary sites is contributing to our understanding of social and economic interaction in Wādī Ziqlāp specifically and in the region of the northern Jordan Valley more generally.

These results lend support to the hypothesis (Banning 2001) that the Late Neolithic in this region had a dispersed settlement system, perhaps dendritic in structure, with small villages and farmsteads scattered along the length of wadis and their tributaries. Relatively high frequencies of pottery

that we would expect to find in social contexts — vessels for cooking and serving food and beverages — point strongly to the likelihood that the inhabitants of these small settlements maintained larger social networks through visiting and entertaining. Such social networks would be advantageous to spread economic risk, provide marriage partners and access to exotic goods, and maintain security. It is also likely, given the current dearth of evidence, such as figurines, for ritual activity in the farmsteads, that some ceremonial gatherings at larger villages helped to integrate dispersed communities and focus their ideological beliefs. Interestingly, similarity in form but dissimilarity in *chaîne opératoire* of sickle elements from al-Basātīn and Ṭabaqat al-Būma suggest that inhabitants of these sites may have interacted during the use, but probably not during the manufacture, of these tools (Kadowaki n.d.).

In addition, we begin to get a clearer picture of lifeways at small farms in the under-studied Late Neolithic while also new evidence for changes in rural lifeways during the Chalcolithic and Early Bronze I. Both Ṭabaqat al-Būma (WZ 200) and al-Basātīn (WZ 135) provide evidence for the organization of rural households and for the adaptation of technology to local needs and raw materials in the Late Neolithic. al-Basātīn also contributes to our understanding of the Chalcolithic expansion into the hill country east of the Jordan Valley, and the associated establishment of a rural economy based on olive culture.

Importantly, the site will also contribute to the continuing discussions on the chronological, terminological, and typological confusion that continues to hinder our understanding of the important period from about 6000 to 4500 cal BC.

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Bibliography

Banning, E.B.
1985 *Pastoral and Agricultural Land Use in the Wadi Ziqlab, Jordan: an Archaeological and Ecological Survey.* Unpublished Ph.D diss. University of Toronto.
1996 Highlands and lowlands: Problems and survey frameworks for rural archaeology in the Near East. *BASOR* 301: 25-45.
2001 Settlement and Economy in Wadi Ziqlab During the Late Neolithic. *SHAJ* 7: 149-156. Amman: Department of Antiquities of Jordan.
n.d. Making up for Lost Time: Sorting out the Chronology of the Near Eastern Late Neolithic and Chalcolithic. In D. Baird and S. Campbell (eds.), *The Fifth Millennium in the Near East.*

Banning, E.B., Blackham, M. and Lasby, D.
1998 Excavations at WZ 121, a Chalcolithic site at Tubna, in Wadi Ziqlab. *ADAJ* 42: 141-159.

Banning, E.B., Dods, R., Field, J., Maltby, S., McCorriston, J., Monckton, S., Rubenstein, R. and Sheppard, P.
1989 Wadi Ziqlab Project 1987, a Preliminary Report. *ADAJ* 33: 43-58.

Banning, E.B., Dods, R., Field, J., Kuijt, I., McCorriston, J., Siggers, J., Ta'ani, H. and Triggs, J.
1992 Tabaqat al-Buma: 1990 Excavations at a Kebaran and Late Neolithic Site in Wadi Ziqlab. *ADAJ* 36: 43-69.

Banning, E.B. and Fawcett, C.
1983 Man-land Relationships in the Ancient Wadi Ziqlab: Report of the 1981 Survey. *ADAJ* 27: 291-309.

Banning, E.B. and Najjar, M.
1999 Excavations at Tall Rakan I, a Neolithic Site in Wadi Ziqlab, Jordan. *Neo-Lithics* 2/99: 1-3.
2000 Tell Rakan, Wadi Ziqlab. In Archaeology in Jordan, edited by V. Egan, P. Bikai, and K. Zamora. *AJA* 104: 571.

Banning, E.B., Rahimi, D. and Siggers, J.
1994 The Late Neolithic of the Southern Levant: Hiatus, Settlement Shift or Observer Bias? The Perspective from Wadi Ziqlab. *Paléorient* 20 (2): 151-164.

Banning, E.B., Rahimi, D., Siggers, J. and Ta'ani, H.
1996 1992 Season of Excavations in Wadi Ziqlab, Jordan. *ADAJ* 40: 29-49.

Banning, E.B. and Siggers, J.
1998 Technological Strategies at a Late Neolithic Farmstead in Wadi Ziqlab, Jordan. Pp. 319-331 in H-G. Gebel, G. Rollefson and Z. Kafafi (eds.), *Prehistory*

of Jordan II. Perspectives from 1997. Studies in Early Near Eastern Production, Subsistence and Environment 4, Berlin: Ex Oriente.

Blackham, M.
2002 *Modeling Time and Transition in Prehistory: The Jordan Valley Chalcolithic (5500-3500 BC).* BAR International Series 1027. Oxford: Archaeopress.

Blackham, M., Fisher, K. and Lasby, D.
1998 Tall Fendi, a Late Chalcolithic Settlement in the Lower Wādī Ziqlāb, Jordan. *ADAJ* 42: 161-177.

Braun, E.
1998 *Yiftah'el: Salvage and Rescue Excavations at a Prehistoric Village in Lower Galilee, Israel.* Israel Antiquities Authority Reports 2. Jerusalem: Israel Antiquities Authority.

Dunand, M.
1973 *Fouilles de Byblos*, 5. Paris: Librairie d'Amérique et d'Orient.

Eisenberg, E., Gopher, A. and Greenberg, R.
2001 *Tel Te'o: A Neolithic, Chalcolithic, and Early Bronze Age Site in the Hula Valley.* IAA Reports 13. Jerusalem: Israel Antiquities Authority.

Garfinkel, Y.
1992 *The Pottery Assemblages of the Sha'ar Hagolan and Rabah Stages of Munhata (Israel).* Cahier de Recherche Français de Jerusalem 6. Paris: Association Paléorient.
1999 *Neolithic and Chalcolithic Pottery of the Southern Levant.* Qedem. Jerusalem: Israel Antiquities Authority.

Gopher, A.
1988 The Flint Industry from Tel Tsaf. *Tel Aviv* 15/16: 37-46.
1989 *The Flint Assemblages of Munhata-Final Report.* Paris: Association Paléorient.
1995 Early Pottery-Bearing Groups in Israel — the Pottery Neolithic Period. Pp. 205-225 in T. Levy (ed.), *The Archaeology of Society in the Holy Land.* London: Leicester University Press.

Kadowaki, S.
n.d. Shared Design and Autonomous Production: Practices of Sickle-Element Production and use in Late Neolithic Wadi Ziqlab, Northern Jordan.

Kafafi, Z.
1989 Late Neolithic 1 pottery from 'Ain er-Rahub, Jordan. *ZDPV* 105: 1-7.

Kaplan, J.
1955 Tuleil Batashi in the Sorek Valley. *IEJ* 5: 273-274.
1958 Excavations at Wadi Rabah. *IEJ* 8: 149-160.

Lovell, J.
2001 *The Late Neolithic and Chalcolithic Periods in the Southern Levant: New data from Teleilat Ghassul, Jordan.* BAR International Series 974. Oxford: Archaeopress.

Lovell, J., Dollfus, G. and Kafafi, Z.
2004 The Middle Phases at Abu Hamid and the Wadi Rabah Horizon. Pp. 263-274 in K. 'Amr, H. Taher and S. Khouri (eds.), *SHAJ* 8. Amman: Department of Antiquities of Jordan.

Lovell, J., Kafafi, Z. and Dollfus, G.
1997 A Preliminary Note on the Ceramics from the Basal Levels of Abu Hamid. Pp. 361-396 in H.G.K. Gebel, Z. Kafafi and G. O. Rollefson (eds.), *Prehistory of Jordan II. Perspectives from* 1997. Berlin: Ex Oriente.

Maher, L. and Banning, E.B.
2001 Geoarchaeological Survey in Wadi Ziqlab, Jordan. *ADAJ* 45: 61-70.

Wright, K.
1991 The Origins and Development of Ground Stone Assemblages in Late Pleistocene Southwest Asia. *Paléorient* 17: 19-45.

MĀDĀBĀ PLAINS PROJECT: EXCAVATIONS AT TALL AL-'UMAYĪ, 2004

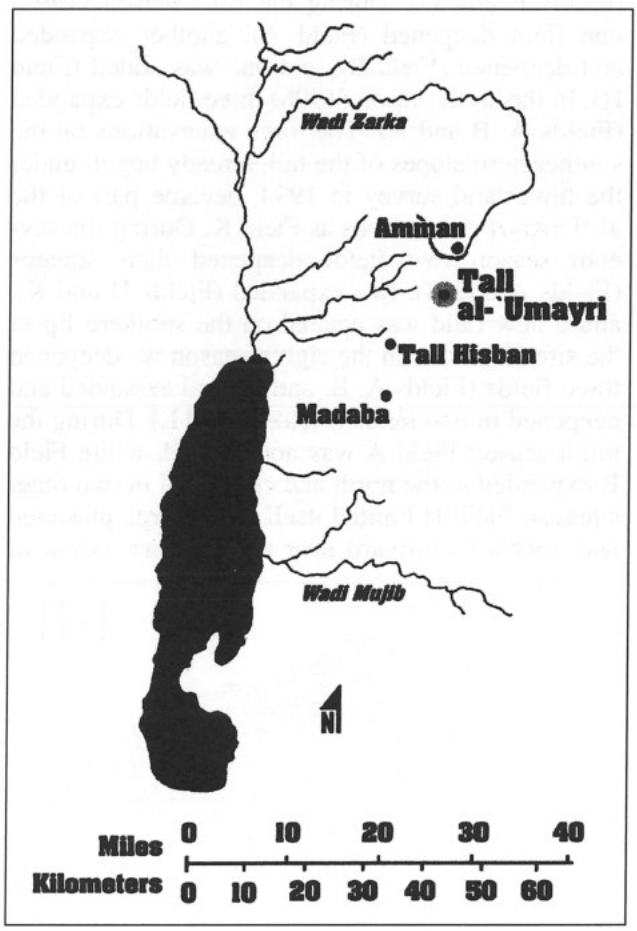
Larry G. Herr and Douglas R. Clark

Introduction

A tenth season of excavation by the Madaba Plains Project at Tall al-'Umayrī occurred between June 23 and August 4, 2004. It was sponsored by La Sierra University in consortium with Andrews University School of Architecture (Michigan, USA), Canadian University College (Alberta, Canada), Mount Royal College (Alberta, Canada), Pacific Union College (California, USA), and Walla Walla College (Washington State, USA). Full reports have already been published for the first five seasons (first season [1984]: Geraty *et al.*, eds. 1989; second season [1987]: Herr *et al.*, eds. 1991; third season [1989]: Herr *et al.*, eds. 1997; fourth season [1992]: Herr *et al.*, eds. 2000; fifth season [1994]: Herr *et al.*, eds. 2002). Preliminary reports have also been published (first season [1984]: Geraty 1985; Geraty *et al.* 1986, 1987; second season [1987]: Geraty *et al.* 1988, 1989, 1990; third season [1989]: Younker *et al.* 1990; Herr *et al.* 1991; LaBianca *et al.* 1995; fourth season [1992]: Younker *et al.* 1993; Herr *et al.* 1994; fifth season [1994]: Younker *et al.* 1996; Herr *et al.* 1996; sixth season [1996]: Younker *et al.* 1997; Herr *et al.* 1997; seventh season [1998]: Herr *et al.* 1999, 2000; eighth season [2000]: Herr, Clark and Trenchard 2001, 2002; ninth season [2002]: Herr and Clark 2003, 2004).

In the 2004 season, a team of 26 Jordanians and 44 foreigners participated in the fieldwork and camp activities of the interdisciplinary project at al-'Umayrī, located about 10km south of 'Ammān's Seventh Circle on the Queen 'Alia Airport Highway at the turnoff for Amman National Park (**Fig. 1**).[1]

In the first season (1984) four fields of excava-

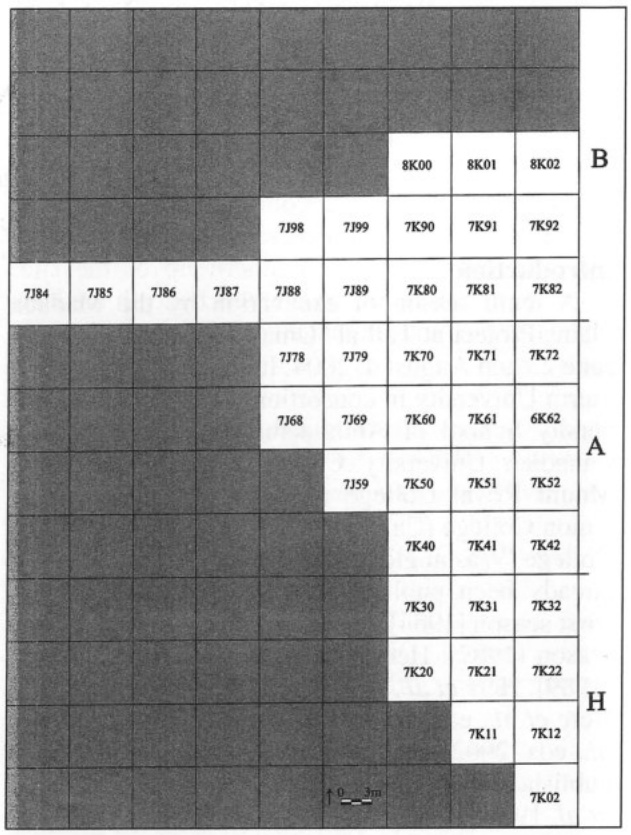


1. Map of the central plateau of Jordan with the major sites of the Mādabā Plains Project.

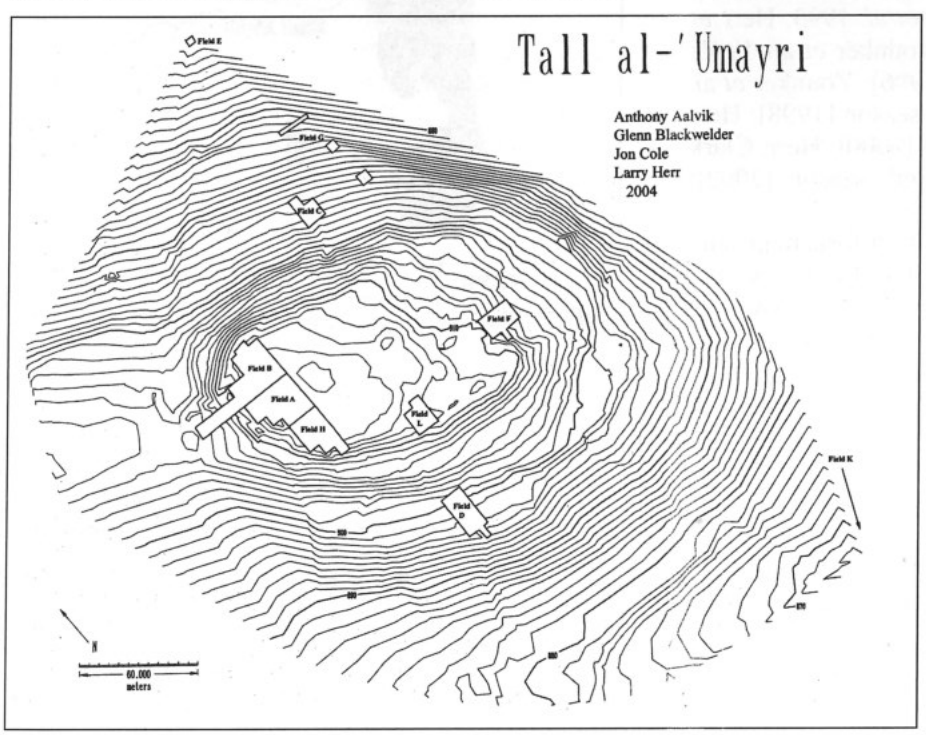
1. The authors of this report are especially indebted to Dr. Fawwaz al-Khraysheh, Director General of the Department of Antiquities. Aktham Oweidi served as representative of the Department of Antiquities for the first three weeks followed by Samia Khoury for the last three weeks. We also wish to thank other members of the Department of Antiquities who facilitated our project at several junctures. The American Center of Oriental Research in Amman, directed by Pierre Bikai and assisted by Patricia Bikai, provided invaluable assistance. The staff was housed in Muqābalayn at the Amman Training College, an UNWRA junior college for Palestinians. We give special thanks to its Principal, Dr. Saleh Naji for making our safe and secure stay a genuine pleasure. The Committee on Archaeological Policy of the American Schools of Oriental Research approved the scientific goals and procedures of the project. Thanks are also due each member of the staff, which was divided into two sections: field excavation and camp logistics. In charge of planning and overall execution of the project were the authors, co-directors of the project. Other core staff members appear as authors of sections of this report.

tion were opened (Fields A, B, C and D) (**Fig. 2**). During the second season (1987) three of the four were expanded (Fields A, B and D), one was completed to bedrock (Field C), and two new fields were opened (Fields E and F). In the third season (1989) one field expanded (Field A), three fields reopened old squares and expanded slightly (Fields B, D and F), another reduced excavation from two squares to one (Field E), and a new field was opened on the northern slope (Field G). In the fourth season (1992) three fields deepened previously opened squares (Fields A, D and F), one deepened existing squares while expanding by one square (Field B), and two Fields were discontinued (Fields E and G). During the fifth season (1994) one field deepened (Field A), another expanded and deepened (Field B), and one was added (Field H). In the sixth season (1996) three fields expanded (Fields A, B and H). The tomb excavations on the southeastern slopes of the tall, already begun under the hinterland survey in 1994, became part of the al-'Umayrī excavations as Field K. During the seventh season two fields deepened their squares (Fields A and B), two expanded (Fields H and K), and a new field was opened on the southern lip of the site (Field L). In the eighth season we deepened three fields (Fields A, B, and H) and expanded and deepened in two fields (Fields K and L). During the ninth season Field A was not worked, while Field B expanded to the north and continued in two other squares; Field H limited itself to the large plastered and cobbled courtyard near the northern extent of the field (next to Field A); in Field L we exposed more of the Hellenistic structure by opening two new squares and reopening one other.

This season (**Figs. 2, 3**) Field A returned to



3. Tall al-'Umayrī: Schematic grid of squares for Fields A, B, and H.



2. Tall al-'Umayrī: Topographic map through the 2004 season with the location of the fields of excavation.

three squares last dug in 1984 and 1987 with the aim to uncover early Iron 1 remains west of the late Iron 2 administrative complex and south of the early Iron 1 houses in Field B. In Field B excavation centered on uncovering the northern extent of the remarkably preserved LB building, opening two new squares and re-excavating three others from previous seasons. Excavation in Field H concentrated on bringing the northern part of the field into phase with the lowest cobble floor so far uncovered in the Iron 1-2 courtyard sanctuary and showing that it was considerably larger than later phases. Field L, on the southern lip of the site, sought to excavate to Iron 2 levels beneath the Hellenistic farm, and expanded to the north by one square.

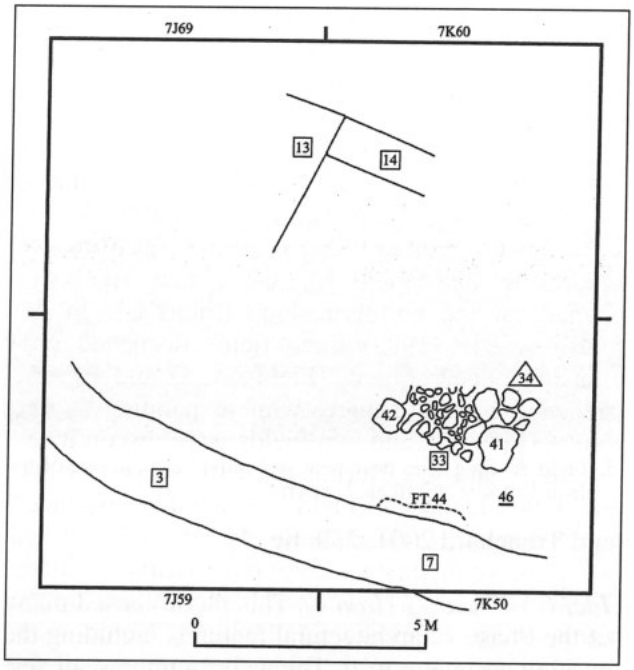
Field A: The Western Edge of the Administrative Complex (John I. Lawlor)

Grand Rapids Theological Seminary

Field A is located at the central western edge of the site (**Figs. 2, 3**). Eight previous seasons in Field A had discovered a large administrative complex from the end of the Iron 2 period extending into the Persian period. Domestic dwellings, perhaps belonging to the officials who worked in the administrative complex, were built to the north and south of the complex. To the north and west, outside the area of this complex, were Iron 1 remains, including very significant structures from the earliest decades of that period. These were found primarily in Field B to the north, but also somewhat in the northwestern parts of Field A.

The goal of our work in Field A this season was to begin the exposure of more Iron 1 structures by removing the late Iron 2 remains at the very western edge of the Ammonite administrative complex and to the east of the late Iron 1 pillared room found in earlier seasons (Herr *et al.* 1999: 102-103). We hoped to excavate to early Iron 1 remains (Phase 13) that could be connected with the two houses discovered earlier in Field B and the very northern edge of Field A. We anticipated two or three later Iron 1 phases along the way. We reopened two squares last dug in 1984 (7K40 and 7K50) and a third begun in 1987 (7K60). In the southernmost square (7K40) we hoped to examine a small part of a possible gate into the Iron 1 city. For various reasons, including the complexities of wall removal and the emergence of sub-phasing, the work proceeded more slowly than we had anticipated and more work will be needed to accomplish our goals.

Field A Phase 12 (Iron 1) (**Fig. 4**). In 1998 we discovered that the north-south early Iron 1 perimeter wall found farther north in Fields A and B curved to the east in Square 7J59 (Herr, Clark and Trenchard 2001: 239 [for the location of the remains in Fig. 4, see Herr, Clark and Trenchard 2001: 239, fig. 3, immediately southeast of the pillared room]). A major wall in 7K50 seemed to be the eastward continuation of this wall, which we also suggested was the northern wall of the gateway. Excavation in both 7K50 and a very small portion of 7J59 (the northeastern corner of the square) confirmed the connection of the two walls. However, its founding level was not reached nor are we certain that the late Iron 2 administrative complex did not truncate its eastern end. We thus do not know for certain how far into the city the wall went, but it did indeed extend far enough into the heart of the city to strengthen our suggestion that it might be part of a gateway (with a parallel wall to the south). This wall may also have been founded earlier in Phase 13, but we have it most clearly in Field A from Phase 12.



4. Field A: Sketch plan of Phase 12 (sketch by John I. Lawlor).

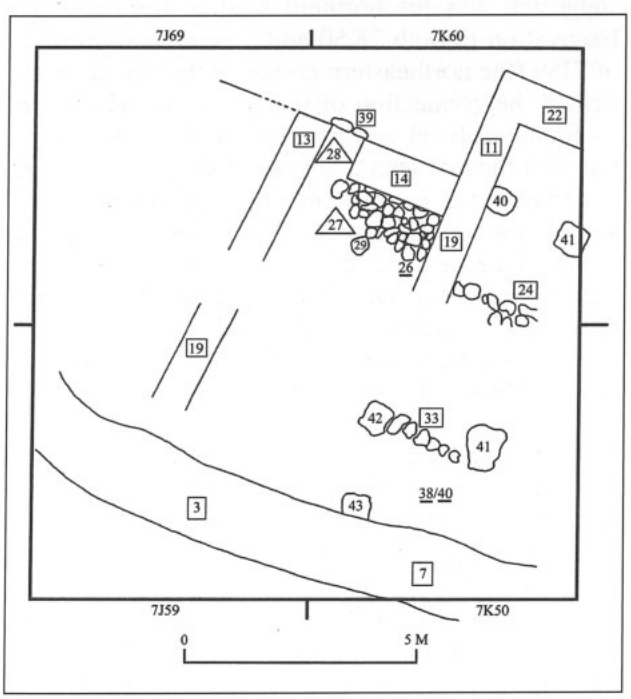
Stone walls and pillar bases together with flagstone and beaten-earth floors probably represent parts of a domestic structure situated within the curve of the perimeter wall (**Fig. 5**). The finds are presently too fragmentary to suggest a coherent plan. Although Building A was earlier than this phase, no structures from our period seem to have been constructed on top of it, except perhaps for its southernmost area. Thus, there is room only for one major house or two small ones (Herr, Clark



5. Field A: Flagstone pavement and pillar bases in one of the Iron 1 rooms at Tall al-'Umayri.

and Trenchard 2001: 239, fig. 3).

Field A Phase 11 (Iron 1). This phase reused many of the Phase 12 architectural features, including the curving perimeter wall. The wall fragments suggest perhaps two houses north of the perimeter wall using it for a back wall (**Fig. 6** [for the location of the remains, see Herr, Clark and Trenchard 2001: 239, fig. 3, at the northeastern corner of the pillared room]). The space north of the structures (top) may have been a street or alleyway. It is important to remember that these structures are later than the early Iron 1 Building A to the north. Threshold 39 (**Fig. 7**) probably entered the easternmost house into a room that was paved with flagstones (Locus



6. Field A: Sketch plan of Phase 11 (sketch by John I. Lawlor).



7. Field A: Pillar base and flagstone paving in eastern Iron 1 (Phase 11) house with a doorway in the upper left.

27) and contained a stone pillar base immediately south of the flagstones (Locus 29) (**Fig. 7**). It probably included the room surrounded by Walls 22/11/19, but Wall 19 must have stopped near the balk line because of the divider Wall 33/41/42 with two pillar bases to the south. Two more pillar bases were found in a line parallel to these in the northern part of the house. The stones labeled 24 and 33 were not flagstones but ephemeral divider walls. We have not recognized a specific plan to this building as it is so far excavated. More work still needs to be done. The second house may have existed to the west of the wall labeled 19. A threshold may have existed for this house just to the west of Wall 19.

Field A Phase 10 (Late Iron 1). The large walls of Phase 11 continued into the next phase, which was characterized by a surface made out of a mud brick destruction layer with a smashed pithos. We connect it with a nearby storeroom of pithoi found in the 1996 season, also set into a destruction layer of mud brick (Herr *et al.* 1997: 148, fig. 5). It is from this level that a foundation trench descended to the upper courses of the perimeter wall, indicating that it had been reconstructed toward the end of the Iron 1 period. Another patch of beaten earth lay between Walls 7K60:11 and 22 in the northeast (see **Fig. 6** for location). The pillared room in Square 7J69 was also from this period (Herr, Clark and Trenchard 2001: 239, fig. 3) and may be part of a second building to the west.

Field A Phase 9 (Early Iron 2). This was a very ephemeral phase with a poorly constructed wall line built against Wall 7K60:14, which, along with Walls 11 and 22, continued to exist (**Fig. 6**). We could determine no function for the wall. No floors or other surfaces could be identified.

Field A Phase 8B (Late Iron 2). By this time the walls of the preceding phases had gone out of use and new structures were built over them, except for parts of the earlier walls, which were serendipitously reused in the new buildings. Earlier seasons had proposed Phase 7B for these walls (Geraty *et al.* 1989: 148 [Phase 4B at that time]), but new evidence points clearly now to Phase 8B. This was the construction of the large Ammonite administrative complex excavated in most of our previous seasons. The most important surface sealed against reused walls from earlier phases as well as a new wall (Herr *et al.* 2002: 24 [fig. 3.1]).

Field A Phase 7B (Late Iron 2/Persian). This was the major phase of the Ammonite administrative complex in Field A. This season saw work in removing a small part of the relatively weak westernmost walls and the clarification of stratigraphy there. Some of the older walls were reused, most notably the curving perimeter wall in Square 7K50. But there was no gateway associated with the wall at this time. Instead, part of the administrative complex was built south of the older perimeter wall (Herr *et al.* 2002: 24 [fig. 3.1]) with upper walls slightly offset at times from Phase 8B below]). In the northern part of the complex, east-west Wall 14 continued as did Wall 21=4, creating a doorway into a large room west of Wall 21=4 (the western wall of this room does not seem to have been constructed until Phase 6). Several beaten-earth surfaces were found with these walls.

Field A Phase 7A (Late Iron 2/Persian). Small additions to Phase 7B constituted Phase 7A. West of Wall 8 was a rectangular bin (**Fig. 8**), while, to the south, was an ephemeral wall that retained earth to the north while allowing a passageway to a major room to the east of Wall 8 (**Fig. 9**). Debris layers were encountered elsewhere, although most earth associated with the phase had been removed in earlier seasons.



8. Field A: Bin in late Iron 2/Persian Phase 7A.

Field A Phase 6 (Persian). Major adaptations were made to the administrative complex by the addition of a retaining wall at the western end of the northern room (Herr *et al.* 2002: 24 [fig. 3.1]) with wall fragments going over the more coherent walls of Phases 8B and 7B). Rooms were enlarged by rebuilding walls. Most of the surfaces and debris had been removed in earlier seasons.

Field A Phase 5 (Persian). Some of the doorways were filled with blocking stones. The results from earlier seasons suggested that the complex reverted to a less grand scale, judging by the quality of stonework in the construction of the complete administrative complex. Our limited excavations this season did not disconfirm that suggestion.

Field A Phase 2 (Byzantine-Ottoman). Topsoil usually contains a few potsherds from the late Classical and Islamic periods.

Field B: The Western Defense System and Northwestern Domestic Area (Kent V. Bramlett, Walla Walla College)

The primary objective for excavation in Field B this season involved the discovery of the northern limits of the Late Bronze Age palatial building discovered in the four previous seasons. With this in mind, we opened two new squares, 8K20 and 8K21 at the very northern edge of the site, while digging deeper in 8K10, 1811, and 8K12 just south of the



9. Field A: Passage way between walls in Phase 7A leading down from the west into a basement room of the Ammonite administrative complex.

two new squares. We expected to uncover a few more Late Iron II/Persian domestic walls and surfaces, especially in 8K21, that hopefully would help us draw a more coherent picture of the late Iron II/Persian activity in this field from the fragments afforded us in previous seasons.

Fieldwork in 2004 has not altered our understanding of Field B phasing deriving from the most recent past seasons. Our work this year involved primarily remains from the Late Bronze Age and the late Iron Age 2.

Field B Phase 14 (Middle Bronze Age). More of the Middle Bronze Age rampart was uncovered this season in Square 8K20. Though not excavated, just over one square meter was exposed of the 10YR6/2 light brownish gray hard packed layer typical of the top of the rampart beneath all later architecture. It is unclear without further excavation whether the northern continuation of the Crest Wall (**Fig. 10**) is sealed against by the rampart or has settled minimally into it.

Field B Phase 13 (Late Bronze Age) (**Figs. 11-13**). The Late Bronze Age remains at al-'Umayrī are contributing to the understanding of this sparsely represented period in the highlands of Jordan. Previous seasons of excavation revealed two well-preserved rooms in the south, the size and construction of which tentatively suggest identifying it as a palace, certainly not a domestic dwelling (Herr *et al.* 2001: 242-243). Then, in 2002, we uncovered the tops of walls from at least two more rooms to the north. This season, the walls of three rooms in the north were clearly delimited, but we have as yet encountered no surface, except in the northwest where the floor is higher due to the height of the MB rampart.

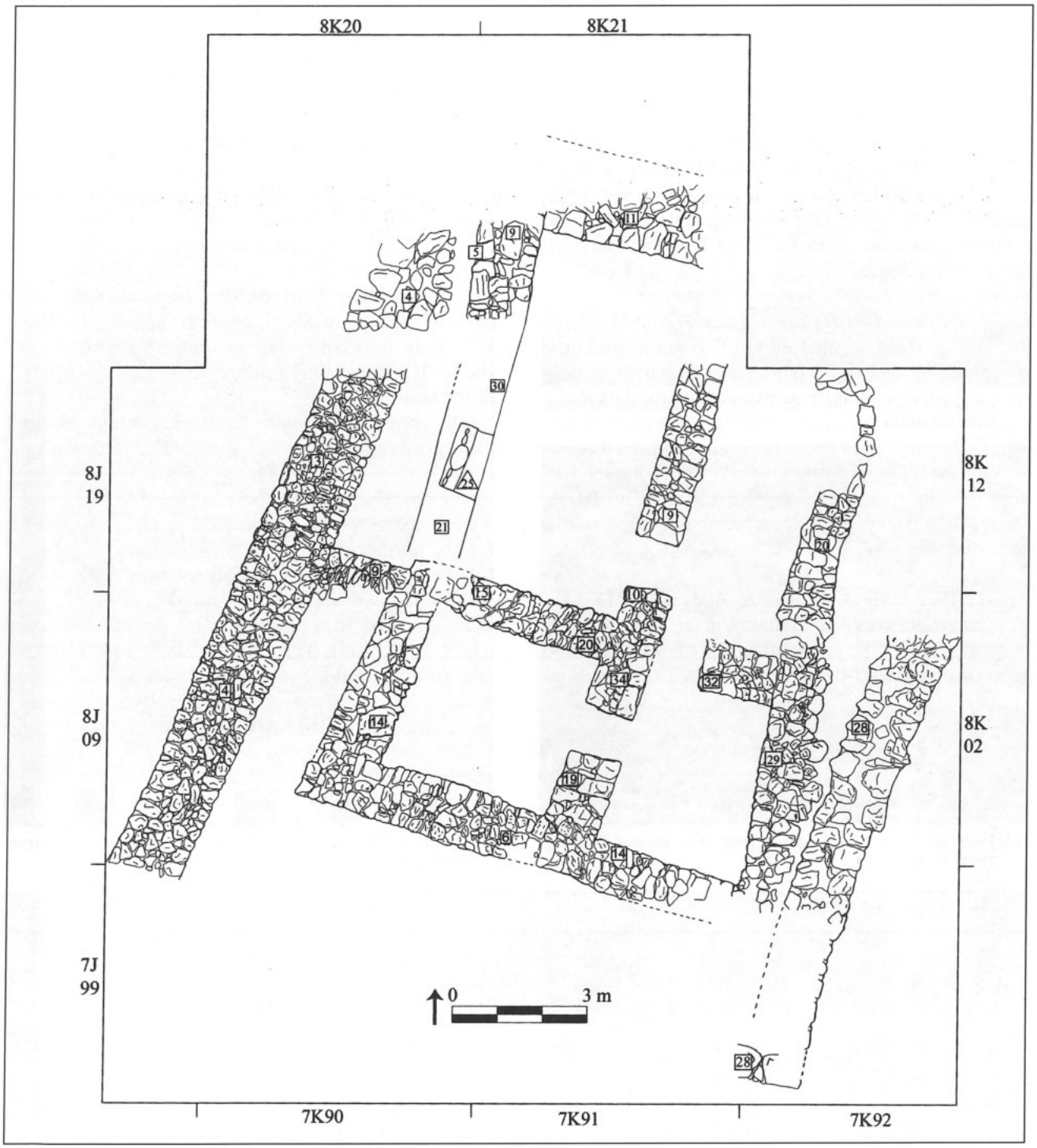


10. Field B: Northern perimeter wall of the site from the east.

The northern wall of the complex was discovered in Square 8K21 beneath later walls (**Fig. 10**). It is the same one mentioned in Phase 14 above. It is most likely the northern perimeter wall of the site.

We now understand the arrangement of the three northern rooms much better. The largest room is the central one, measuring 2.5m wide (E-W) by 8.0m long (N-S). The north, south, and east walls were constructed of stone, but a brick wall (except for its northern part, which was stone) separated the western room from it. This western room was a small chamber where we discovered a goblet and crude unfired clay figurines in 2002 (Herr and Clark 2003: 285). The room was entered from the east through a doorway 1.2m wide. The southern wall of Room 3 was coated with mud plaster almost to its top course. Although we are about 2.0m below the tops of the walls, we have not yet reached the floor of Room 3.

In the western brick wall of Room 3 was a cultic niche carved out of the wall and coated with whitewash or a thin layer of plaster (**Fig. 14**). Into a thick, stepped layer of plaster worshipers firmly installed five naturally shaped oval standing stones. The middle one was by far the largest and had a unique "domed" top. It was surrounded on either side by smaller oval stones, one of which was a naturally decorated chert nodule with solution deposits in shapes that seemed almost *avant garde* (**Fig. 15**). Normally, standing stones represent deities, but we found no indication of the identity of the gods. Stacked above the stones on the right side were several LB vessels (**Fig. 16**). The assemblage consisted of parts of four lamps, a complete small carinated bowl, a chalice with broken flared rim (**Fig. 17**), and, on the lower step, a large carinated bowl. This cultic installation suggests that the largest room in the building functioned at least partially in a religious way. Whether or not the whole building was a temple is still being researched. Certainly, there was no sign of a sacrificial altar, but the religious functions were probably limited to votive activities. The cultic installation was covered at the



11. Field B: Plan of the Late Bronze Age palatial building in Phase 13.

end of the season to protect it. We hope to conserve it and prepare it for presentation next season.

The room to the west of the brick wall and was long and narrow, possibly functioning as a *favissa* for the cultic center. This would explain the presence of the goblet and crude unfired clay figurines, one or two more of which were found this season. A doorway into the room has not yet been clearly defined. We probably have found at least one floor in this room. It was considerably higher than those in the rooms to the east and south, possibly because the Phase 14 rampart was high at this point.

In the eastern room the top of its eastern wall was considerably lower than the other walls in the building, probably because late Iron 2/Persian architecture dug into it. It was a long (N-S) room. A



12. Field B: View of the Late Bronze Age palatial building from the north.



13. Field B: View of the Late Bronze Age palatial building from the east.



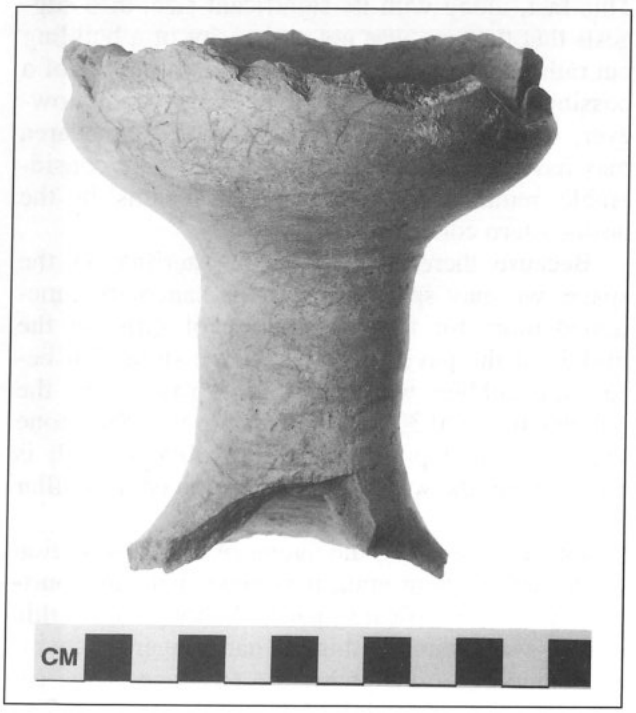
15. Field B: Close-up of the chert nodule with natural solution deposits.



14. Field B: The cultic niche in Room 3 of the Late Bronze Age palatial building.



16. Field B: The cultic niche with pottery vessels *in situ.*



17. Field B: The broken chalice from the cultic niche.

doorway from the south led into the room, but an exterior door for the complex has not yet been located.

The pottery in all the fill layers was clearly LB. We estimate one to two more seasons to complete excavation in the building.

Field Phase 7 (Late Iron 2/Persian). Although we have heretofore lumped most of the late Iron 2 remains into Phase 7, we must now consider at least two phases for them. We will most likely assign some of the remains to later phases. They all belong to at least one, perhaps two, houses for which only fragments of walls, pillars, and surfaces remain. Several of the walls were built in the quoin and pier construction technique (**Fig. 18**). The building reused some of the LB walls for foundations and may have even excavated slightly into them to lay their floors. Because of the neat LB masonry, it was relatively easy to separate the less carefully constructed late Iron 2 walls from their earlier foundations. A shallow destruction layer was discovered overlying the surfaces.

Field H: The Open-Air Courtyard Sanctuary

(David R. Berge, Portland, Oregon)

Field H is located at the southwestern corner of the flat top of Tall al-'Umayrī (**Figs. 2, 3**). Excavations in this field began in 1994 for the initial purpose of exploring the southern extension of the Ammonite administrative complex in Field A, directly to the north. This season we reopened several squares in which the paved courtyard sanctuary was discovered in previous seasons. We worked in parts of several squares: 7K11, 7K12, 7K20, 7K21, 7K22, 7K31, and 7K32, each of which was excavated in previous years.

In 1996, an extensive plaster floor was uncovered within parts of three squares, 7K21, 7K22, and 7K31. In 2000, we excavated one corner of this plaster floor, with its varied plaster, cobble, and earth surfaces, as well as later pits cut into the floors, to a lower cobble layer in Square 7K21. During the 2002 season this lower surface was exposed over a much larger extent, but the walls marking the excavation limits on the north and south were later walls (Herr and Clark 2003: 289, figs. 20-21). The purpose of this year's excavation was to extend the removal of debris and later walls



18. Field B: Late Iron 2 pillars (on either side of the meter stick) in the quoin and pier domestic construction technique; some flat-lying sherds are visible on the surface.

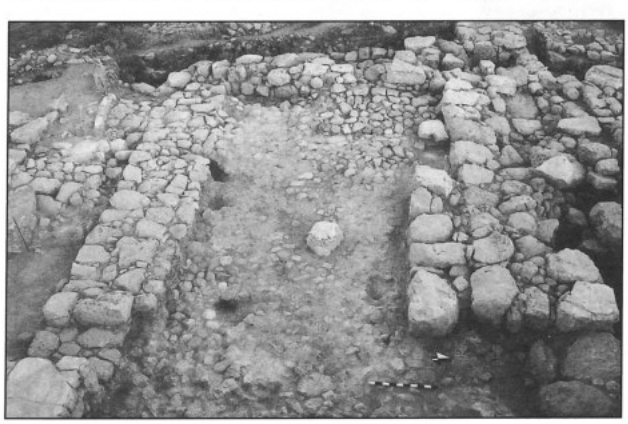
above this surface to discover the full extent of the late Iron 1 paved courtyard.

Work took place primarily in the northern and southern areas of the courtyard and the walls and rooms bounding it. On the north were Squares 7K22, 7K31, and 7K32. On the south were Squares 7K11, 7K12, 7K20, 7K21, and the southwestern corner of 7K22.

Field H Phase 9B (Late Iron 1) **(Figs. 19 and 20)**. Under the large later walls the northern limit of the cobble surface was not distinct. It is not clear whether the surface incorporated earlier walls or whether the walls continued in use through this phase. To the east, it appears that the cobble surface was limited by the wall already noted in 2002. To the west, the cobble surface was bounded by another wall discovered during the 2000 to 2002 seasons; it also continued in use from the previous phase.

Excavation along the southern edge of the cobble surface revealed several previously unidentified walls. Until more excavation takes place, the stratification of the walls will remain unclear, but it seems that small rooms flanked the courtyard on the south. The resulting extent of the cobbled surface thus covers an area of about 6.5 by 10.5m, an area much too large to have been roofed. In the middle of this open space was a large stone against which the cobbles were laid. Its function is not yet known. As preserved the surface slopes downward toward the east about 0.4m. The surface is comprised of a matrix of cobblestones set with plaster, which appears to have undergone at least one substantial repair (see Phase 9A). The cobble surface may have been constructed in Phase 10B and continued into Phase 9A or may have been part of the surface repair that took place in Phase 9A.

Although well preserved, there were no clear indications as to the function of the large cobbled



19. Field H: The courtyard sanctuary in Phase 9B from the east.



20. Field H: The courtyard sanctuary in Phase 9B from the north.

area. The walls, which surrounded it do not appear to be unified, suggesting that they belong to different structures rather than one consistent building. This fact, along with its significant size, also suggests that the area was not an interior of a building but rather an exterior courtyard. The discovery of a possible pillar base near the northern wall, however, suggests that at least a portion of the area may have been covered. In 2002, we found considerable remains of burnt wooden beams in the northeastern corner, as well.

Because there is no altar of sacrifice in the space, we may speculate that the sanctuary functioned more for the presentation of gifts. In the middle of the pavement was a large stone laid before our cobbles were installed. It rose above the cobbles by ca. 0.30m. It is possible that this stone was an altar of presentation for votive gifts. It is too far from the walls to have functioned as a pillar base.

Given its size and the nature of the construction of the buildings around, it is clear that this courtyard was a significant space. Although no cultic objects were found within the earth layers excavated belonging to this phase, the presence of the ceramic shrine (Herr and Clark 2003: 291, fig. 23), figurine, and statue fragments in this area in later phases suggest that this area functioned as a courtyard for a shrine during this period also. This supposition is supported by the fact that much of the later architectural activity with which these religious artifacts were associated imitated or incorporated the remains of the earlier phases. It is possible that this area functioned as a courtyard sanctuary from as early as the late Iron 1 period (or earlier) to as late as the Persian period.

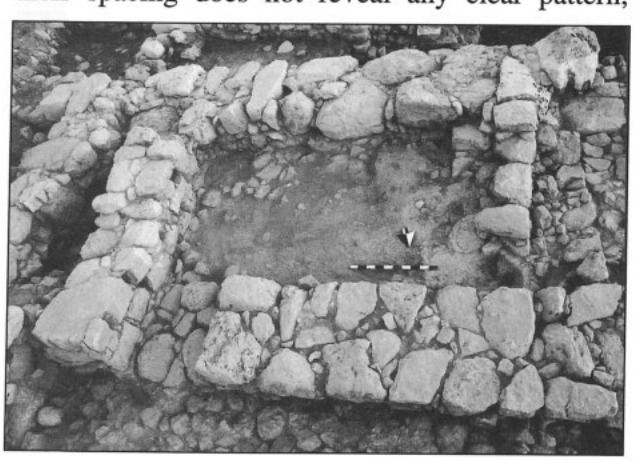
Field H Phase 9A (Late Iron 1). All of the architecture from Phase 9B appears to have continued in use during this phase. As noted above, the large

cobbled area underwent at least one significant repair as evidenced by a second cobble/plaster surface with the same composition as the cobblestone plaster matrix beneath it. A small wall fragment and two ash layers probably belonged to this phase, as well.

Field H Phase 8 (Early Iron 2). In the early Iron 2 period, the structure directly to the south of the courtyard area was remodeled by adding walls to those that already existed from Phase 9. The result was that the southwestern area, which had been part of a small room in Phase 9, was now included in the courtyard area by a beaten-earth surface over the walls. In the southeastern area was a small room communicating with the courtyard through a doorway (**Fig. 21**).

Along the northern edge of the courtyard, several new walls were constructed on top of the Phase 9 cobbles. These are visible on the right side of Fig. 22. The northern face of the primary wall was unclear, likely due to its integration with walls extending to the north that have been disrupted by later construction activity on the Ammonite administrative complex. This new wall was located slightly south of the Phase 9 phase wall effectively narrowing the courtyard area to about 5m. At its eastern end a north-south stub wall was constructed to create an entrance into the courtyard (**Fig. 22**).

More anomalous is the installation made of five large stones along the southern face of the wall (**Fig. 22**). Already discovered in 2002 (Herr and Clark 2003: 290, fig. 21), it is not clear whether they were intended to widen an already thick wall or whether they functioned as an installation of some kind. Similarly, several possible pillar bases excavated in previous seasons were located within the courtyard area during this phase. Although their spacing does not reveal any clear pattern,



21. Field H: Room to the southeast of the courtyard sanctuary in Phase 8.



22. Field H: The courtyard sanctuary in Phase 8 from the east.

their existence suggests some form of partial superstructure during this period. However, the size of the courtyard and the wide spacing between these possible pillar bases suggests that any superstructure would have been insubstantial.

Instead of the cobble/plaster surface of the previous period, the surface of the courtyard in this phase was made of beaten earth. While this surface was previously dated to the late Iron 1 period based upon the pottery found lying on it, the discovery of clear early Iron 2 forms in earth layers beneath the northern wall necessitates re-dating this surface and its related architecture to the early Iron 2 period. The religious nature of this area is clearly indicated by the discovery of the ceramic model shrine, figurines, and statue fragments on this surface. Although its exact form is not well preserved, it is likely that this area functioned as a courtyard sanctuary, possibly with some form of covered shrine area. The presence of several smashed vessels on the surface that are clearly late Iron 1 forms (mostly long-lasting pithoi) suggests some form of continuity with the earlier use of this area. One could imagine that vessels used in the Phase 9 structure were preserved and reused in the Phase 8 shrine.

Several ash layers covered the surface and were probably post occupational buildup over the area before it was again used in the late Iron 2 period.

Field H Phase 7 (Late Iron 2). Although it is not certain since construction in later phases appears to have disrupted many of the earth layers, it appears that many of the Phase 8 walls remained in use during this phase. Several new loci in the area contained within the NE corner of courtyard likely belonged to this phase. These consisted primarily of wall fragments founded above the earth surfaces of Phase 8. Remnants of a cobble surface, partially overlaid with a plaster surface, went with these

walls. It is difficult to understand the function of these walls and surfaces, though the continued use of the area as a courtyard sanctuary seems most likely.

Field H Phases 6 (Late Iron 2/Persian). Although specific evidence is limited, it appears that the walls along the northern edge of the courtyard sanctuary went out of use during this phase when a beaten-earth surface was laid directly over the walls. It is unclear whether the courtyard was expanded to reach a wall farther north or if some other wall was constructed which has not been preserved. A layer of cobble was laid alongside one of the Phase 7 walls.

Pitting activity has confounded our full understanding of the surfaces in this phase. Although the dating of the excavated layers to the late Iron 2/ Persian period is clear, further excavation may refine the specific phase to which several of the loci belong.

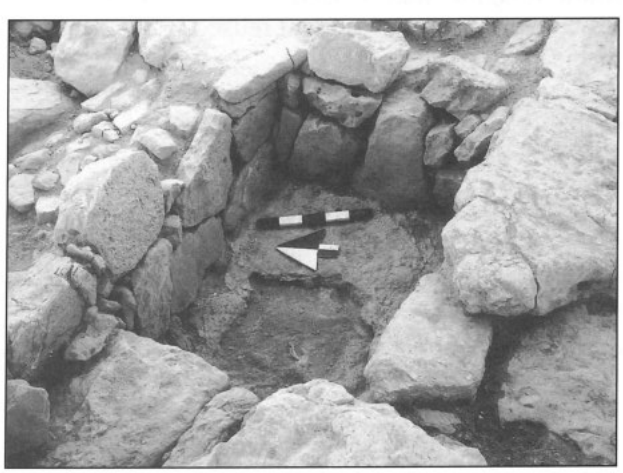
No clear surface has been identified in the rooms to the southeast of the courtyard due to later pitting activity. A possible fragment of a cobble surface and surrounding earth layers were uncovered but not excavated. In this area a pithos base was found *in situ.*

Field H Phases 5 (Late Iron 2/Persian). Due to pitting activity, no Phase 5 surface has been identified in the southeast rooms. In the western part of the area was a rectangular pit measuring up to 1m wide and 1.6m long and 0.7m deep. It was dug into the earlier remains in a corner created by two walls. The two sides of the pit not abutting the walls were lined with flat cobble sized stones tipped up on end and the bottom was lined with a cemented earth layer but contained no artifacts (**Fig. 23**). The fill layers of earth were well compacted suggesting that they were laid down during periods of regular use. Within the fill were 8 grindstone implements and the fragments of a handled bowl (**Fig. 24**). Six of the stone implements were grouped together in the NE corner of the pit.

Field H Phase 4 (Persian). In the southeastern part of the area was a large circular pit measuring over 2m wide and 0.3m deep. It was dug into the fills of the previous phases. As previously identified in the 2000 and 2002 seasons, a foundation trench was dug into the Phase 5 plaster surface to found the Phase 4 walls.

Field L: The Southern Edge (David C. Hopkins, Wesley Theological Seminary and Mary Petrina Boyd, Coupeville, Washington Methodist Church)

Field L is located at the southern edge of the flat top of Tall al-'Umayrī (**Fig. 2**). Excavations in this field began in 1998 for the initial purpose of exploring the transition of the top of the site to the southern slope where several surface architectural features were visible. This season, Field L excavators worked to expose the northern extent of the Hellenistic complex excavated in earlier seasons, to test the integrity of the plaster surface that appeared to unify two major rooms of the building, and to articulate and date several major wall lines beneath the Hellenistic building. Diggers opened a new square (6K99) at the northern extremity of the field, removed the balks between several squares, and worked to bring into phase several circumscribed areas of previously excavated squares. The gathered data produced greater certainty about the structure and phasing of the Hellenistic building, added major architectural loci to the Iron 1 period at the site, and necessitated the reassignment of a



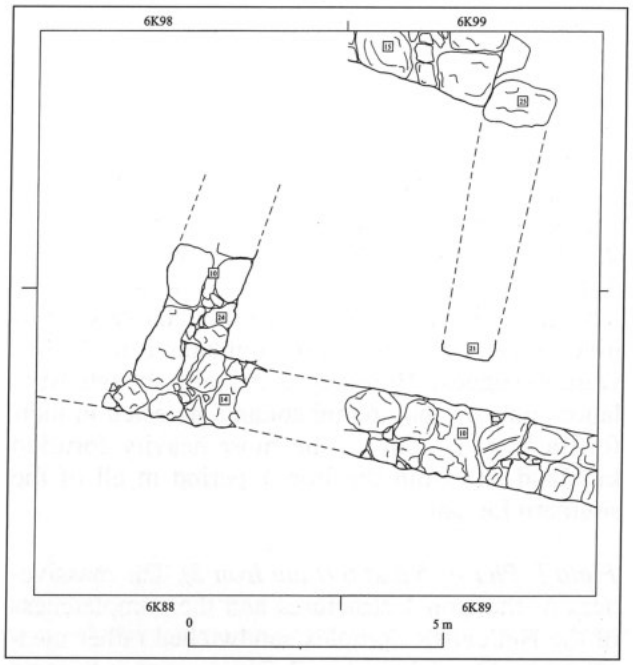
23. Field H: Rectangular pit from Phase 5.



24. Field H: Rectangular pit from Phase 5 with partial fill and objects in the fill.

number of major architectural elements. More architecture can now be attributed to the Hellenistic building, while the remains of the Iron 2 period diminished. The Iron 1 period claimed massive new architectural features.

Field L Phase 7 (Iron 1) (**Fig. 25**). Excavation in the newly opened Square 6K99 at the northern end of Field L uncovered a massive wall (Locus 15) constructed with very large boulders and running east-west (**Fig. 26** — Wall 15 is the lowest wall in the foreground). While digging has not yet reached the foundations of these stones and walls, they belong stratigraphically to a pre-Hellenistic phase. Wall 15 may be the northern wall of a large structure with a parallel wall in the two adjacent squares to the south (Wall 6K89:10=88:14) and a north-south wall (Wall 6K88:24=6K98:10) (**Fig. 26** — the walls immediately to the south and west respectively of the standing balks of Square 6K99). Plotting the continuation of Wall 15 towards the west end of Walls 6K8888:14 and 24, towards a northern point of intersection outlines a rectilinear structure with three sides. Measuring a minimum of 9.6 by 9.3m, this building would boast an interior space no less than 45m^2 (7.5 by 6.1m). Other data link these wall segments. First, very large boulders occupy a prominent place in their shared dry-laid, two-row, boulder-and-chink construction technique. Second, the southern wall has a consistent deposit of loamy, ashy material sealing against it with Iron 1 ceramics. Third, the top of



25. Field L: Plan of Phase 7.

Wall 6K98:10 was reused during the Iron 2 period.

Other architectural fragments, identified but not yet excavated, probably belonged to Phase 7 if not to the above building. At the northern edge of Square 6K89 a door jamb made of large semi-hewn boulders (6K89:21) aligns with the east end of the northern wall. The two could constitute a north-south wall of a room within the building. Other massive stones just emerging in Square



26. Field L: Overview of Field L from the north with Square 6K99 in the foreground.

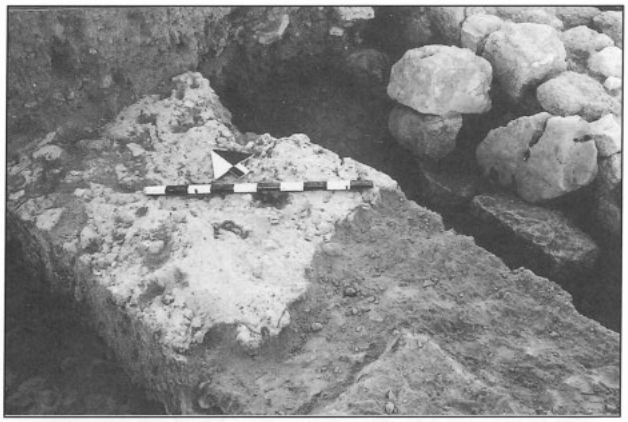
6K99 may be part of this complex. So far, no surfaces have been discovered with these walls. Not enough has been excavated to know whether the Iron 1 remains in Field L occurred in more than one phase.

We have not yet been able to determine if these large structures infer a social context different from that in the other fields where the Iron 1 remains were not nearly so monumental. Moreover, structures like this do not seem to fit the relatively primitive social structures most highland Iron 1 sites seem to suggest. However, it fits with the intensive labor and care that the inhabitants invested in their fortification system — the most heavily fortified highland site from the Iron 1 period in all of the southern Levant.

Field L Phases 5 and 6 (Late Iron 2). The massiveness of the Iron 1 structures and the completeness of the Hellenistic complex sandwiched rather meager remnants of Iron Age 2. This season it became clear that major parts of the architecture we had previously assigned to the late Iron 2/Persian period must now be reassigned to the Hellenistic period. Nor did we uncover significant new loci in compensation.

In Square 6K99 was a pair of thin wall fragments beneath a Hellenistic wall of Phase 4 (**Fig. 26** — just south of Wall 6K99:15). However, there is no other reason to suggest that they may be Iron 2 in date. Balk removal and excavation in Squares 6K79 and 6K89 clarified the lines of two pre-Hellenistic walls. The Hellenistic builders scavenged from both walls and, despite their individuality, it is not difficult to imagine simultaneous use of the walls: their foundations occur at only marginally different depths, and though their orientations (18° versus 10°) place them on a collision course beyond their extant lengths, exact parallel alignment is not necessary. The earth layers immediately below the walls yielded late Iron 2 ceramics.

Field L Phases 4, 3 and 3A (Late Hellenistic). The Hellenistic settlers (Phase 4) of this section of the tall laid a plaster floor in the southern part of the field (Squares 6K79 and 6K89) (**Fig. 27** — just fragments in the balks were excavated this season). Though we had provisionally dated it to late Iron 2 in earlier seasons, the quantity of Hellenistic sherds sealed beneath it unequivocally indicated that it was, instead, a Hellenistic surface. In every location, save one, where excavators delved into the Hellenistic building, they encountered the plaster floor. The one exception was a small area near the



27. Field L: One fragment of the Phase 4-3 plaster surface; earlier seasons saw much more of the surface excavated in several squares.

northern wall of the structure. Overall, this plaster floor represents one of the hallmarks of Phase 3. Elevations made it clear that the ancient workers were attentive to consistency of level as the following series of elevations suggests: 910.70, 910.69, 910.50, 910.80, 910.72, 910.50, 910.30, 910.50, and 910.65.

We do not yet know what specialized purpose led to this major investment. The drain that we uncovered beneath the plaster floor (6K79:17) in a previous season suggests an occupation involving a significant amount of waste water such as olive processing. The tool inventory contains agricultural implements (hand pick and sickle) as well as an enigmatic two-piece stone artifact that may be related to a crushing process. However, nothing in this collection is cultivar specific.

We were able to pin down all but a few corners of the Hellenistic architecture preserved in the rooms so far exposed (**Fig. 26**). Diggers revealed the full length of the central wall (the wall beneath the meter stick in **Fig. 26**). It spanned the whole building from south to north where the building's northern limit was demarcated by Wall 6K99:3 (located near the southern balk of the square in the foreground of **Fig. 26**). The length of the central wall was 11.75m. This leaves the northern wall of the building with an offset. While this building style may have been otherwise motivated, the offset of Wall 6K98:7 may have been an accommodation to the configuration of stone reused from a previous phase. It may suggest that additional features of the building lay farther north.

Wall 6K99:3 terminates a short distance from the building's eastern wall. This feature may have served as a door jamb. The opposite jamb must be just outside our excavated area to the east. Phase 4 builders also built a bin (6K99:16) north of Wall 3 (**Fig. 26** in the east balk). Its construction style

matches other Hellenistic walls and installations at times: orthostatic with a foundation of cobbles.

Inside the building diggers unearthed one of the building's several *ṭābūn* (s). Because no *in-situ* plaster surface turned up in this quadrant, no direct observations about the stratigraphic relationship between this surface and the plaster surface could be made. Given the overall level of the plaster surface throughout the field, it would not be out of the question that the *ṭābūn* was used prior to the surface. North of Wall 3, outside of the building presumably, excavators encountered no plaster surface, either intact or fragmentary.

A later phase is represented by a platform of stones built north of Wall 6K99:3 (**Fig. 26**). The role of this construction in the building complex is unknown. One may speculate that this served as a buttress for Wall 3 or, perhaps, the platform constituted one side of the foundation for a tower. If square, such a tower — a frequent feature of Hellenistic rural building complexes — would measure ca. 4m on a side, a good fit with known examples of Hellenistic field towers (e.g., at Yoqne'am and numerous examples in the highlands north of Jerusalem).

We were also able to show that the southern wall of the complex was wholly Hellenistic and did not exist in the late Iron 2/Persian period as we had previously suggested. Work this season in Squares 6K79 6K78. Clear Hellenistic layers sealed against the bottom courses of the walls. Indeed, the earth layers below the wall produced a clear Hellenistic pithos rim (**Fig. 28**). This means that we must divide our Hellenistic phasing into two, making Phase 3A and 3B. The later phase saw the addition of bins, the blocking of doorways, and the construction of second phases of walls.

Materials from later periods were almost non-existent this season, except within topsoil of the new square.

Ammon Seal Impression

We discovered our fifth Persian-period Ammon seal impression this season in Field B, Square 8K10, Locus 2 (sub-topsoil) (**Fig. 29**). It was on the upper part of a jar handle. Like the four earlier seals (Herr *et al.* 2002 [MPP 5]: 253, 263, 265, 275), this one contained a personal name in one of the registers and the word Ammon in the other. In this impression the top line carries the Ammonite personal name, 'lṣr, but the script is an Aramaic type best dated around the turn of the sixth to the fifth century BC.

Bibliography

Geraty, L.G.

1985 The Andrews University Madaba Plains Project: A Preliminary Report on the First Season at Tell el-'Umeiri. *AUSS* 23: 85-110.

Geraty, L.T., Herr, L.G. and LaBianca, Ø.S.

1986 Madaba Plains Project: A Preliminary Report of the 1984 Season at Tell el-'Umeiri and Vicinity. *BASOR* Supplement 24: 117-119.

1987 The Madaba Plains Project: A Preliminary Report on the First Season at Tell el-'Umeiri and Vicinity. *ADAJ* 31: 187-199.

1988 The Joint Madaba Plains Project: A Preliminary Report on the Second Season at Tell el-'Umeiri and Vicinity (June 18 to August 6, 1987). *AUSS* 26: 217-252.

1989 Madaba Plains Project: The 1987 Season at Tell el-'Umeiri and Vicinity. *ADAJ* 33: 145-176.

1990 Madaba Plains Project: A Preliminary Report of the 1987 Season at Tell el-'Umeiri and Vicinity. *BASOR* Supplement 26: 59-88.



28. Field L: Hellenistic pithos rim beneath wall.



29. Field B: Seal impression of the Persian province of Ammon.

Geraty, L.T., Herr, L.G., LaBianca, Ø.S. and Younker, R.W. (eds.)
1989 *Madaba Plains Project 1: The 1984 Season at Tell el-'Umeiri and Vicinity and Subsequent Studies.* Berrien Springs, MI: Andrews University/Institute of Archaeology.

Herr, L.G. and Clark, D.R.
2003 Madaba Plains Project: Excavations at Tall al-'Umayri, *2002. ADAJ 47:* 279-294.
2004 Madaba Plains Project—Tall al-'Umayri, 2002. *AUSS* 42: 113-127.

Herr, L.G., Clark, D.R., Geraty, L.T. and LaBianca, Ø.S.
1999 Madaba Plains Project: Excavations at Tall al-'Umayri, 1998. *ADAJ* 43: 99-114.
2000 Madaba Plains Project: Tall al-'Umayri, 1998. *AUSS* 38: 29-44.

Herr, L.G., Clark, D.R., Geraty, L.T., Younker, R. W. and LaBianca, Ø.S. (eds.)
2000 *Madaba Plains Project 4: The 1992 Season at Tall al-'Umayri and Subsequent Studies.* Berrien Springs, MI: Andrews University/Institute of Archaeology.
2002 *Madaba Plains Project 5: The 1994 Season at Tall al-'Umayri and Subsequent Studies.* Berrien Springs, MI: Andrews University/Institute of Archaeology.

Herr, L.G., Clark, D.R. and Trenchard, W.C.
2001 Madaba Plains Project: Excavations at Tall al-'Umayri„ 2000. *ADAJ* 45: 237-252.
2002 Madaba Plains Project: Excavations at Tall al-'Umayri, 2000. *AUSS* 40: 105-123.

Herr, L. G., Geraty, L. T., LaBianca, Ø. S. and Younker, R. W.
1991 Madaba Plains Project: The 1989 Excavations at Tell el-'Umeiri and Vicinity. *ADAJ* 35: 155-180.
1994 Madaba Plains Project: The 1992 Excavations at Tell el-'Umeiri, Tell Jalul, and Vicinity. *ADAJ* 38: 147-172.

Herr, L.G., Geraty, L.T., LaBianca, Ø.S., Younker, R.W. and Clark, D.R.
1996 Madaba Plains Project 1994: Excavations at Tall al-'Umayri, Tall Jalul, and Vicinity. *ADAJ* 40: 63-82.
1997 Madaba Plains Project 1996: Excavations at Tall al-'Umayri, Tall Jalul and Vicinity. *ADAJ* 41: 145-168.

Herr, L.G., Geraty, L.T., LaBianca, Ø.S. and Younker, R.W. (eds.)
1991 Madaba Plains Project 2: *The 1987 Season at Tell el-'Umeiri and Vicinity and Subsequent Studies.* Berrien Springs, MI: Andrews University/Institute of Archaeology.

Herr, L.G., Geraty, L.T., LaBianca, Ø.S., Younker, R.W. and Clark, D.R. (eds.)
1997 *Madaba Plains Project 3: The 1989 Season at Tall al-'Umayri and Vicinity and Subsequent Studies.* Berrien Springs, MI: Andrews University/Institute of Archaeology.

LaBianca, Ø.S. *et al.*
1995 Madaba Plains Project: A Preliminary Report on the 1989 Season at Tell el-'Umeiri and Hinterland. Pp. 93-120 in W.G. Dever (ed.), Preliminary Excavation Reports, *Annual of the American Schools of Oriental Research* 52. Atlanta: American Schools of Oriental Research.

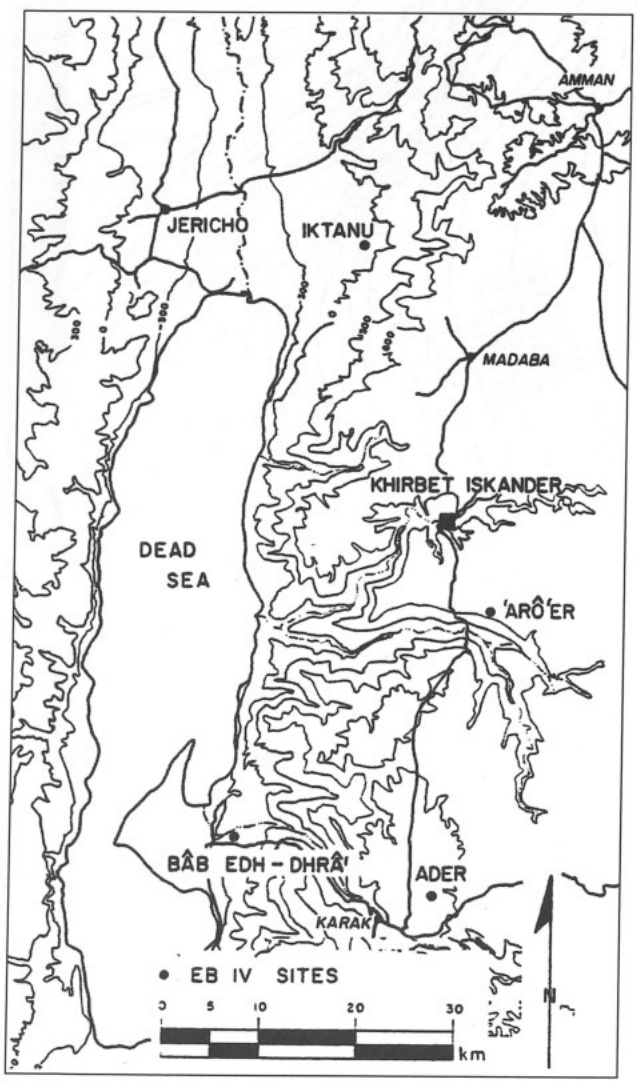
Younker, R.W. *et al.*
1990 The Joint Madaba Plains Project: A Preliminary Report of the 1989 Season, Including the Regional Survey and Excavations at El-Dreijat, Tell Jawa, and Tell el-'Umeiri (June 19 to August 8, 1989). *AUSS* 28: 5-52.
1993 The Joint Madaba Plains Project: A Preliminary Report of the 1992 Season, Including the Regional Survey and Excavations at Tell Jalul and Tell el-'Umeiri (June 16 to July 31, 1992). *AUSS* 31: 205-238.
1996 Preliminary Report of the 1994 Season of the Madaba Plains Project: Regional Survey, Tall al-'Umayri and Tall Jalul Excavations (June 15 to July 30, 1994). *AUSS* 34: 65-92.
1997 Preliminary Report of the 1996 Season of the Madaba Plains Project: Regional Survey, Tall al-'Umayri and Tall Jalul Excavations. *AUSS* 35: 227-240.

THREE SEASONS OF EXCAVATIONS AT KHIRBAT ISKANDAR, 1997, 2000, 2004

Suzanne Richard and Jesse C. Long, Jr.

Introduction

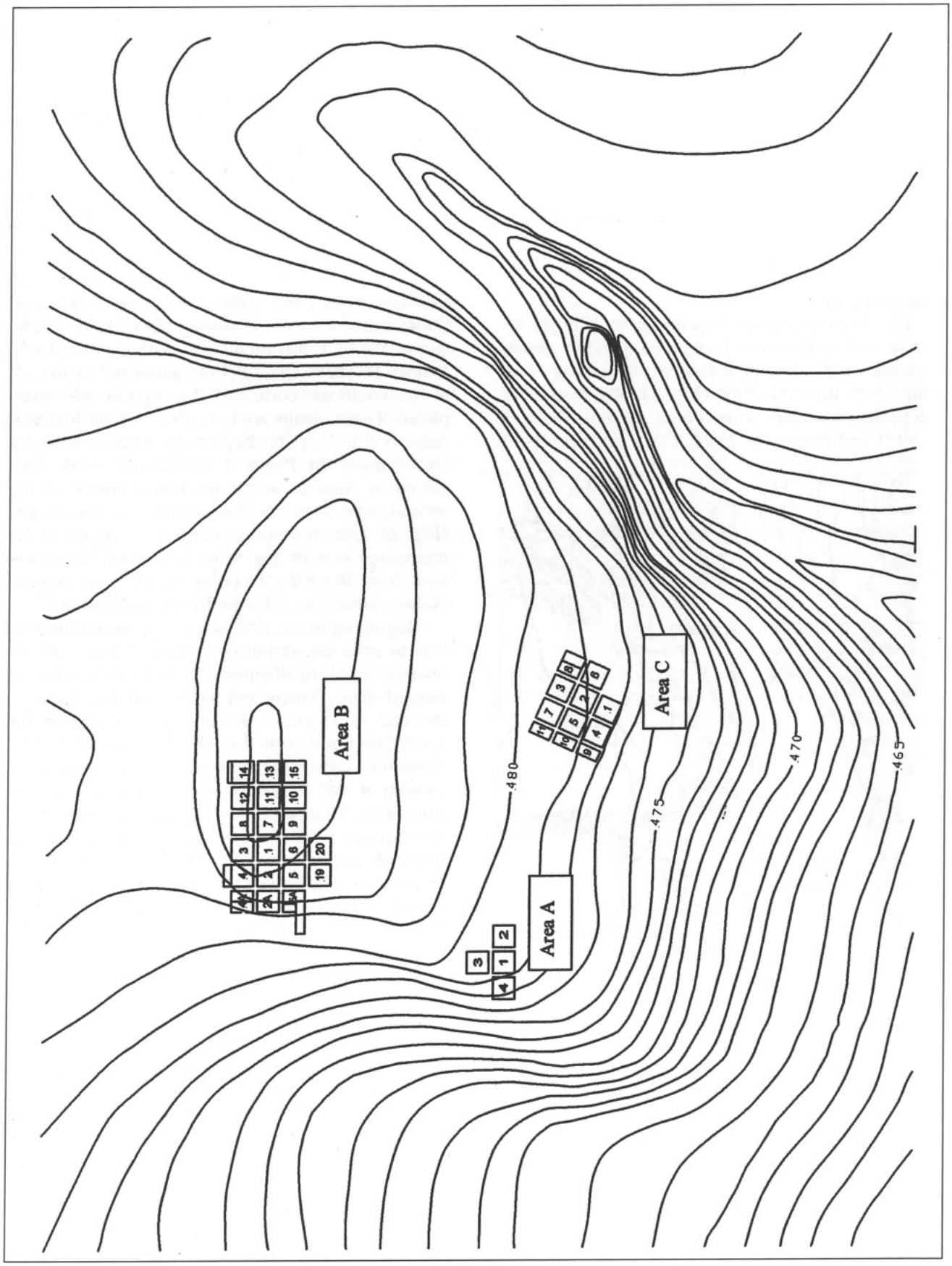
The Archaeological Expedition to Khirbat Iskandar and its Environs completed its ninth season of work at the site in a five weeks season from May 15 to June 20, 2004 (**Fig. 1**). The history of the project includes: a) two pilot seasons, Phase 1 in 1981 and Phase 2 in 1994; b) six full seasons of excavations in 1982, 1984, 1987, 1997, 2000, and 2004; and c) a season of restoration in 1998. At the end of Phase 1 operations, excavation of the Early Bronze IV (hereafter EB IV) "gateway" in Area C at the southeast corner of the mound was completed. These results are the subject of the first volume soon to be published on the Khirbat Iskandar Excavations. In Phase 2 operations, work continued in Area B, at the northwest corner of the mound, now a vast field of twenty 5 x 5m squares (**Fig. 2**). Over the years, the project has gradually uncovered one of the most important settlement sites from the EB IV period, including a defense system, clearly used by the EB IV population.



1. Map showing the location of Khirbat Iskandar on the ancient "King's Highway" and other key EB IV sites.

Beginning in the 1997 season, a major objective was to excavate earlier occupational levels on the interior of the fortifications in order to resolve issues of their phasing and dating that had arisen at the end of Phase 1 operations. Throughout the 1997, 2000, and 2004 seasons, the team achieved a substantial horizontal exposure of a pre-EB IV stratum of well-preserved structures within the fortifications. This pre-EB IV stratum has in the past been termed EB II-III, due to a lack of clear-cut ceramic diagnostics. In the 2004 season, however, unmistakable diagnostic types came to light confirming the date of the stratum to the EB III period. Earlier strata await further exposure before anything definitive may be said about their date. On the basis of work in 1987 north of the tower, as well as earlier work by Parr (1960), it is clear that there is an EB I stratum on the mound. The EB I tomb excavated in 1987 is further evidence for early occupation of the site. It has gradually become clear through the work of this project that Khirbat Iskandar must now be set into a different context; that is, it is not simply a major EB IV regional center. It is now evident that Khirbat Iskandar is an Early Bronze Age site that appears to be witness to the urbanization and reorganization processes occurring throughout the forth-third millennia BC.

Because of the clarification of the occupational history, phasing, and dating of the Khirbat Iskandar



2. Topographic plan of Khirbat Iskandar, showing Areas A-B-C, looking north.

stratigraphy in the latest season of excavations (2004), this essay is both a preliminary report on the past three field seasons at the site, as well as a reevaluation and updating of the stratigraphical history of the site, as reported in earlier publications. The resolution of the dating of the fortifications this past season has greatly aided our overall understanding and interpretation of the site's history.

The project was sponsored, once again, by a consortium of three schools: Gannon University, Erie, PA; Lubbock Christian University, Lubbock, TX; and McMurry University, Abilene, TX. The project is, and has been since its first season in 1981, affiliated with the American Schools of Oriental Research and, in particularly, the American Center of Oriental Research in 'Ammān, and under permit granted by the Department of Antiquities, Jordan.

Research Design and Objectives

The overarching goal of the project from its inception has been to examine the nature and extent of sociopolitical complexity in the post-urban EB IV ("Intermediate EB-MB") period, ca. 2350-2000BC. This period, traditionally considered a pastoral/rural interlude between the two urban eras of the Early Bronze and Middle Bronze Ages, has undergone considerable reevaluation over the years (see Richard 1987, 2003; Long 2003). Regardless of the various models proposed, the growing number of excavated and surveyed EB IV settlement sites, particularly in Jordan, affirms the thesis that sedentism, as well as pastoral nomadism, were both important economic strategies following the general demise of city-life at the end of EB III. The extent and well-preserved nature of the multiple EB IV settlements at Khirbat Iskandar demonstrates that even small towns continuing a semblance of urban life existed in the period. In light of the history of occupation on the mound (really *tall*) of Khirbat Iskandar, the project expanded and revised its research design to concentrate also on 1) documenting the so-far elusive stratigraphic transition between EB III and EB IV; and 2) investigating the processes of urbanization at the site. In all probability, Khirbat Islandar will be a key site for illuminating the evolutionary trajectory of EB I village to EB II-III city to EB IV post- urban sedentary strategies in the southern Levant, from ca. 3500-2000BC.

The 1997 Season

Area B

The 1997 excavations in Area B were the first full-scale operations at the site following a hiatus of 10 years (Richard and Long 1998), except for a brief pilot season (Richard and Long 1995). At the end of 1987, although work was completed in Area C, excavation had inevitably raised more questions elsewhere, in particular, in Area B (Richard 1990), where a newly discovered inner fortification line raised intriguing questions about the overall defensive system at Khirbat Iskandar (for previous reports see Richard 1981, 1982; Richard and Boraas 1987). Moreover, further exposure of the Phase B EB IV "storeroom" and recovery of yet more quantities of restorable vessels raised important issues about the extent of what now appeared to be a "public complex" (see Richard 2000). In 1997, the objectives were to: a) expose the entire architectural plan of the "public complex" (Area B East); and b) excavate earlier occupational levels south of and associated with the fortifications (Area B West). Since the 2000 and 2004 expeditions have updated and further clarified the stratigraphy of Area B, the following summary of the 1997 results intends only to highlight some of the major discoveries of that season.

Area B West: The decision was made to use Square B2 as the main area of investigation. It is in this square where the western perimeter wall (2053) abutted the square tower (2077) and where probes had glimpsed earlier phasing related to the foundational levels of the defenses and associated occupational phasing. Upon removal of EB IV Phase B remnant walls, excavation encountered a (0.30m) destruction level of mud brick debris and ashy soil layer. Below, there appeared a well-preserved stone structure W. 2095 (0.75m wide), whose earlier construction phase was evident in the courses below the threshold of the doorway. The wall ran from the south balk northward, continuing as W. 2062 abutting Tower 2077. Mud brick lay on top and filled the 0.55m wide doorway of Wall 2095 (**Fig. 3**). Well-constructed and good-sized threshold steps made it evident that to enter from the western (exterior) side, one had to step up into the structure. The south balk showed that mud brick had slumped off W. 2095 toward the west. It is probable superstructure material. This 1.50m high, well-built stone (and probable mud brick) wall provided our first glimpse of a well-preserved pre-EB IV non-defensive structure at the site.

Clearance of the mud brick destruction debris to the east of W. 2095 uncovered two solid surfaces, one (2118) fairly level with the threshold and the other (2121) some 0.25m below. EB II/III pottery was found on the surfaces. Lower surface 2121 was traced to the foundation level of Tower 2077 and to (bonded) Steps 2102. The significance of these dis-



3. The Area B, Phase C settlement looking from the east (Squares B7, B1, B2), within the fortifications on the north (photo: R. Miceli).

coveries is that they were the first clearly stratified occupational levels (termed preliminarily Phases C1-2) found associated with the founding of the fortifications. Furthermore, the destroyed upper level offered an explanation for the mud-brick layer encountered virtually everywhere in probes below the EB IV Phase B settlement. It became clear in the 1997 season that the fortifications were founded in the urban EB II-III period and only reused/rebuilt in the EB IV period.

Work in Square B2 also clarified western perimeter W. 2053 (**Fig. 4**). It had suffered the same destruction as W. 2095 for, similarly, mud-brick debris and ash had fallen against it. The fact that the base of W 2053 was higher than the Tower foundation prompted us to tentatively conclude at the time that it was probably a secondary blocking wall, thrown up against the tower, perhaps following an earlier destruction. At the end of season, a probe west of the threshold steps gave us a glimpse of earlier phasing: a two-row curvilinear wall (2108) appeared to run from under W. 2095 toward the west balk; perpendicular to its base, the outlines of another wall (2113) were evident.

The discovery of EB II-III occupational remains, and their obvious implications for the dating of the defenses, prompted us to revisit the deep sec-

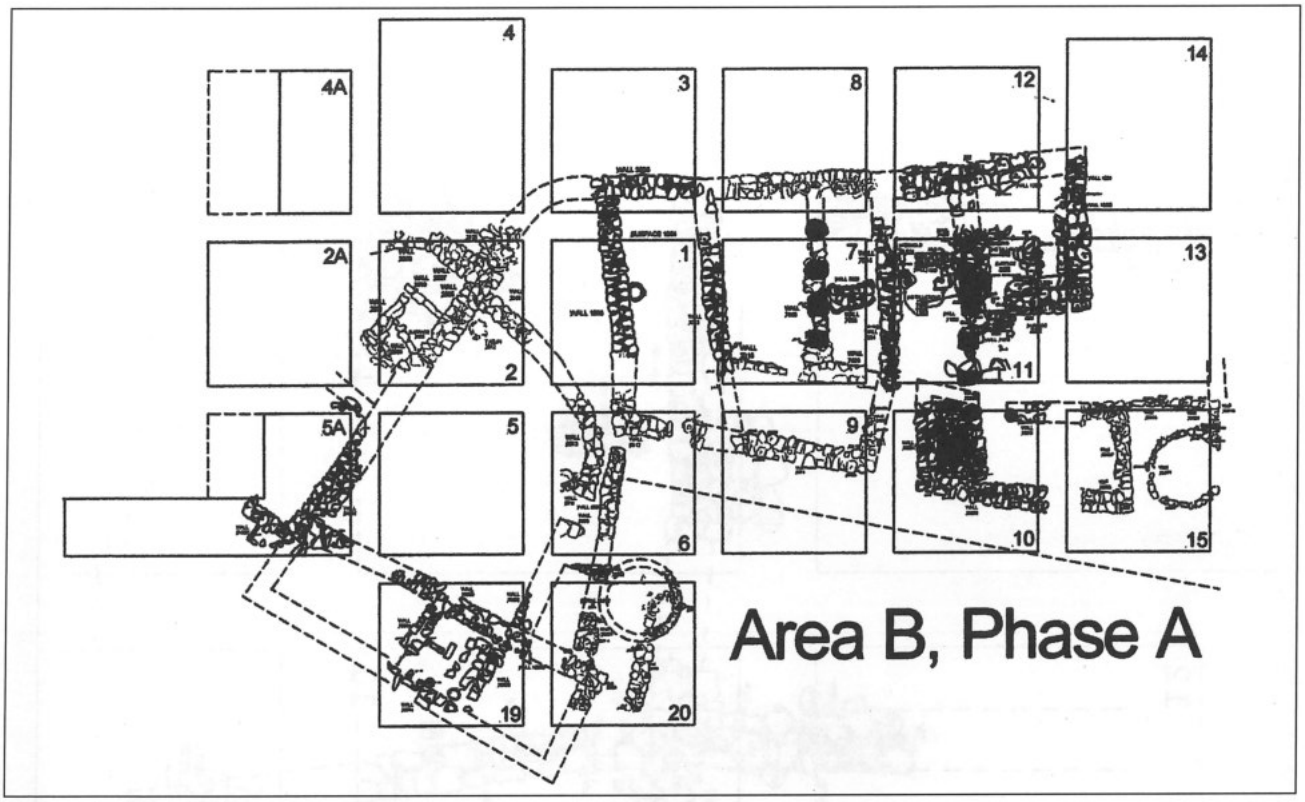


4. Area B, Square B2 western perimeter wall abutting the northwest corner tower, viewed from the east.

tion against the northern face of the fortifications in the Square B4 extension. In 1987, when first excavated, the foundation trench discerned in the B4 section — which included a piece of a black painted caliciform cup and a few undistinguished sherds — was dated to the EB IV, as everything else on site. When cut back in 1997 to reexamine the deposition layers, the B4 section again yielded sparse ceramics, but the undistinguished Early Bronze Age sherds could now be compared with the range of EB II/III ceramic ware found in Square B2. It was evident that the previous EB IV date assigned to the foundation trench would have to be reconsidered.

Finally, work in Square B5, though limited, provided important new data for our EB IV Phase B level. As elsewhere in that level, restorable vessels were found within the collapse lying on a plaster surface. Of great interest was the discovery of a metal object lying on the surface in the southwest corner of the square. The object was a miniature bronze spearhead of an early "folded over" socketed type. For details concerning this unique object, see Richard (in press).

Area B East: At the east end of the field, new squares B13 and B14 were opened, while work continued in B11 and B12 with the dismantling of the remaining Phase A EB IV structures. We hoped to ascertain the furthest extent of the Phase B "public complex" and, possibly, to expose even earlier levels. The recognition of sub phasing in Squares 11 and 12 helped to clarify the construction and use history of the Phase A pillared buildings (**Fig. 5**). As found in B7 to the west, the solid house walls of Phase A1 superseded Phase A2 pillared buildings, as shown clearly by blockages between pillar bases. Benches 11024 and 13023 were later additions in this phase, built up against the inner southeast



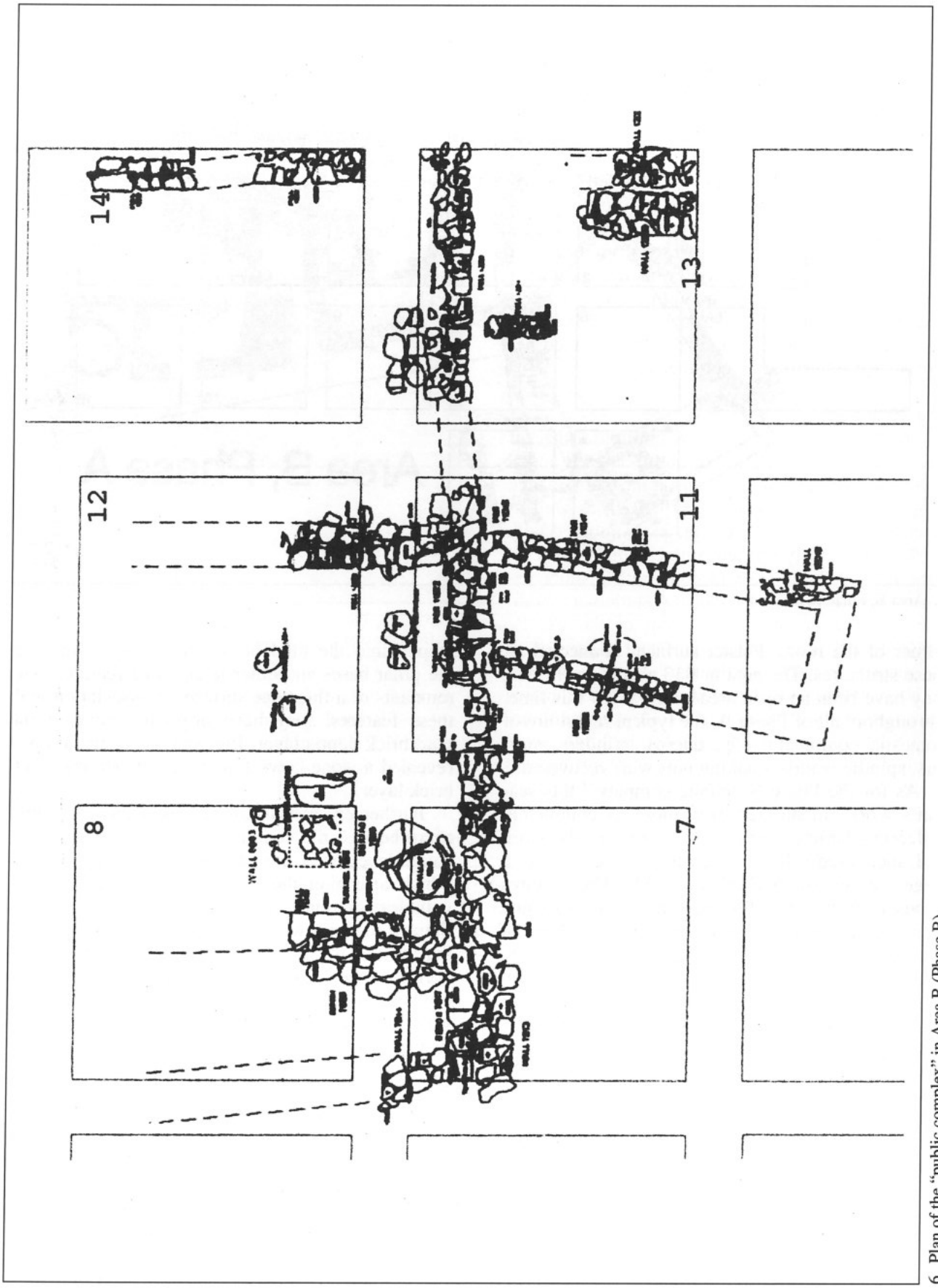
5. Area B, Phase A plan.

corner of the room. Plaster surfaces connected all these structures. The area in B13 and 14 to the east may have been an open area/courtyard at this time. Throughout all of Phase A, the typical repertoire of domestic equipment, e.g., querns, grinders, mortars, spindle whorls, cooking pots were recovered.

As for the Phase B "public complex," this season's work emphasized even more its completely different character from Phase A. Previously, work had uncovered a bench-lined room connected to a large, central room (Richard 1990). The features exposed during the 1994 season, pillar bases and steps, became much clearer with the eastern wall of the main room now delineated by north-south W. 12058 (**Fig. 6**). The latter ends at the south face of the foundations for Phase A wall 12003 and may have been cut during its construction; a similar phenomenon was noted at the west end. Also, no north wall to the building could be clearly defined, suggesting again that the northern fortification line served as that boundary.

Although one major level of use was found in the complex of rooms — the plaster surface upon which there lay the collapse/destruction debris of roofing materials and stone — it is possible that the mud brick surface layer into which various features were set, could have functioned as the original surface. It was difficult to separate the two. For example, into the mud brick surface-layer were set the pillar bases and other large stone features. The remnants of a flagstone surface, in association with these features, may have originally covered the mud brick debris layer. Previously, excavation had revealed a stone-hewn bin to be cut into the mud-brick layer.

Further excavation to the east exposed a third room beyond the central room, while work to the south revealed a corridor-type of room, both of which affirming the nature of the structure as a complex of some sort. Further investigation of Steps 11038 showed that they led south onto surface 11073, to the east of which was a long, narrow corridor type of room. On the surface of the room lay large concentrations of flat-lying and restorable pottery. As we exposed more of the southern wall of the complex to the east into Square B13, as W. 13009, the easternmost room of the complex came into view, although the outlines of the room were not clear in 1997. It was equally difficult to observe an architectural plan of the area beyond the corridor room, south of W. 13009, due to the number of walls in Square B13 and to clear reuse evidence. For example, W. 13009, the southern wall of the "public complex" building clearly abuts a multi-phased north-south wall (13030), whose depth and construction technique identify it with Phase C



6. Plan of the "public complex" in Area B (Phase B).

walls found in Area B West. This season we did not reach any associated surfaces and, thus, cannot yet interpret or date these earlier structures. If they are Phase C structures, the stratigraphy in Area B East contrasts with that in Area B West, where we encountered no difficulty in separating Phase B and C walls (Square B2).

Finally, in Square B14, we exposed more of the line of fortifications along the northern perimeter of the site; that is, an outer (northern) line and an inner (southern) line of fortifications with a line of rubble in-between. Somewhat unexpectedly, we also discerned the first outlines of what appeared to be a large stone structure (tower?) on the south side of the inner wall. The season ended before further investigation could ensue.

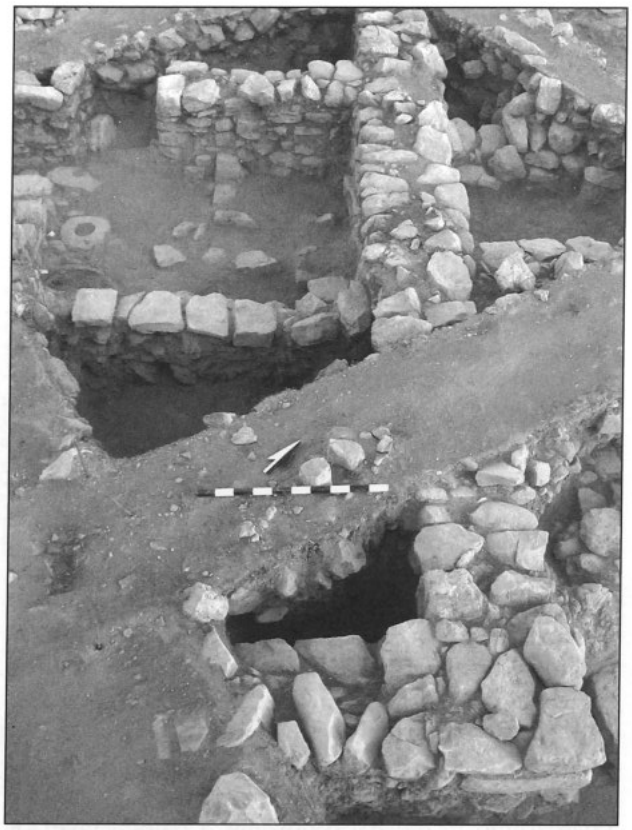
The 2000 Season

In 2000, the strategy was similar to that of 1997, i.e., further exposure of both Phases B and C in Area B. To that end, this season the team opened new squares B9, B10, B15, B19, B20, as well as extensions B2A and B5A (**Fig. 2**). Combined with work in previously opened squares, this significant horizontal exposure provided us with a more detailed view of the EB IV Phase A settlement, additional data concerning the extent of the EB IV Phase B settlement, and a significant expansion of the earlier, Phase C settlement. Again, since the 2004 expedition has updated and further clarified the stratigraphy of Area B, the following summary of the 2000 season intends only to highlight some of the major discoveries. For ease of reporting, it is preferable here to summarize the results by phase, in Area B West and Area B East.

Phase A

Area B West: New squares B19, B20, and the B5A extension revealed another large, well-built multi-roomed structure and considerably clarified the settlement plan of the Phase A EB IV occupants at the west end of the field. Square B19 proved to be the center room of a three-room structure that stretched 10m, cornering in B20 to the east and bonding with major north-south W. 5A002 in the west (**Figs. 5 and 7**). Typically for Phase A, the wall lines were visible immediately under a layer of tumble and topsoil. The B19 room had two blocked doorways — solid or blocked walls being typical of the upper (Phase A1) levels throughout the field — and a partition wall, both providing evidence for sub phasing in Phase A, as noted elsewhere. It is not known if the doorway in the south wall leads to additional rooms.

The features uncovered in the room all appeared



7. Area B, Phase A: Square B19 structure with "kitchen", from the east (photo: S. Rempel).

to relate to similar domestic activities that would suggest a food preparation area. We called it the kitchen. The features within the room were all connected with the same surface. They included the remains of what appeared to be a *ṭābūn*, a work platform, a storage area, and three sunken features, two of which

seemed clearly to be mortars. The *ṭābūn* (or possible bin) was quite shallow and included a very little ash. Contiguous to it, there was a large flat stone probably serving as a work platform or portion of a bench. The *ṭābūn* seemed clearly associated with a storage or bin area in the northwest of the room, as defined by elongated stones. There were also three sunken features in close proximity, two of which were within the southern doorway, the western of which may have served as the door pivot. The other two displayed much larger holes and presumably functioned as mortars.

The contrast between Square B19 and Square B20 to the east was striking. There was an unusual amount of destruction debris in B20, including multiple phases of roof collapse and wall tumble, as well as intrusions. No living surfaces could be discerned. Intrusions included a bin and several burials. In the west two modern burials, dug into the

doorway of the wall at the northwest corner complicated the separation of Phase A and B walls, although by end of season, the clear recovery of Phase B walls in contiguous square B6 to the north provided the needed linkages (below). Phase A wall (2008) running north from the south balk ended abruptly in mid square, apparently cut by circular installation 20013. Not excavated, this installation remains an enigma as yet; however, an apparent parallel installation was excavated in Square B15, discussed below. Over all, the Phase A settlement plan at the west end is gradually coming into focus. As in the north and east, there appear to be a series of multi-roomed buildings interconnected through common walls.

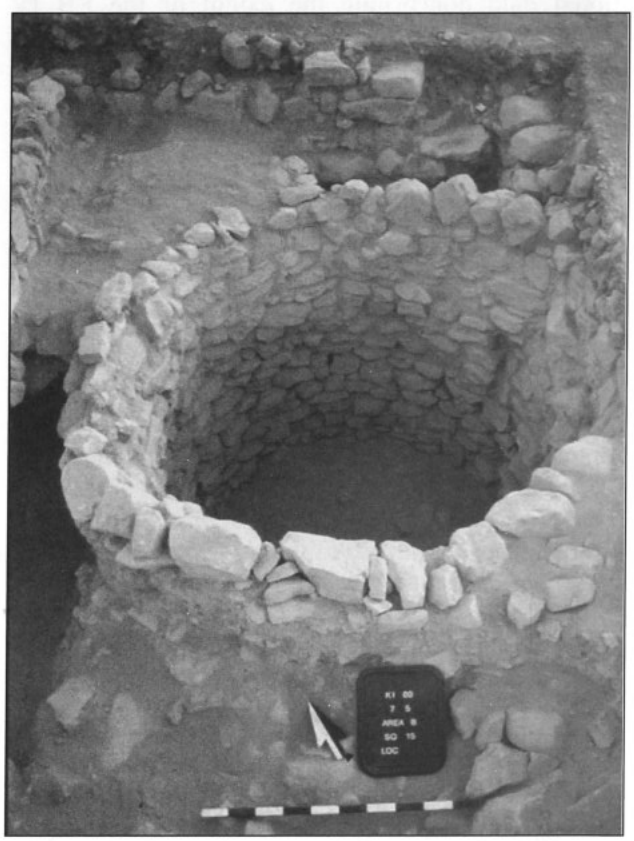
Area B East: Work in newly opened Square B9 provided us with the definitive southern boundary of a Phase A complex of buildings found in Squares B1, B6, B7 and B8 primarily (**Fig. 5**). A clear gap or alleyway delineated this complex from the easternmost room. In fact, a blocked doorway in the east wall of the B9 house at one time had provided access to the alley leading into the pillared area to the north in B11. The one surface layer found in the B9 room was a patchy layer of plaster roof collapse. To the south of this building, a heavy layer of roof collapse/tumble was found. Complicating the excavation of the interior space of the building was the discovery of a complete skeleton found lying in a cist tomb, as well as two other modern burials in a small built tomb near the western balk.

To the east, in B10-15, an extremely well built and well-preserved broad-room house came to light. It was a two-room house, the partition wall being a Phase A1 blockage of an earlier row of pillars. There was an entrance giving access to the courtyard and rooms to the north. Two pillars framed the entrance: a reused pillar-orthostat on the west and a massive pillar drum on the east. There was a bench along the north wall, which continued eastward into Square B15, where it cornered northward into Square B13. Pointing to functional differences, a pavement covered the floor of the western room of the building, while in the east, a very thick plaster surface partially covered a layer of poorly preserved cobblestones, possibly evidence of an earlier floor. The absence of wall lines to the south of the B9, B10 and B15 houses, but presence of a rubble/pebble hard-packed outer surface, suggests a street or courtyard.

Of great interest is the enigmatic circular installation (15011) found in the courtyard to the east of the B10/15 broad-room house (**Fig. 8**). This unusual structure, which is close to 3.0m in diameter, is composed of small to medium cobblestones in a one-row wall. At 2.75m in depth, the bottom had remained elusive by end of season. This subterranean circular structure lies just below the original topsoil and rubble, as is usual for Phase A1 structures. Within the bin, excavation found a haphazard arrangement of boulders at one end, smaller cobbles at the other, and soil throughout. A section through the bin showed no evidence of strata or tip marks. Bones, lithics, few pieces of badly weathered pottery, and some modern items were found, although the bottom had not been reached by end of season. Whether this installation is EB IV or is a later intrusion could not be determined this season.

Phase B

Area B West: To date, the architectural plan for the Phase B settlement in B West is not yet apparent, although the various wall fragments all witness to a series of rectangular buildings in the area. The Phase B remains at the western end can be summarized briefly, given the few squares in which such levels were reached. Two structures in B6-B5



8. Subterranean, circular bin found in Area B, Sq. 15 east of EB IV Phase A structure, from the south (photo: S. Rempel).

were found, one facing east, the other west, where it may link up with Phase B walls found further to the west in B5 and B5A. One of the most significant Phase B finds of the season was a ceramic bull's head discovered on a plaster surface that ran up to a Phase B wall. A pounding stone and a sunken mortar were in association with the bull's head.

Area B East: Several additional elements of the Phase B "public complex" came to light this season. Earlier we discussed the Phase A two-room house with pillared entrance in Square B10. Excavation of the plaster surface in the eastern room uncovered the continuation and apparent corner of the eastern wall of the "corridor room" found to the north in Square B11. A series of compaction layers — surfaces and build up — was found in association. It appears that the Phase B wall was founded on top of the mud-brick layer, which, as mentioned before, represents the leveled surface of the Phase C destruction. To the west of the corridor room, in B7, additional evidence for another room to the complex was evident. Upon removal of several Phase A pillar bases and a wall, it was clear that the Phase B white plaster surface clearly sealed against the southern boundary wall of the "public complex" building.

Of particular importance was the discovery of the eastern boundary wall of the "public complex". In 1997, as mentioned earlier, we had traced the southern boundary wall eastward into Square B13, although the configuration of the room to the north was not apparent. This season we traced the wall to the east balk in B13, where it became clear that it cornered and continued northward through B14 (**Fig. 6**). What is particularly significant is that this north-south wall (14018-14025) runs over the inner fortification line and abuts the large boulders that were a part of the combined rubble/outer fortification line. Despite, a modern robber pit, it nevertheless seems quite clear that this wall is the eastern boundary wall of a third contiguous room of the "Public Complex". Interestingly, south of the balk, this same wall also looks to be a Phase B reuse of a much deeper Phase C wall (13030), a phenomenon already noted in 1997 concerning the continuation of the southern boundary wall of the "public complex". Wall 14018-14025 provides confirmation of data found in B8, B12, and B14 indicating that the "public complex" utilized the outer fortifications as its back (north) wall.

Phase C

Area B East: Given the discussion immediately above, it would be useful to discuss the remains in Area B East first. In Square B14, below the Phase B plaster collapse/surface level, the expected ash and mud-brick layer from Phase C appeared. Ash/mud brick does not seal either fortification wall, but is instead only found along the southern side of the inner fortification. More information about the date and construction of the fortifications materialized in a 1.5m wide section running 7 meters in length along the western edge of Square B14 southward into B13. The section through the fortifications in this area exposed a clear northern face of the inner fortification wall and a clear northern face of the outer fortification wall, but failed to find a clear southern face of the outer fortification wall. This may suggest, as we have proposed in the past, that a) the inner fortification wall was at one time the northern-most wall at the site, and b) the outer fortification and intermediate rubble fill were constructed later (and simultaneously).

In an attempt to understand the various elements of the fortifications in Square B14, several other factors need consideration. At the southwest, new W. 14032, running northward from the south balk, abutted the inner fortification wall. The Phase C mud brick/ash collapse seals against, but does not cover this wall. Interestingly, W. 14032 was abutted by an east-west running wall (W. 14031) in the south part of the square. Together with the inner fortification wall, these walls may form the sides of a tower. The large rubble found between these walls certainly may represent tumble from such a structure. If this inference proves to be true, it would confirm Nelson Glueck's identification of interim towers in the defensive line around the site. Also, it should be noted that the view of the wadi to the northeast would have made this an especially good location for a tower.

Finally, excavation below the level of the Phase B "public complex" southern boundary wall in Square B7 exposed the expected Phase C destruction layer. This destruction layer was sealed against bonded walls 7072 and 7074, which form the northern and western walls of a Phase C structure in the eastern sector of the square. The west wall ran south for two meters until it mysteriously ended (neatly constructed courses gave way to disordered rubble). Additional work brought to light a surface below the mud brick collapse associated with this structure.

Area B West: Excavation uncovered Phase C levels in Squares B1, B5, and B2A. Work resumed in B1 in the hopes of exposing the eastern extent of the structure discovered in 1997 in Square B2, the structure found to be associated with the tower. The

findings in B1 were similar in that a two-phased wall (1060/1072) was found to abut the tower platform (**Fig. 3**). In contrast to the C1 surface in B2, however, in B1 the surface included a wonderful array of smashed pottery, sealed by destruction debris. Toppled mud bricks, ash, stone, and much mud-brick debris made up the destruction layer. Besides pottery and several objects, the team discovered part of a wooden beam and a great quantity of botanical remains, primarily lentil. The several vessels restored from the destruction layer were a red-slipped and burnished jug and a pithos with flared rim and rope molding. Since parallels for both types of vessels exist in both EB II and EB III, we continued to date Phase C to the EB II-III period.

Moving to Square B5, south of B2, the objective was to investigate several wall lines discernible at the west end below a mass of mud bricks and mud-brick debris. Excavation uncovered a Phase C structure running from the north balk to where it cornered and turned westward. Confirming the phasing of this structure, W. 5014 ran under a Phase B wall (5005) jutting out from the west balk; it also lay below and within the same mud-brick collapse found in Squares B2/B1. Large bricks of bright reddish-orange color were found atop part of the wall and east of the wall, suggesting the direction from which they slid. Inside the constricted area of the building, two surfaces were found. In the eastern sector of the square, the complex nature of the mud-brick remains plus time constraints prompted us to forego excavation this season.

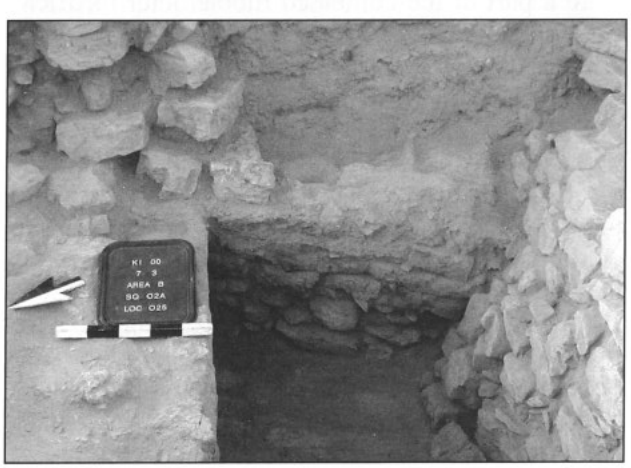
Finally, we opened new square B2A with the primary objective to understand the nature of the western perimeter wall (2053). Recall that W. 2053 abuts the northwest tower, from which point it runs southwestward toward Area A and beyond. A section against W. 2053 on the west revealed three elements to the perimeter wall: a 1.25m high wall of fairly well-laid courses of stone on the interior, a terrace or retaining wall (2A005) of only 2-3 courses at the base, and rubble in-between. The entire width of the fortification was ca. 2.50m. That section illuminated for the first time a very different construction method to the defenses at the site. On the north, the fortifications are monumental, solid, and deep. That section of the western perimeter defenses likewise revealed the remains of an earlier stratum. The innermost segment of the western perimeter wall (W. 2053) had been erected upon an earlier, destroyed wall (2A025). The latter looked to be a substantial stone foundation, on top of which were several rows of intact mud bricks. From the further discovery that W. 2A025 included a battered buttress or pier (W. 2A027) standing ca. 1.0m high with a width of 0.60m, we surmised that we had discovered an earlier fortification line and tentatively termed it Phase D (**Fig. 9**). Within the matrix of W. 2053, EB IV pottery was found. This evidence combines with other data that have suggested for some time that the EB IV peoples rebuilt and clearly reused the earlier defensive line.

The 2004 Season

Given the relatively short season and small staff this year, the project's goals were limited, but focused. No new squares were opened; rather, the aim was primarily to maximize horizontal exposure of Phase C levels throughout previously excavated squares in Area B West/East. There were three precise goals: 1) to connect, by means of limited excavation and stratigraphic removal of key balks, the Phase C settlement within the fortifications, and to definitively date this level to either EB II or EB III; 2) to investigate and date the new wall remains from Phase D discovered at the end of 2000, and 3) to answer some unresolved questions from previous seasons, through minor probes and/or limited excavation, e.g., a) What was the depth and the purpose of enigmatic circular stone structure in B15? b) What lay below the apparent EB III/IV transitional Phase 1 in the Area C Gateway? c) What was the nature of the stone installation on the summit of the hill immediately behind the site of Khirbat Iskandar? For ease of discussion, it is preferable here to summarize first the Phase C levels, which constitute the majority of the work this season.

Phase C

Squares B1-B7; B1/B7 balk; B2/B1 balk: Squares



9. The Phase D structures discovered below the western perimeter wall, from the west (photo: E. Skinner).

B2-B1-B7 run contiguously east-west just south of the tower and fortifications that run along the northern perimeter of the site (**Fig. 2**). By end of the 2004 season, removal of the B1-B2 and B1-B7 north south running balks had connected Phase C levels in all three squares. Excavation of the Phase C occupation served to further clarify the northern defensive system as well. Thanks to clear diagnostic types in the corpus of pottery recovered this season in the B1 destruction debris — numerous vessels with wavy ledge-handles — it is clear that this upper (Phase C1) level dates to the EB III period. A welcome reaffirmation of this date occurred in Square B5, just south of B2, where the same destruction level revealed equally clear, diagnostic EB III pottery (see below). Once processed, the newly recovered C14 samples from the destruction layer should provide a more precise date for the end of EB III at Khirbat Iskandar.

Starting with Square B7, work focused on bringing the western sector down to Phase C levels, in particular, to link up with the destruction level found in Square B1 to the west. The crumbly nature of the B7/B1 balk, composed of mud-brick detritus and sintered chert from a destroyed wall at the north end, made excavation difficult. Nevertheless, the removal of destruction debris eventually brought down the square to the same surface upon which lay smashed pottery, as found on a Phase C1 surface in B1, as reported from the 2000 season. In the process, it greatly enhanced our understanding of Phase C and, significantly, its relation to the tower platform (below).

Careful delineation of the badly sintered wall at the north showed it to be the cause of the mass of destruction debris found in Phase C in B7 and B1 (**Fig. 10**). This wall had been built on top of Platform 1061. The final destruction of Phase C had caused it and its mud-brick superstructure to tumble southward, where it was found encasing restorable vessels right above the Phase C1 plastered surface/pavement. At the east end of the structure, in B7, a small area of pavement was found, in association with which was a reused "crown" of a pithos, that is, a complete neck, rim and shoulder, probably functioning as a stand of some sort, a similar stand was found in B5 (below). The pavement area included other items in association, a small juglet located opposite the stand at the west end, as well as a mortar at the southern edge. The destruction debris overriding and encompassing the above materials included four fairly well preserved wooden roofing beams. The plotted disposition of the beams, which were preserved for dendrochronological analysis, should provide important



10. East balk of Sq. B1 showing Phase C destruction debris (photo: R. Miceli).

information on EB III building techniques at the site.

Removal of the balk — a mass of destruction debris including a toppled quern of great size between B7 and B1 — offered yet more important data from smashed and restorable pottery. Whereas the vessels discovered in B7 were empty, several vessels in B1 were filled with grains, both wheat and barley; in 2000 several jars in the same context contained quantities of lentils. Within the ashy layer 1021A above the surface, we recovered several human (probably male) articulated arm bones (complete ulna, mostly complete radius, distal humerus, six out of eight carpals, four metacarpals, and 11 phalanges), which reassembled into a fairly complete arm.

Finally, west of the pavement, but more centrally located, a pillar base (diameter of 0.65m) marked the central support for the roof; in close proximity there were two clear postholes, one of which included remains of wood retrieved for a sample. Immediately east of and adjacent to wall 1072 was a door pivot/mortar. Plaster Surface 7082 was traceable westward across Square B1 and the B1/B2 balk into B2, where it linked clearly with the surface previously uncovered there in association with W. 2095 and its doorway. It remains for a later season to investigate and link up earlier Phase C2 across the area.

The architectural plan of the Phase C settlement was still not entirely clear by end of season, given the lack of exposure to the south. What is clear is that every Phase C1 wall showed signs of rebuilding and reuse. Only one east-west wall, found in the B2 south balk, against which W. 2095 abuts, gave a clue as to the southern boundary of the building(s) just inside the fortifications. The remains of a stone and mud-brick wall (1065) that

fell southward onto the Phase C1 surface suggests the upper reaches of a structure erected on top of the platform, possibly the back (north) wall of the B1-B2-B7 structures. Tracing the extent of these architectural units to the south and to the east is the goal of future excavation.

Fieldwork this season has contributed overall to our understanding of the fortifications. In particular, the clearance of the debris and destroyed wall at the north end of B7, along with excavation of the B1/B7 balk, effectively removed the barrier obscuring our view of the easternmost section of platform 1061. The platform, as we now see it, is ca. 10m long (including steps at the western end which bond to tower 2077), runs east west across the northern edges of B1-B7. It appears to be ca. 2m wide, although there is no clearly defined northern edge, where it intersects with the inner fortification line. The presence of a line of rubble on top of the platform (possibly related to the destroyed sintered wall in B1-B7) still obstructs our view at this point. The platform wall ends at north-south transverse W. 8058, which appears to be evidence that the fortifications were constructed in segments, similar to a phenomenon found at Bāb adh-Dhrā‘ and other Early Bronze Age sites (Rast and Schaub 2003: 280-83).

The platform, steps, the outer walls of the corner bastion on the south and west and the northern perimeter wall all bond together, thus strongly pointing to their contemporaneity in terms of construction. All evidence from stratified occupation within the fortifications indicates that it was the Phase C2 people who erected the platform, tower, and outer wall. Based on the EB III pottery on surfaces associated with the reuse of these structures in Phase C1, it is likely that Phase C2 also dates to the EB III period, a date to be verified hopefully in our next season.

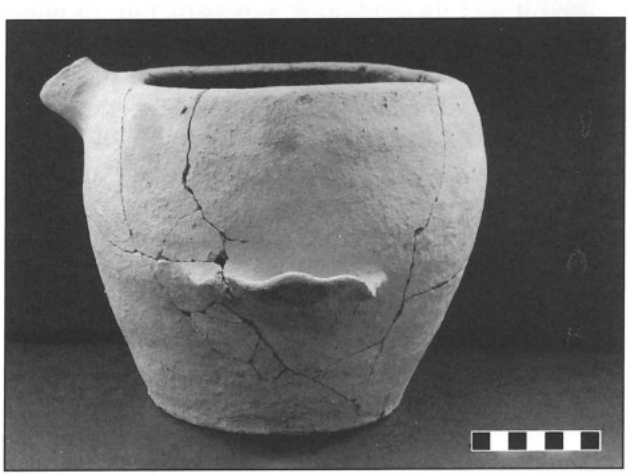
Square B5: The resumption of work in Square B5 centered on carefully delineating the mud bricks from debris in the eastern sector, in the hopes of discerning clean lines of mud-brick walls. The objective was also to clarify the relation of the mud brick tumble to the well-preserved Phase C structure (W. 5014-5015) exposed in the western part of the square in 2000.

Once excavation of the mud-brick debris began, the continuation of east west W. 5015 as W. 5037 illuminated an eastern room as well. It soon became evident that, as in B1-B7, the collapse had preserved a wealth of materials from the EB III period within this eastern room. Within a fairly confined area inside the room, excavation uncovered an unusual mud-brick wall/platform/installation (along the east balk); mud-brick, beams, plaster roof collapse with reed impressions, and great quantities of seeds preserved in the ash (along the north balk); and, a treasure trove of objects and restorable pottery, including in particular a complete EB III teapot with wavy handles (**Fig. 11**). The teapot was discovered in a locus of mud-brick collapse, whether roof or wall fall is uncertain. Along with the wavy ledge-handled teapot, the skeleton of a sheep/goat was found entwined around this vessel.

Many of the objects found were also within the mud-brick debris, sitting at skewed angles, some above the level of the charred beams. This suggests the presence of a second story or perhaps shelf from which they fell or the roof upon which they sat. Along with the charred roof beams, there were many specifically definable roof pieces made of plaster and containing reed impressions that should offer important information concerning construction techniques during that time period.

The Phase C1 destruction level contained many intact mud bricks. Most of these were lying at odd angles in the debris, but were carefully defined in excavation in order to indicate direction of fall, which seems to be from north to south. The mud-brick installation seemed to consist of four intersecting short stubs of intact mud bricks, with a large stone set into the base in the northwest quadrant (**Fig. 12**). Two sections were apparent, the clearer one (on the north) contained a large flat paver within a type of niche made up of stones and mud brick. Within this niche, on the paving stone, there sat a restorable vessel with two loop handles.

The numerous finds in the room included a wealth of ground-stone objects, many of which seemed to be mortars or grinding implements of



11. EB III teapot found in destruction debris of Sq. B5 (photo: R. Miceli).



12. Area B, Square B5, looking east at Phase C remains (photo: R. Miceli).

some sort, with the ground-out depressions being of various sizes and types, from shallow to deep. A number of these objects had depressions on both sides. The ground stone implements could suggest an area of specialized activities. It was possible to fill multiple large-sized bags with peas and lentils recovered along the NE section of the balk. A "crown"-like stand was found close to what appeared to be the bottom of a tournette. Interestingly the diameters of both were the same, suggesting that perhaps the tournette had originally been set on the stand.

A number of higher status items indicated that this room might not be purely domestic. For example, among the many objects found in the destruction debris, the following seemed to be somewhat special: 1) a complete limestone piriform-shaped macehead; 2) a stamp seal with a rectangular base showing no design however; 3) an extremely heavy hematite stone in the form of (perhaps) a cosmetic grinder, 4) a very heavy, wide "wheel-like" object with partial depressions on either side.

What is clear, however, is that these materials were part of the upper, Phase C1, level, the level whose destruction layer is equivalent to that in B2-B1-B7, thus dating it to the end of the EB III period at Khirbat Iskandar. As elsewhere, the B5 structures show secondary reuse. In the confined space of the western room, an earlier surface/stone pavement was found near the founding course of the building. The pottery remains to be studied, although as noted earlier, we believe that Phases C1 and C2 are both EB III.

Square B6: A probe along the north balk in Square B6 sought to glimpse Phase C connections with B5 to the west and B2 to the north in anticipation of continued exposure of this stratum in future seasons. Below the expected EB III destruction debris evidence for a surface and possible pavement/wall appeared at end of season.

Squares B2A/B5A: Although we had hoped to expose more of the Phase D structures this season, time constraints only permitted the dismantling of a segment of the western perimeter wall (2053/2A023) and only partial removal of the south balk of B2A. Somewhat surprisingly, it became apparent that the Phase D wall (2A027) curved at that point and proved to be a continuation of the curvilinear wall (2108) exposed in 1997. The latter appeared to run under the Phase C wall with doorway (2095). It remains for a future season to achieve enough exposure of the Phase D architecture before we can say anything about its function, as well as its date.

Finally, further work in Square B5a, just south of B2a, enhanced our understanding of western perimeter W. 2053/2A023/5A023 and its relationship to the internal phasing of the site. In 2000 we had discovered a ceramic bull's head on a surface connected with a Phase B wall (above). As elsewhere, the wall had been set on the leveled surface of the Phase C destruction debris. Excavation showed, as expected, that the Phase C1 mud brick destruction debris had fallen against the western perimeter wall (as seen in B2). At the south end of this partial square, work discovered an east-west wall abutting the western perimeter wall. The east-west wall appears to continue the southern boundary line of the structure found in B5 to the east. Moreover, the wall had been rebuilt in its upper courses (possibly Phase B). Contiguous to it on the south is the southern wall of a Phase A structure that likewise proved to abut the western perimeter defenses. There have in the past been other indications that Phase A may be linked to what remained of the defenses at that time.

Thus, in summary, on the basis of our excavations at the west end, particularly in Square B2, where the stratigraphic profile is the clearest, there are four major settlements superimposed in Area B (thus far). From the top, Phases A and B date to the EB IV period. Below is the Phase C1 destroyed settlement, which is clearly EB III; it represents a reuse and rebuilding of Phase C2 structures, not excavated to any extent yet but probably EB III as well. The fortifications tie in with the Phase C1-2 structures; however, there are clear building phases to the construction history of the inner and outer walls. Below the Phase C structure (and western perimeter wall) in Square B2/B2A is the destroyed Phase D settlement, consisting primarily of the re-

cently discovered curvilinear structure plus pier, whose date and function is as yet indeterminable. It is not yet known how these discoveries south of the tower relate to the phasing discovered in 1987 in a probe north of the tower.

Phases A-B

Briefly, there were some interesting EB IV discoveries found while excavating the balks. They include Square B5, the B1/B2 balk, and the south balk of B2A. Trimming of the east balk of Square B5 prior to excavating the mud brick Phase C stratum in the east found remnants of the well-defined Phase B plaster surface and exposed a complete EB IV store-jar in association with this plaster surface. The store jar, which we retrieved, clearly intruded some distance through the plaster surface into the mud brick, suggesting it had originally functioned as a subterranean storage vessel.

In the intersecting balks of Square B2 west/ B2A south, we found evidence to add to our Phase A and Phase B architectural plans, a blocked doorway with door pivot nearby for the former, and a large mortar below for the latter. The Phase B mortar lay embedded in a plaster surface over which lay the expected level of roof collapse that characterizes Phase B throughout Area B. Within the roof collapse matrix, there were two simple cups along with a very clear votive cup base fragment. A tracing of the plaster surface westward led to an installation (?) near (not set against) the western perimeter wall. It included a row of four, possibly five, mostly flattened stones set on edge. One of these small stones was a reused tournette base, with depressions on both sides. These discoveries await further study within the larger architectural context prior to speculating about their purpose. Finally, removal of the B1/B2 balk afforded us with more stratigraphic linkages between the two squares. These included segments of Phase A and Phase B walls. Of interest here was the discovery of a pit dug, apparently, from the Phase B plaster surface. On the north edge of the pit, and separated by a mud-brick border, a second, ashy pit was clearly in association. These features intruded into the Phase C destruction layer and bottomed out at a level of cobbles/pavers, which were coeval with, and apparently a component of, the Phase C1/ threshold surface in B2.

Other Work

a) The Phase A Circular Structure in B15: We were able to continue the excavation of the circular structure, finding the paved bottom surface within 10-15cm of the level reached at the end of the 2000 season. There were a few sherds found on the surface. In order to confirm this level as the original surface of the installation, excavation continued below the pavement to what appeared to be a hard-packed soil surface below, evidently the surface up to which the installation had been cut. The few sherds found below the pavement, as well as the few above, will hopefully offer clues as to the date and the occupation level into which this installation intrudes. As to function, further observation of its construction clearly revealed that there was only one construction phase and that plaster lined the upper third segment. This apparent effort to dissuade rodents from entering the structure suggests that it is a bin/granary of some sort. With further study we hope to determine whether it is EB IV or a later intrusion.

b) Probe in Area C: the EB IV Gateway area: The probe in Square C8 was successful in that it expanded our knowledge about the Phase 1 settlement in Area C by augmenting the somewhat limited ceramic corpus previously obtained and providing additional architectural evidence for this phase. Work in C8 began by probing into the Phase 2 surface, where work ended in 1987. Below a well-compacted silt layer (possibly mud brick detritus), the new wall (8018) appeared. It was about 1.0m in length and two rows wide (ca. 0.63m). It clearly extended further into C8 proper beyond the probe area. In association with this wall, below a series of fill layers, the team came down onto a stone-paved surface 8022 that sealed against wall 8018, whose associated pottery was read as EB IV/ EB III. The season ended before pre-Phase 1 phasing could be probed. Finally, due to erosion of the east balk, the eastern boundary wall of the C8 room became visible, was recorded and mapped.

c) "Circle of Stone" Structure: Both aerial photographs and survey in 1987 on the hilltop behind the site indicated that a possible cultic feature — one of Nelson Glueck's "circle of stone" installations — was in place on the summit (approximately at a height of 100m) overlooking the site. A one-week investigation, plotting, drawing, and partial excavation of the feature illuminated it as a probable two-ring "circle of stone". Two massive menhirs had fallen in the middle. When standing, the menhirs would have been visible from afar. In the uppermost, unstratified soil layers, some Roman sherds were found. Below this, a level seemingly in use with the standing menhirs unfortunately yielded no ceramic remains. Given the site's occupational history and a comparison with similar features, it seems reasonable to infer that the feature was in use sometime during the Early Bronze Age.

Conclusion

The 1997, 2000, and 2004 seasons of excavation of Khirbat Iskandar have exposed more of the important EB IV settlements in Phases A-B. These three seasons, likewise, have uncovered what appears to be an equally important settlement from the EB III Period (Phase C), including a destruction layer that brought that period to an end. Yet an earlier settlement (Phase D) has come to light on the western perimeter of the site, in the form of a curved stone and mud brick wall, including a stone abutment or pier. However, there are not sufficient ceramic remains to date this phase, although a combination of factors suggests a date earlier than EB III, whether EB II or EB I, is not known. From previous excavation of probes north of the tower in Square B4, from Parr's work, and from the cemetery remains, we suspect that there is an EB I settlement on the mound. These and other questions will have to await further excavation while we concentrate on understanding the EB III/EB IV transition at the site.

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Bibliography

Long, J.C., Jr.
2003 Theory in Archaeology: Culture Change at the End of the Early Bronze Age. Pp. 308-318 in S. Richard (ed.), *Near Eastern Archaeology: A Reader.* Winona, Ind.: Eisenbrauns.

Parr, P.
1960 Excavations at Khirbet Iskander. *ADAJ* 5: 128-133.

Rast, W.E. and Schaub, R.T.
2003 *Bab edh-Dhra': Excavations at the Town Site* (1975-1981). 2 vols. Winona Lake, Ind.: Eisenbrauns.

Richard, S.
1982 Report on the 1981 Season of Survey and Soundings at Khirbet Iskander. *ADAJ* 26: 289-299.
1987 The Early Bronze Age in Palestine: The Rise and Collapse of Urbanism. *BA* 50: 22-43.
1990 The 1987 Expedition to Khirbet Iskander and Its Vicinity: Fourth Preliminary Report. Pp. 35-56 in W.E. Rast (ed.), Preliminary Reports of ASOR-Sponsored Excavations 1983-87. *BASOR* Supplement 26. Baltimore: American Schools of Oriental Research.
2000 Chronology vs. Regionalism in the Early Bronze IV Period: An Assemblage of Whole and Restored Vessels from the Public Building at Khirbet Iskander. Pp. 399-417 in L. E. Stager, J. A. Greene, and M. D. Coogan (eds.), *The Archaeology of Jordan and Beyond: Essays in Honor of James A. Sauer.* Winona Lake, IN: Eisenbrauns.
2003 Early Bronze Age of the Southern Levant. Pp. 280-296 in S. Richard (ed.), *Near Eastern Archaeology: A Reader.* Winona Lake, IN: Eisenbrauns.
In press Early Bronze IV Transitions: An Archaeometallurgical Study. In S. Gitin, E. Edward Wright and J.P. Dessel (eds.), *Archaeological and Historical Essays on Ancient Israel in Honor of William G. Dever.* Winona Lake, In: Eisenbrauns.

Richard, S. and Boraas, R.S.
1984 Preliminary Report of the 1981-82 Seasons of the Expedition to Khirbet Iskander and its Vicinity. *BASOR* 254: 63-87.
1988 The Early Bronze IV Fortified site of Khirbet Iskander, Jordan: Third Preliminary Report, 1984 Season. Pp. 107-130 in W. E. Rast (ed.), *Preliminary Reports of ASOR-sponsored Excavations 1982-1985. BASOR Supplement 25.* Baltimore: American Schools of Oriental Research.

Richard, S. and Long, J.C, Jr.
1995 Archaeological Expedition to Khirbet Iskander, 1994. *ADAJ* 39: 81-92.
1998 Khirbet Iskander. Archaeology in Jordan. Pp. 587-588 in V. Egan and P.M. Bikai (eds.), *AJA* 102.3.

THE AYL TO RĀS AN-NAQAB ARCHAEOLOGICAL SURVEY, SOUTHERN JORDAN — PHASE 1 (2005): PRELIMINARY REPORT

Burton MacDonald, Larry G. Herr, Geoffrey A. Clark, Andrew Bradshaw, Joey Corbett

Introduction

"The Ayl to Rās an-Naqab Archaeological Survey" (ARNAS) was in the field for its first season from April 27 to June 12, 2005. Team members were: A. Bradshaw, computer, GPS, and photography; J. Corbett, GIS and mapping; G. A. Clark, lithics; L. G. Herr, ceramics; B. MacDonald, director; and A. Rawshdeh, representative of the Department of Antiquities. They were housed in the town of aṭ-Ṭayyiba, to the northwest of the survey territory and to the south of Wādī Mūsā.

The main objective of the project is to discover, record, and interpret archaeological sites within the Ayl to Rās an-Naqab region — in an area comprising ca. 806km^2. Other objectives include: to study the settlement patterns of the area from the Lower Paleolithic (ca. 1.4mya) to the end of the Late Islamic period (1918AD); to examine the Pleistocene lakes in the area; to investigate further the *Khaṭṭ Shabīb* or "Shabīb's Wall (Kirkbride 1948; Abujaber 1995; Kennedy 1982: 163-66; Kennedy and Bewley 2004: 138-39; MacDonald 2004: 280; MacDonald *et al.* 2004: 343; Parker 1986: 89), and to compare the findings of this project with those of the project director's previous surveys in the area of ancient Edom, namely, "The Wadi al-Hasa Archaeological Survey" (1979-1983) (WHS) (MacDonald *et al.* 1988); "The Southern Ghawrs and Northeast Archaeological Survey" (1985-1987) (SGNAS) (MacDonald *et al.* 1992); and "The Tafila-Busayra Archaeological Survey" (1999-2001) (TBAS) (MacDonald *et al.* 2004).

Geographical and Environmental Context

The area being investigated is part of the southern segment of the Transjordanian Plateau in the region from the village of Ayl in the north to Rās an-Naqab in the south, from the edge of the escarpment in the west, and into the Jordanian desert on the east. The area is ca. 26 (N-S) x ca. 31 (E-W) km (at its widest). The western extremity of the territory is the 1100m line while the eastern extremity extends to the 1200m line towards the city of Ma'ān (**Fig. 1**). (UTM coordinates for the study area are: 736100/3345500 (NW corner); 754200/3345500 (NE corner); 734350/3319750 (SW corner); and 760700/3319750 (SE corner).

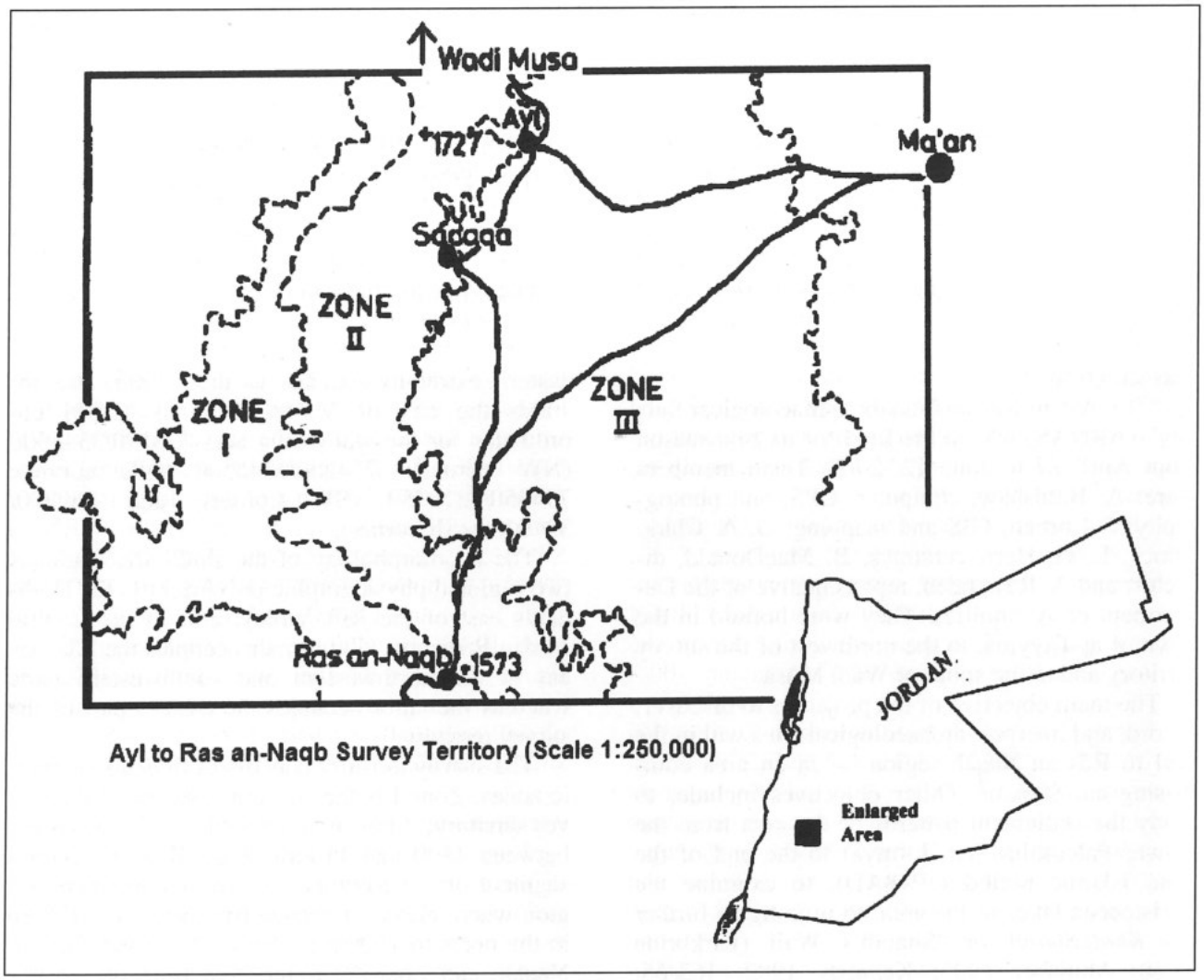
The geomorphology of the study area includes two regional physiographic provinces: 1) the Highlands east of the Rift Valley; and 2) the Central Jordan Pediplain. The former occupies the hilly areas in the northwestern and southwestern parts whereas the latter occupies the eastern part of the survey territory.

The survey territory consists of three topographic zones: Zone I is the western segment of the survey territory; it lies in an area where elevations are between 1500 and 1100m; Zone II is the central segment of the territory, i.e., the mountainous region where elevations range from just over 1700m in the north to 1500m in the south around Rās an-Naqab; and Zone III is the area from the 1500m line on the east towards the 1200m line, i.e., toward Ma'ān (**Fig. 1**).

Zone I is cut by a number of wadis flowing to the west and southwest. It is an area in which there are a number of springs. The vegetation in this zone is Mediterranean. The zone comprises the western extremity of the Highlands east of the Rift Valley, i.e., the Wādī 'Araba-Dead Sea-Jordan Depression (Bender 1974; 1975). Present-day climate in this zone, as in Zone III, is arid with annual precipitation as low as 50 millimetres.

Zone II is the location of the main N-S highway. It is the area of highest precipitation and the location of farming villages. The watershed is located in this zone and from it wadis lead to both Zones I and III. This geographical unit is frequently referred to as the Mountain Ridge and Northern Highlands east of the Rift (Bender 1975) and the Transjordanian Plateau (MacDonald 2000: 26-27). Here, Mediterranean climate dominates and annual precipitation is around 300 millimetres.

Zone III is the area between the "sown" and the



1. Location of ARNAS territory within Jordan and Topographical Zones of the Survey area.

"desert" ('Amr and al-Momani 2001: 275). It is the steppe on which pastoralists and desert dwellers would encroach in times of drought. This geographical unit is at the western extremity of the Central Jordan Pediplain or Central Desert Area of Jordan (Bender 1974; MacDonald 2000: 25). The climate in this zone is arid and the vegetation is Irano-Turanian (MacDonald 2000: 36-38, esp. fig. 6).

Archaeological Context

Although the survey territory has been investigated for the past 100 years, a comprehensive and systematic survey of it has never been undertaken.

As part of his "Explorations in Eastern Palestine", Glueck visited the ARNAS territory in both 1934 (1935) and 1937 (1939). Although he was confident that "not very many ancient sites in Edom ..., whose ruins have not been completely obliterated, remain undiscovered" (Glueck 1939: xxiii), subsequent work in the area has found that this is not the case.

Jobling, in his "'Aqaba-Ma'an Archaeological and Epigraphic Survey", investigated an area of around 2,700km^2 to the east and south of both Ayl and Rās an-Naqab during eight infield seasons between 1980 and 1988 (1981, 1982, 1983a-c, 1984a-b, 1985, 1986, 1989). In his work, he emphasized the region to the south of Rās an-Naqab, published preliminary reports at the end of most seasons, but died (in 1994) before he could produce a comprehensive, final report on his work.

Hart carried out "The Edom Survey Project" in a vast area from aṭ-Ṭafīla in the north to Rās an-Naqab in the south in 1984 and 1985. In the course of his work, he surveyed 115 sites (Hart and Falkner 1985; Hart 1986a-b). However, he did not survey the area between ash-Shawbak and aṣ-Ṣadaqa (1987b: 287), since it was covered by a British team working at Udhruḥ, to the east of Petra, be-

tween 1980 and 1985 (Killick 1982, 1983a-b, 1989).

During his second season of survey work, Hart carried out five soundings at sites he surveyed (1987a-b) and excavated one site, namely, Ghurayra, in 1986 (1988). A summary of his work is contained in his Ph.D. dissertation (1989) and a report on the Iron Age findings of his work in a symposium on "The Beginning of the Iron Age in Southern Jordan" (1992). Hart's work was in the nature of "mostly purposive vehicular transects" (Hart 1987b: 287), "flints were not collected, the survey concentrating on ceramic materials only" (Hart and Falkner 1985: 255), and "it should be noted that evidence for temporary and transient occupation (such as camp sites) was not usually retrieved" (Hart 1986a: 337).

More recently, in the fall of 2003, Abudanh, a Ph.D. student at the University of Newcastle, U.K., carried out a one-month survey as part of his investigation of "the settlement pattern and military arrangement in the region of Udhruḥ during the Roman and Byzantine periods" (Abudanh 2004: 51).

Because of the fact that the Roman Road or *Via Nova Traiana* (built 111-114AD to link Bostra in southern Syria to the Gulf of al-'Aqaba) cuts through the area, a number of researchers have been interested in the Roman remains in the area. At the very end of the 19th century, Brünnow and von Domaszewski (1904) investigated this road and Thomsen (1917) studied the milestones along it. In addition, such researchers as Graf (1979, 1983, 1995a-b), Parker (1986), and Fiema (1995) have investigated aspects of both the road and the various watchtowers and fortresses associated with it.

Although touching only on the most northern extremity of the proposed-survey territory, recent work, relative to "The Wadi Musa Water Supply and Wastewater Project" by 'Amr *et al.*, has thrown important light on the archaeological remains immediately to the north of the proposed-survey territory ('Amr *et al.* 1996, 1997, 1998, 2000; 'Amr and al-Momani 2001). In 'Amr *et al.*'s words, "one outstanding result of the archaeological survey is the large number of flint sites discovered" ('Amr *et al.* 1998: 504). The work has pointed out that at the extreme eastern point of their work, that is, at the northeastern extremity of the proposed-survey territory, "there is a clear difference in the landscape and nature of the archaeological remains. It is the point at which the 'sown' meets the 'desert'" ('Amr and al-Momani 2001: 275).

Finally, Saidel (2001) carried out "The Bedouin Ethnoarchaeological Survey Project" in the Ma'ān and Rās an-Naqab areas in 1998. His work entailed the investigation of abandoned Bedouin encampments with a focus on the identification and layout of tent camps.

In addition to the excavations and soundings that Hart carried out in the survey territory, the Department of Antiquities, as part of archaeological rescue work in conjunction with a road alignment of the Rās an-Naqab to al-'Aqaba highway, conducted a survey in 1992 of a number of sites in the Rās an-Naqab region (Bisheh *et al.* 1993) and followed this up in 1995 with the excavation of four sites that are located in the survey territory (Waheeb 1996). These sites, which are included in the present project's 2005 list of sites for purposes of comprehensiveness, are: Abū an-Nusūr (ARNAS Site 132); Khirbat al-Ḥayyāḍ (ARNAS Site 133); 'Ayn al-Jammām North (ARNAS Site 183); and 'Ayn al-Jammām South (ARNAS Site 184) (Waheeb 1996). In addition, the Department of Antiquities' reports on their work both in 1992 and 1995 comment on a number of other sites that are or will eventually be part of the ARNAS's list of sites (Bisheh *et al.* 1993; Waheeb 1996).

Methodology

Various methodologies to fulfill the objectives of the project will be employed over the course of the infield work. However, this season, ARNAS team members employed, for the most part, a comprehensive and systematic examination of the greater part of topographical Zone II, that is, the central segment or the mountainous region of the survey territory (**Fig. 1**). A major roadway runs north-south through this region and many other roadways, mostly in the form of farming roads, run east and west from it. These secondary roads follow the ridges between the wadis and/or follow the wadis themselves. Since the watershed, as indicated previously, is located here and the terrain slopes, the wadis flow to the southwest and southeast.

ARNAS team members systematically investigated these wadis and their associated ridges for evidence of past — up to 1918AD-human activity. As a result, we invariably found most of our 209 sites in this manner (**Table 1 — List of Sites**). These sites consist of agricultural towns/villages/hamlets, farmsteads, forts, seasonal camps, roadways and their associated stations, and watchtowers (**Table 2 — Types of Sites**). Thus, the sites discovered in Zone II consist, for the most part, of architectural features (**Figs. 2-5**).

Table 1: List of ARNAS 2005 Season Sites.

Site#	UTM Coordinates	Site Name	Function*
001	743371/3344977	Kh. Ayl	Agricultural village
002	743159/3344413	-	Remnants of a watchtower/fort (?)
003	743180/3344871	-	Remnants of aqueduct and retaining walls(?)
004	742842/3344935	-	Caves/springs and possible aqueduct
005	741727/3342614	Kh. al-Fardhakh	Agricultural village
006	740957/3343273	Kh. Ṣabbāḥ(?)	Defensive (?)/agricultural village above Kh. al-Fardhakh
007	740151/3339231	Kh. aṣ-Ṣadaqa	Major town along the *Via Nova Triana*
008	741323/3339426	Rujum aṣ-Ṣadaqa	Watchtower
009	742940/3336557	Kh. Dūsīl	Agricultural village (at an oasis in Zone 3)
010	742446/3336406	-	Outbuilding (?) associated with Kh. Dūsīl
011	741868/3339996	Kh. Laykā	Agricultural village (?)
012	738821/3341063	-	Caves, retaining walls, and possible quarry
013	743141/3343157	Via Nova Traiana	Short segment of Roman road to the N of Kh. aṣ-Ṣadaqa
014	738981/3340078	Kh. Abū Naqāṭ	Agricultural village
015	739650/3339647	-	Standing stones and possible quarry
016	738528/3338403	Kh. Umm Na'as	Agricultural village
017	739359/3338222	-	Watchtower (?)
018	739982/3338643	-	Watchtower (?)
019	737828/3338922	Kh. al-Maghīdha	Agricultural village/hamlet
020	737540/3339946	-	Watchtower
021	737223/3339455	-	Agricultural village
022	736871/3338648	-	Watchtower and/or tomb
023	736503/3339127	Kh. Juwayza East	Fortress (?)
024	736218/3339768	Rujum 'Utayq	Watchtower
025	735980/3341097	Kh. Bīr Yābis	Agricultural village
026	736609/3339007	-	Reservoir and water channel next to a segment of the *Via Nova Triana*
027	735851/3339605	Kh. Juwayza West	Agricultural town or village
028	735682/3338810	Rujum an-Nisā'	Agricultural village
029	735180/3340445	-	Agricultural village
030	735174/3339374	Hulayil	Farmstead or agricultural hamlet (?)
031	735194/3338569	Kh. Munay'a	Agricultural village and/or defensive site at highway junction
032	734610/3339729	-	Farmstead - seasonal (?)
033	734204/3339950	Kh. ar-Rafāy'a	Agricultural and/or "temple" site
034	733790/3339859	Kh. Mulayḥ	Agricultural village
035	733467/3340582	Rujum Zīf	Defensive – probably a fortress or watchtower overlooking Wādī 'Araba
036	737806/3345021	Kh. Ḥubays	Agricultural village
037	735159/3343138	Kh. Umm Ḥaṣā	Farmstead
038	735834/3343243	Kh. adh-Dharwa	Agricultural village/hamlet
039	735685/3341865	Kh. ar-Rakham	Fortress – small – and/or watchtower
040	733624/3341563	Qaṣr Rājif	Agricultural village
041	737509/3343778	-	Road-station and/or watchtower along Roman (?) road between Petra and al-'Aqaba
042	737388/3343665	-	Fort – small – along Roman (?) road
043	740509/3345285	Kh. al-Jadwil	Farmstead or agricultural hamlet
044	739861/3344753	-	Farmstead – seasonal (?)
045	739706/3344597	Rās 'Urayta	Probably a fort and/or agricultural village
046	738612/3344678	-	Agricultural village
047	738329/3344266	Tilāl 'Usūd W.	Administrative (?) complex
048	738262/3343776	Tilāl 'Usūd E.	Farmstead
049	739593/3342464	Janb al-Baḥar	Agricultural village and/or monitoring site

Site#	UTM Coordinates	Site Name	Function
050	747182/3341964	Khaṭṭ Shabīb	Boundary wall (?)
051	740315/3341881	Kh. ar-Ruwayḥī	Agricultural village or hamlet
052	732678/3333815	Kh. Burq‘	Agricultural village
053	732715/3334724	-	Agricultural village
054	732568/3337476	-	Fort –small – and/or watchtower
055	732853/3337699	Kh. Rusays	Fort (?) and/or village site (?)
056	737436/3336666	-	Farm
057	736928/3337005	-	Farm
058	736540/3337959	Kh. aṭ-Ṭaqṭaqiyya	Agricultural village or hamlet
059	736237/3337442	-	Farm – probably seasonal
060	737162/3336565	-	Road
061	737284/3336131	-	Administrative area (?)
062	737362/3335659	-	Farm (?)
063	738240/3334808	-	Farm and/or spring site
064	738902/3335128	Bayt Abū Tāyih/Kh. ad-Dūr East	Major agricultural village
065	739944/3335708	-	Agricultural hamlet
066	738702/3335220	-	Agricultural complex
067	737074/3335127	Rujum Wadi Falāḥ	Watchtower (?)
068	737368/3334301	Kh. Khaṣkhaṣ	Agricultural village
069	736643/3335998	Kh. al-Ḥuḍun	Agricultural village
070	736411/3336454	-	Agricultural village
071	741402/3341776	-	Fort (?)
072	741789/3341231	-	Barracks (?)
073	736483/3334182	Kh. ad-Dūr West	Fort (?)
074	736165/3334077	Kh. al-Manṣūra East	Agricultural hamlet
075	735732/3333865	Kh. al-Manṣūra West	Agricultural village
076	735183/3334152	Kh. Umm Samqa	Agricultural village
077	735032/3334938	-	Agricultural village
078	735300/3334771	-	Agricultural village
079	738349/3334680	Kh. Umm Rās	Agricultural village and guard (?) of ‘Ayn ad-Dūr
080	737766/3334149	Kh. Umm Ḥaṣā	Watchtower
081	735040/3335321	Kh. al-Bayyāḍāt	Agricultural village
082	734638/3334989	-	Way-station (?) along Roman and Turkish roads
083	734627/3335010	Darb ar-Raṣīf	Remnant of Turkish and Roman roads
084	735297/3336148	-	Agricultural village
085	734935/3335804	-	Agricultural hamlet (?)
086	735646/3337259	Kh. Umm Kahmūma	Agricultural village
087	734711/3337890	Kh. Abū Rumān	Agricultural village
088	734117/3334554	-	Cemetery (?)
089	733826/3334039	Kh. Khilāl	Agricultural village or hamlet
090	733764/3335002	-	Agricultural village
091	734606/3338661	Rās al-Banāt	Tomb and/or watchtower
092	734045/3339154	-	Farmstead (?)
093	737884/3335696	-	Farm (?)
094	737395/3335635	-	Seasonal, agricultural camp (?)
095	735867/33373319	-	Agricultural hamlet
096	735448/3338126	-	Agricultural village
097	735550/3336708	Kh. Umm Zaytūna	Agricultural village
098	734762/3340893	-	Farming area
099	738339/3332496	-	Roman milestone – fragment
100	738310/3332504	-	Agricultural village or hamlet
101	737128/3333102	Kh. ‘Uqla	Agricultural village or hamlet
102	737139/3333276	-	Tomb (?)
103	736721/3333706	Kh. Khaṣkhaṣ	Camp – seasonal (?)
104	736069/3332906	-	Farmstead (?) – seasonal (?)

Site#	UTM Coordinates	Site Name	Function
105	735844/3333210	-	Farmstead – seasonal (?)
106	735190/3333179	-	Farmstead (?) or watchtower (?)
107	734792/3332993	-	Farmstead
108	737157/3331702	Kh. Ḥamdān	Agricultural village
109	737486/3331678	-	Farm (?)
110	738037/3331984	Kh. Qurayn	Agricultural village
111	738520/3331086	Kh. Suwayma	Agricultural village
112	737995/3330285	-	Farm – seasonal (?)
113	736979/3328830	-	Watchtower
114	736516/3329614	Kh. ʻIyāl ʻAlī	Agricultural village
115	736007/3327766	Rujum al-Ishāra	Fort
116	735925/3328098	Bīr Turkī	Well
117	735896/3328295	Kh. Bīr Turkī	Agricultural village
118	734710/3332995	-	Watchtower
119	735146/3332837	Kh. al-Mayz	Agricultural village
120	735298/3332986	-	Agricultural village or hamlet
121	736379/3331983	Kh. Umm Rujūm	Agricultural village
122	736235/3332523	-	Cistern
123	736590/3332907	-	Agricultural hamlet
124	735329/3329879	Kh. Umm Baradiya North	Agricultural village
125	735597/3329727	Kh. Umm Baradiyya South	Agricultural village
126	735881/3330783	Rujum ʻIyāl Ghānim	Agricultural village
127	735110/3331065	Rujum ar-Raṣīf	Agricultural village
128	746907/3316896	Kh. al-Khūr	Agricultural village
129	745058/3319950	Kh. Al-Qurna	Fortress
130	744770/3319856	-	Farm (?)
131	741759/3321078	Kh. Shadīd=Shdayd	Fortress
132	738746/3322707	Kh. Abū an-Nusūr	Watchtower; agricultural village/hamlet (?)
133	739373/3326697	Kh. al-Ḥayyīd	Agricultural village/hamlet
134	734528/3332813	-	Reservoir along major roadway
135	734172/3332445	-	4 enclosures - seasonal farm and/or camp (?)
136	733270/3332076	-	Agricultural village or hamlet
137	732974/3332279	-	Tomb and enclosures
138	732810/3331937	-	Farmstead and/or road-station (?)
139	732891/3331691	-	Road-station (?)
140	732869/3333187	-	Millstone (for olive press [?])
141	732623/3333169	Kh. Juwaybil	Agricultural village
142	732973/3333197	-	Watermill (?)
143	732828/3332978	ʻAyn Juwaybil	Sherd scatter at spring and reservoirs
144	733174/3332729	-	Farmstead
145	733348/3332619	-	Farmstead
146	733981/3333135	-	Farmstead
147	738659/3339805	-	Agricultural village
148	738199/3340022	-	Agricultural village/hamlet
149	737804/3340558	-	Farm outbuilding (?)
150	737415/3340674	-	Agricultural village
151	737081/3341153	-	Farm – seasonal camp (?)
152	736975/3341025	-	Agricultural hamlet
153	737303/3342855	-	Farm – seasonal (?)
154	737582/3343303	-	Watchtower
155	738113/3341730	-	Agricultural village
156	737948/3341526	-	Watchtower and/or farm (?)
157	737721/3341634	-	Storage area (?) and corral
158	738906/3341729	-	Agricultural village
159	735266/3332016	-	Agricultural village

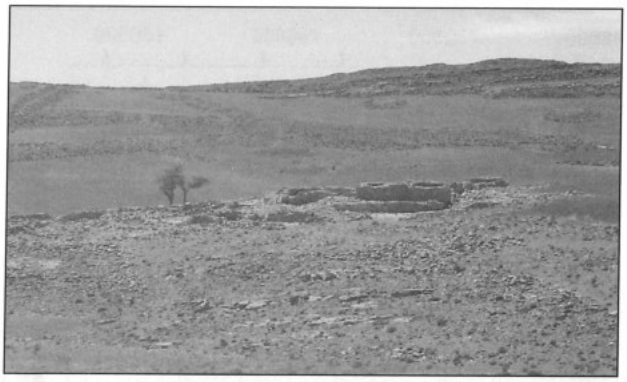
Site#	UTM Coordinates	Site Name	Function
160	735705/3331510	Kh. Umm Ghānim North	Agricultural village/hamlet
161	735868/3331302	Kh. Umm Ghānim South	Agricultural village
162	743675/3343089	ʻAyn al-Ḥayṣ	Lithic scatter
163	744376/3342696	-	Lithic scatter
164	753018/3342345	-	Lithic scatter
165	751034/3342442	-	Enclosure - seasonal camp (?)
166	750481/3344448	Rujum al-Juththa	Fort
167	742826/3342061	-	Lithic scatter (transect)
168	743344/3341301	-	Lithic and sherd scatters
169	744043/3341221	Lake al-Fardhakh	Lithic and sherd scatters (transect)
170	744585/3341246	-	Lithic scatter
171	748909/3339389	Lake ad-Dirbāsī	Lithic scatter (transect)
172	748532/3339976	-	Military camp (?)
173	753312/3342744	Lake Abūal-Adham	Lithic scatter (transect)
174	753225/3343136	-	Farmstead – seasonal (?)
175	759464/3343958	-	Lithic scatter in Lake #4 (transect)
176	757385/3344268	-	Lithic scatter in Lake #4 (transect)
177	752247/3344227	-	Check dam and terracing within (?) Lake #5
178	752399/3344446	-	Lithic scatter in Lake #5 (transect)
179	755091/3345599	-	Lithic scatter in Lake #5 (transect)
180	750172/3345245	Jabal al-Juththa Quarry	Lithic scatter
181	750074/3345503	Lake al-Juththa	Lithic scatter (transect)
182	750778/3320362	Lake al-Basṭa	Lithic scatter (transect)
183	738061/3323602	ʻAyn Jammām North	Neolithic agricultural village
184	738120/3323473	ʻAyn Jammām Sout	Watchtower
185	742411/3344738	-	Enclosures - farmstead or seasonal camp (?)
186	741581/3344546	-	Agricultural hamlet or farmstead
187	741899/3344560	-	Farmstead (?)
188	741246/3345078	-	Watchtower
189	741321/3345810	Kh. ʻAyn Hasin	Agricultural village
190	740740/3345433	Kh. aṭ-Tūliyya	Agricultural village
191	740064/3344760	Kh. ʻUrayta	Agricultural village
192	740618/3344569	-	Fort
193	750118/3340011	Kh. al-Wahīda	Defensive (?) structure
194	749858/3340100	Lake al-Wahīda	Lithic and sherd scatters
195	753324/3339937	Kh. Wahdān	Function unknown
196	744271/3333832	al-Muraygha	Fort
197	742202/3324763	-	Watchtower
198	742297/3325408	-	Camp - enclosure
199	740495/3326622	Abū al-Lusun	Agricultural village
200	737512/3323626	Kh. ʻAyn Ṣurra	Farmstead
201	735505/3329068	-	Agricultural hamlet or farmstead
202	735977/3329570	-	Farmstead
203	737754/3327684	Kh. Tāsān	Agricultural village
204	737789/3327246	Kh. Ṭuwaymira	Farm (?) or agricultural village (?)
205	737544/3326656	Kh. Judhām	Farmstead (?)
206	738593/3327260	Kh. Umm ath-Thība	Agricultural village
207	738373/3327448	-	Solitary building – house
208	732110/3335610	Kh. Dulāgha	Agricultural village
209	728361/3331852	-	Watchtower

* Of course, the determination of "function" on the part of ARNAS team members must be tentative at this stage of investigation. Generally, it is only with the excavation of the site in question will it be possible to determine with greater certainty its function(s).

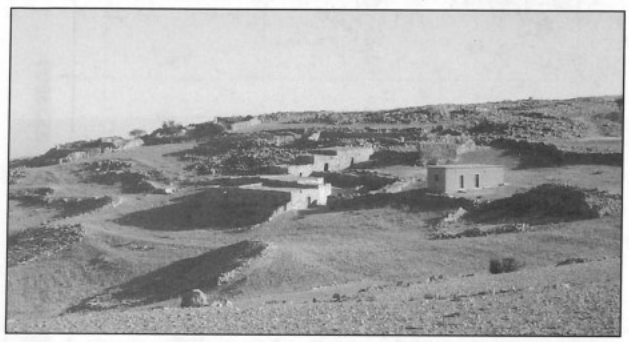
Table 2: Site Types of the ARNAS 2005 Season*

Administrative complex:	047 (?); 061;
Agricultural towns/villages/hamlets:	001;005; 006; 007; 009; 011 (?); 014; 016; 019; 021; 025; 027; 028; 029; 031; 033; 034; 036; 038; 040; 046; 049; 051; 052; 053; 055 (?); 058; 064; 065; 068; 069; 070; 074; 075; 076; 077; 078; 079; 081; 084; 085 (?); 086; 087; 089; 090; 095; 096; 097; 100; 101; 108; 110; 111; 114; 117; 119; 120; 121; 123; 124; 125 (Photo 1); 126; 127; 128; 132; 133; 136; 141; 147; 148; 150; 152; 155; 158; 159; 160; 161; 183; 184; 186; 189; 190; 191; 199; 201 (?); 203; 204 (?); 206; 208;
Aqueducts:	003; 004 (?);
Barrack:	072 (?);
Boundary wall:	050 (?);
Camp, seasonal:	094 (?); 103; 135; 151; 165; 172 (military) (?); 185 (?); 198;
Cave:	012;
Check dam:	177;
Cistern:	122;
Farmsteads:	010; 030 (Photo 2); 032; 037; 043; 044; 048; 056; 057; 059; 062 (?); 063; 066; 092 (?); 093 (?); 098; 104 (?); 105; 106 (?); 107; 109 (?); 112; 130 (?); 138; 144; 145; 146; 149; 153; 156 (?); 174; 187; 200; 201 (?); 202; 204 (?); 205 (?);
Forts:	002 (?); 023 (?); 035; 039; 042; 045; 054; 055 (?); 073 (?); 079 (?); 115; 129; 131; 166; 190; 193 (?); 196;
Function undetermined:	195;
House – solitary:	207;
Lithic scatter:	162; 163; 164; 167; 170; 171; 173; 175; 176; 178; 179; 180; 181; 182;
Lithic and sherd scatters:	168; 169; 194;
Milestone, fragment:	099 (Photo 3);
Millstone:	140;
Quarries:	012 (?); 015 (?);
Reservoirs:	026; 134; 143;
Roads:	013 (Via Nova Traiana); 060; 083 (Darb ar-Raßπf);
Road-stations:	041; 138 (?); 139 (?);
Standing stones:	015;
Storage area:	157 (?);
Temple:	033;
Tomb(s):	022; 088 (?); 091 (?); 102 (?); 137;
Watchtowers:	002 (?); 008; 017 (?); 018 (?); 020; 022; 024 (Photo 4); 041; 067 (?); 080; 082 (?); 091 (?); 106 (?); 113; 118; 132; 154; 156 (?); 184; 188; 197; 209;
Watermill:	142 (?);
Well:	116.

* The classification of these sites into their various functions is, of course, tentative since it is based on the observation of ARNAS team members or others who have previously visited them. A more definite determination of a site's function can be obtained by further investigation, especially by means of excavation.
Some sites have been tentatively determined to have more than one function, for example, a watchtower and/or tomb, a watchtower and/or road-station.



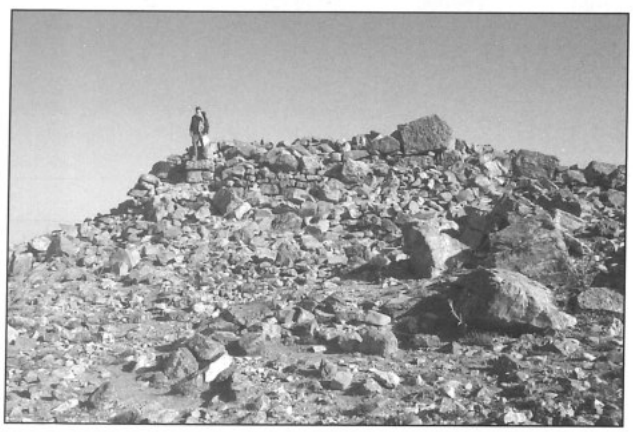
2. Site 125, Kh. Umm Baradiyya South



3. Site 30 – Farmstead or hamlet



4. Site 99 – Roman Milestone Fragment



5. Site 24 – Watchtower.

In our work at each site, we made an effort, especially with the help of our departmental representative, to obtain its name. And the spelling of these names follows the practice of the Department of Antiquities in its publications, specifically ADAJ and SHAJ (see, for example, Nabeel and Zaghloul 1988; Nabeel and al-Taher 2003).

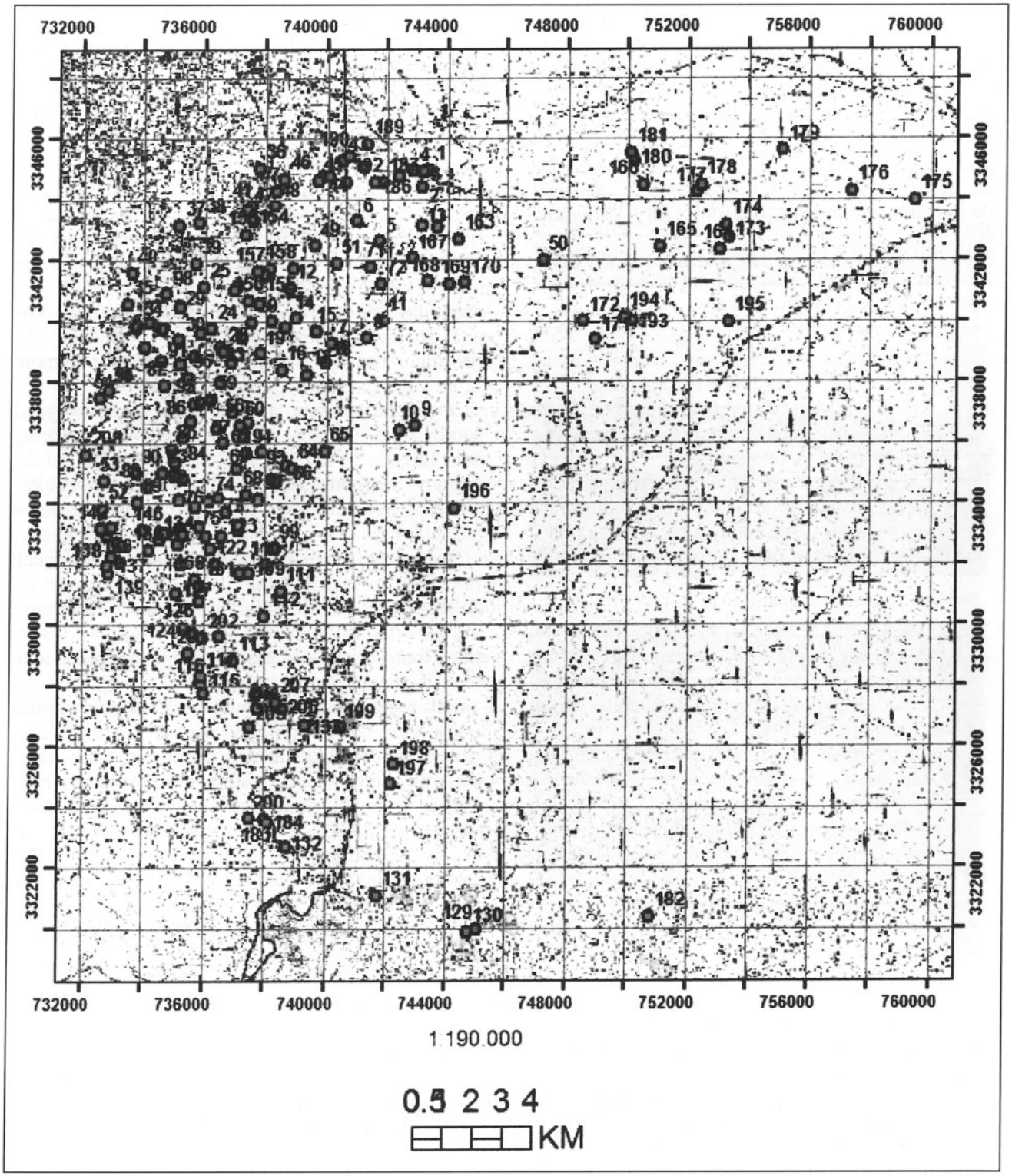
We also examined the Pleistocene lakes that are indicated on the "Geological Map of Ma'an (3150-III)" (Scale 1:50,000) (Tarawneh 2004) and the "Geological Map of Jabal al Batra (Jibal Thlaja) (3149-IV)" (Scale 1:50,000) (Moumani 2002) produced by The Hashemite Kingdom of Jordan, Natural Resources Authority (NRA), Geology Directorate. These maps indicate Pleistocene lakes in Zone III of the survey territory (**Fig. 6**)

Our methodology, relative to the archaeological surveying of these lakes, consisted of identifying their location by means of UTM coordinates that the maps provided and then, with the aid of a Global Positioning System (GPS), driving to them. Once at a particular lake, we carried out pedestrian transects of segments of the lakes and collected associated materials, primarily lithics. These transects are labeled "sites" for the sake of this project. Our thinking was that it would be just as beneficial to label these transects and the materials that we collected in this manner as "sites." We did not think that we would obtain more information about the periods when the lakes were "active" by collecting concentrations of lithics at various places either along the lakes' shores and/or within the lakes themselves. Where possible, we assigned names to these lakes on the basis of associated geological features.

As a result of the above-described methodologies for discovering and recording sites, our map indicates that the 209 sites of the 2005 season are concentrated in Zones II and III (**Fig. 6**). Of course, there are other sites indicated. These sites were surveyed as we carried out the indicated methodologies.

Finally, we did pay attention to sites that previous investigators had documented in the survey territory. However, we did not deem it necessary in our first season of work to be thorough relative to these sites since we have infield seasons planned for 2006 and 2007.

Once a site was "discovered", a sheet, describing it, was initially filled out in the field and all materials collected were labeled as to their provenance. Moreover, photographs were taken of what team members considered to be the site's most important features. At base camp, site sheets were updated, entries were made to the project's database on each site, the location of each site was plotted,



6. Location of the Sites of the ARNAS 2005 Season.

with the aid of co-ordinates obtain by the GPS in the field, on maps using an ArcGIS database, and preliminary cultural-temporal units were assigned to the lithics and sherds collected. Following the infield season, further research is being done on the cultural remains of the survey territory; selected sherds and lithics, with the permission of the Department of Antiquities, were shipped to Canada for further analyses, e.g., sawing, drawing, colour coding, and the preparation of plates for publication purposes; and work on preliminary reports and eventually a final report are underway.

Another action we took this year involved the team's decision to publish a list of sites that we considered as good candidates for excavation (**Table 3**). By this, we hope to bring particular attention to these sites so that they may be further investigated by others before more damage, e.g., by means of field clearance, other agricultural activity, road and house construction, quarrying, the erection of telecommunication towers, and/or erosion, is done to them.

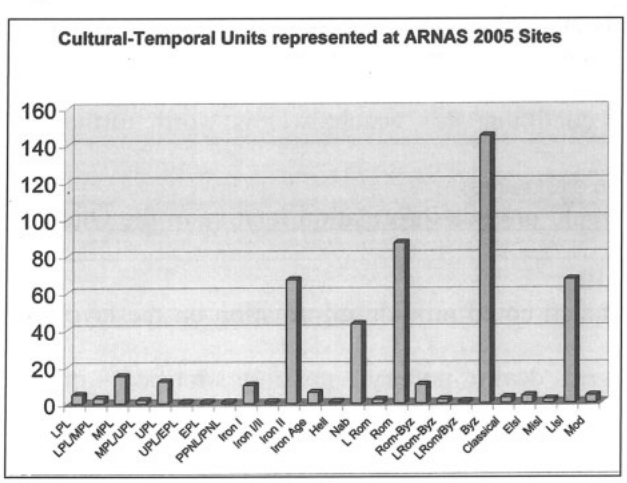
Table 3: ARNAS 2005 Season Sites that are good Candidates for Excavation.

Site #	Name (if known); Reason(s) for Excavation
6	-; A large hilltop site that has a good number of surface remains; it is possible to discern structure patterns; it is relatively undisturbed;
7	Kh. aṣ-Ṣadaqa; in selective zones that are undisturbed; possibility of encroachment due to future village expansion;
9	Kh. Dūsīl; out in the steppe where it is rare to find such sites; relatively undisturbed; a settlement pattern could possibly be discerned;
14	Kh. Abū Naqāṭ; relatively undisturbed; patterns can be detected; potential for good deposition;
23	Kh. Juwayza East; an interesting, probably fortress site;
25	Kh. Bir Yābis; an interesting agricultural site high in the hills;
27	Kh. Juwayza West; some interesting structures, especially at the top of the site that could provide important information relative to agricultural village sites; it would be interesting to learn if the relief on the large stones are natural or otherwise;
33	-; an agricultural (?) and/or "temple" site; this is a unique site (if indeed it is a sacred site of some kind);
36	Kh. Ḥubays; many interesting features present including paving stones in almost all the various segments of the site;
40	Qaṣr Rājif; many wall lines and room/compartments are present; excavation would probably be able to discern the major components of the site;
47	Tilāl 'Usūd West; a single structure site that is pretty much intact; it would be interesting to determine its function;
49	Janb al-Baḥar; this extensive site has many features that could be elucidated by excavation;
52	Kh. Burq'; this appears to be a domestic complex with many rooms/buildings quite clear; an investigation of the S segment of the site could provide much information on the layout of what is probably an agricultural village;
61	-; many intriguing structures that could be elucidated by excavation;
64	Bayt Abū Tāyih/Kh. ad-Dūr East; a great deal of in situ material and buildings - the nature of which could be explained by excavation;
70	-; an agricultural-village site that could reveal a great deal because of the number of footprints of structures still present;
72	-; barracks (?); outline of the site ought to be readily attainable by excavation;
75	- Kh. al-Manṣūra West; one of the most impressive sites that we have visited; many features could be elucidated by excavation;
80	Kh. Umm Ḥaṣā; because of its relatively intact condition, this watchtower is worth further investigation;
88	-; if this is indeed an Iron II cemetery, it ought to be excavated;
110	Kh. Qurayn; a great deal of in situ material that could provide information relative to the Ottoman and earlier periods;
111	Kh. Suwayma; same reasons as for previous Site 110;
115	Rujum al-Ishāra; a fort that is still pretty much intact; could provide information on the layout of such a structure for the period(s) represented;
116	Bīr Turkī; the bulldozer cut shows that there is a great deal of pottery – possibly stratified – in segments of the site;
117	Kh. Bīr Turkī; much interesting subsurface material; excavations could reveal village patterns and the function(s) of various site features;
119	Kh. al-Mayz; although partially bulldozed, the remainder of the site is impressive; its walls can b

Site #	Name (if known); Reason(s) for Excavation
	clearly traced and there appears to be deposition;
121	Kh. Umm Rujūm; a very impressive site with massive walls and possible a robbed tomb that has 1 m long stones; the cistern is large and ought to be investigated further;
129	Kh. Al-Qurna; an impressive site that has been disturbed somewhat; however, there is much to be learned from excavation about a fortress from this period;
131	Kh. Shadīd=Shdayd; another impressive defensive site; there is much that could be learned from its excavation;
154	-; a watchtower that is impressive and that could reveal information about such structures if excavated;
158	-; appears to be a great deal of deposition; could yield information on an agricultural village for the period(s) represented;
161	Kh. Ghānim South; many rectilinear structures intact; and there appears to be a great deal of deposition, at least in some areas; could yield information on an agricultural village for the period(s) represented;
166	Rujum al-Juththa; this fortress ought to be excavated since it is in danger of being completely destroyed due to quarrying in it immediate vicinity;
168	-; a fossil spring from which MPL artifacts in pristine condition were collected; thus, further investigation may be warranted since faunal remains may be preserved; it is also possible that the spring sediments (tufor) can be dated since the artifacts appear to be pure and homogeneous;
175	-; there may be some integrity to the latest phase of deposition, i.e., the Epipaleolithic;
188	-; this watchtower has good preservation; it could provide information relative to its make-up and determine its age more precisely;
192	-; this fort has good preservation; robber trenches show ca. 2m of deposition; thus, it would be worthwhile to excavate it to determine its layout and precise age;
194	Lake al-Wahīda; vegetation suggests a small spring or seep in the area, and the fresh condition of the artifacts suggests the potential for excavation;
196	Al-Muraygha; an impressive fort site, that although disturbed, probably has a great deal of in situ material present;
199	Abū al-Lusun; another impressive site that probably has a great deal of in situ material present;
206	Kh. Umm ath-Thība; many rooms cleared of rubble; excavations ought to result in the obtaining of a good plan of an agricultural village.

Cultural-Temporal Units Represented

Figure 7 indicates the cultural-temporal units represented at the sites of the 2005 season. It indicates clearly that for the Paleolithic period Middle Paleolithic artifacts are most frequently encountered while for the historical periods sherds attributed to the Iron II, Nabataean, Roman, Byzantine, and Late Islamic are best represented.



7. Cultural-Temporal Units represented at the Sites of the ARNAS 2005 Season

Some of the pottery readings need to be explained. "Iron Age" readings were sherds that were clearly from that period, but we could not determine whether they were Iron I or Iron II. "Nabataean" is pottery typical of the Late Hellenistic to Early Roman horizon at Petra. It is primarily Early Roman, but we cannot exclude the very end of the Hellenistic period. The "Roman" readings were probably Late Roman, but may include some Early Roman sherds, as well. They could also include sherds that seem to span most of the Roman period "Rom-Byz", "LRom-Byz" and "LRom/Byz" are similar calls, the first two reflecting a time span and the last indicating a transitional horizon.

Relative to periods poorly represented or not at all represented in the 2005-collected materials, the only Neolithic materials came from one site, that is, ARNAS Site 183 ('Ayn Jammām North), that the Department of Antiquities excavated in 1995. We identified no Chalcolithic, Early Bronze, or Middle Bronze period materials and only one possible Late Bronze sherd. Persian period material was not identified but it could very well be that some of the ceramic materials that we are calling Iron II continue into the Persian period. Finally, both the Early and Middle Islamic units are poorly represented in the ARNAS-2005 collected materials.

What the above points out is that there are long periods of time when the archaeological evidence does not support any sustained human presence in the area. In addition, there are periods when there appears to be little in the way of settlement in the territory.

Levantine Paleolithic Landscape Chronology

Except where disturbed by modern construction, or buried by Holocene sediments, all of Jordan is covered with a thin veneer of Paleolithic artifacts reflecting more than a million years of human use of environments that were grassland savannas over much of the Pleistocene. Although heavily deflated Lower and Middle Pleistocene land surfaces are exposed in patches throughout the country, and are exceptionally well-preserved in the Jafr Basin (Rollefson *et al.* 2005; Wilke *et al.* 2005; Quintero *et al.* 2004, 2005), most recognizable paleolandscape geomorphology dates to the Upper Pleistocene (130-12kya). Dotted with shallow, weakly alkaline lakes ringed by freshwater springs, often with swamps and marshes around their margins, these landscapes attracted human settlement throughout prehistory. Ancient lakeshores are littered with evidence of a human presence, as foragers were drawn to these microenvironments by the availability of fresh water, and by dense concentrations of the gregarious ungulates upon which they preyed (Olszewski and Coinman 1998; Schuldenrein and Clark 2003).

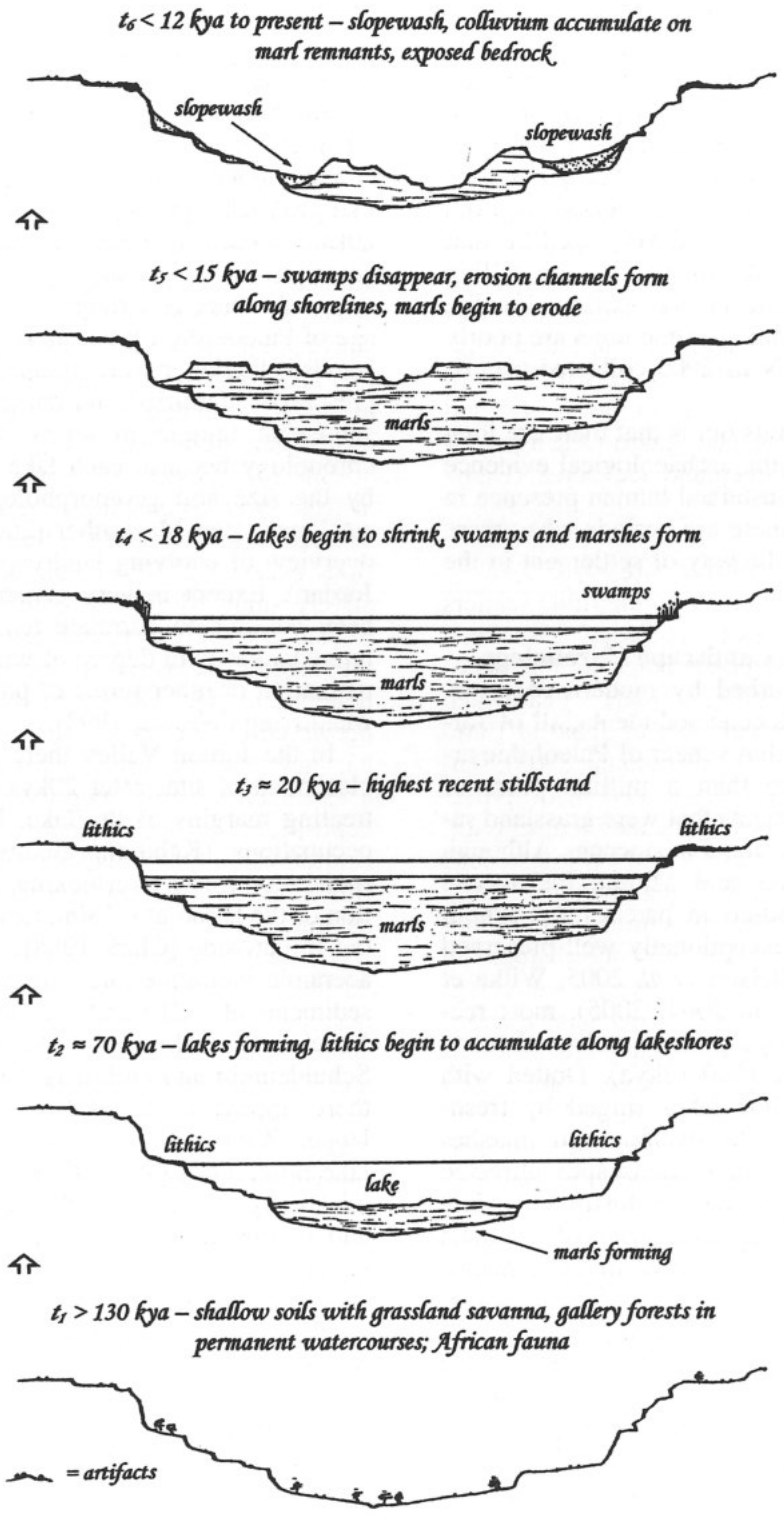
The best known and most enduring of these lake basin environments was the Samra/Lisan lake succession in the Jordan Rift Valley (e.g., Yechieli *et al.* 1993). Extensive lake beds have also been identified in the Jafr Depression (Huckriede and Wieseman 1968), while the Azraq Basin sustained paludal swamps and marshes after about 45kya, during the early Upper Paleolithic (Garrard *et al.* 1994). Henry also reports 'remnant Pleistocene lakes' in the Wādī Ḥismā, along the southern edge of the Jordan Plateau (1995: 38, 39). Most recently, the chronology of Pleistocene Lake Hasa has been reconstructed (Schuldenrein and Clark 1994, 2001, 2003; Schuldenrein 1998).

The Hasa and Lisan models suggest that limnic environments generally developed under cooling climatic conditions beginning ca. 70-60kya, and that peak lake levels post-date ca. 25kya. After ca. 20kya, shorelines began to retreat, and these regressions were tracked by human groups. Consequently there is a rough correlation between the age of Paleolithic flint scatters and that of lake still stands if the latter were of sufficient duration to be preserved, identified and dated. Each paleolake is somewhat unique in terms of its fluvio-limnic chronology because each lake basin is influenced by the size and geomorphological history of its catchment (see Macumber [2001] for an excellent overview of evolving landscape geochronology in Jordan). Except in very general terms, it has not been possible to correlate temperature and moisture changes with degree of wind abrasion, rolling, patination or other forms of physical and chemical weathering (Walwer 1993).

In the Jordan Valley there is a systematic displacement of sites after 20kya that follows the retreating margins of the lake. Early Epipaleolithic occupations (Kebaran, Geometric Kebaran) are found on terraces overlooking the maximum elevation of the Lisān at – 180m (arguably at – 160m on the Jordan side [Clark 1988]), while Natufian and aceramic Neolithic sites are preserved in paludal sediments at – 210 and – 230m respectively (Bar-Yosef 1987; Hovers 1989; Schuldenrein 1983; Schuldenrein and Goldberg 1981). In the al-Ḥasā, there appear to be direct correlations between Upper Paleolithic Ahmarian occupations and the lakeshore, and Epipaleolithic habitation along paludal margins and in rockshelters above the wadi and its tributaries (Coinman 1993; Olszewski and Coinman 1998; Schuldenrein and Clark 1994). A schematic view of changing lake-basin environments in relation to artifact scatters is given in **Figure 8**.

Recent Refinements at Soreq Cave

Work at Soreq Cave, in the west Judean highlands south of Jerusalem, analyzes the stable oxygen ($\delta^{18}O$) and carbon ($\delta^{13}C$) profiles of speleothem calcite as a proxy for paleoclimatic variation in temperature and moisture regimen (Bar-Matthews and Ayalon 2003: 13-18). The research offers a higher resolution picture of last glacial Levantine paleoclimates than had previously been available. It corroborates the long-term cool-



8. A generalized sequence from 130-12 kya showing the evolution of Upper Pleistocene lacustrine geomorphology in relation to paleolithic archaeological sites (based on the Wadi al-Hasa sequence [Schuldenrein and Clark 1994, 2001, 2003]). Lower and Middle Paleolithic artifacts are wind-abraded, sometimes rolled and patinated, and are found on deflated remnants of the pre-130 kya land surface, often in flint *ḥammada*(s) (desert pavements). Middle Paleolithic artifacts are usually polished and wind-abraded, less frequently rolled; fresh pieces are confined to rockshelters, and to tufas, calcites and other spring deposits. Upper and Epipaleolithic artifacts are relatively fresh, although often wind-polished. All open-air paleolithic sites tend to be concentrated along former lakeshores, frequently near fossil springs.

ing trend just noted (OIS 5-2) during which temperatures declined from ca. 17° C (at ca. 60kya, early OIS 3) to ca. 10° C (ca. 19kya, last glacial maximum [OIS 2]), rose sharply after ca. 18kya (reaching present day highs by ca. 16kya), dropped again during the local equivalent of the Younger Dryas (13.5-11kya), and then rapidly rebounded to modern levels by ca. 10kya. Over the same interval, mean annual rainfall increased from ca. 200mm to ca. 550mm, albeit beset by marked fluctuations. The warmest and wettest intervals were from 54-52kya, and at ca. 36kya. These long-term trends were punctuated by short (0.5-2kya), abrupt, very cold events at ca. 46, 35.5, 34.5 and 19kya that resemble the Dansgaard-Oeschger cycles reported in the Greenland ice cores (Dansgaard *et al.* 1993).

Paleolithic and Epipaleolithic Sites

Table 4 summarizes the principle lithic scatters that survey-team members recorded associated with Pleistocene lake deposits noted on the "Geological Map of Ma'an (3150-III)" (Tarawneh 2004) and the "Geological Map of Jabal al Batrā (Jabal Thallāja (3149-IV)" (Moumani 2002). **Table 5** lists scatters not associated with NRA-reported lakes on the above-indicated maps. Without exception, the latter are found on Pleistocene alluvial deposits (gravels, conglomerates, etc.), colluvium and/or slopewash, although field observation often confirms the presence of remnant marls and calcites in the vicinity, probably registering small, ephemeral lakes that had escaped the notice of the NRA survey teams.

Of the 13 sites reported in **Table 4**, about half are palimpsests consisting of wind-abraded, polished, rolled, patinated and/or varnished artifacts only broadly assignable to a temporal phase. Seven sites merit further comment.

Site 168 consists of an artifact scatter associated with a fossil spring eroding out of two adjacent wadis near the southeast corner of Lake al-Fardhakh. The spring deposits contain Middle Paleolithic artifacts in pristine condition (i.e., although patinated, there are no signs of rolling, wind-abrasion, etc.), suggesting that further investigation might be warranted. Based on work at 'Ayn al-Buḥayra (WHS 618) in Wādī al-Ḥasā, it is also possible that faunal remains are preserved in the extremely basic sedimentary matrix (Coinman 1993, 2000). A scatter of Iron Age and Byzantine pottery around the spring suggests later reactivation of the eye, and it is likely that the karstic system of which the spring was a part was activated and reactivated periodically over tens of thousands of years. A tufa preserving organic remains is associated with the spring and could possibly be dated by the U-series method used by "The Wadi Hasa Paleolithic Project" to date similar deposits in Wādī al-'Alī (Schuldenrein and Clark 1994).

Site 173 consists of a transect at the SE end of Pleistocene Lake Abū al-Adham, and is noteworthy for the unambiguous stratigraphy that constituted the basis for **Figure 8**. It is clear that Lower and Middle Paleolithic artifacts derived from the surrounding highlands accumulated along the former lakeshores as a consequence of slopewash, and are thus unrelated to the Upper Pleistocene lacustrine environments of interest here.

Site 175 consists of a 250 x 50m transect across at least three ostensible shorelines of Lake No. 4. We recovered over 100 lithics from all time periods except the Lower Paleolithic. There is a relatively small Middle Paleolithic component comprising at least one typical Levallois point. Most of the material recovered is Upper Paleolithic and Epipaleolithic, with lots of small blades and bladelets preserved on a remnant, deflated-land surface that has not been disturbed by modern construction. There may be some integrity to the latest phase of deposition, i.e., the Epipaleolithic, as there are concentrations of small blades and bladelets within the flint *ḥammada*. Survey-team members observed no ceramics.

Site 179 is another transect (100 x 400m) located on a southern embayment of Lake No. 5, and designed to cross-cut its eastern and western shores. Like Site 175, the scatter is mostly Upper and Epipaleolithic, with small flakes and blades, and at least one exhausted bladelet core. These artifacts are mostly of a uniformly high-quality brown flint, almost always wind-polished. There are occasional rolled Middle Paleolithic pieces. Some 200m west of the end of the transect, on the opposite site of the wadi and corresponding to the north shoreline of the lake, are a series of indurated marls associated with fossil springs and tufas that could be dated.

Site 180 (the Jabal Juththa Quarry Site) consists of an enormous scatter of lithics accumulated along the west side of the jabal, and extending out some 100m onto the adjacent marls of a small lakebed that formed in an embayment abutting the hill. Many of the artifacts are made from a fine-grained, homogeneous, high-quality chocolate brown flint that outcrops in bands 5-7m thick (in aggregate) extending across the top of the hill. These are visible on the western flank of Jabal Juththa, standing on the marls below. There are hundreds of thou-

Table 4: ARNAS 2005 Season Lithic Sites associated with NRA-Identified Lakes.

A. Non-Levallois Elements	168	169	170	171	173	175	176	178	179	180	181	182	194	Comments
1. Flakes:														
flake, 1DC	2	3	1		1	2	3	7	3			4		
flake, 2DC	3	8	10	3	3	13	19	7	4		4	15	8	
flake, plain	9	13	16	4	7	20	20	15	21	7	14	76	20	
flake, trim (<2cm)		1			1	10		2	8			1	2	
flake, natbk	1	2					3	1	2					
2. Blades:														
blade, undiff'd	4	16	14	11	4	19	16	7	10	32	22	49	12	
blade, natbk		1		2	3	4	5	2	1	6	1		2	
bladelet (<3cm)						18			4			11		
3. Miscellaneous:														
burin spall														
fk, core ren														
fk, platform tablet	1													
fk, core ren unsp				1					1			2		
B. Levallois Elements														
1. flakes														
2. points				4		1				4		*15		3 textbook examples
C. Cores														
1. Levallois														
flakes							1				1			
points											1		1	
2. Discoidal														
full								1		1	1			
partial							*3	*1			1		1	2 could be partial bifaces
3. Single Platform														
flake						1			2					
blade							2	1		1		*3		1 exhausted
bladelet (<3cm)									*1			3		1 exhausted
mixed								1			1		2	
4. Opposed-Multiple														
flake	3	2	1				2							
blade				2										
bladelet														
mixed		1												
5. Other (fragments)	1	3			1	4	1	1						
D. Shatter		1				12			7		2			
E. Retouched Pieces														
SS, convex on flk		1										1		
SS, straight on flk							1				1			
ES, on flk												1		
ES, on blade	1					1						3		
ES, on ret blade												2		
ES, keeled on bld												1		
ES, double on bld												*1		
BU, dihedral												1		
notch, on flk							1							
denticulate, on flk								1			1	1		
bld w/ oblq trunc												1		
CRB-1												1		
CRB-2									1					
biface, partial											1			
biface, complete	1	4		1										
ES/CRB-1/dentic												1		
pseudo lev pt, ret												1		
perforator, on flk													1	
F. Total:	26	56	42	28	20	105	77	47	65	51	51	194	49	

sands of lithics in pristine condition scattered across the marls, dominated by large blades and cores. Four large Levallois points were also recovered, suggesting that most of the collection pertains to the Middle Paleolithic. No pieces clearly diagnostic of earlier or later periods were noted.

A 350 x 400 (N-S) m transect (Site 181) through the center of adjacent Lake Juththa recovered (mostly) Middle Paleolithic material that became more abraded and rolled as we moved north from the starting point below the west face of the jabal. Lithics decline in frequency from south-north, and then pick up again as we approached the north shore of the lake.

Site 182 is a transect through Lake al-Basṭa, a small lake that measures only 700 (N-S) x 300 (E-W) metres. Marls are exposed on the west shore of the lake and there is a possible collapsed rock shelter on the eastern shore. The slopes on both sides of the little valley yielded Paleolithic artifacts, most Upper Paleolithic on the northeast shore, Middle Paleolithic (including a number of typical, short, broad Tabun B-C type Levallois points, pseudo-points) on the west shore. At one point on the northeast shore, fresh pieces were observed eroding out of the marls that form a cornice at places along the eastern side of the valley. Survey-team members collected no obviously Lower Paleolithic or Epipaleolithic artifacts.

Site 194 is a relatively pristine Middle Paleolithic scatter eroding out of some marls on the south shore of Lake al-Wahīda, some 100-150m to the northwest of Khirbat al-Wahīda (Site 193). Well-preserved marls to the north of the site exhibit the accordant platforms indicative of the most recent, highest stillstand. The industry, mostly on chocolate brown flint like that from Jabal Juththa, some 5km to the north, is very 'bladey' and probably dates mainly to the Middle Paleolithic. Many pieces exhibit the dihedral and multifaceted striking platforms typical of the Levantine Mousterian. Vegetation suggests a small spring or seep in the area, and the fresh condition of the artifacts might indicate some potential for excavation.

The eight collections described in **Table 5** were recorded primarily by the field observation of lithic scatters in the vicinity of much later architectural sites identified on the basis of pottery. Although virtually all 2005-season sites produced at least some stone artifacts, in these cases lithics were concentrated at sufficient densities to warrant a separate collection. Inspection of the local setting of the architectural sites sometimes revealed the presence of springs, e.g., Site 162, or marls, e.g., Sites 163 and 164, associated with small, ephemeral lakes that were not recorded on the NRA surveys. In some cases, e.g., Site 162, the springs are active today, doubtless because of their locations along major bedrock contacts that constituted aquifers, any particular spring eye ceasing to flow, and being reactivated, dozens of times over hundreds of millennia. Except where spring tufas and calcites are preserved, there is little site-contextual integrity. Heavily wind-abraded artifacts from all the Paleolithic time periods are noted. The average number of pieces recovered at the sites listed in **Table 5** was 27, whereas the mean for those in **Table 4** was 62, underscoring the importance of proximity to fresh water sources in these generally very arid environments.

Conclusions

The results of our first infield season were both surprising and gratifying. We did not think that in one season of work we would have "found" so many sites that had not been previously reported by the many individuals who have worked in the area over the past 100 years. We knew, of course, about the main sites along the main roads in the survey territory that had been reported on several occasions. However, we were surprised to discover so many farmsteads, hamlets and/or villages in the wadis that lead west and east from these main roads.

One of the valuable contributions of the ARNAS project is the pin-pointing of all sites discovered. This is due to the fact that they are now identified on the ground by their GPS-obtained coordinates. Thus, all future explorers will be able to find them.

Relative to the objectives of the project, we did discover 209 sites in our first season of work. Most of these sites are architectural ones associated with farming activity. They are located in the mountainous region of the territory, that is, in Zone II. These sites range in date from the Lower Paleolithic to the Modern period. However, there are periods when there is little or no evidence of sustained human presence in the area. We were able to identify and survey the Pleistocene lakes that the NRA had previously identified in our area of interest. Lithics from the Middle Paleolithic period were the mostly commonly collected materials associated with these lakes. The *Khaṭṭ Shabīb*, probably a boundary line between the "desert" and the "sown", was noted and designated as ARNAS Site 050. This identification first took place in the northern extremity of the survey territory, just to the east of

Table 5: ARNAS 2005 Season Lithic Sites not associated with NRA-Identified Lakes.

A. Non-Levallois Elements	162	163	164	165	166	167	172	183
1. Flakes:								
flake, 1DC	1	4	2	1	1			
flake, 2DC	3	9	4		1	1	2	
flake, plain	5	16	18	4	3	5	5	13
flake, trim (<2cm)		3	1	2		1	1	3
flake, natbk	1							
2. Blades:								
blade, undiff'd	3	7	11	1	2	2	2	13
blade, natbk								
bladelet (<3cm)								17
3. Miscellaneous:								
burin spall								
fk, core ren edge								1
fk, platform tablet								
fk, core ren unsp		1						
B. Levallois Elements								
1. flakes			2					
2. points			1					
C. Cores								
1. Levallois								
flakes								
points								
2. Discoidal								
full								
partial								
3. Single Platform								
flake	1	1	1			1		
blade						1		
bladelet (<3cm)								
mixed		1			1	2		
4. Opposed-Multiple								
flake		1				2		
blade								
bladelet								
mixed								
5. Other (fragments)	2	1	1		1	4		
D. Shatter		5	6					
E. Retouched Pieces								
SS, convex on flk		1	1					
SS, straight on flk			1					
ES, on flk								
ES, on blade	1		1					
ES, on ret blade								
ES, keeled on bld								
ES, double on bld								
BU, dihedral								1
notch, on flk		1	1	1				
denticulate, on flk								
bld w/ oblq trunc								
bld, backed						1		
CRB-1			1				1	
CRB-2								
biface, partial								
biface, complete							2	
ES/CRB-1/dentic								
pseudo lev pt, ret								
perforator, on flk								
F. Total:	16	50	52	9	9	20	13	48

Ayl, ARNAS Site 001. The wall line was again encountered at Al-Muraygha, ARNAS Site 196, in the southern segment of the survey territory. However, we made no effort in our first season of work to follow it to its southern-most extremity. The data collected from our 2005 season will be important as we compare the findings of this year's work with that of the director's previous projects, namely, the WHS, SGNAS, and TBAS, in the area of ancient Edom.

It is abundantly clear that it was from these settlements that food would be provided to a major centre such as Petra. For in this area there is the possibility for the growing of barley, wheat, lentils, olives, citrus fruits, and so forth. In addition, in the mountainous area of the territory there is abundant pasturage for goats and sheep.

The question remains as to whether or not the ancient settlements were inhabited year-round. We were fortunate that we were in the field during both the growing and harvesting of wheat. Due to this, there were a large number of Bedouin in the area engaged in agricultural activity. And one of these Bedouin told us that they went to al-Ḥumayma for the winter months. This is easy to understand since it would seem that it would be very difficult to live in a tent in this mountainous region during the periods of the year when there is both rain and snow.

As indicated previously, the plan is to return for two more infield season in the springs of 2006 and 2007.

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References

Abudanh, F.
2004 The Archaeological Survey for the Region of Udhruh, 2003 (Preliminary Report). *ADAJ* 48: 51-69.

Abujaber, R.S.
1995 Water Collection in a Dry Farming Society. *SHAJ* 5: 737-744.

'Amr, K., al-Momani, A., Farajat, S. and Falahat, H.
1996 *Archaeological Studies Final Report for Wadi Mousa Water Supply and Wastewater Project, Stage II – CDM – 002 Tender.* Unpublished report on file at the Department of Antiquities Registration Centre and the Water Authority of Jordan, Amman.
1998 The Petra National Trust Sites Projects Archaeological Survey of the Wadi Musa Water Supply and Wastewater Project Area. *ADAJ* 42: 503-548.

'Amr, K., al-Nawafleh, S. and Qrarhi, H.
1997 A Preliminary Note on the Wadi Musa Salvage Excavation 1996. *ADAJ* 41: 469-473.

'Amr, K., al-Momani, A., al-Nawafleh, N. and al-Nawafleh, S.
2000 Summary Results of the Archaeological Project at Khirbat an-Nawafla/Wadi Musa. *ADAJ* 44: 231-255.

'Amr, K. and al-Momani, A.
2001 Preliminary Report on the Archaeological Component of the Wadi Musa Water Supply and Wastewater Project (1998-2000). *ADAJ* 45: 253-285.

Bar-Matthews, M. and Ayalon, A.
2003 Climatic Conditions in the Eastern Mediterranean During the Last Glacial (60-10 ky bp) and their relations to the Upper Palaeolithic in the Levant. Pp. 13-18 in A.N. Goring-Morris and A. Belfer-Cohen (eds.), *More than Meets the Eye: Studies on Upper Palaeolithic Diversity in the Near East.* Oxford: Oxbow Books.

Bar-Matthews, M., Ayalon, A. and Kauffman, A.
1997 Late Quaternary Paleoclimate in the Eastern Mediterranean Region from Stable Isotope Analysis of Speleothems at Soreq Cave, Israel. *Quaternary Research* 47: 155-168.

Bar-Yosef, O.
1987 Prehistory of the Jordan Rift. *Israel Journal of Earth Sciences* 36: 107-119.

Bender, F.
1974 *The Geology of Jordan.* Trans. M.K. Khdeir. Berlin: Gebruder Borntraeger.
1975 Geology of the Arabian Peninsula: Jordan. United States Geological Survey. Professional Paper 561-1.

Bisheh, G., Farajat, S., Palumbo, G. and Waheeb, M.
1993 The Cultural Resources Management Project in Jordan: Archaeological Rescue Survey of the Ras an-Naqb – Aqaba Highway Alignment, 1992. *ADAJ* 37: 119-133.

Brünnow, R. and von Domaszewski, A.
1904 *Die Provincia Arabia auf Grund Zweier in Den Jahren 1897 und 1898 Unternommenen Reisen und der Berichte Früherer Reisender. I: Die Römerstrasse von Madeba über Petra und Odruh bis El-`Akaba.* Strassburg: Trübner.

Clark, G.A.
1988 Some Thoughts on the Southern Extent of the Lisan Lake as seen from the Jordan side. *BASOR* 272: 42-45.

Coinman, N.R.
1993 WHS 618 – Ain el-Buhira: an Upper Paleolithic site in the Wadi Hasa, west-central Jordan. *Paléorient* 19: 17-37.

Coinman, N.R.
2000 The Upper Paleolithic in the Wadi Hasa. Pp. 143-159 in N. Coinman (ed.), *The Archaeology of the Wadi al-Hasa, West-Central Jordan. Vol. 2: Excavations at Middle, Upper and Epipaleolithic Sites.* Tempe, AZ: ARP No. 52.

Dansgaard, W. *et al.*
1993 Evidence for General Instability of Past Climae from a 250-kyr Ice-Core Record. *Nature* 364: 218-220.

Fiema, Z.T.
1995 Military Architecture and the Defense "System" of Roman-Byzantine Jordan – A Critical Appraisal of Current Interpretations. *SHAJ* 5: 261-269.

Garrard, A.N., Baird, D. and Byrd, B.
1994 The Chronological Basis and Significance of the Late Palaeolithic and Neolithic Sequence in the Azraq Basin, Jordan. Pp. 177-199 in O. Bar-Yosef and R. Kra (eds.), *Late Quaternary Chronology and Paleoclimates of the Eastern Mediterranean. Tucson,* AZ: Radiocarbon, Inc.

Glueck, N.
1935 *Explorations in Eastern Palestine,* II. AASOR 15 (1934-1935). New Haven, CT: American Schools of Oriental Research.
1939 *Explorations in Eastern Palestine, III.* AASOR 18-19. New Haven, CT: American Schools of Oriental Research.

Graf, D.F.
1979 A Preliminary Report on a Survey of Nabataean-Roman Military Sites in Southern Jordan. *ADAJ* 23: 121-127.
1983 Nabateans and the Hisma: In the Footsteps of Glueck and Beyond. Pp. 647-664 in C. L. Meyers and M. O`Connor (eds.), *The Word of the Lord Shall Go Forth: Essays in Honor of David Noel Freedman in Celebration of His Sixtieth Birthday.* Winona Lake, IN: Eisenbrauns.
1995a Milestones with Uninscribed Painted Latin Texts. *SHAJ* 5: 417-425.
1995b The Via Nova Traiana in Arabia Petraea. Pp. 241-267 in *The Roman and Byzantine Near East: Recent Archaeological Research.* Ann Arbor, MI: Journal of Roman Archaeology Supplementary Series Number 14.

Hart, S.
1986a Nabataeans and Romans in Southern Jordan. Pp. 337-42 in P. Freeman and D. Kennedy (eds.), *The Defense of the Roman and Byzantine East: Proceedings of a Colloquium Held at the University of Sheffield in April 1986.* British Institute of Archaeology at Ankara Monograph No. 8. BAR International Series 297 (i). Oxford: BAR.
1986b Some Preliminary Thoughts on Settlement in Southern Edom. *Levant* 18: 51-58.
1987a Five Soundings in Southern Jordan. *Levant* 19: 33-47.
1987b The Edom Survey Project 1984-85: The Iron Age. *SHAJ* 3: 287-90.
1988 Excavations at Ghrareh, 1986: Preliminary Report. *Levant* 20: 89-99.
1989 *The Archaeology of the Land of Edom.* Unpublished Ph.D. dissertation. Macquarrie University, Melbourne, Australia.
1992 The Iron Age Settlement in the Land of Edom. Pp. 93-98 in P. Bienkowski (ed.), *Early Edom and Moab: The Beginning of the Iron Age in Southern Jordan.* Sheffield Archaeological Monographs 7. Sheffield, UK: J. R. Collis in association with National Museums and Galleries on Merseyside.

Hart, S. and Falkner, R.
1985 Preliminary Report on a Survey in Edom, 1984. *ADAJ* 29: 255-277.

Henry, D.
1995 *Prehistoric Cultural Ecology and Evolution:* Insights from Southern Jordan. New York: Plenum.

Hovers, E.
1989 Settlement and Subsistence Patterns in the Lower Jordan Valley from Epipaleolithic to Neolithic Times. Pp. 37-51 in I. Hershkovitz (ed.), *People and Culture in Change.* Oxford: BAR International Series No. 508.

Huckriede, R. and Wieseman, G.
1968 Der jungpleistozäne Pluvial See von El Jafr un weitere Daten zum Quartär Jordaniens. *Geologie und Paläontologie* 2: 73-95.

Jobling, W.J.
1981 Preliminary Report on the Archaeological Survey

between Ma`an and `Aqaba: January to February 1980. *ADAJ* 25: 105-112.

1982 `Aqaba-Ma`an Survey, Jan.-Feb. 1981. *ADAJ* 26: 199-209.

1983a The 1982 Archaeological and Epigraphic Survey of the `Aqaba-Ma`an Area of Southern Jordan. *ADAJ* 27: 185-196.

1983b Preliminary Report on the Fourth Season of the `Aqaba-Ma`an Archaeological and Epigraphic Survey, 1982/1983. *ADAJ* 27: 197-208.

1983c Recent Exploration and Survey in Southern Jordan: Rock Art, Inscriptions and History. *Berytus* 31: 27-40.

1984a The Fifth Season of the `Aqaba-Ma`an Survey 1984. *ADAJ* 28: 191-202.

1984b The `Aqaba-Ma`an Archaeological and Epigraphic Survey, 1980-1984. *TRASUS* (The University of Sydney, Sydney, Australia) 2.2: 34-52.

1985 Preliminary Report on the Sixth Season of the `Aqaba-Ma`an Epigraphic and Archaeological Survey. *ADAJ* 29: 211-220.

1986 North Arabian (Thamudic) Inscriptions and Rock Art from the `Aqaba-Ma`an Area of Southern Jordan. *ADAJ* 30: 261-283.

1989 `Aqaba-Ma`an Archaeological and Epigraphic Survey. Pp. 16-24 in D. Homès-Fredericq and J. B. Hennessy (eds.), *Archaeology of Jordan III. Field Reports: Surveys and Sites A-K.* Leuven: Peeters.

Kennedy, D.L.

1982 *Archaeological Explorations on the Roman Frontier in North-East Jordan.* British Archaeological Reports, International Series 134. Oxford: BAR.

Kennedy, D. and Bewley, R.

2004 *Ancient Jordan from the Air.* London, UK: The Council for British Research in the Levant/The British Academy.

Killick, A.C.

1982 Udruh: 1980 and 1981 Seasons. *ADAJ* 26: 415-416.

1983a Udruh – 1980, 1981, 1982 Seasons: A Preliminary Report. *ADAJ* 27: 231-44.

1983b Udruh – The Frontier of an Empire: 1980 and 1981 Seasons: A Preliminary Report. *Levant* 15: 110-131.

1989 Udhruh. Pp. 576-580 in D. Homès-Fredericq and J. B. Hennessy (eds.), *Archaeology of Jordan III. Field Reports:* Sites L-Z. Leuven: Peeters.

Kirkbride, A.

1948 Shebib's Wall in Transjordan. *Antiquity* 151-154.

MacDonald, B.

2000 *"East of the Jordan": Territories and Sites of the Hebrew* Scriptures. Boston, MA: American Schools of Oriental Research.

2004 The Tafila-Busayra Archaeological Survey, West-Central Jordan: Phases 1, 2, and 3 (1999, 2000, and 2001 Seasons). *SHAJ* 8: 275-283.

MacDonald, B., Banning, E.B., Clark, G.A., Majchrowicz, D., Coinman, N.R., Coinman, N., Clark, G.A., Lindly, J., Donahue, J., Beynon, D.E., Harlan, J.R., Betlyon, J., King, G. and Piccirillo, M.

1988 *The Wadi el Hasa Archaeological Survey 1979-1983, West-Central Jordan.* Waterloo, ON: Wilfrid Laurier University.

MacDonald, B., 'Amr, K., Broeder, N.H., Skinner, H.C.W., Meyer, C., Neeley, M.P., Reese, D.S. and Whitcomb, D.S.

1992 *The Southern Ghors and Northeast `Arabah Archaeological Survey.* Sheffield Archaeological Monographs 5. Sheffield, UK: J.R. Collis, Department of Archaeology and Prehistory, University of Sheffield.

MacDonald, B., Herr, L.G., Neeley, M.P., Gagos, T., Moumani, K. and Rockman, M.

2004 *The Tafila-Busayra Archaeological Survey 1999-2001, West-Central Jordan.* Boston, MA: American Schools of Oriental Research.

Macumber, P.G.

2001 Evolving landscape and Environment in Jordan. Pp. 1-30 in B. MacDonald, R. Adams and P. Bienkowski (eds.), *The Archaeology of Jordan.* Levantine Archaeology 1. Sheffield, UK: Sheffield Academic Press.

Mercier, N. *et al.*

1995 TL Dates of Burnt Flints from Jelinek's Excavations at Tabun and their Implications. *Journal of Archaeological Science* 22: 495-509.

Moumani, K.A.

1997 *The Geology of the al Husayniyya al Janubiyya (Jurf ed Darawish) Area:* Map Sheet No. 3151-II. Amman: Natural Resources Authority, Geological Bulletin No. 38.

2002 *The Geology of Jabal al Batra (Jibal Thlaja) Area: Map Sheet No. 3149-IV.* Bulletin 52. Amman: The Hashemite Kingdom of Jordan, Natural Resources Authority, Geology Directorate, Geological Mapping Division.

Nabeel, R. and Zaghloul, M.

1988 *Annual of the Department of Antiquities of Jordan: General Index (Authors and Sites)* I-XXX (1951-1986).

Nabeel, R. and al-Taher, H.

2003 *Annual of the Department of Antiquities of Jordan: General Index (Authors and Sites)* 31 (1987) – 45 (2001).

Olszewski, D.I. and Coinman, N.

1998 Settlement Patterning During the Late Pleistocene in the Wadi al-Hasa, West-Central Jordan. Pp. 177-204 in N. Coinman (ed.), *The Archaeology of the Wadi al'Hasa, West-Central Jordan, Vol. 1: Surveys, Settlement Patterns and Paleoenvironments. Tempe,* AZ: ARP No. 50.

Parker, S.T.

1986 *Romans and Saracens: A History of the Arabian Frontier.* American Schools of Oriental Research Dissertation Series 6. Philadelphia, PA: American Schools of Oriental Research.

Quintero, L., Wilke, P. and Rollefson, G.

2004a The Eastern Levant, the Pleistocene and Paleoanthropology. *ACOR Newsletter* 16: 1-3.

2004b An Eastern Jordan Perspective on the Lower Paleolithic of the 'Levantine Corridor'. *SHAJ* 8.

2005 The Acheulian of Ain Soda and the al'Jafr Basin, Jordan. Paper Presented at the Annual Meetings of the Society for American Archaeology, Salt Lake

City, UT.

Rollefson, G.O., Wilke, P. and Quintero, L.
2005 From al-Jafr to el-Kowm: the Lacustrine Corridor and the Acheulian in the Eastern Levant. Paper Presented at the Annual Meetings of the Society for American Archaeology, Salt Lake City, UT.

Saidel, B.A.
2001 Abandoned Tent Camps in Southern Jordan. *NEA* 64.3: 150-157.

Schuldenrein, J.
1983 *Late Quaternary Paleoenvironments and Prehistoric Site Distributions in the Lower Jordan Valley.* Ph. D Dissertation, Department of Anthropology, University of Chicago.

Schuldenrein, J.
1998 Geomorphology and Stratigraphy of Prehistoric Sites along the Wadi al-Hasa. Pp. 205-228 in N. Coinman (ed.), *The Archaeology of the Wadi al'Hasa, West-Central Jordan. Vol. 1: Surveys, Settlement Patterns and Paleoenvironments.* Tempe, AZ: ARP No. 50.

Schuldenrein, J. and Clark, G.A.
1994 Landscape and Prehistoric Chronology of West-Central Jordan. *Geoarchaeology 9*: 31-55.
2001 Prehistoric Landscapes and Settlement Geography along the Wadi Hasa, West-Central Jordan, Part I: Geoarchaeology, Human Palaeoecology and Ethnographic Modelling. *Environmental Archaeology* 6: 25-40.
2003 Prehistoric Landscapes and Settlement Geography along the Wadi Hasa, West-Central Jordan, Part II: Towards a Model of Palaeoecological Settlement for the Wadi Hasa. *Environmental Archaeology* 8: 1-16.

Schuldenrein, J. and Goldberg, P.
1981 Late Quaternary Paleoenvironments and Prehistoric Site Distribution in the Lower Jordan Valley: A Preliminary Report. *Paléorient* 7: 57-71.

Tarawneh, B.
1988 *The Geology of at-Tafila: Map Sheet No. 3151 IV.* Amman: Natural Resources Authority, Geological Bulletin No. 12.

Tarawneh, K.
2004 *The Geology of Ma`an Area: Map Sheet No. 3150-III.* Bulletin 59. Amman: The Hashemite Kingdom of Jordan, Natural Resources Authority, Geology Directorate, Geological Mapping Division.

Thompsen, P.
1917 Die römischen Meilensteine der Provinzen Syria, Arabia and Palaestina. *ZDPV* 40: 1-103.

Waheeb, M.
1996 Archaeological Excavation at Ras an-Naqb - `Aqaba Road Alignment: Preliminary Report (1995). *ADAJ* 40: 339-348.

Walwer, G.
1993 *Lithic Weathering Effects as Paleoenvironmental Indicators in Archaeological Sites of Southern Jordan. MA Thesis,* Department of Anthropology, University of Tulsa, OK.

Wilke, P.J., Quintero, L. and Rollefson, G.
2005 Technology, Use-Life History and Typology of Acheulian Bifaces from Ain Soda, Jordan. Paper Presented at the Annual Meetings of the Society for American Archaeology, Salt Lake City, UT.

Yechieli, Y. *et al.*
1993 Late Quaternary Geological History of the Dead Sea Area, Israel. *Quaternary Research* 39: 59-74.

"A NABATAEAN ROCK-CUT SANCTUARY IN PETRA: PRELIMINARY REPORT ON THREE EXCAVATION SEASONS AT THE "OBODAS CHAPEL", JABAL NUMAYR (2002-2004)

Laurent Tholbecq and Caroline Durand

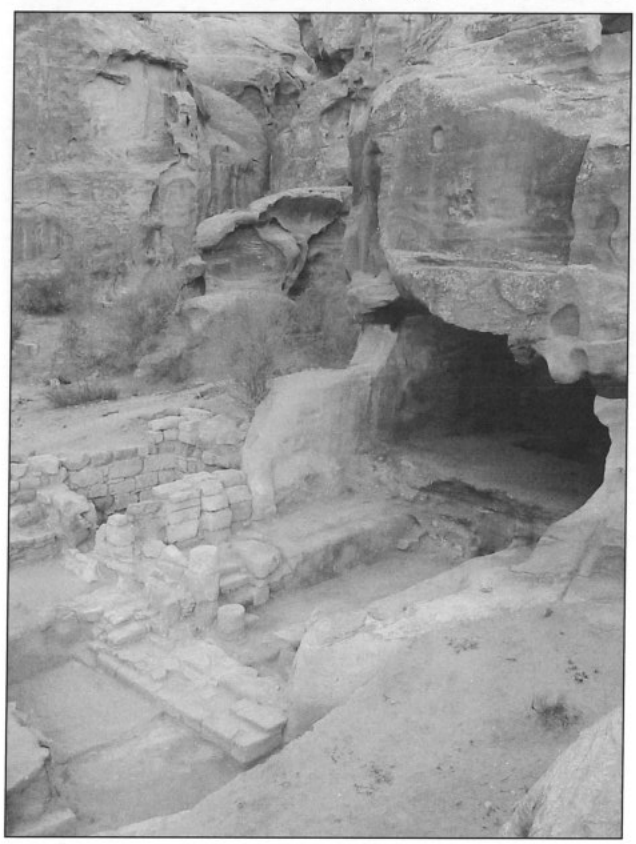
Nabataean sanctuaries of Petra belong to various categories. The most famous are the easily recognizable temples, mainly although not exclusively located in downtown Petra, and the high-places that offer spectacular sights to their modern visitors. Another type of sanctuary, equally important, consists of rock-cut meeting places visited by various communities in Antiquity and distributed on several natural terraces in the mountains around the city. The "Obodas chapel" is one of them[1] . This rock-cut sanctuary discovered in 1862 is located ca. 1km south of Petra's main theatre, on a natural platform of the Jabal Numayr. This religious complex was accessible by a processional stairway starting in the southern bed of the Wādī Numayr. It consisted of various rock-cut, as well as, built structures situated around a major triclinium, which remains one of the largest of its type discovered in Petra.

Three excavation seasons were carried out on the site since the 2001 campaign initiated by L. Nehmé[2]. The main goal of the project was to study the development of a Nabataean sanctuary essentially known until then by its epigraphic material, i.e. a major 20AD dedication of a statue of "Obodas the god" (CIS II 354) and 133 worshippers' signatures scattered in the vicinity. After a brief description of the newly excavated structures, part of the ceramic material studied by C. Durand will be discussed here, in order to provide a first account of the chronology and a general idea of the alleged function of the so far exposed components of the sanctuary.

THE STRUCTURES

1. The Triclinium of Obodas and its Esplanade

The discovery of substantial fragments of the statue of Obodas the god dedicated in 20AD were found in a probe opened under the central niche on the back wall of the main triclinium in 2001. The following year, the efforts were concentrated on the front part of the monument (**Fig. 1**). It rapidly appeared that the entire façade of the otherwise rock-cut triclinium of Obodas was built. The monument presents an overall length of 12.60m (including the thickness of the northern façade), and its internal



1. Obodas Chapel. The triclinium, towards the south-east (2004).

1. For a general account on the sanctuaries in Petra: Nehmé 1997, 1023-1067; Tholbecq 1997, 1069-1095.
2. For a preliminary description of the 2001 season, see the substantial article of Laila Nehmé, Nehmé 2002b: 243-256. For the 2002 season, Tholbecq 2003: 469-470. This project, funded by the French Ministry of Foreign Affairs, is part of the French Archaeological Mission in Petra directed by Christian Augé (CNRS – Centre National de la Recherche Scientifique, UMR 7041 - Nanterre). The work extended over ten weeks: March 15 – April 5 2002, November 9 – 20, 2003 and June 3 – 24, 2004.

width is 6 meters. Its inner height is 5.37m in the center of the room and 4.31m from the top of the western bench. The side benches make an overall length of 11.45m (width: 2.60m) and are limited to the north by three step staircases, one rock-cut (west), the other built (east), being respectively 0.55m and 0.80m wide. The eastern bench is limited by a wall with a preserved height of 1.74m (**Fig. 2**). The eastern limit of the triclinium is only partly rock-cut, and ends with a 2.92m long wall which rests, on the south, directly on the rock. Just 0.52m to the north of the rock-cut part of the monument, the masonry shows a 0.54m wide arch spring and four of its archstones. Approximately 0.75m south of this arch spring, on the same eastern wall of the triclinium but in its rock-cut portion, a 0,62m broad projection must be interpreted as a second arch spring. To these arch springs correspond two rock-cut projections on the western rock-cut limit of the triclinium (**Fig. 3**). It is consequently clear that the front part of the triclinium was covered by flagstones supported by two arches with a 4.90m to 5.00m span. These arches supported an upper story limited to the northern side



2. Obodas Chapel. The entrance, towards the south-east (2004).



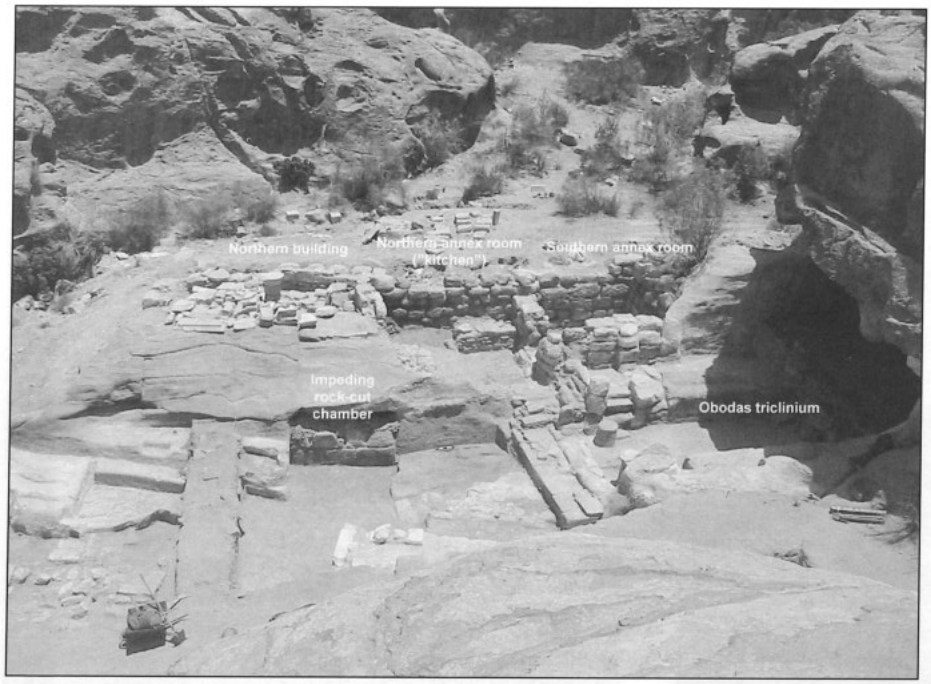
3. Obodas Chapel. The rock-cut western bench, towards the west (2004).

of the triclinium. Indeed, a 3.75m wide surface cut on the northern face of the rock, immediately above the triclinium's entrance, seems to have constituted its back wall. Its access remains unknown.

The façade of the monument extended approximately 7.60 meters. The excavation revealed a 0.60m broad flush wall situated in its front stage and closing the 1.40m wide space between the benches. It does not seem possible to interpret this wall as a stylobate and to place columns in this limited space. The destruction layers revealed many architectural fragments from the inner and the facade's ornaments. A wide step (width 3.90m, depth 0.80m, height 0.25m) was built in front of the entrance. Immediately to its east, a few small steps gave access to the eastern free-standing structures that will be described later. Among the remarkable features of the triclinium, we noted some column drums topped by reused fragments of Nabataean capitals and flanking both the inner small stairs reserved in the benches. These were intentionally placed there and therefore did not belong to the building's debris.

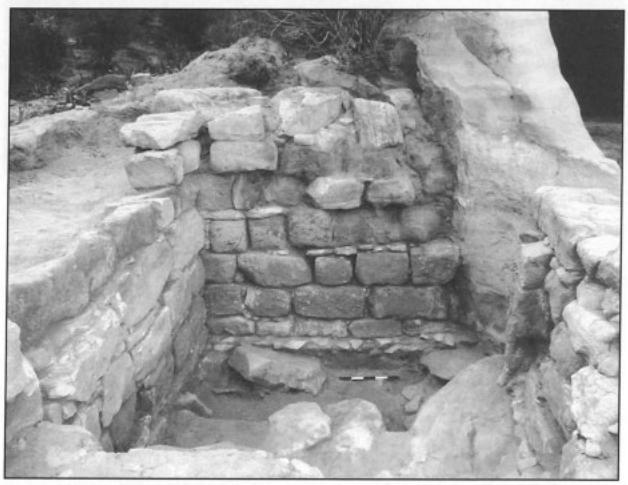
2. The Eastern Free-Standing Buildings

Two rectangular built structures were flanking the eastern side of an apparently opened area situated in front of the triclinium (**Fig. 4**). The partial excavation of their remaining eastern walls during the 2001 campaign did not allow the first excavator to understand their nature: the first hypothesis that these were retaining walls supposed to protect the sanctuary from a seasonal wadi appeared to be wrong after the completion of the work. Instead, it became rapidly obvious that these structures were actually the back walls of two small buildings limiting the eastern side of the esplanade opening in front of them main monument of the complex.



4. Obodas Chapel. General view with the eastern buildings, towards the east (2004).

The northern building was almost destroyed except for its eastern and northern lower courses. Its western and southern walls built without any foundations on an emerging portion of the bedrock were totally washed out. The southern complex, excavated in 2002 and 2003 is a building 8.50m long north-south by 4.30m wide and is divided into two contiguous square rooms. Some of its walls are preserved to ca. 2m high. This two-room building is structurally as well as functionally associated with the main triclinium of Obodas. One entered its northern room excavated in 2003 and 2004 by two narrow steps built against the eastern side of the main triclinium's entrance (**Fig. 5**). From this place, one could reach the southern room excavated in 2002 (**Fig. 6**). Both rooms were covered by a flat roof supported by two east-west arches each. In the northern room, two rectangular structures were built against the northern (1.70 x 0.90 x 0.63m) and eastern walls (1.66 x 0.78 x 0.63m) (**Fig. 7**). They were interpreted as raised working surfaces used for food preparation or as a storage space for the cooking tools (see *infra*). According to the ash layers, the water containers and the evidence of the material from the floors, it seems reasonable to postulate that the room functioned as a kitchen. The southern room did not contain any supplementary structures.



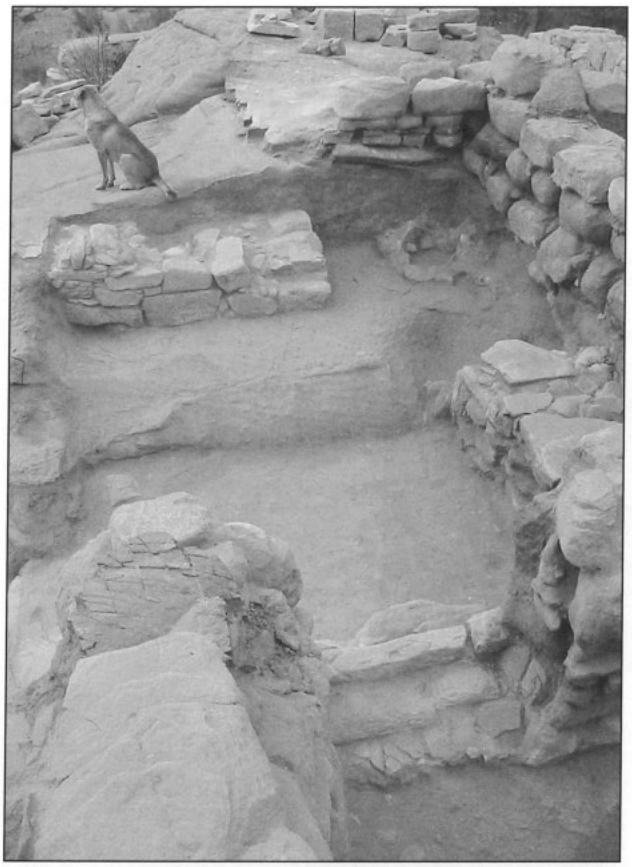
6. The southern annex room, towards the south (2003).



5. The northern annex room, towards the east (2004).

3. The Court

During the 2003 season, a 35 meter square trench was opened in front of the triclinium ex-



7. The northern annex room, towards the north (2004).

tending to the north of the adjacent 2002 sounding. After the removal of the remaining debris of the façade, no pavement slabs were found in the front court but instead what looked like bedding floors. It was therefore suggested that the original flagstones were removed in a later phase. This opinion evolved the next year when it was realized that this supposed bedding floor was in fact the summit of a ca. 3m long wall abutting a well defined and vertically cut portion of the bedrock (**Fig. 8**). Further north, an extension of this square opened in 2004 revealed a previously unknown rock-cut chamber opening a few meters away from the triclinium's entrance (**Fig. 9**). Its volume had clearly been reduced during the construction of the triclinium of Obodas its original plan could be traced on the floor while its reduced inner space was blocked by a strongly built one meter high wall. This wall followed the orientation of the esplanade imposed by the construction of the new complex. It became therefore obvious that the Obodas triclinium succeeded an earlier complex, of which consisted of at least a rock-cut chamber later reduced and impeded by a wall. This discovery provided the first possible archaeological hints of the early sanctuary stages referred to in CIS II 354.



8. Retaining wall of the early complex, towards the east (2004).



9. Rock-cut chamber of the early complex, towards the east (2004).

The court's upper fill layers correspond to the destruction of the western walls of both the kitchen and its northern adjacent building. They contained numerous architectural fragments, such as a highly damaged upper part of a Nabataean capital and several other moulded fragments (at least two types of cornices, pilaster bases, and a few column drums). The surface cleaning of the area also revealed that the court was at some point limited on its northern side by a very massive and strongly built structure supporting columns, and approximately situated fifteen meters from the entrance of the Obodas triclinium. One of the pillars supporting a so far unfound column base was discovered in the court's destruction level together with other moulding fragments. Both its construction and destruction dates need to be defined by a future pottery study. However, several carved and built details, indicate that earlier structures can be expected under this major destruction level. So far, few first century BC ash layers were excavated in

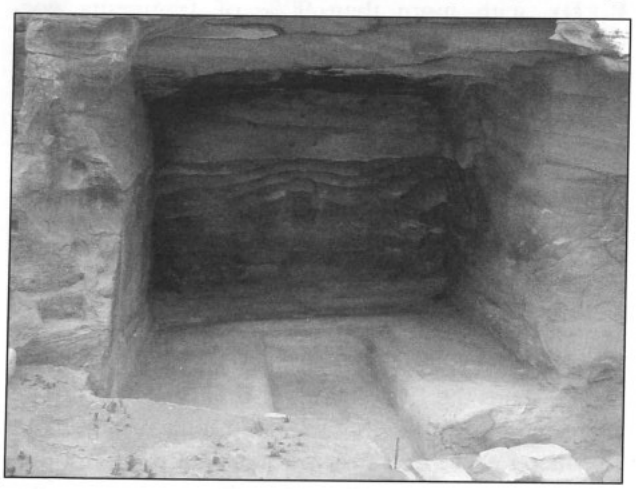
this northern probe giving a first indication of the date of the complex predating the construction of the Obodas triclinium.

4. The Triclinium Brünnow 291

The excavation of the room Brünnow 291 gave evidence of another triclinium, which raises their number in the whole complex so far to at least two triclinia and one biclinium. Brünnow 291 is a 4.0m wide room opening on its eastern side (**Fig. 10**). Its northern wall is 4.50m long while the southern length is 5.20m. The entrance axis is not parallel to the rear wall. The ceiling rises to 3.40m from the top of the benches. The rear bench is 1.76m wide, while the lateral ones are only 1.60m wide. A small rectangular cavity is spared in the rear bench, right under a niche situated 1.64m higher. The circulation space between the benches is 1.32m wide. Unlike the main triclinium, this room was not closed by a built façade. Instead, a rather unusual structure appeared in front of it, abutting its entrance.

5. An Open-Air Triclinium

In 2003, a square was opened in front of the triclinium 291. It revealed part of a U-shaped structure that was entirely excavated in 2004 (**Fig. 11**). This north-south structure is ca. 8.8m long and ca. 6m wide, opening on its north side. It follows the general orientation of the façade of the triclinium 291 as well as the 3m long wall discovered under the entrance of the Obodas triclinium. Some of its covering slabs were found *in situ*, giving an original height of 1m. It is tentatively interpreted as a triclinium itself.



10. Triclinium 291, towards the west (2003).



11. The U-shaped structure – triclinium, towards the northwest (2004).

6. The Cistern Dalman 297

Lastly, a rock-cut cistern situated on the northwestern side of the complex was partly excavated in 2003. This 4.60 x 3.96 x ca 5m cistern was closed on its eastern side by a five course wall. A 2.40m by 2.20m square was opened in its northeastern corner, under a canalisation adducting the water. Three main deposits have been found. The upper one containing several boulders and a small module column base seems to correspond to an abandonment of the structure. The inferior deposit was a light sandy accumulation corresponding to the slow filling of the cistern during its use. A large quantity of material was found, some of which was complete. At first sight, the ceramic analysis of the three major identified deposits indicates that the cistern was used between the first and the third century AD[3] .

THE FINDS

Beside the architectural fragments, the majority of the finds consist of ceramics. Metal is nearly absent, while glass artefacts are poorly represented. A single fragmentary inscription was found. According to L. Nehmé's reading, it mentions an association (MRZḤ) to a female goddess. The aim of the second part of this report is to give a first account on the study of the ceramic material found in

3. Its material is under study. A rapid reading of the ceramics from the upper layers of the cistern indicates that it was still in use after the destruction of the triclinium of Obodas and its connected rooms, at least during all of the 2nd century, until the 3rd century AD. As expected, a great quantity of jugs and jars were found (parallels : Gerber 2001a, fig. 1-22 ; Schmid 2000, fig. 330), but, more surprisingly, a relatively large quantity of cooking pots was also discovered (parallels from the end of the 1st and beginning of the 2nd century AD : Gerber 1997, fig. 7 ; Gerber 2001a, fig. 1-12 ; Gerber 2001b, fig. 2-B. For the 2nd and 3rd centuries : Gerber 2001a, fig. 1-18 ; Gerber 2001b, fig. 2-E). Fine ware is almost missing from this context.

the eastern two-room building connected to the triclinium of Obodas. They shall hereafter be called "northern annex room" and "southern annex room".

The Two Eastern Annex Rooms: The Strata

The northern room strata reveals an important destruction phase (2003.1002, 2003.1005, 2003.1006 and 2003.1009) which corresponds to a brutal collapse of the building. The roof of the room consisted of flagstones supported by two arches whose archstones (2003.1004 and 2003.1007) were found in the destruction layers. During its excavation, the summit of two built structures appeared. One was built against the eastern wall (2003.1003), and the other against the northern wall (2003.1008) immediately on the rock, this one having been slightly cut for this purpose (2003.1015). A large storage jar was found *in situ* in the north-eastern corner of the room, right between the two aforementioned structures (2003.1013). Under the destruction, several small ashy layers were isolated (2003.1010, 2003.1011, 2003.1014, 2003.1017). They correspond to the last occupation phase of the room. A few similar layers were excavated in 2004 one located under the storage jar (2004.1012) and two other being the earlier floors found in the room (2004.1019 and 2004.1020). A few shards were also collected in the eastern wall foundation (2004.1021). The entrance door area was excavated separately and the same destruction phase was evidenced (2003.1016, 2003.1017). Similarly, an ashy layer (2003.1018) was isolated immediately on the top of the doorstep.

The strata of the southern annex room give a slightly different image. A destruction phase was identified on the top of the square, simultaneous with the destruction phase of the northern room (2002.2010 and 2002.2011). Under the destruction layers, which contained boulders and roof flagstones, a homogeneous layer was identified containing pinkish sediment and again flagstones apparently connected to the roof (2002.2012, 2002.2012bis, 2002.2012ter and 2002.2013). It seems that these destruction layers contained elements from the rock-cut eastern wall of the triclinium as well as parts of the small adjacent building itself. Under this level, a sandy layer containing very fragmentary pottery shards was interpreted as a levelling phase (2002.2014), filling the interstices between parts of the bedrock (on which the western wall of the room is founded) and some large unused non-squared stones. Lastly, a compact layer (2002.2015) was identified, corresponding to the wall foundation levels. During the 2004 campaign, some supplementary shards were found in the southern and eastern wall foundations (2004.2016). If the interpretation of 2002.1014 is correct, no proper occupation phase was clearly identified in this room.

The Two Eastern Annex Rooms: The Pottery

The pottery from the annex rooms falls into three categories: Nabataean Painted Ware (NPW), Nabataean Fine Ware (NFW) and Nabataean Common Ware (NCW). It includes large quantities of cooking pots and a few lamps [4].

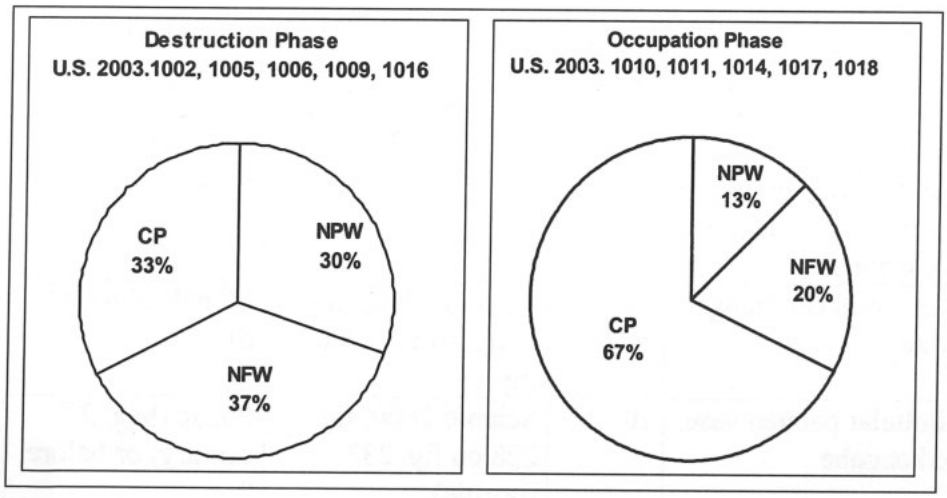
Northern Annex Room

Destruction

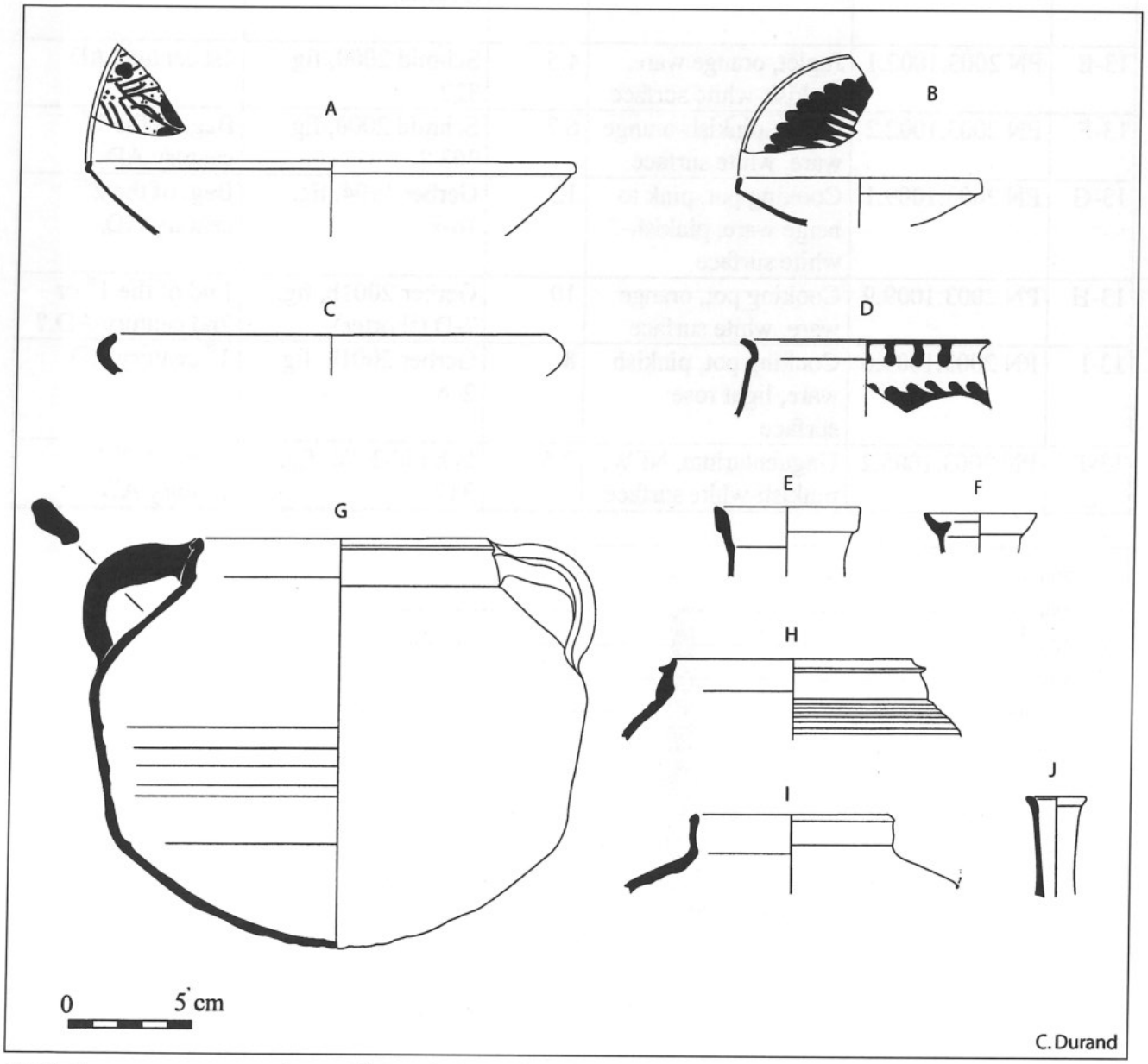
In a rather unusual way for a destruction phase, a great quantity of ceramic material was found in the thick destruction layer of the northern annex room and its doorway (2003.1002, 2003.1005, 2003.1006, 2003.1009, 2003.1016). Why was this pottery there? The most immediate answer is to suppose that this pottery was stored on top of the destroyed building. The aforementioned three ceramic types are equally represented in the destruction levels (**Fig. 12**). In terms of chronology, NPW extends from the phases 2a to 3c (**Fig. 13: A, B, D**), with more than 90% of fragments corresponding to phases 3a-3b (**Fig. 14**). The phase 3a (**Fig. 13: A**) is particularly well represented (69%). Shards from the earlier phases (2a-2b) represent only 7% of the whole NPW from the destruction layers. The later phase 3c accounts for only 3% (**Fig. 13: D**).

Unpainted NFW fragments were also found in the destruction layers. Those fragments mainly belong to closed containers (jugs or small pots) showing various profiles from the first century AD products (**Fig. 13: E, F**), but also to cups or plates dating from the first century BC (**Fig. 13: C**). This material shows the characteristic pink-orange ware produced in the Petra area, except for a NPW much smaller than the average plate (10cm diam.), which

4. So far, S. Schmid and Y. Gerber's pottery analysis from az-Zanṭūr gives the most reliable information in both terms of chronology and typology of Nabataean pottery. For the NPW and NFW, see Schmid 1996, 2000. For the NCW, see Gerber 1994, 1997, 2001a-b, 2003. They will consequently be our principal working parallel tool. S. Schmid's phasing is tentatively adopted here. Phase 1 = end of 2nd century BC – 1st half of the 1st century BC, Phase 2a = third quarter of the 1st century BC, Phase 2b = last quarter of the 1st century BC, Phase 2c = 0-20 AD, Phase 3a = 20-70 AD, Phase 3b = 70-100 AD, Phase 3c = beginning of the 2nd century AD, Phase 4 = end of the 2nd – 3rd /4th century AD.

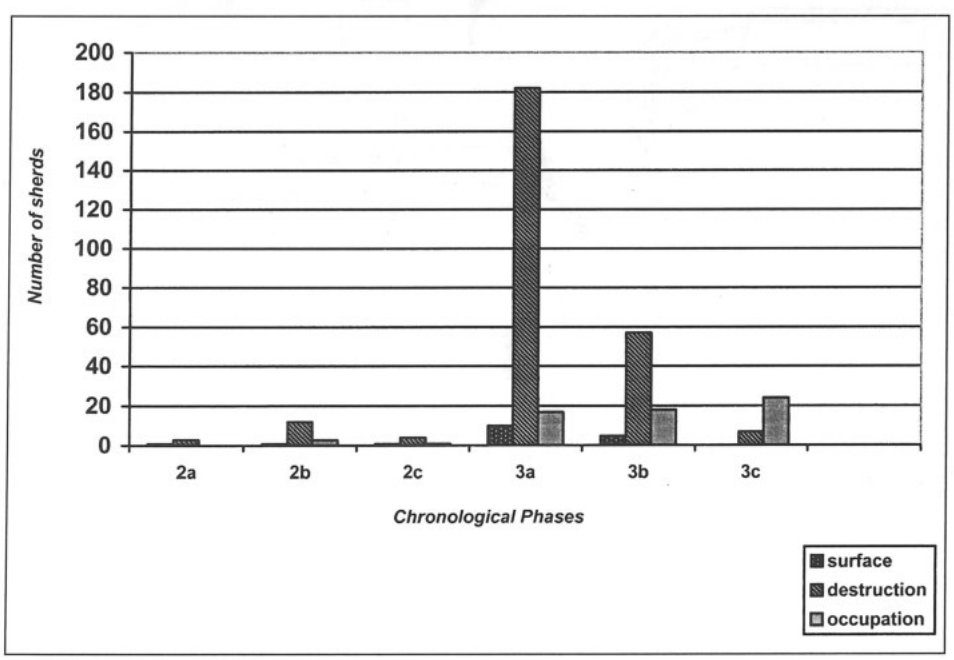


12. Northern annex room : ceramic repartition by type and context.



13. Northern annex room, ceramic material from the destruction phase.

Figure	Inventory N°	Description	Diam. (cm)	Parallels	Chronology
13-A	PN 2003.1005.6	Painted plate, orange ware	20	Schmid 2000, photo n° 5	Ph. 3a (20-70 AD)
13-B	PN 2003.1009.3	Painted plate, pinkish-brown ware, shining inclusions	10		1st century AD
13-C	PN 2003.1009.8	Plate, pinkish-orange ware	18	Schmid 1996, Grp. 1, fig. 615 ; 2000, fig. 13	2nd half of the 1st BC
13-D	PN 2003.1016.1	Globular painted vase, red engobe	10	Schmid 2000, fig. 228 ou fig. 233 (profile)	Ph. 3c (beg. 2nd century) or before ?
13-E	PN 2003.1002.1	Juglet, orange ware, pinkish-white surface	4.5	Schmid 2000, fig. 322	1st century AD
13-F	PN 2003.1002.2	Juglet, pinkish-orange ware, white surface	6 ?	Schmid 2000, fig. 303 ?	Beg. of the 1st century AD
13-G	PN 2003.1009.1	Cooking pot, pink to beige ware, pinkish-white surface	12	Gerber 1994, fig. 16-F	Beg. of the 2nd century AD
13-H	PN 2003.1009.9	Cooking pot, orange ware, white surface	10	Gerber 2001b, fig. 2-D (shorter)	End of the 1st or 2nd century AD ?
13-I	PN 2003.1009.6	Cooking pot, pinkish ware, light rose surface	8	Gerber 2001b, fig. 2-A	1st century AD
13-J	PN 2003.1005.2	Unguentarium, NFW, pinkish-white surface	2.5	Schmid 2000, fig. 317	Phase 3, 1st century AD

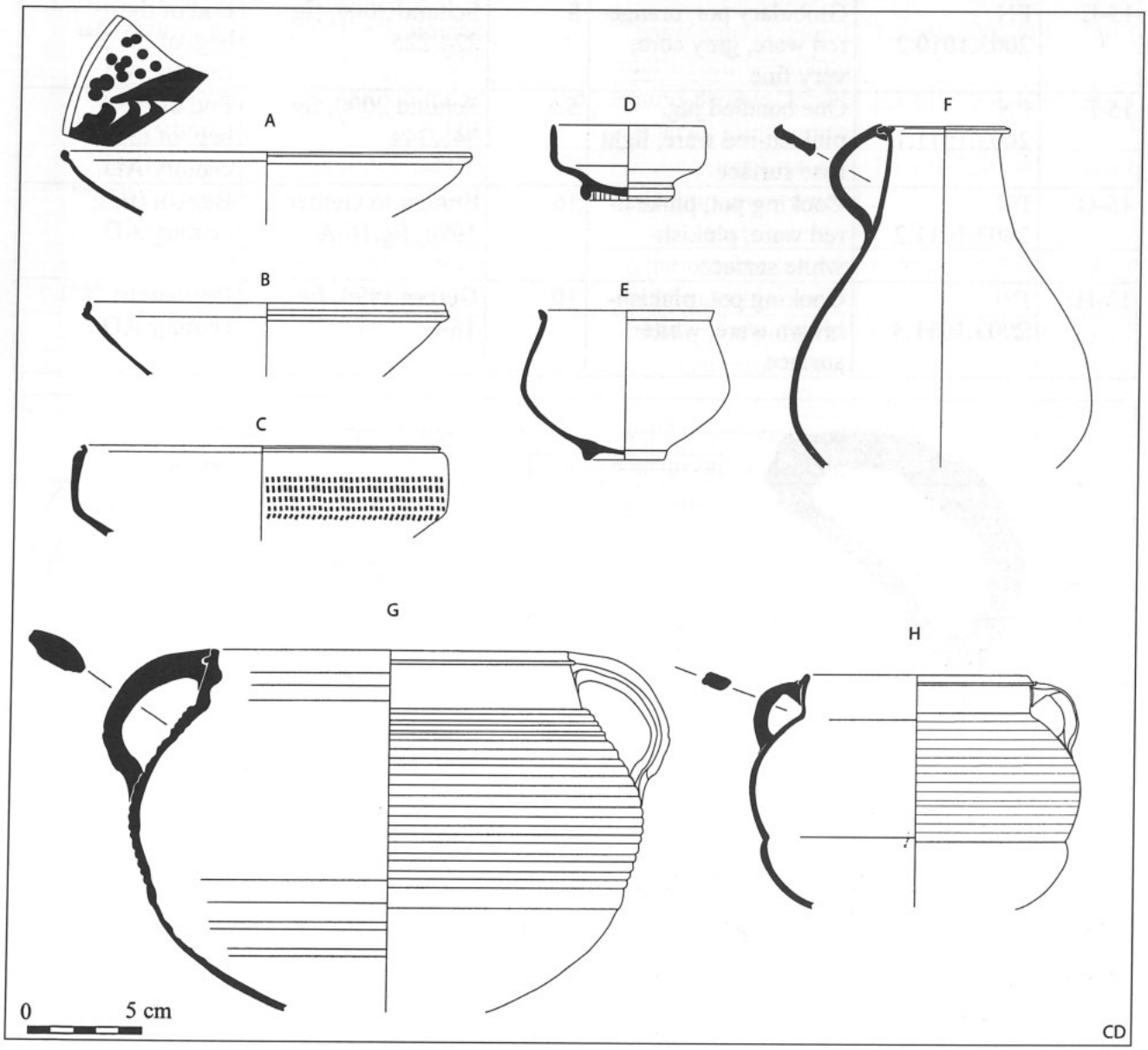


14. Northern annex room : NPW repartition by chronological phases and context.

has an iridescent aspect quite different from the others (**Fig. 13: B**). Cooking pots found in the northern annex room destruction shows characteristics usually associated to the end of the first or the beginning of the second century AD (**Fig. 13: G, H**), except for one piece, slightly older and clearly dated from the first century (**Fig. 13: I**). Therefore, the ceramic material from the destruction layers of the northern annex room mainly belong to the first century AD, with some later fragments dated to the beginning of the second century.

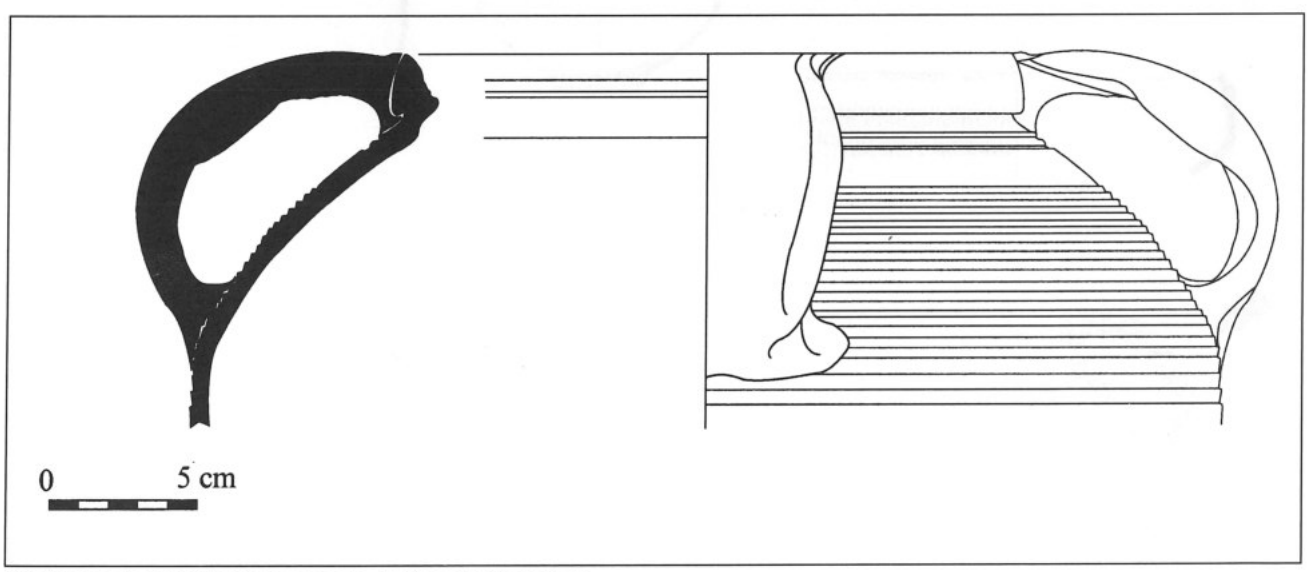
Occupation

The ashy layers located under the destruction debris produced relatively fewer materials (2003.1010, 2003.1011, 2003.1014, 2003.1017, 2003.1018, 2004.1022). NPW was found (**Fig. 15: A**) as well as a NFW assemblage possessing several almost complete containers (**Fig. 15: B-F**). The contents of the northern annex room include primarily cooking pots, service pottery as well as a large storage jar (**Fig. 16**). This confirms, along with the presence of the two working places, the interpretation of the room as a kitchen. More than 90% of NPW belong to phase 3, with an approximately 40 % peak in phase 3c (**Fig. 14**). Similarly, NFW seems to belong to the late phase 3, i.e. to the end of the first or the beginning of the second century AD. Here again, several almost complete cooking pots were found (**Fig. 15: G, H**). The characteristic cooking pot with the bevelled



15. Northern annex room, last occupation phase.

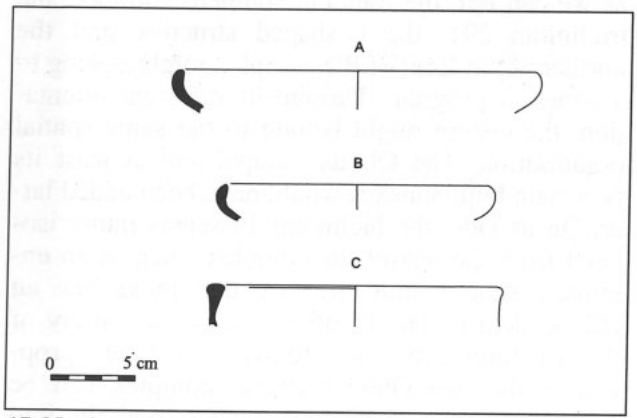
Figure	Inventory N°	Description	Diam. (cm)	Parallels	Chronology
15-A	PN 2003.1014.4	Painted plate, dark orange ware, gritty	18	Schmid 1996, fig. 702; 2000, fig. 92	Phase 3c, beg. of the 2nd century AI
15-B	PN 2003.1011.5	Plate, pinkish-brown ware	16	Schmid 1996, Grp. 7, fig. 658 ; 2000, fig. 56	Phase 3
15-C	PN 2003.1010.5	Bowl, red-brown ware, red slip	16	Schmid 1996, Grp. 9, fig. 663-667 ; 2000, fig. 61-65	Phase 3
15-D	PN 2003.1014.1	Cup, red-brown ware, black-grey core, red drip in the bottom	7 foot : 4	Schmid 1996, Grp. 8, fig. 659/661 ; 2000, fig. 57/59	Phase 3
15-E	PN 2003.1010.2	Globulary pot, orange-red ware, grey core, very fine	8	Schmid 2000, fig. 224/225	End of the 1st - beg. of the 2nd century AD
15-F	PN 2003.1011.1	One handled jug, pinkish-red ware, light rose surface	5.5	Schmid 2000, fig. 343/344	End of the 1st - beg. of the 2nd century AD
15-G	PN 2003.1011.2	Cooking pot, pinkish-red ware, pinkish-white surface	16	Similar to Gerber 1994, fig.16-A	Beg. of the 2nd century AD
15-H	PN 2003.1011.3	Cooking pot, pinkish-brown ware, white surface	10	Gerber 1994, fig. 16-E	Beg. of the 2nd century AD



16. Storage jar, Northern annex room, last occupation phase.

Figure	Inventory N°	Description	Diam. (cm)	Parallels	Chronology
16	PN 2003.1013.1	Storage jar, pinkish-brown ware, pinkish-white surface	22	Gerber 1997, fig. 6	End of the 1st-beg. of the 2nd century AD

rim was found with some slight variations in profile. In az-Zanṭūr, these cooking pots appeared in the second half of the first century AD and were mainly produced in the beginning of the second century[5] . The four handled storage jar found in the north-eastern corner of the room shows similarities to examples known from the az-Zanṭūr levels dating to the second half of the first century [6]. Nevertheless, our jar has a shorter collar and a strongly ribbed body. Speaking about the last occupation of the room, the material from the aforementioned ashy layers is homogenous and can be dated from the end of the first century going into the beginning of the second century AD. Two floors were excavated in 2004 under this last occupation phase (2004.1019 and 2004.1020). They contained fragmentary material including NPW primarily represented in phases 3a and 3b, several particularly fine fragments of small closed containers (jugs and goblets), and some cooking pots shards with bevelled rims. This material indicates a continuous occupation of the room between the second quarter of the first century and the beginning of the second century AD. To complete the image, a fragment of a plate belonging to phase 1 was discovered with three other shards in the eastern wall of the room (**Fig. 17: B**). This gives a *terminus post quem* to the construction phase of the building.



17. Northern & southern annex room, ceramic material from the foundation.

Southern Annex Room

The material in the southern annex room is relatively similar to that of the northern annex room. In the destruction levels (2002.2012, 2002.2012 bis, 2002.2012 ter, 2002.2013), a majority of material from the last three quarters of the first century AD was found. NPW belongs mainly to phases 3a and 3b. No floor has been clearly identified in this room (*cf.* supra). The ceramic material from the entire strata between the destruction layer and the fill of the interstices of the bedrock (2002.2015) is homogenous. This latter level contained NFW and NPW going up to the first century BC, as well as a fragment of Hellenistic black glazed ware[7]. It seems that this layer, although strongly disturbed, contained material from the foundation of the room. A few shards were also found in the room walls (2004.2016) including three fragments of NPW belonging to phase 2b, as well as a plate rim and a cooking pot rim that could both be dated to the first century BC (**Fig. 17: A, C**). This gives a similar image, with material giving *a terminus post quem* of the end of the first century BC to the construction phase of the building.

In other words, the end of the first century BC *terminus post quem* indicates that the two small an-

Figure	Inventory N°	Description	Diam. (cm)	Parallels	Chronology
17-A	PN 2004.2016.1	Plate, orange fine ware	22	Schmid 1996, Grp. 1, fig. 609	1st century BC
17-B	PN 2004.1021.1	Plate, pinkish-brown ware, grey surface	16	Schmid 1996, Grp. 1, fig. 610 ; 2000, fig. 8	1st century BC
17-C	PN 2004.2016.2	Cooking pot, orange ware	16	Gerber 1994, fig. 15-D	1st century BC

5. Gerber, 1997, 410, fig. 7.
6. *Id.*, fig. 6.
7. This type of ceramic was initially produced in the Athens area between the end of the fifth century BC and the middle of the second century BC and later in various workshops imitating the Greek productions. This Hellenistic production was found in small quantities in Petra. It is well evidenced in some early levels of the az-Zanṭūr excavations (Schneider, 1996: 132, n° 14-18 and figs. 534-537), also found in Peter Parr's surveys carried out in Petra during the sixties (Parr, 1965: 528 and 530) as well as in the recently reopened Qaṣr al-Bint excavations, where it was associated with an early structure independent from the temple itself (Ch. Augé, personal communication).

nex rooms were not constructed before that date, and might have been constructed later. The study of the material from the northern annex room reveals a continuous occupation of the room between the second quarter of the first century AD and the beginning of the second century AD. That conclusion can also be applied to the southern annex room. This fits with the information given by the 20 AD dedication of the Obodas triclinium. Therefore, the two annex rooms appear to be contemporary to the dedication of the statue of Obodas the god. The inscription also refers to an earlier sanctuary. So far, an earlier use of the area is evidenced by residual material from the first century BC found in different layers.

Let us add two other comments. Firstly, the graph (**Fig. 14**) shows certain inconsistencies that require an explanation: in this graph, all the NPW fragments from the northern annex room were distributed according to their context (surface, destruction or occupation) and according to the typochronology established by S. Schmid. The presence of NPW in the destruction and occupation phases shows important variations. Indeed, in the occupation levels, the phases 3a, 3b and 3c are all represented but the majority of the shards belong to the 3c phase. On the contrary, in the destruction layer, phase 3a material is highly represented while the phase 3c material is almost non-existent. In other words, ceramics from the destruction levels are as a whole older than the ones present in the last occupation levels of the room. If we assume that the earlier service pottery was stored on the top of the roof, then this phenomenon would seem less illogical than the first image given by the material repartition.

Secondly, as we have seen, the ashy layers under the destruction level of the northern annex room are not sufficiently thick to be interpreted as trace evidence of a destruction caused by fire. They are more likely to be interpreted as fireplaces associated with a kitchen. Since no abandonment phase was identified between the last occupation and the destruction of the building, it seems that it collapsed in a rather sudden way sometimes after the beginning of the second century AD as many other violent destructions evidenced in the area[8] . It would therefore be tempting to connect it to the supposed earthquake that occurred around 113/114 AD[9]. According to the scarce presence of late roman shards found in the higher levels excavated in the court - among which a fragment of a typical "pilgrim flask" - the site seems to have been abandoned at the end of the third or fourth century AD[10]. This later occupation might be explained by the continuous presence of water in the cistern. Similarly, one isolated Ayyubid-Mamluk handmade jug fragment was also found in the upper part of the destruction of the triclinium's façade.

Conclusions

Several of the objectives defined at the end of the preliminary 2001 season have been reached and a better understanding of the nature of the complex emerges. The rock-cut chamber Brünnow 291 is a triclinium. No evidence can be used so far to determine its chronological relation with the Obodas chapel. On the contrary, the eastern impeding rock-cut room is obviously older than the Obodas chapel. On a topographical level, one can add that several rock-cut and built structures seem to follow a general north-east / south-west orientation that predates the construction of the Obodas Chapel. As far as we can tell, the rock-cut southern entrance, the triclinium 291, the U-shaped structure and the northern built limit of the complex might belong to a coherent program. Despite its different orientation, the cistern might belong to the same spatial organisation. The Obodas chapel and at least its two main built annexes would have been added later. On its side, the biclinium 19 seems rather isolated from the rest of the complex, such as an enigmatic square built structure that looks like an independent môtab. In other words, the variety of the structures allow us to follow L. Nehmé's proposition that the Obodas chapel complex can be compared to the al-Madras complex and fits into the same category of religious cult places.

At this stage of the work, no pavement or portico was found associated to the building or to the use of the Obodas chapel. The drum fragments found so far in the site seem to belong to an earlier complex. The ceramic evidence indicates that the occupation of the site goes back to at least the end of the first century B.C. and continues through the first century AD. The sanctuary seems to have been abandoned in the beginning of the second century, with the exception of the cistern which has scarcely been used later according to its material and a few isolated finds.

The 2005 season objectives are to study the southern access of the complex, to determine the nature of the rock-cut chamber 1296, and to understand the northern limits of the court and the first

8. Schmid 1997, 413-420.
9. Russel 1985, 37-59.
10. For a parallel to the pilgrim flask, see Fellman Brogli 1996, fig. 827-829.

century BC levels and structures reached at the end of the 2004 season, in order to understand the origin and the organisation of this familial sanctuary[11].

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Bibliography

'Amr, K.
1991 Preliminary Report on the 1991 Season at Zurrabah. *ADAJ* 35: 313-323.
2004 Beyond the Roman Annexation : the Continuity of the Nabataean Pottery Tradition. *SHAJ* 8: 237-246.

Fellman Brogli, R.
1996 Die Keramik aus den Spätrömischen Bauten. Pp. 219-281 in A. Bignasca et al. (eds.), *Petra. Ez-Zantur I. Ergebnisse der Schweizerisch - Liechtensteinischen Ausgrabungen* 1988-1992. Mainz am Rhein : Philipp Von Zabern.

Gerber, Y.
1995 Late Roman Pottery from az-Zantur, Petra. *SHAJ* 5: 649-655.
1997 The Nabataean Coarse Ware Pottery : a Sequence from the End of the Second Century BC to the Beginning of the Second Century AD. *SHAJ* 6: 407-411.
2001a Selected Ceramic Deposits. Pp. 359-366 in Z.T. Fiema *et al.* (eds.), *The Petra Church.* Amman : American Center for Oriental Research.
2001b A Glimpse on the Recent Excavations on ez-Zantur/ Petra : the Late Roman Pottery and its Prototypes in the second and 3rd Centuries AD. Pp 7-12 in E. Villeneuve and P. M. Watson (eds.), *La céramique Byzantine et proto-Islamique en Syrie-Jordanie* (IVe-VIIIe siècles apr. J.-C.). Beyrouth: Institut Français d'Archéologie du Proche-Orient.

Johnson D. J.
1990 Nabataean Piriform Unguentaria. *ARAM* 2: 235-248.

Nehmé, L.
1997 L'espace cultuel à Pétra à l'époque nabatéenne. *Topoi* 7 (1997) : 1023-1067.
2002a Petra. The Obodas Chapel. *AJA* 106: 452-455.
2002b La chapelle d'Obodas à Pétra. Rapport préliminaire sur la campagne 2001. *ADAJ* 46: 243-256.

Parr P.
1965 The Beginnings of Hellenisation at Petra. Pp. 527-533 in *Le rayonnement des civilisations grecque et romaine sur les cultures périphériques, 8ème Congrès d'Archéologie Classique.* Paris.

Russel K.W.
1985 The Earthquake Chronology of Palestine and Northwest Arabia from the 2nd through the Mid-8th Century AD. *BASOR* 260 (1985): 37-59.

Schneider, C.
1996 Die Importkeramik. Pp. 129-149 in A. Bignasca et al. (eds.), *Petra. Ez-Zantur I. Ergebnisse der Schweizerisch - Liechtensteinischen Ausgrabungen* 1988-1992. Mainz am Rhein: Philipp Von Zabern.

Schmid, S. G.
1996 Die Feinkeramik. Pp. 151-218 in A. Bignasca *et al.* (eds.), *Petra. Ez-Zantur I. Ergebnisse der Schweizerisch - Liechtensteinischen Ausgrabungen* 1988-1992. Mainz am Rhein : Philipp Von Zabern.
1997 Nabataean Fine Ware Pottery and the Destructions of Petra in the Late First and Early Second Century AD. *SHAJ* 6 : 413-420.
2000 Die Feinkeramik der Nabatäer. Typologie, Chronologie und kulturhistorische Hintergründe. Pp. 1-199 in S. G. Schmid and B. Kolb (eds.), *Petra - Ez Zantur II. Ergebnisse der Schweizerisch-Liechtensteinischen Ausgrabungen.* Mainz am Rhein: Philipp Von Zabern.
2003 Nabataean Pottery. Pp. 75-81 in G. Markoe (ed.), *Petra Rediscovered. Lost City of the Nabataeans. London* : Thames & Hudson.

Stucky *et al.*
1994 Swiss Liechtenstein Excavations at ez-Zantur in Petra 1993. The Fifth Campaign. *ADAJ* 38: 281-286, 286-292.

Tholbecq, L.
1997 Les sanctuaires des Nabatéens, état de la question à la lumière de recherches archéologiques récentes. *Topoi 7* (1997): 1069-1095.
2003 Petra. The Obodas Chapel, in S.H. Savage, K.A. Zamora and D.R. Keller Archaeology in Jordan, 2002 Season. *AJA* 107.3 (2003): 469-470.

11. Nehmé 2002b, 255.

SURVEY AND EXCAVATIONS IN THE GHAWR AṢ-ṢĀFĪ 2004

Konstantinos D. Politis, Amanda Kelly, Daniel Hull and Rebecca Foote

Introduction

Survey and excavations were conducted in the Ghawr aṣ-Ṣāfī during March and April 2004. The project was sponsored by the Hellenic Society for Near Eastern Studies and supported by the Palestine Exploration Fund in collaboration with the Department of Antiquities of Jordan. Additional support came from ARAMEX International Couriers. During the course of the season's work, the board of directors of the Jordan River Foundation accepted to officially sponsor the project's future activities.

Survey Objectives

The present survey is an attempt to draw together the results of eight years of small-scale survey work and excavation in the Ghawr aṣ-Ṣāfī, so that the research objectives and logistics of a concerted, longer-term survey of the region can be assembled. Work so far has been summarised in a series of ADAJ articles (see especially Politis 1998, 1999 and Photo-Jones *et al.* 2002). These articles have already pointed out that the 'antiquities of the Ghawr aṣ-Ṣāfī represent some of the most important archaeological finds in Jordan and the southern Levant', due to their sheer quantity and chronological diversity (Politis 1998: 631-2). Some of the work which led to current knowledge in the ghawr was carried out during excavations at nearby Dayr 'Ayn 'Abāṭa. Following this, a rescue project was begun in 1996 as a result of widespread illicit excavation in the region. From January 2002, this work has focused in particular on the sites of Khirbat ash-Shaykh 'Īsā and Ṭawāḥīn as-Sukkar.

All of these various elements have been aided substantially by a series of high resolution aerial photographs taken in 1992 by the Royal Jordanian Geographic Society, and obtained by Konstantinos D. Politis (permit reference 16.1/1/2/17, 1417/1/, 27/5/1996). These photographs continue to serve as an essential guide to survey in the region. For this reason, an important objective this year was to have them properly rectified and apply ground co-ordinates to them. In this way, the photographs can be employed as a layer in a Geographical Information System (currently the ArcView 3.1 package). This task, along with the overall 'drawing together' of previous work, can be summarized as follows:

- To gain ground control points so that aerial photographs may be used both as a base map and a geo-referenced prospect ion tool, enabling potential sites to be located using GPS.
- To revisit certain areas of earlier reconnaissance in order to obtain GPS co-ordinates, assess their condition, and discuss the feasibility of future work.
- To geo-reference earlier survey maps, by obtaining GPS co-ordinates for certain ground control points. These maps may then be drawn into a larger, overall map.
- To map the current and ongoing excavation work.
- To assess the overall viability of a long-term research project in the area.

Co-ordinate System

In common with other current surveys in the Levant, the Ghawr aṣ-Ṣāfī project faces a potential dilemma with regard to the co-ordinate system adopted for mapping the archaeology (see, for example, Philip 2002, Ur 2003). Conventional ground maps thus far, such as the aṣ-Ṣāfī map (Edition 1, Series K737, Sheet 3052 II) produced by the Jordanian Ministry of Economy from 1960s aerial photographs, have used the Palestine Belt Grid, Universal Transverse Mercator Zone 36, to produce a ground co-ordinate system. However, since 1997, maps produced by the Royal Jordanian Geographic Centre have used a different, Jordanian grid system. This series of maps, available in 1:50,000 and 1:25,000 series are undoubtedly more accurate than their predecessors. However, this series has yet to be completed, and not all of the sheets are available for the southern Dead Sea region. For this reason, all co-ordinates for archaeological sites are currently being recorded in longitude/latitude decimal degrees, using the WGS84 datum, by a Garmin GPS 12 channel receiver. These can then be re-projected to produce

Jordanian co-ordinates at a later date.

Another technical matter which was resolved this season related to the value of heights surveyed in previous seasons. Previously, an arbitrary temporary bench mark had been used throughout. Calibrating this height to a 'real' height above (or in this case below) sea level had proved difficult, since the nearest Jordanian national benchmark (in a building close to the former police post) has recently been destroyed. We were able to obtain a relatively accurate real value for this TBM using a Trimble 4600 LS differential GPS with the professional expertise of Joseph Severn of the Museum of London Archaeology Service.

Preliminary Results

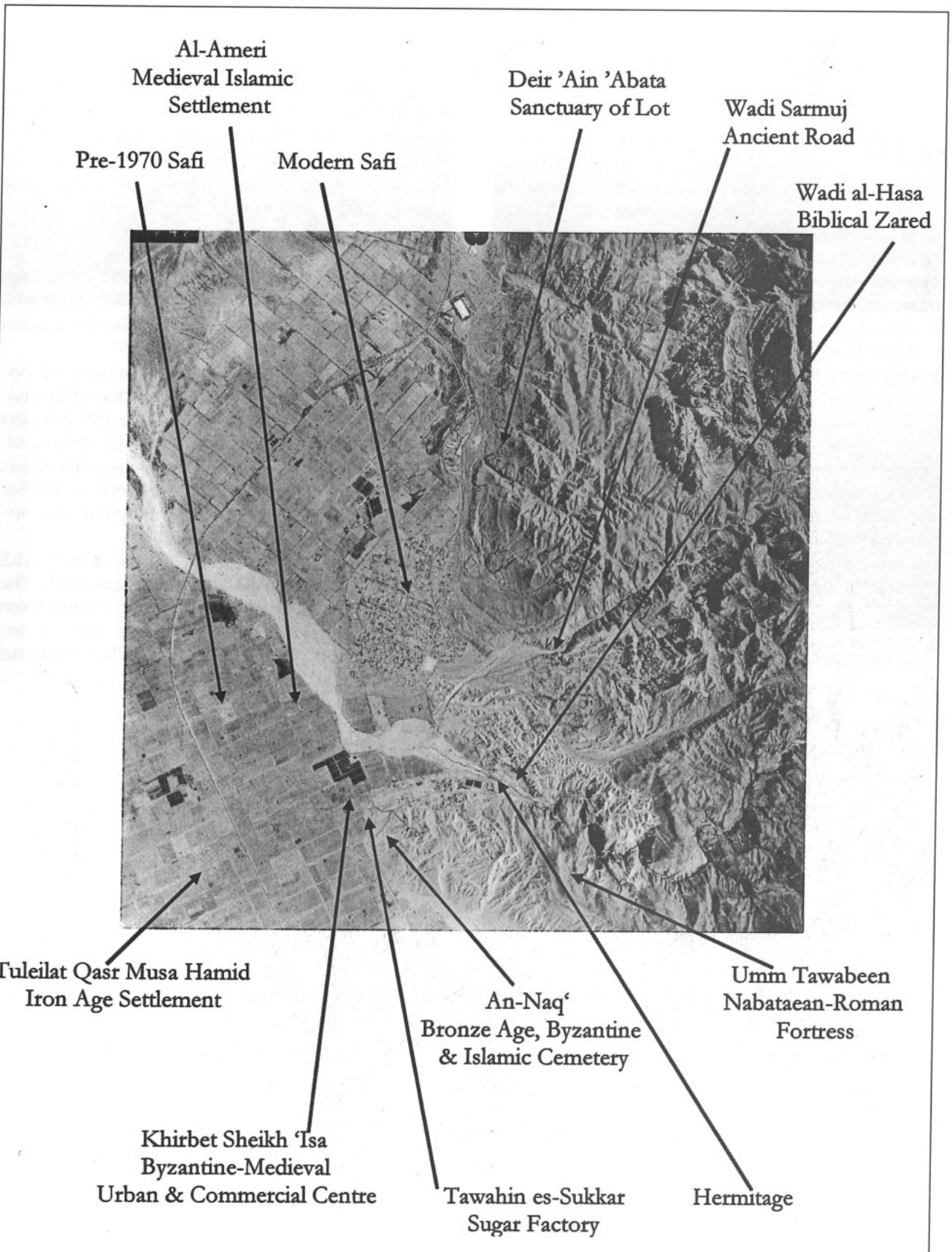
Work is still continuing on all of the survey objectives outlined above; yet, it is possible at this stage to illustrate some preliminary conclusions. (**Fig. 1**) These results both facilitated the accurate mapping of many important new discoveries while also demonstrating strong shifts in settlement patterns in the Ghawr aṣ-Ṣāfī from the late Iron Age to the present day. The site of Tulaylāt Qaṣr Mūsā al-Ḥamid, first published in 1999, suggests a fairly large Iron Age II settlement towards the south-west of the Ghawr aṣ-Ṣāfī (Politis 1999). We now have accurate co-ordinates for this site, and can locate it on the aforementioned aerial photographs. Nabataean activity in the ghawr is more difficult to summarise since it appears to be more geographically diverse and less concentrated. Progress was made this year in mapping the location of a possible Nabataean inscription in the Wādī al-Ḥasā, as well as the course of a rock-cut channel leading from the wadi westwards into the ghawr itself. The fortress of Umm aṭ-Ṭawābīn was visited, and its condition noted. It has been generally assumed (mainly as a working hypothesis following previous survey in the ghawr) that the settlement focus for late Roman through to mid-'Islamic' occupation in the area was in the vicinity of Khirbat ash-Shaykh 'Īsā (Photos-Jones *et al.* 2002: 591). Certainly, current excavation work at this site has produced pottery approximately conforming to the later phases of this period, although this work is very much at a preliminary stage. Mid-to-late 'Islamic' period settlement shift to the site of al-Ameri seems likely given the date of surface sherds observed there. An important element of the 2004 survey season was establishing the location of the pre-1967 twentieth-century site of aṣ-Ṣāfī al-Qadīm. Today, this site is represented an active Friday mosque (**Fig. 2**), surrounded by a series of bombed-out municipal structures of adobe brick and concrete (**Fig. 3**). Although comparatively recent, the discovery of this site fills what had hitherto been a gap in our knowledge regarding the settlement shift in the region. Given the very modest size of aṣ-Ṣāfī al-Qadīm compared with earlier settlement centres, it seems likely that by the late nineteenth and earlier twentieth centuries occupation was much more dispersed throughout the ghawr. Thus, aṣ-Ṣāfī al-Qadīm probably housed only municipal structures such as a school, local council offices and a mosque, with the majority of settlement taking the form of nucleated farmsteads dispersed throughout the agricultural fields. It is important, therefore, that aṣ-Ṣāfī al-Qadīm be fully planned and recorded in subsequent seasons.

Communication routes into, and across, the Ghawr aṣ-Ṣāfī constitute an important element in understanding settlement patterns in the area. For this reason, a multi-period road in the Wādī Sarmūj, initially detected in 1999 (Ben-David 2001: 140-144), was revisited. The road was followed for at least 5km from close to the mouth of the wadi, up into the mountains of the interior. The road consisted of a delineated and variably metalled surface (**Fig. 4**) while also featured a series of associated bridges, temporary ancillary settlements and artefact scatters. Producing an accurate map of this feature and outlining a strategy for further survey work along its length will constitute one of our future objectives.

Another element of this season's work was to plot the location of cemetery sites in the region. These have already been described in some detail; in previous reports, and excavation work is ongoing (Politis 1998). Nevertheless, the basic plan of the multi-phase cemetery of an-Naq' has been started through the establishment of several survey stations in the area. Modern, visible features such as main roads and telegraph poles have been plotted, so that previous work in the area can now be accurately related to the aerial photograph base map. This work was carried out using a Topcon GTS-230 total station theodolite, kindly lent to us by the baladiyyat aṣ-Ṣāfī.

Further tombs were discovered, and their position mapped, in the Wādī Sarmūj. The general appearance and dimensions of these tombs, along with the occurrence of surface pottery, correlates with tombs of Middle Bronze Age II date similar to those identified and excavated at Dayr 'Ayn 'Abāṭa (Politis 1995: 484-488).

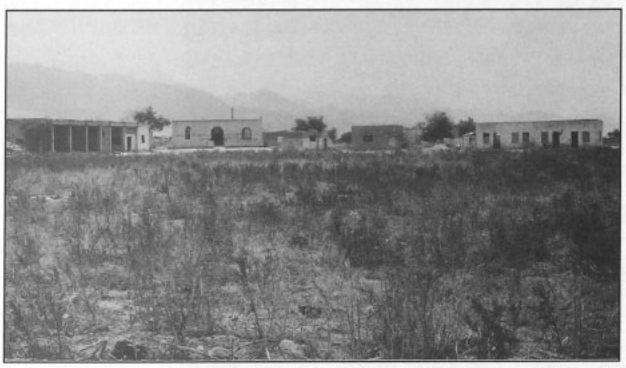
As well as survey work in the base of the ghawr itself, further prospection was carried out in the associated wadis which lead into the ghawr. In particular the Byzantine monastic hermitage on the



1. Annotated 1992 aerial photograph of the Ghawr aṣ-Ṣāfi (courtesy Royal Jordanian Geographic Society, Amman).



2. *Mihrab* and *Minbar* inside Friday mosque, aṣ-Ṣāfī al-Qadīm (photo: K. D. Politis).



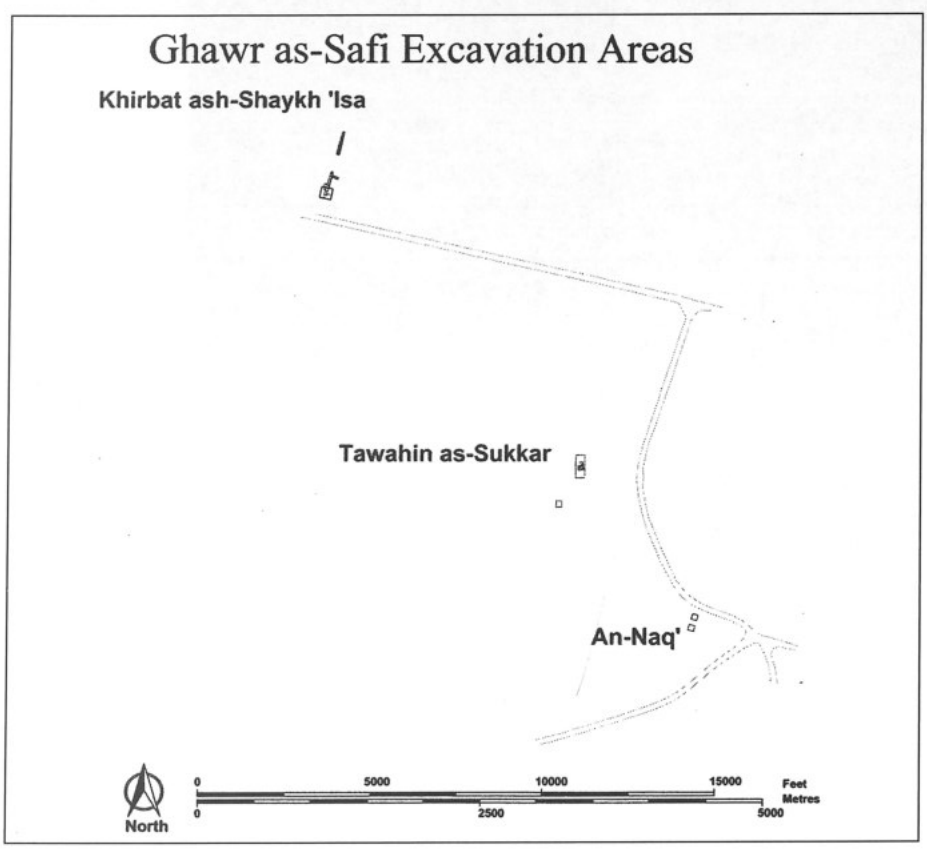
3. Friday mosque and other municipal buildings at centre of aṣ-Ṣāfī al-Qadīm (photo: K. D. Politis).



4. Ancient road at Wādī Sarmūj connecting the Ghawr aṣ-Ṣāfī with the Karak plateau (photo: K. D. Politis).

north slope of the Wādī al-Ḥasā (described by Politis 2001: 588) was revisited. It was found to have been robbed out further still, and traces of a fresco within the prayer niche almost totally destroyed. Detection and investigation of sites like this one is thus a pressing issue, since a network of further monastic sites of varying size throughout the surrounding hills is likely.

Finally, the excavations at Khirbat ash-Shaykh ʻĪsā and Ṭawāḥīn as-Sukkar were surveyed. The position of trenches and the features within them can now be plotted on the overall map of the Ghawr aṣ-Ṣāfī (**Fig. 5**). When overlaid onto the



5. Location map of 2004 excavation areas in the Ghawr aṣ-Ṣāfī.

aerial photograph for the area, it seems that the large building under excavation at Khirbat ash-Shaykh 'Īsā is in a location where there is substantially less of the thick, ashy deposit which covers most of the site. This may imply that this structure was domestic or municipal in nature, rather than industrial.

Future Work

Having established what might be tentatively termed as a 'working model' for the patterns of settlement shift across the Ghawr aṣ-Ṣāfī the following research agenda is suggested for a more concerted programme of survey work commencing in 2005:

- To continue the task of linking the excavation work at Ṭawāḥīn as-Sukkar and Khirbat ash-Shaykh 'Īsā by conducting field walking both in between and around the two sites. This will serve not only to clarify the spatial relationship of the two, but also more accurately define the extent of the two for heritage management purposes. It is as yet unclear, for example, which zones of Khirbat ash-Shaykh 'Īsā may be termed 'industrial' and which 'domestic'.
- To clarify the patterns of settlement shift and contraction between the mid-Islamic period and the present day. It seems from preliminary observations that the urban focus may have moved from Khirbat ash-Shaykh 'Īsā to al-'Ameri in the late Islamic period, then subsequently, to aṣ-Ṣāfī al-Qadīm at some point in the early twentieth century. The scale, nature and date of these shifts remain ambiguous, however.
- To continue to map late Roman and Byzantine monastic activity throughout the region. This will require substantial survey work in the wadis and jabals leading into the Ghawr aṣ-Ṣāfī especially in the vicinity of Wādī al-Ḥasā, but also further north in the Wādī al-Sa'īd and Wādī Sarmūj. This will involve understanding the nature of such sites also, as already a picture of considerable variation among monastic sites is emerging from larger communal centres to isolated hermitages and prayer niches.
- To understand the nature of resources and provision for human activity throughout the Ghawr aṣ-Sāfī. Water provision in the region is beginning to be understood, both in terms of supply for the Ṭawāḥīn as-Sukkar mill and also more general irrigation in the past. Sources of stone, timber, metal ores and other raw materials are also important for understanding the long-term settlement and industrial activities in the ghawr. Field systems may also be visible in the less heavily farmed areas of the ghawr.

It is intended that these objectives be achieved by a combination of methods, each selected according to the needs of the site or sub-site and decided on in stages. In general the methodology will be to detect sites through a combination of aerial photography and local knowledge, gain an impression of their extent, date and nature through field walking (and geophysics where appropriate), map them and then decide on further strategy (in a similar way to that used by Philip in the Homs region of Syria, Philip 2002). In recent years, a high degree of threat from illicit excavation has been noted, which has tended to play a role in both site detection, but also subsequent rescue strategies (Politis 1998: 627). Future strategy in each case will consist of a careful balance between the research aims outlined above, and the perception of threat to the integrity of the site. In certain cases, interventions in the form of excavation will be made. However, it is not intended that such excavations will divert resources from the main foci of Khirbat ash-Shaykh 'Īsā and Ṭawāḥīn as-Sukkar.

2004 INVESTIGATIONS

Excavations at an-Naq' Cemetery

Aims and Objectives

At an-Naq' (just east of Ṭawāḥīn as-Sukkar) two trenches, measuring 5m x 5m and oriented north-south, were opened in an area which was badly disturbed by tomb-robber activity (**Fig. 6**). The main objectives were to determine whether the area had any remaining undisturbed graves and attempt to date those remains.

Findings

The first trench (AN-I) yielded ten extended ar-



6. Graves in Trench I, An-Naq' from south (photo: K. D. Politis).

ticulated burials. The graves were lined with unworked stone slabs and covered with large roughly-cut capstones. The graves were arranged on a north-south axis with the head to the south. In one instance the head was secured in place by pebbles positioned to either side skull. Only one skeleton was associated with any grave goods, consisting of two small Early Bronze Age pots placed beside the skull.

The orientation and construction of these graves does not concur with those found during previous excavations at an-Naq' which belonged to the Early Bronze Age period (Papadopoulos *et al.* 2001: 191, fig. 2). Furthermore, the relocating of Early Bronze Age pots is reminiscent of an early Christian ritual recently observed at sites in the region (Politis 2001: 586-588).

In a second trench (AN-II) opened immediately to the south, no burials were found.

Although a relatively limited period of time was spent in this excavation area and the results were mixed (undisturbed burials but with virtually no grave goods), it was still maintained that this area should be the focus of future investigations.

Excavations at Khirbat ash-Shaykh 'Īsā

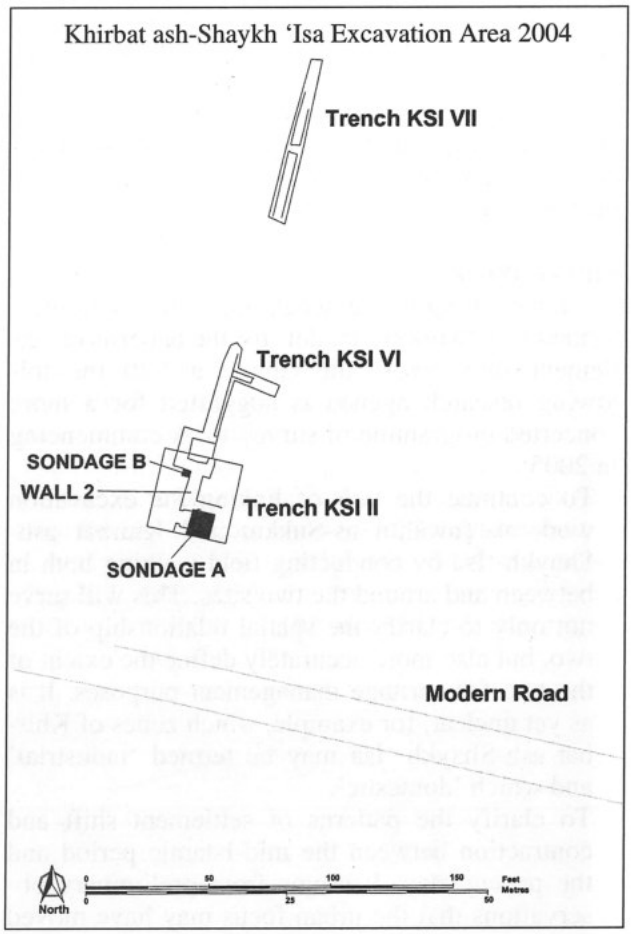
The ancient sites of Khirbat ash-Shaykh 'Īsā and Ṭawāḥīn as-Sukkar are located approximately 150 metres apart at a distance of a 0.5km from the present location of the village of aṣ-Ṣafī (see **Fig. 1**).

Aims and Objectives

At Khirbat ash-Shaykh 'Īsā a trench (Trench II), measuring 10m x 10m, was laid out to investigate a monumental wall running north-south (Wall 2) with a westward projection (possibly a city wall tower), which had been revealed in 1995 by a bulldozer cut along its west face (see Waheeb 1995: 555) (**Fig. 7**). Prior to excavation the visible portion of the wall had considerable width of 1.60m and was constructed of large ashlar masonry and as such, was thought to represent the city wall of medieval Zughar (see Photos-Jones *et al.* 2002: 607). It was hoped to identify any historic activities either 'inside' or 'outside' the structure/city, to retrieve foundation pottery dating the wall and to identify any intersecting or parallel walls that might define habitation or industrial activity on the east side of the wall (i.e. Wall 2).

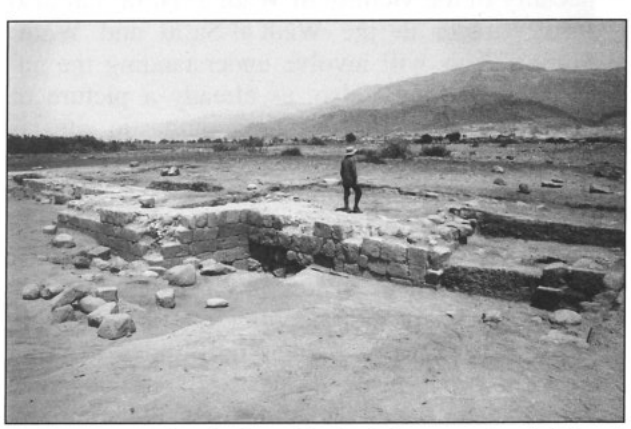
Findings

Excavation established that the height of Wall 2 from its foundation trench to the spring of an arched doorway, which pierced the wall, was



7. Location map of Khirbat ash-Shaykh 'Īsā excavation areas 2004.

3.34m (**Fig. 8**). Preliminary studies of the associated ceramics suggested Umayyad or Abbasid associations. The arched doorway measured 1.70m wide along the west face, widening to 2.22m on the east face. This width would not accommodate passing pack animals (barely one) and consequently, the doorway cannot represent the main gateway of

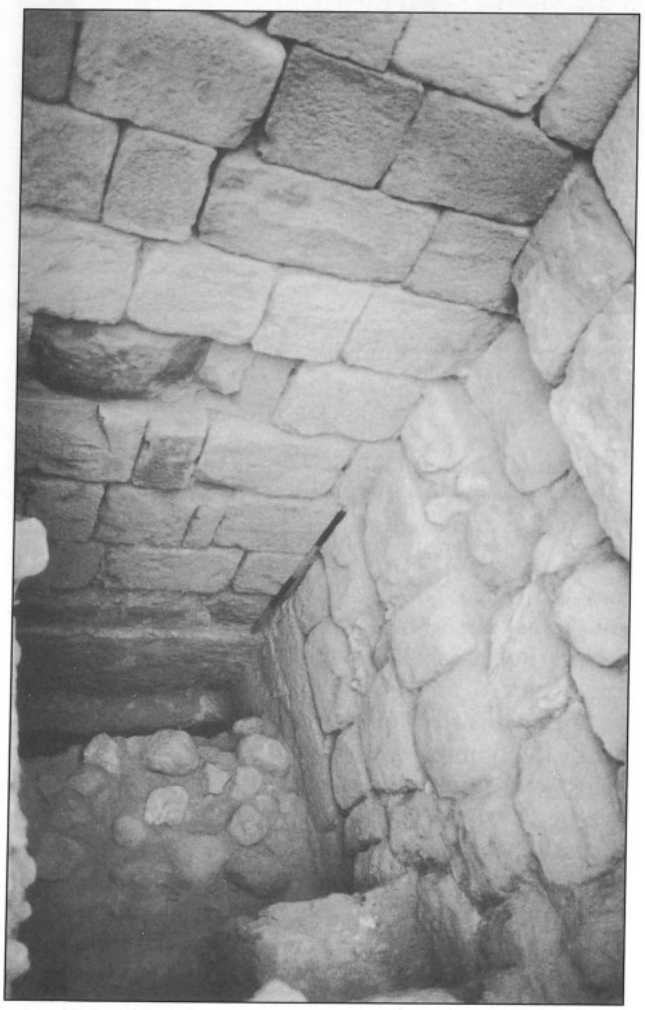


8. Upper part of springing of arched doorway (on right) and Sondage B (on left) at corner of Wall 2 and tower foundation, Trench II, Khirbat ash-Shaykh 'Īsā (photo: K. D. Politis).

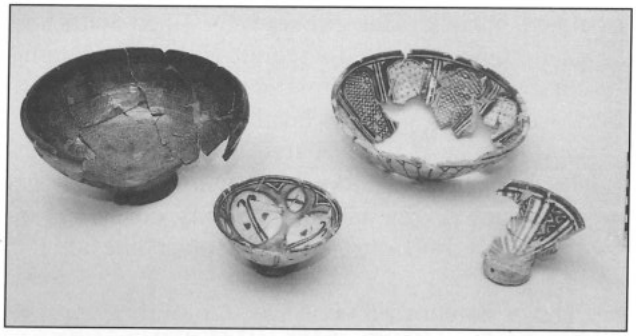
the city. Nonetheless, the wall incorporates finely dressed ashlar blocks and its associated doorway could still constitute a minor pedestrian entrance.

A major rectangular projection in Wall 2 rested on substantial foundations (**Fig. 9**). A plastered area discovered to the west side of Wall 2 at its intersection with the projection seems to represent a dump. A large quantity of aqua glass found in the layer above context 11, may be representative of the same activity.

The discovery of an intact sugar pot cone in Sondage A (opened within the 10m x 10m trench on the east side of Wall 2) not only provides the first complete example at the site, but also bears out a close relationship between Khirbat ash-Shaykh ʻĪsā and the Ṭawāḥīn as-Sukkar. Recovery of fine examples of re-constructable glazed pots and a variety of other glazed sherds excavated in every context demonstrate the high level of material culture at the site (**Fig. 10**).



9. Depth of Sondage B at corner of Wall 2 and tower showing foundations, Trench II, Khirbat ash-Shaykh ʻĪsā (photo: K. D. Politis).



10. Re-assembled glazed bowls dating from 12th –14th centuries AD from Layer 1(b), Trench II, Khirbat ash-Shaykh ʻĪsā (photo: T. Springett).

Excavations at Ṭawāḥīn as-Sukkar

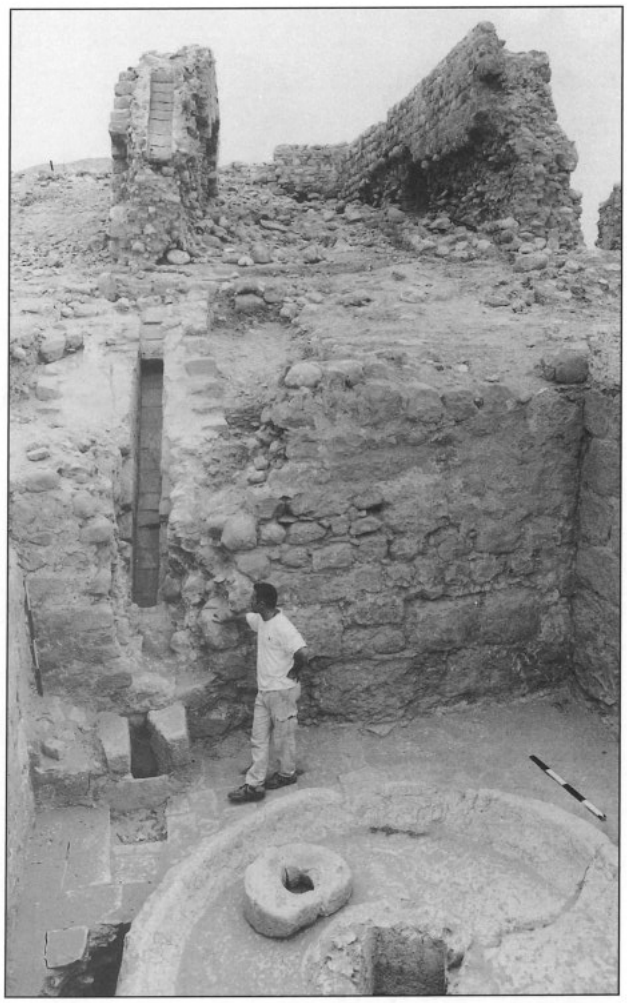
Aims and Objectives

1. To establish the full extent of the mill chamber associated with the easternmost leat.
2. To reach the foundation layers at the base of the northern wall of the mill chamber.
3. To reach the foundation layers at the base of the northern wall of the mill chamber.
4. To establish the source of water for the mill and examine how this water was conducted to Ṭawāḥīn as-Sukkar.
5. To establish the typology of the mill.
6. To determine the chronological relationship between Ṭawāḥīn as-Sukkar and Khirbat ash-Shaykh ʻĪsā.

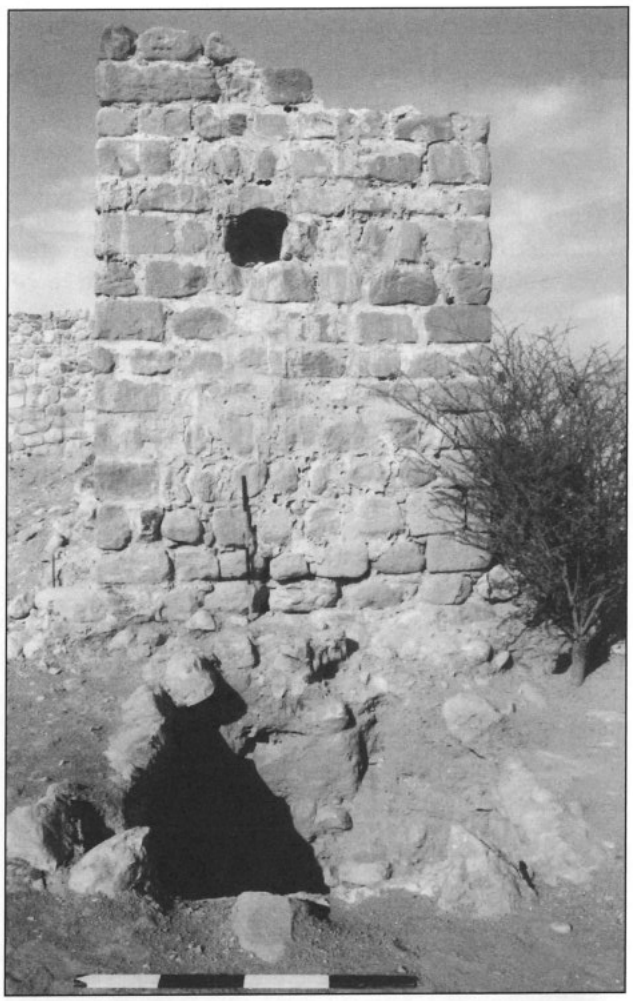
Structural Description of Ṭawāḥīn as-Sukkar

The standing architecture at Ṭawāḥīn as-Sukkar consists of two parallel edge-runner water-mills (with oblique penstocks) operated using high-powered water jets (**Fig. 11**) and a third water-mill (with a vertical penstock) to the west (**Fig. 12**). The third mill at Ṭawāḥīn as-Sukkar, with the vertical penstock, is relatively smaller than the edge-runner examples (generating a smaller head), last in sequence to be fed by the aqueduct and, consequently, possibly of secondary importance to the parallel arrangement.

The substructure walls of the two parallel leats still stand to heights of about 4m in places. The channels are still visible along the tops of both leats where they are defined by finely-cut sandstone blocks. The substructure walls are constructed using a mortared-rubble core faced with rough courses of natural stones of similar size and shape. The stones are mainly water-rolled and must have been collected from the nearby wadi. Smaller water-rolled stones are used for packing between the larger examples. Each of the parallel leats incorporates a single arch with a height of approximately 2m. On approaching the mill-house installation the leats



11. View of two parallel oblique penstocks from north-eastern edge-runner water mill chamber in Trench VI, Ṭawāḥīn as-Sukkar (photo: K. D. Politis).

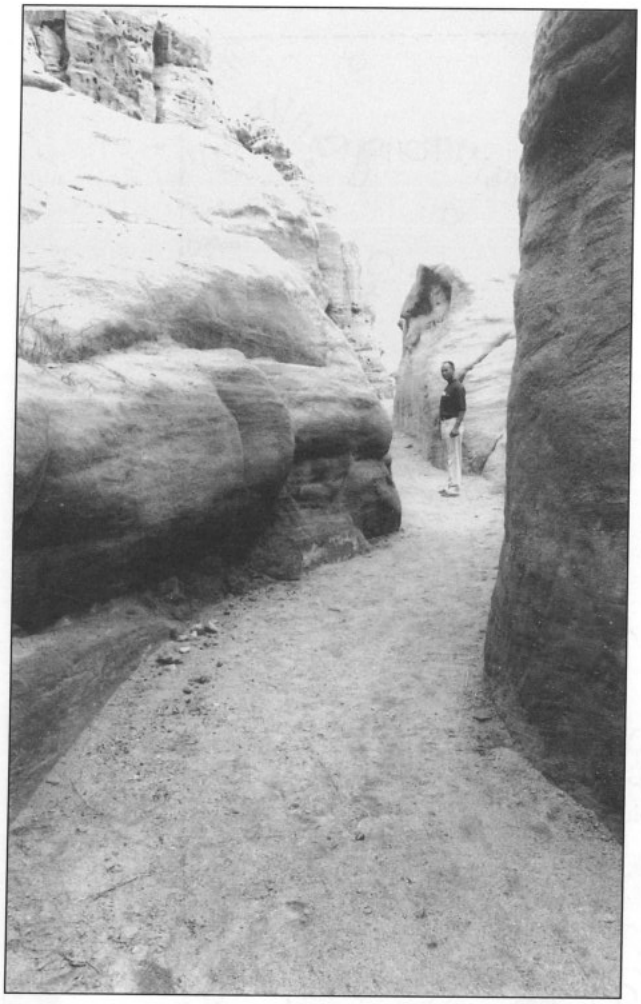


12. Vertical penstock of western mill at Ṭawāḥīn as-Sukkar (photo: K. D. Politis).

descend sharply (yet obliquely) while the channel width tapers. Both channels are lined with series of U-shaped sandstone troughs along this sharp descent into the installation. Although it is conceivable that the water could be stopped at the base of the chute by a sluice (as previously suggested by Photos-Jones *et al.* 2002: 602), it is more likely that the water flow would have been cut off (and thus controlled) along the main branch of the channel behind the parallel leats so that it could be diverted to whichever mill-house was in operation. Such an arrangement has been outlined by Jones *et al.* who refer to four distinct segments along the main aqueduct branch behind the parallel leats (2000: 527). These channel divisions were supported by substantial buttressing and possibly facilitated sluice devices at this point.

The Aqueduct

All three mills within the complex were fed by a substantial contour-line gravity-flow aqueduct which tapped the Wādī al-Ḥasā and descended along the south-western contour of the wadi mouth, using gravity flow to reach the mill. High in the mouth of the wadi a considerable stone-carved conduit was discovered during the 2003 season of work (Politis 2004) with a stone-carved *specus* measuring 1.5m-2m in width (**Fig. 13**). An inscription directly south of this tract of channel may mark the point at which the water was tapped, perhaps with the use of a dam which has since been washed away. The width of the aqueduct's channel, directly behind the parallel leats, is 1.35m while the channel widths of the parallel branches are 0.95m. The considerable dimensions of the channel itself (both in the wadi and directly behind the milling installation), the presence of three large water-mills and evidence supporting a high degree of industrial activity at the site all suggest that a substantial amount of water was necessary for the installation



13. Stone-carved conduit on the south-western side of the mouth of the Wādī al-Ḥasā (photo: K. D. Politis).

to operate at its full potential[1].

Sinter build-up, a calcareous encrustation which generally grew at a rate of 1mm a year (at least in Roman aqueducts, see Kessener 2000: 111), is evident in places along the substructure walls of the leats and on the soffits of the voussoirs of the western arch. This evidence either reflects a degree of leakage during the operation of the mill or, more likely, marks the point at which the mill fell into permanent disrepair.

The vast amount of water directed towards the site was also used to irrigate the surrounding countryside where presumably cane was cultivated (see Greene 2002: 760). The vault of an underground channel was visible at the northern extent of the complex in 1997 (Jones *et al.* 2000: 528). The channel was over one metre wide and over 20 metres long running on a north-south axis.

The Eastern Mill House
Trench VI

At Ṭawāḥīn as-Sukkar an extension trench (measuring 10m x 10m) was opened to the north of the main trench excavated in 2002 (Trench VI). The area was investigated to establish the extent of the eastern of the parallel mill houses and to confirm how the vaulted room below the main mill chamber (of the eastern mill house) was accessed (**Fig. 14**).

A. The Main Mill Chamber (of the Eastern Mill House)

The northern extent of the millstone chamber was completely cleared yielding a substantial room with dimensions 6.90m (north-south) x 4.80m (east-west).

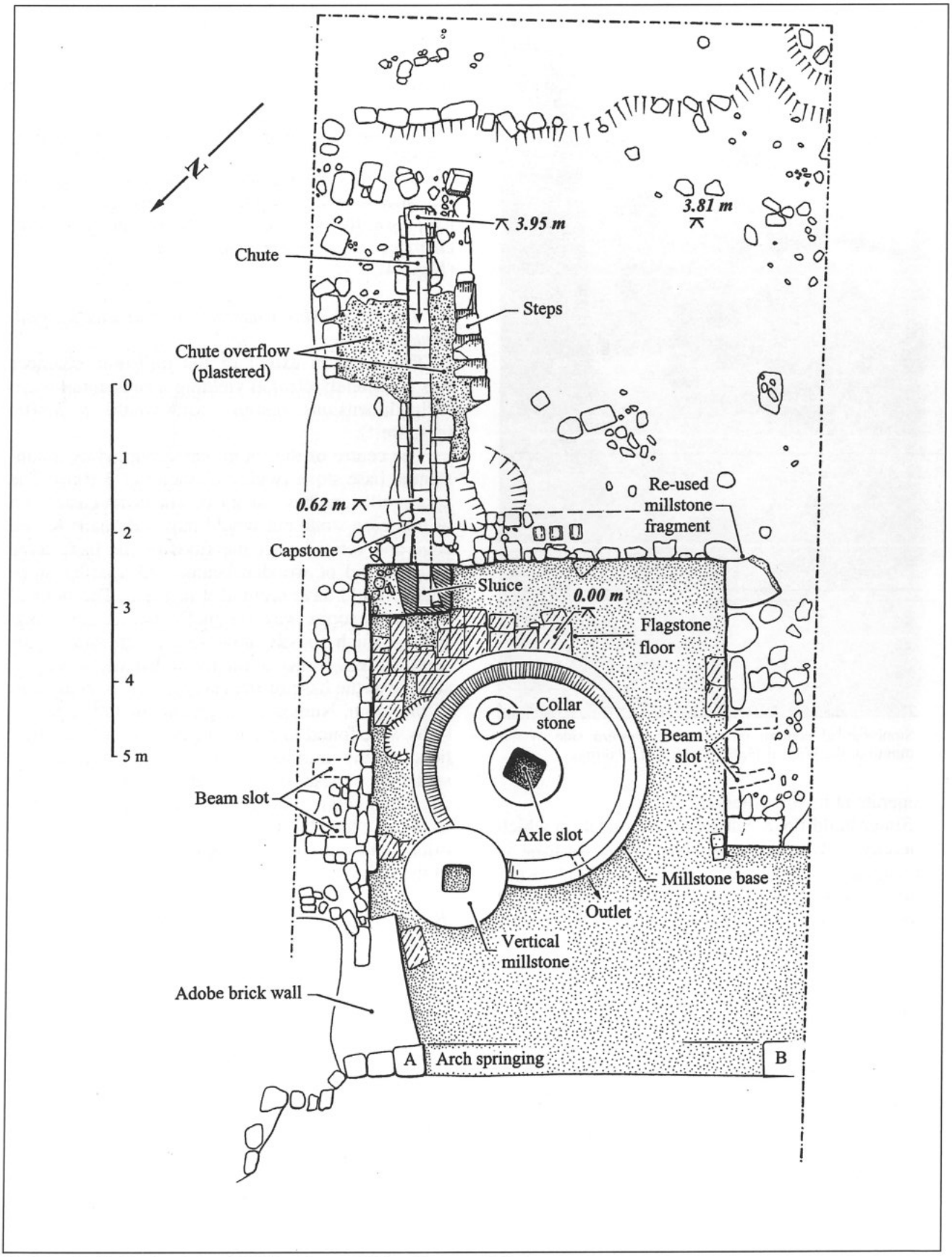
The centre of the room was occupied by a substantial base stone (with a diameter of 3.10m). The upper millstone has fallen over the north-eastern lip of this base stone but would have originally sat on edge and rotated over the floor of the base stone with the aid of wooden beams and a collar stone which would have secured it in place. The floor of the entire room was originally paved with flagstones which mostly now survive in situ in the south-eastern corner of the room. Isolated examples survive at the base of the eastern and western walls of the room. Numerous fragments of fallen paving slabs were found in a thick layer abutting the lower tiers of the northern façade of the overall installation. These paving slabs must have fallen from this room (i.e. the millstone chamber), possibly dislodged by the collapse of substantial adobe brick walls onto the flooring of the northern section of the room.

B. The Vaulted Chamber Below the Main Mill

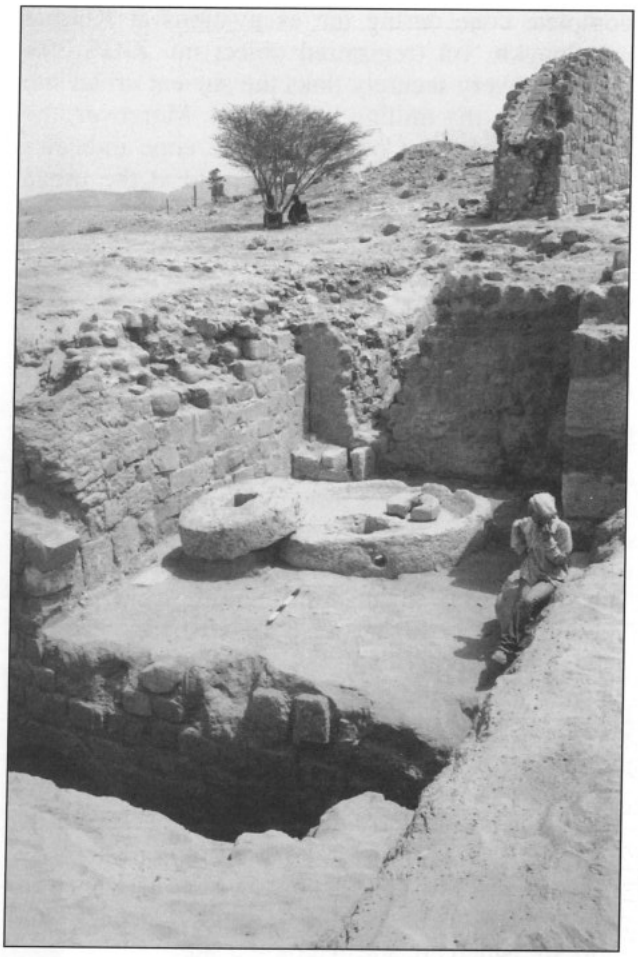
Directly below the lower or base millstone a vaulted chamber, which would originally have held the wheel emplacement, was investigated. The chamber was filled with sand to a level covering the spring of its barrel-vaulted roof. The voussoirs of the barrel vault consisted of finely-cut dressed blocks of both limestone and sandstone. An arched doorway discovered in the northern wall facilitated access to the area (**Fig. 15**).

It was established from a brief investigation of the vaulted chamber that the structure was reused

1. The scale of the overall installation is comparable to the second mill at Kouklia in Cyprus. The major difference between these two installations is that at Kouklia the mill is divided into two main parts, the mill-house and the grinding hall and only the pressing-out of the cane mash was water-powered while the grinding of the cane was animal-powered (von Wartburg and Maier 1983: 303). At aṣ-Ṣāfī all three mills are water-powered.



14. Plan of mill chamber, Trench VI, Ṭawāḥīn as-Sukkar, Ghawr aṣ-Ṣāfī.



15. The mill chamber and penstock chute in Trench VI from north (photo: K. D. Politis).

as a burial area once its original function had ceased. It can be stated confidently that this vaulted chamber originally housed a wheel emplacement similar to that found in the second complex at Kouklia in Cyprus (TST 1) (Maier and Karageorghis 1984: 334). Similarly, the gravity-flow aqueduct system would have terminated in a covered pressure channel tapering narrowly towards a narrow spout. The water jet issuing from this spout would have operated a horizontal wheel which would have driven the upper millstone by means of a wooden vertical shaft and cross beam. The shaft may also have engaged with some kind of wooden gear as indicated by corresponding sockets in the eastern wall elevation of the upper storey. As aforementioned, the tail-stream exited the complex through a subterranean conduit which runs northward from the complex.

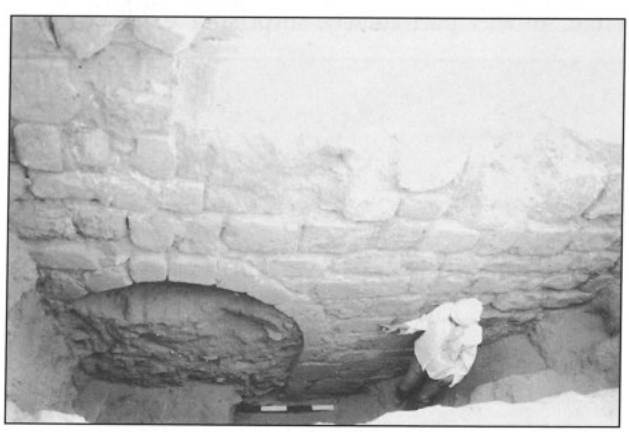
C. The Northern Façade of the Eastern Mill House

Excavation in the northern section of the trench uncovered the northern façade of the eastern mill chamber revealing a finely constructed two-storied façade. This northern wall was cleared to a depth of 4.20m whereupon a cobbled surface was reached. Its level at the threshold of the doorway which pierces the wall verifies that this cobbling represents the original ground surface.

The upper storey of the northern wall of the mill chamber incorporated two broad-spanning arches which formed the northern façade of the substantial mill chamber described above. The lower storey of the façade constituted a solid stone wall pierced by an arched doorway (**Fig. 16**).

The collapsed western arch of the upper storey was composed of fourteen finely-cut blocks (average dimensions 0.50m x 0.35m x 0.25m) including a reused architectural block bearing an incised cross (registered object no. Z-GS 27). The collapsed arch rested on alternating layers of collapsed and disintegrating adobe brick. These deposits signify the final collapse of the structure following the abandonment of the mill (although the duration of the period between the cessation of operation and the collapse is not, as yet, clear).

The lower storey of the northern wall of the eastern mill house consisted of ten horizontal courses of finely-cut stone blocks (average dimensions 0.40m x 0.30m). An arched doorway (2.05m x 1.90m) pierced the wall facilitating access to the vaulted chamber (which would have held the wheel emplacement). The doorway presumably allowed access for maintenance and supervision of the operation of the wheel mechanism. The arch of the doorway was composed of a series of very crudely-shaped voussoirs. No impost blocks defined the spring of the arch and no defining keystone was positioned at its apex. The base of the doorway, and the original ground surface, was identified by a cobble layer and by the fact that the lowest tier of the wall (corresponding with this cobble layer) ex-



16. Lower storey of the northern wall of mill chamber with arched doorway Location of Arabic inscription being indicated (photo: K. D. Politis).

tended into the threshold of the doorway (for 0.10m) forming a slight lip.

An Arabic inscription was positioned to the west of the doorway at a height of 1.3m above the original ground surface level, i.e. roughly at shoulder height, and reads ع د ا (**Fig. 17**).

The northern wall of the vaulted chamber was effectively flanked by wall 053 which formed the northern façade of the installation, essentially creating a double northern wall for the vaulted chamber. The doorway in wall 053 also corresponded with the inner arched entrance to the barrel-vaulted chamber.

D. Activity Immediately North of the Eastern Mill House

At the base of the northern wall of the mill house (and immediately north of the arched doorway) a layer of broken sugar pots was cleared from a test trench measuring 1m x 1m. The test trench yielded 24 *goufas* of sugar pot fragments (mostly consisting of the upper cones) and four fragments of iron crucibles. Such findings identify the layer, and the associated area, as the area where the upper sugar pots or cones were smashed at the production site. This action was necessary to remove the sugar loaf from the upper cone-shaped vessels which sat in the mouth of the lower molasses jar. The density of sugar pots in the layer concurs with the contemporary estimate that 2,500-3,000 vessels were needed as basic stock for a sugar refinery (von Wartburg 1983: 309).

That the removal of the sugar loaf or crystal from the cone was a very difficult operation often leading to the breaking of the ceramic cone is also well attested at Kouklia in Cyprus where the ratio between cones and jars is remarkably uniform, with the cones consistently predominating (von Wartburg 1983: 309). In the light of this knowledge, it was particularly surprising to discover a complete cone during the excavations at Khirbat ash-Shaykh ʻĪsā (registered object no. Z-GS 29). This discovery securely links the ancient urban site with the nearby milling installation. Moreover, the complete condition of the ceramic cone indicates that these pots were being produced at the urban centre as complete cones rarely survive at industrial sites and usually only feature as fragments by the very nature of their function and use.



17. Engraved Arabic inscription west of doorway on lower storey of northern wall of mill chamber (photo: K. D. Politis).

The example of a complete sugar cone found at Khirbat ash-Shaykh ʻĪsā (with a diameter of 0.332m) is comparable to type IV from Kouklia (von Wartburg 1983: 313, fig. 10, plate LII 2 and 3). Large cones of this type are thought to be used for the production of crystal sugar, as opposed to the fine quality sugars formed in the smaller cones (von Wartburg 1983: 314). Luttrell deduces that the predominance of the pottery cones used for making crystal sugar, over moulds used for the more expensive sugar loaf, at both Kouklia and Episkopi in Cyprus, indicates that the cheaper type played a more important role at these sites (1986: 165), this theory is applicable, by inference, to the Ghawr aṣ-Ṣāfī site.

Finally, a copper cauldron for boiling the produce was accidentally discovered at the site in the early 1980s and is now on exhibit in the Karak Archaeological Museum. Its presence completes a refining cycle of mashing, boiling, collecting and cooling which are attested on the site.

The Date of the Operation of the Mill

The pottery profile from the excavations at Ṭawāḥin as-Sukkar (which consists predominantly of sugar cone fragments) did not produce a conclusive date for the initial functioning of the mill and we can only suggest that operations commenced in the Ayyubid-Mamluk period. It is hoped that a more thorough pottery analysis may clarify this vital point.

Nonetheless, while the date of the earliest commencement of the operation of the mill is somewhat vague, we can confidently state that the operating life of the mill must have been lengthy enough for the upper millstone to be replaced on at least one occasion. A large building block at the top of the western wall of the mill-room was identified as a fragment of an upper millstone. The stone constitutes an arc of an upper millstone, with the squared edge of the central aperture and the outer curving edge still preserved. Several 15th/16th-century AD burials excavated within the mill (Photo-Jones *et al.* 2002) suggest that operations at the mill were abandoned by this time which would also comply with the ceramic profile.

This evidence accords with events in the wider trade network. In the 15th century the Spanish and Portuguese introduced sugar cane into the islands of Madeira, the Canaries, Santiago and Sao Tome. By the later part of the 15th and the early 16th centuries sugar from these islands was flooding European markets, with ruinous effects on the sugar industry of both the Christian and the Muslim Mediterranean (Watson 1983). Alternatively, Luttrell argues that the Mamluk sugar industry fell into decline before such competitive market forces were introduced to the Mediterranean, and he points to an overarching crises caused by recurrent plagues and civil wars leading to dramatic depopulation, a situation aggravated by government interference, over-taxation and technological stagnation (1996: 169).

Conclusions

The excavation of the sugar mill at Ṭawāḥin as-Sukkar in aṣ-Ṣāfī has established a high degree in sophistication in the mill type in the area to the southeast of the Dead Sea. Von Wartburg and Maier claim, when describing the sugar mill at Kouklia in Cyprus, that technical improvements (such as an increase in motive jet power through the use of a high pressure water jet and the employment of specially-constructed wheels) resulted in a type of Cypriot mill which was more advanced than the type normally used in the Levant, and which was powerful enough to operate heavy edge-runner mills (1989: 179). While this argument is valid, the fact that these features are present in the mill at aṣ-Ṣāfī refutes any notions of retardation in the Levantine industry, as is often suggested. Luttrell attributes the decline in the Levantine sugar industry on the supposed absence of features such as gearing arrangements (1996: 166), a feature which was probably present at aṣ-Ṣāfī. Ashtor too makes much of the stagnation of the industry in the Levant and claims that most mills were driven by animals (1992: 111). At aṣ-Ṣāfī all three mills are water-powered and water-powered mills are evident throughout the region.

The sophistication of the mill installation at aṣ-Ṣāfī is attested by the fact that nearly all the refining processes are attested on the site. The degree of industrial sophistication here is not surprising considering that the refining process was perfected in the Near East with Syrian specialists of high repute in charge of the refining of the whole sugar production on Cyprus until July 1468 (Maier and Karageorghis 1984: 329). The presence of three mill-houses, the vast quantities of water conducted to the complex and the sheer quantity of broken sugar pots on site indicate a highly-developed installation whose progressive mechanisms should prompt a reassessment of the sugar industry both in Jordan and the Levant.

The Staff

Archaeological excavations were conducted by Amanda Kelly (TeS), Rebecca Foote (KSI), Salha Sulieman Ghareeb (TeS and KSI) and Robert Schick (AN) with the collaboration of Lisa Usman, forensic specialist. The survey was carried out by Daniel Hull with the assistance of Konstantinos Politis. Leslie Acton and Lisa Usman were responsible for the conservation of archaeological objects. The Department of Antiquities was represented by Imad al-Drous. Locally hired workers came from the Ghawr aṣ-Ṣāfī. The project was directed by Konstantinos Politis.

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Bibliography

Ashtor, E.
1992 *Technology Industry and Trade. The Levant versus Europe, 1250-1500.* Hampshire.

Ben-David, C.
2001 The 'Ascent of Luhith' and the 'Road to Horonaim': New Evidence for their Identification. *PEQ* 133: 136-144.

Greene, J.A.
2002 The Water Mills of the 'Ajlun-Kufranja Valley The Relationship of Technology, Society and Settlement. *ADAJ* 46: 757-765.

Jones, R., Tompsett, G., Politis, K.D. and Photos-Jones, E.
2000 The Tawahin as-Sukkar and the Khirbat ash-Shaykh 'Isa Project. Phase I: The Surveys. *ADAJ* 44: 523-534.

Kessener, P.
2000 The Aqueduct at Aspendos and its Inverted Siphon. *JRA* 13: 104-132.

Luttrel, A.
1996 The Sugar Industry and its Importance for the Econ

omy of Cyprus during the Frankish Period. Pp. 163-174, in V. Karageorghis and D. Michaelides (eds.), *The Development of the Cypriot Economy from the Prehistoric Period to the Present Day*. Nicosia.

Maier, F.G. and Karageorghis, V.
1984 *Paphos. History and Archaeology*. Nicosia.

Papadopoulos, Thanasis J., Kontorli-Papadopoulou L. and. Politis, K.D.
2001 Rescue Excavations at An Naq' and Tuleilat Qasr Mousa Hamid 2000. *ADAJ* 45: 189-193.

Philip, G., Donohue, D., Beck, A. and Galiatsatos, N.
2002 CORONA satellite photography: an archaeological application from the Middle East. *Antiquity* 76: 109-118.

Philip, G., Jabour, F., Beck, A., Bshesh, M., Grove, J., Kirk, A. and Millard, A.
2002 Settlement and landscape development in the Homs region, Syria: research questions, preliminary results 1999-2000 and future potential. *Levant* 34: 1-23.

Photos-Jones, E., Politis, K. D., James, H. F., Hall, A. J., Jones, R. E., and Hamer, J.
2002 The sugar industry in the southern Jordan valley: an interim report on the pilot season of excavations, geophysical and geological surveys at Tawahin as-Sukkar and Khirbat ash-Shaykh 'Isa, in Ghawr as-Safi. *ADAJ* 46: 591-614.

Politis, K. D.
2005 Report to the Palestine Exploration Fund on the Surveys and Excavations at Zoara in the Ghor es-Safi 2003-2004. *PEQ*. London.
2001 Early Byzantine monasticism in southern Jordan. *SHAJ* 7: 585-589.
1999 Tuleilat Qasr Musa Hamid. *ADAJ* 43: 543-544.
1998 Survey and rescue collections in the Ghawr as-Safi. *ADAJ* 42: 627-634.
1995 Excavations and Restorations at Dayr 'Ayn 'Abata 1994. *ADAJ* 39: 477-491.

Ur, J.
2003 CORONA satellite photography and ancient road networks: a Northern Mesopotamian case study. *Antiquity* 77 (295): 102-115.

von Wartburg, M.-L. and Maier, F.G.
1989 Excavations at Kouklia (Palaeopaphos). 15th Preliminary Report: Seasons 1987 and 1988. *Report of the Department of Antiquities Cyprus*: 177-188.

Waheeb, M.
1995 The First Season of the An-Naq' Project, Ghawr as-Safi. *ADAJ* 39: 553-555.

Watson, A.M.
1983 *Agricultural Innovation in the Early Islamic World. The Diffusion of Crops and Farming Techniques., 700-1100*. Cambridge.

SURVEY AND EXCAVATIONS AT KHIRBAT KAZŪN 2004

Konstantinos D. Politis, Amanda M. Kelly and Lisa Usman

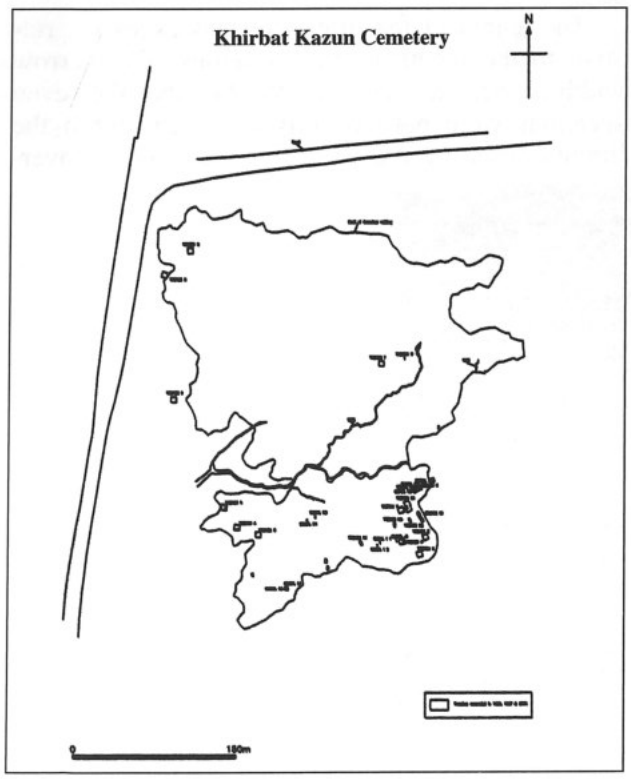
Introduction and Objectives

Survey and excavations were conducted at the cemetery of Khirbat Kazūn during April and May 2004. The work was an extension of the earlier rescue excavations conducted in 1996 and 1997 (Politis 1998: 611-614) with the objective to identify the full extent of the site. The main aim of the season was to complete all field work and studies at the site and prepare for final publication.

The project was sponsored by the Hellenic Society for Near Eastern Studies and supported by the National Geographic Society and the British Academy in collaboration with the Department of Antiquities of Jordan.

The Survey (Fig. 1)

Trimble Global Positioning System (GPS) receivers were utilised to achieve an accurately georeferenced survey. A Fast Static (or Rapid Static) methodology was adopted to co-ordinate a number of stations around the site, some of which were new stations while others were from previous phases of work. These were then post processed to provide a millimetrically accurate 3D control network on the Universal Transverse Mercator (UTM) Zone 36 North co-ordinate system. Following this the Trimble GPS kit was used in Real Time Kinematic (RTK) mode to collect topographic data across the project area, allowing the collection of sub-centrimetrically accurate surveyed points within a few seconds. Using Trimble survey software loaded onto a hand-held data logger thousands of spot heights were recorded enabling post production of a Digital Terrain Model (DTM) and contour map of the cemetery. Also specific points of plan detail were recorded such as trench edges and specific tombs. Once control points from earlier phases were coordinated, all the survey work carried out to date could be referenced within the new geodetic survey framework .

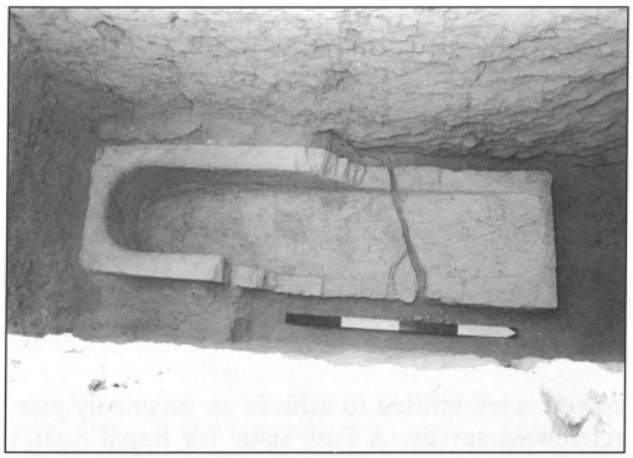


1. Map of Khirbat Kazūn cemetery (by J. Severen).

The Excavations

Trench P

Trench P was located on the south-eastern edge of the cemetery. The trench contained a series of robbed-out burials aligned on a north-south axis. The tops of the shafts were located at a depth of 0.30m below ground surface. One such shaft, measuring 2.50m long x 0.98m wide x 2.44 deep, contained a stone sarcophagus (P 005), which was partially visible at the base of the shaft. The sarcophagus measured 2m x 0.55m. The interior dimensions of the receptacle were 1.78m x 0.38m. The sarcophagus widened slightly towards its base. The sarcophagus was aligned on a north-south axis occupying a central position within the grave-cut (**Fig. 2**). The northern extent of the sarcophagus had been damaged by the tomb robbers but it was intact to the south. It was carved from limestone and was composed of four separate pieces: the base



2. Sarcophagus base *in situ*, Trench P (photo: T. Springett).

(one piece), the vertical sides (one piece) and two capstones (**Fig. 3**). The outer corners are sharply defined while the interior corners curve smoothly. The bones of an adult male were found among the surface spoil to the west of the grave-cut and, consequently, it is likely that the grave represents that of a relatively wealthy individual within the cemetery. The dimensions of the shaft are by far the largest in the cemetery while the sarcophagus itself remains a unique feature within the cemetery of 5,000 tombs.

Trench R

Trench R was located in the western area of the cemetery, directly over the Dead Sea highway. The area had been bulldozed and no distinguishable features were visible on the surface. The upper layer (R 001) was removed to a depth of approximately 0.30m. The layer contained Early Bronze Age pottery sherds, which had been washed down slope from the hills above and to the east of the site. When this layer was cleared the cuts of two substantial tombs became evident (Graves R1 and R2). Both graves were arranged on an east-west alignment.

Grave R1 was located in the northern sector of the trench. The upper fill of this grave (R 002: the fill above the capstones) had a depth of approximately 0.70m and contained a fragment of a glass bracelet and the base of a Late Roman pot. When this upper fill was removed five capstones (R 003) appeared at a depth of approximately 1m below ground surface (**Fig. 4**). The base of a pot was found just over the westernmost capstone of the grave, and possibly acted as a grave marker. The capstones themselves consisted of roughly hewn limestone slabs. The slabs were substantial, with the largest capstone (the easternmost example) measuring 1.20m x 0.60m. The spaces between the slabs were plugged with smaller water-rolled stones, some of which were also set along the edges of the slabs.

The fill of the shaft below the capstones was cleared (R 0005) and contained some crudely made pottery. The grave-cut under the capstones measured 2.84m x 0.60m (maximum width) and tapered to the east. The grave contained seven individuals extended with the skulls to the west and feet to the east.

The length of the grave-cut was excessive relative to the length of the skeletons. The narrow width of the grave-cut, and the fact that the seven skeletons were not carefully arranged within the limited space of the grave cut, resulted in over-



3. Sarcophagus fragments of vertical and capstones, Trench P (photo: T. Springett).



4. Grave R2, capstones (photo: K. D. Politis).



5. Grave R1, overlapping skeletons (photo: K. D. Politis).

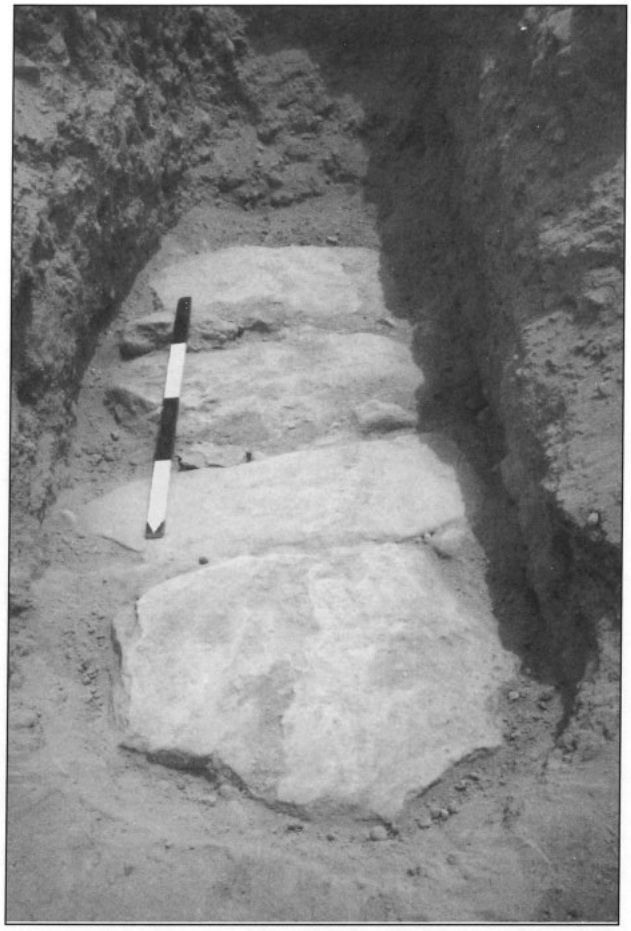
lapping limbs and a confusing array of bone (**Fig. 5**). Finds included an iron bracelet (registered object KQ no. 46), a glass-bead necklace (registered object KQ no. 47) and a copper ring (registered object no. 48).

The second grave in Trench R (Grave R2) was located in the southern half of the trench and was similarly arranged on an east-west alignment. The upper fill of the grave-cut (R 008) yielded a shell bead. The capstones (R 009) were located at the same depth as those of Grave R1 (i.e. approximately 1m below ground-level). Only four capstones sealed the lower grave-cut (measuring 0.90m x 0.60m, 1.05m x 0.55m, 1m x 0.65m, 1m x 0.85m) (**Fig. 6**). The grave-cut under the capstones measured 2.30m x 0.26m. It contained four skeletons positioned with the skulls to the west and the feet to the east. The three uppermost skeletons were youths and represented secondary interments (**Fig. 7**). They were not carefully positioned within the grave-cut, and again frequently-overlapping limbs were a feature. The lowest skeleton was that of an adult and was evidently the primary interment. The skeleton was supine and neatly laid-out in the centre of the grave-cut with arms and legs fully extended. A series of polished semi-precious stone beads attached to copper mounts were found around the neck (registered object KQ no. 49). A stone pendant was also found associated with these beads. The skeleton's central position, orderly deposition and elaborate necklace clearly mark this skeleton as the primary inhumation.

Other than jewellery, no further grave-goods were found in either grave, which contained twelve individuals between them. The distinct form of the grave incorporating multiple burial and large sealing stone slabs suggests that they are distinct from the predominant type within the cemetery.

Trench S

Trench S was located on the north-facing slopes to the north of the cemetery. Two large rim fragments of Red Slip pottery (Hayes 1972: form 67) dating to the late forth century AD were found on the surface of the trench. A stone grave-marker with an incised cross was also collected from the surface of the cutting, although it was not found *in situ*. The topsoil removed from the trench (S 001) contained spoil from robbed tombs as it yielded scraps of textile with applied shells, bone bracelet



6. Grave R2, capstones (photo: K. D. Politis).



7. Grave R2, upper skeletons (photo: K. D. Politis).

fragments, iron bracelet fragments, a copper alloy finger ring (registered object no. 44), a copper alloy earring (registered object KQ no. 45) and Roman-Nabataean fine-wares. The layer beneath this (S 002) also yielded iron fragments and small pieces of wood.

The trench contained two graves arranged on a north-south alignment (Graves S1 and S2). Unfortunately, both had been robbed but their simple construction was still apparent. Both graves were cut directly into the natural sterile soil without any revetment. Grave S1, although robbed, yielded textile fragments (similar to those from layer S 001), a fragment of an iron bracelet and a fragment of a bone bracelet. The grave-cut was small (measuring 1.70m x 0.78m) and a narrower *loculus*, measuring 1.5m long x 0.24m-0.40m wide x 0.24m deep, in the centre of the base of the grave-cut would have held the skeleton. The small dimensions of the cut, together with and a primary tooth found in the fill clearly indicate that the grave was that of a child.

A second larger grave, measuring 2.06m x 0.70m, was found in the east of the trench. The grave had also been robbed. One possible capstone survived at the north of the grave-cut. It is possible that capstones originally sealed a narrow centrally-located compartment (measuring 1.8m long x 0.50m wide x 0.40m deep) at the base of the grave-cut. A fragment of a worked bone bracelet, similar to that from grave S1, was found in the fill (S 005).

Trench T

Trench T was located in the central area of cemetery to the south of a triple power pylon. The ground surface of the trench sloped from north to south. The topsoil (T 001) had a depth of 0.9m in the north of the trench and was composed of numerous small water-rolled stones in a compacted clay matrix. The second layer (T 002) was composed of sterile marl into which the grave shafts were cut. Two parallel shaft graves (Graves T1 and T2) were discovered cut into this layer. Both graves were aligned on a north-south axis with *loculi* undercut to the east. In both cases the skeletons were aligned south-north i.e. with the skulls to the south. Both *loculi* were sealed by a series of five adobe bricks which were propped at an angle against the east wall of each shaft.

The shaft of Grave T1 measured 2.30m long x 0.40m wide. The shaft was 1.12m deep and widened to 0.50m as it descended. The five adobe bricks sealing the *loculus* were coated with a film of mud, 0.05m-0.10m thick, which effectively sealed the underlying compartment. Occasional water-rolled stones were also used to plug wider holes between the adobe bricks, which were then smeared over with mud. The size of the adobe bricks (T 004) was consistent, each measuring 0.40m x 0.40m x 0.10m thick. Grave T1 held an extended articulated female adult skeleton with arms crossed over the chest. Some textile survived but no grave-goods were found.

Grave T2 was located ca. 1.6m east of T1, to which it ran parallel. The shaft was 0.82m deep and the measured 2.08m x 0.45m. The shaft was aligned on a north-south axis with a *loculus* undercut to the east. Again the *loculus* was sealed with adobe bricks (measuring 0.40m x 0.40m x 0.10m), which were smeared with a film of mud. Two of original five adobe bricks had disintegrated and collapsed (**Fig. 4**). The eastern *loculus* held a single extended male skeleton with the skull to the south, the head facing east, the body slightly flexed to the east, with arms crossed. The feet had been removed and placed to the east of the skull. The compartment also yielded fragments of wood and numerous metal studs/nails indicating the use of some form of wooden coffin.

Trench U

The trench was located in the east central area of the cemetery on the north-facing slopes of a small wadi. The terrain sloped from south to north and the northern half of the trench was full of silt deposited by the wadi. The topsoil within this trench (U 001) was 0.20m-0.30m deep in the southern half of the trench. The topsoil was essentially loose sand and contained some Roman-Nabataean fine wares, Roman buff wares and a Roman strap handle.

Trench U contained a single robbed-out grave (Grave U1). The grave-cut measured 1.9m long x 0.5m wide and 1.20m deep. The grave-cut contained a *loculus*, which was undercut to the east. An adobe brick found in the fill would suggest that the *loculus* was originally sealed with adobe bricks in a manner similar to the graves in Trench T.

A disarticulated child's skull was retrieved from the fill but disarticulated adult bones (including vertebrae) were also collected. Hair was also found in quantity. Large fragments of a Roman tunic, cord and fragments of other woollen textiles were also found in the disturbed fill. The tunic fabric was yellow with two parallel purple stripes (*clavi*) on either side. It was identical to the tunic found in Grave W (discussed below) and fabrics found in previous excavations at Khirbat Kazūn (Granger-Taylor 2000). An iron ring was found in the fill.

A flat-based circular cut (with a diameter 0.70m and a depth 0.22m) with a charcoal-rich fill was discovered to the west of Grave U1 and seems to represent a small hearth possibly for cooking (**Fig. 8**). This feature may be related to a basalt grinding stone found on the surface of the trench.

Trench V

This trench was full of sterile silt deposited by a nearby wadi. No graves were found.

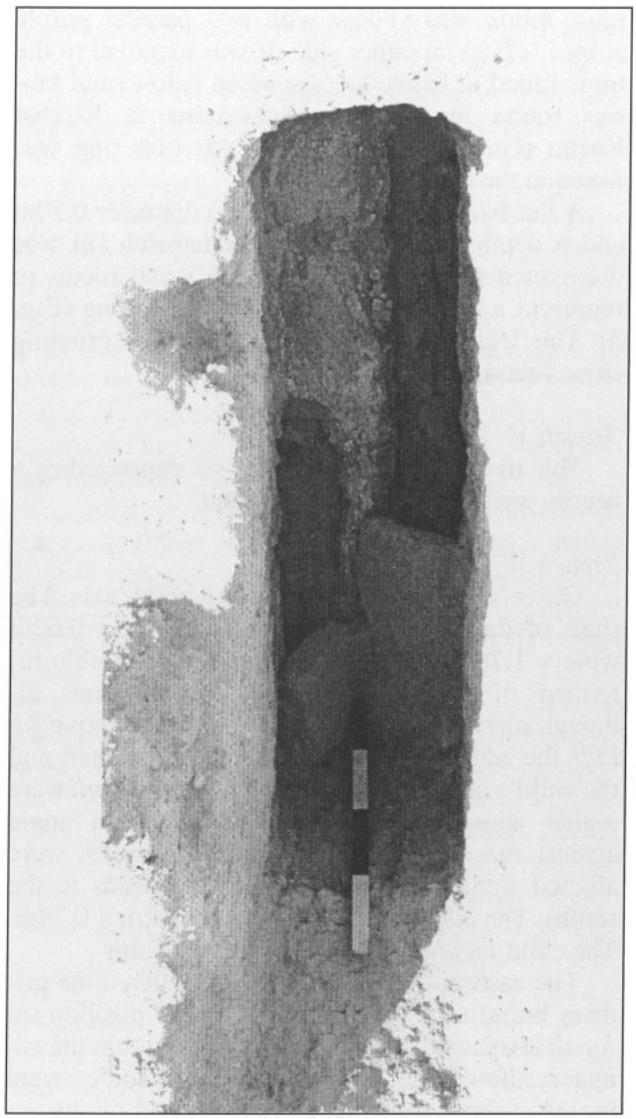
Trench W

Grave W was aligned on a north-south axis. The shaft of the tomb measured 2.22m long x 0.62m wide x 1.76m deep. It contained a rare double interment of an adult and child. The skeletons, although placed in the same shaft, had distinctive *loculi*; the adult's along the east side of the shaft and the child's along the west (**Fig. 9**). Both *loculi* were sealed with adobe bricks propped at an angle against the sides of the shaft. Both bodies were aligned south to north (i.e. with the heads to the south). The adult *loculus* measured 2.22m x 0.34m. The child *loculus* measured 1.48m x 0.25m.

The eastern *loculus* could be considered the primary burial as it adheres to the regular position for *loculi* associated with this grave-type within the cemetery; however, it is clear that both bodies were buried at the same time, as is suggested by the actual dimensions of the shaft and is confirmed by



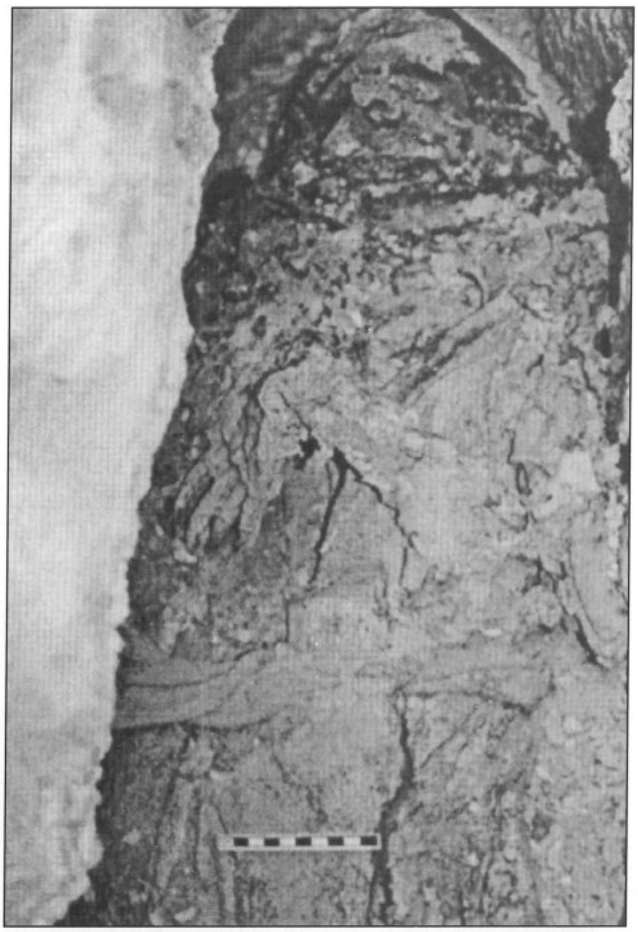
8. Circular hearth, Trench U1 (photo: A.M. Kelly).



9. Double shaft burial, Trench W (photo: A.M. Kelly).

the uniformity of the shaft's fill. The adult *loculus* is undercut to the east and sealed with the usual five adobe bricks. The child's *loculus* was located along the west of the shaft, with only marginal undercutting of the shaft on this side. It was sealed with three adobe bricks.

The body of the adult survived in a remarkable state of preservation and was lifted almost intact; skin, nails and textiles survived (**Fig. 10**). The body was clothed in a Roman tunic (with yellow weave and two purple *clavi*). The tunic seems to have been repaired in places. A woollen belt was tied across the waist and over the right arm, which secured this arm to the side of the body. The left arm was slightly raised over the stomach due to its desiccated state. The face was covered with textile and a leather covering of some sort. Strands of cord, visible through the leather covering, also tied the



10. Adult burial, Trench W (photo: A.M. Kelly).

hair. Leather also extended over the feet, which were less well-preserved than the upper torso.

Trench X

This trench was full of sterile silt deposited from a nearby wadi and no tombs were found.

Trench Y

Trench Y was located to the east of Trench T. The topsoil (Y 001) was composed of compacted grey stony soil with occasional glass but even fewer ceramic sherds. The tops of two shafts were discovered when the upper layer was removed.

The shaft of Grave Y1 measured 1.95m x 0.50m, x 1.60m deep, and was aligned along a north-south axis, almost parallel to Graves T1 and T2. The *loculus* was undercut to the east and again sealed with five adobe bricks each measuring 0.40m x 0.40m x 0.10m. The skeleton (that of an adult male) was positioned with the skull to the south and feet to the north. The left arm was bent over the chest and the right arm was bent back so that the hand was positioned near the skull. Wood samples were taken from areas near the head, feet

and hips, again indicating the use of a wooden coffin. Date stones were also retrieved.

Grave Y2 was located to the south of Grave Y1 and the shafts shared the same format and rough dimensions (measuring 1.98m x 0.62m x 1.48m deep). Grave Y2 was aligned on a north-south axis and adobe bricks sealed the *loculus*, which was undercut to the east. Of the five original adobe bricks (measuring 0.40m x 0.40m x 0.10m), the two southernmost examples had been removed and the tomb had been robbed.

Trench Z

Trench Z was located at the southeast extent of cemetery. Two graves were discovered after the topsoil had been removed (for a depth of between 0.30m-0.60m), revealing a compact sterile soil into which the shafts were cut.

Grave Z1 was again arranged on a north-south axis with the skull to the south. Five adobe bricks sealed the *loculus* but an extra adobe brick, set on end, was needed to close the northern end. The grave shaft measured 2.24m x 0.52m and 1.24m in depth. The grave-cut was much longer than necessary to contain the adult skeleton within, with the cut extending 0.50m to the north beyond the feet.

The skeleton (identified as female) was in moderately good condition with fragile textile surviving around the chest and pelvis and over the lower skull. Desiccated flesh survived on the face and the bridge of the nose survived. Residue was also intact in the eye-sockets. The skull tilted slightly to face east.

Grave Z2 was located in the south of the trench, 2.10m south of Grave Z1, and contained a child burial in a simple cut. This grave-cut measured 1m x 0.38m (0.68m deep) and was aligned on a north-south axis, with the skull to the south. The child's skeleton was flexed to the east (i.e. positioned on its right side). The child was wrapped in leather and wore small copper alloy ankle bracelets (registered object KQ no. 50) on each leg.

Trench Θ

Trench Θ was located in a heavily bulldozed area to the west of the cemetery above the Dead Sea highway. The topsoil (Θ 001) was removed to a depth of 0.30m and yielded creamy buff finewares with relief decoration. Three graves occupied the trench and were markedly different from any other graves in the cemetery.

The grave-cut of Grave Θ 2 measured 2.20m east-west x 1.10m north-south. At a depth of ca. 0.80m a narrow *loculus* (measuring 2.20m long x 0.38m wide x 0.35 deep) was discovered along the south side of the grave-cut. This feature essentially created a wide flat platform (measuring 2.20m x 0.72m), which occupied the north of the grave-cut. The *loculus* was not sealed and was filled with earth. The skeleton within was carefully positioned on its side to face south. Small natural stones were placed to either side of the head and at the backs of the knees to anchor the body in position. No associated grave goods were found although fragile textile still adhered to the skeleton.

Grave Θ 3 measured 1.88m x 0.78m. At a depth of 0.55m a *loculus* (measuring 1.88m x 0.28m, with a depth of 0.30m) was discovered along the south side, again creating a platform area within the north of the grave-cut (measuring 1.88m x 0.50m). Again the *loculus* was not sealed and was filled with earth. No grave-goods were found. The skeleton was positioned on its side facing south and small natural stones were placed to either side of the head and at the backs of the knees to hold the body in position (as was the case with Grave Θ 2).

Grave Θ1 (1.32m x 0.30m) was unusual in that it lacked the platform feature and consisted of a simple cut. The skeleton was placed on its back but the head was turned to face south. The left arm was slightly bent over the lower vertebrae with the hand placed on the pelvis. The grave-cut was also cut at a higher level (ca. 0.40m higher) than that of Θ2 and Θ3 and its proximity (and the slightly different arrangement of the skeleton) to the former two cuts suggests that it was a slightly later burial. No grave goods were found.

The three graves in Trench Θ share common attributes, despite some notable specifics related to Grave Θ1. All three graves contained one skeleton each, aligned on an east-west axis with the skulls to the west, with the heads facing south in every case. The bones of all three skeletons were tainted purple and so was much of the desiccated flesh. Grave-cuts Θ2 and Θ3 were significantly wider than Θ1 as the latter lacked the platform feature, which occupied the northern side of grave-cuts Θ2 and Θ3.

Trench Σ

Trench Σ was located 2m due north of Trench Θ in a heavily bulldozed area to the west of the cemetery above the Dead Sea highway. Similar burial types were found in both cuttings. Four graves were found in Trench Σ and three of these burials contained platform features.

Grave Σ1 occupied the southeast corner of the trench and contained an adult skeleton. Again a *loculus* was cut along the southern side of the wide grave-cut creating a platform within the north of the cut. The *loculus* was not sealed and was filled with earth. Again the skeleton was propped into po-

sition on its right side. A large potsherd was found behind the right knee, securing it in place.

Grave Σ2 was located in the west of the trench and contained a young child and Grave Σ4 was located in the northeast corner of the trench. All three graves were aligned on an east-west axis with a *loculus* along the southern side of the grave-cut essentially creating a platform which occupied the northern area of the grave-cut. The *loculi* were not sealed and were filled with earth. All of the skeletons shared the same orientation and arrangement as those in the similar grave types in Trench Θ i.e. the skeletons were laid out along an east-west axis with the skulls to the west. The skeletons were propped on their right sides facing south.

Conversely, Grave Σ3 was positioned between Σ1 and Σ4 and consisted of a simple grave-cut similar to Θ1. Grave Σ3 lacked a platform feature and, as was the case in Θ1, the skeleton was supine with its skull facing south. All the graves in Trench Σ were back-filled.

The Human Remains

Introduction

The following preliminary report examines the skeletal remains, giving only an estimated age and sex of the bodies excavated and not pathology, trauma, disease or comment on any other possible areas of interest. This is due to time constraints that prohibited a more detailed study of the material and it is expected that these remains will be studied in greater detail at a future date.

Prior to excavation it was predicted that the material uncovered would be in a good state of preservation due, primarily, to the arid nature of the area and the condition of the material excavated in the 1997 season. This proved to be the case in the graves that contained only a single burial and where the soil did not come into direct contact with the remains. Conversely, when more than one body was found, and the bodies had been covered in soil rather than being placed in a cavity (Trench R, Graves R1 and R2), a very poor state of preservation was observed, especially in the lower burials. This could be the result of the decomposition fluids of the upper bodies affecting the condition of those below. Consequently, for the multiple graves, in was not possible to estimate the age and sex of all the bodies present. In these cases it was only possible to determine the number of skeletons present by the remains of the skulls found.

Trench R Grave R1

Seven burials were identified in this grave. Initially, when the bones were exposed, three skeletons were visible. All bodies were extended along an east-west axis, with the skulls to the west. The skeletons did not appear to have been carefully laid out, but rather deposited on top of each other with limbs falling in different directions. It was initially assumed that the three upper skeletons represented the total number of bodies present; however, as the skeletons were excavated it became apparent that the grave contained four further interments. As mentioned in the introduction, the condition of the bones deteriorated with the lower skeletons, making determination of age and sex in the lower burials almost impossible.

Skeleton 1 Grave R1

The skull of the first skeleton to be lifted was crushed; therefore, the pelvis was used to determine sex. It is likely that this skeleton was that of a young male aged between 16-18 years of age. The age was determined by establishing which bones had fused and the number of molars present in the remains of the skull.

Skeleton 2 Grave R1

All the bones of this skeleton were fully fused and all the teeth had erupted. The skull had been crushed but was held together by soil. The pelvis was very fragmented, but evidence of slight billowing on the auricular surface was evident. From the examination of the skull and the less damaged areas of the pelvis it was estimated that the skeleton was that of a female aged between 20-25 years of age.

Skeleton 3 Grave R1

All the bones of this skeleton appeared to be fully fused and all the teeth had erupted. While it was clear that this was the skeleton of an adult, it was not possible to determine the sex or age.

The bones of the next four skeletons were very fragmented and both age and sex determination was difficult. An attempt was made to sex them using the skull, but aging was impossible. It should be noted that it was not always clear which bones belonged to which skeleton in R1. While every care was taken to prevent any mixing of bones, it was not always clear which bones belonged to which skeleton. The possibility of such an event must be considered when interpreting the results.

Skeleton 4 Grave R1

A tentative sexing was made based on the mastoid process and the glabella ridge; both of which suggested that this was the body of a male.

Skeleton 5 Grave R1

The mastoid process and the supra orbital ridge suggested that this was also the body of a male.

Skeleton 6 Grave R1

It was not possible to make a meaningful interpretation from the remains of this skeleton.

Skeleton 7 Grave R1

This skeleton had a small mastoid process and the pelvis had not completely fused. It was not possible to determine with absolute certainty the sex or age of the skeleton, although an age somewhere in the early 20's or younger is probable.

Trench R Grave R2

This grave yielded four bodies in total. All the bodies were extended from west to east. Excavations of the grave initially revealed two burials. Once again, these bodies were extended and deposited in the grave without any formal positioning. As the excavation of the grave progressed another two bodies were revealed. The third body, like the first two, appeared to have been deposited without any formal positioning in the grave, while the fourth body had been carefully laid out. These factors, combined with the size and cut of the grave, indicated that the last burial had been the primary burial while the other three represent secondary burials. It is reasonable to infer that the lower body in Grave R1 had also been laid out in this fashion, unfortunately, its very poor state of preservation made this impossible to determine.

Skeleton 1 Grave R2

The pelvis, long bones and vertebrae had not completely fused and the second upper molar had not fully erupted indicating that this was the skeleton of an adolescent. The skull and pelvis appeared to have more male characteristics than female, but it cannot be said with certainty that it is a male.

Skeleton 2 Grave R2

All the teeth had erupted including the third molars. All bones had fused, except the upper portion of the sacrum and the clavicle indicating an age estimation somewhere between 24-30 years. This skeleton appeared to be that of a female, although the frontal bone exhibited more male characteristics. The pelvis was very fragmented making sex determination using this method impossible.

Skeleton 3 Grave R2

This was the skeleton of a child. The bones were small and many were not fused. The third molars and the canine in the lower jaw had not erupted. It was not possible to determine sex. It was estimated that the age at death was in the region of 8-12 years of age.

Skeleton 4 Grave R2

This skeleton was that of a large adult with the pelvis exhibiting male characteristics; however, a necklace of polished semi-precious stone beads attached to copper mounts was found placed around the neck. No other grave goods were found. The necklace might suggest that this constitutes the skeleton of a female although jewellery is not an absolute indication of gender and is often ambiguous in its implications.

Trench T Grave T1

This was the skeleton of an adult female. All the bones had fused and both the pelvis and skull exhibited female characteristics.

Trench T Grave T2

The skull and mandible had both been crushed by mud and stones, which had fallen from the top of the shaft; however, it was possible to study the skull while it remained in situ. The upper portion of the coccyx and the clavicle had not fused. There was also evidence of billowing on the body of the lumber vertebrae. It was estimated that this was the skeleton of a male aged between 18-20 years of age.

Trench U Grave U1

This grave had been looted. A disarticulated child's skull was initially exposed, however, no other bones believed to be associated with this skull were found. Further excavation revealed disarticulated remains of an adult burial. It seems likely that the grave contained an adult and a child, but this is not clear. Two humerus bones were found, but not of equal length; one being 3.5cm longer that the other. It is unlikely, but not impossible, that the smaller of the two bones belonged to the child burial. Yet, even though it was shorter, it was still large relative to the size of the skull. No adult skull was found. A fully-fused clavicle was also present and, as this is the last bone in the body to fuse on the sternal end, it indicates that this adult was at least 25-30 years of age.

Trench W Grave W1

The grave contained two burials, an adult and child, both aligned on a north-south axis, with the heads located to the south. The adult burial demonstrated a remarkable degree of preservation and

was lifted almost intact. The adult was almost completely covered in a textile shroud making an estimation of sex or age impossible.

Trench Y Grave Y1

The grave followed a north-south axis, with the skull to the south. The grave contained the skeleton of an adult male. All the bones had fully fused and both the skull and pelvis clearly exhibited male characteristics. The age is estimated to be in the region of 30-35 years.

Trench Y Grave Y2

Grave Y2 represents a looted tomb.

Trench Z Grave Z1

This grave was orientated along a north-south axis, with the skull to the south, and contained the skeleton of an adult female. Both the skull and pelvis were that of a female and all the teeth, including the third molars, had erupted.

Trench Z Grave Z2

This grave, also orientated along a north-south axis, with the skull to the south, contained the skeleton of a child. It is estimated that the child was between 2-3 years of age. Sex is unknown.

Trench Θ Grave Θ1

This grave contained a single adult burial, which followed an east-west axis (with the skull to the west). The morphology indicated that the skeleton was that of a male; however, the ventral arc on the pelvis exhibited certain female characteristics. Nonetheless, it is believed that this is just a natural variation of the skeleton, as all other areas that indicate sex were clearly male. Age is estimated to represent an older male, probably 40-50 years of age. Apart from the normal indications of age, the skeleton showed evidence of osteoarthritis in the lower vertebrae.

Trench Θ Grave Θ2

This grave, also orientated along an east-west axis (with the skull to the west), contained the skeleton of an adult female. All the bones were fully fused and all the teeth had erupted. The mandible was quite heavy, but all other signs pointed to a female classification. Age was estimated somewhere between 30-35 years.

Trench Θ Grave Θ3

This grave contained the skeleton of an adult female. All the bones were fully fused and all the teeth had erupted. The molars showed evidence of considerable wear, with the enamel completely worn away revealing the dentine. Parts of the suture between the occipital and the parietal bones in the skull have completely fused. Age was estimated somewhere between 35-45 years.

Grave Typologies

Grave-type A represented the predominant grave-type in the cemetery and included Graves T1, T2, U1, W (both inhumations), Y1, Y2 and Z1. The grave-type consists of a shaft grave with a *loculus* undercut to the east at the base of the shaft. This undercutting is sealed by adobe bricks propped at an angle against the east wall of the shaft. The grave is orientated north-south, with the skull to the south in every case.

This is the most characteristic grave-type found at Khirbat Kazūn and is particularly important in relation to similar graves first discovered at Khirbat Qumrān (Politis 2005: 149-151).

Type A	Length of shaft (north-south)	Width of shaft (west-east)	Depth of shaft
Grave T1	2.30m	0.40m	1.12m
Grave T2	2.08m	0.45m	0.82m
Grave U1	1.90m	0.50m	1.20m
Grave W	2.22m	0.62m	1.76m
Grave Y1	1.95m	0.50m	1.60m
Grave Y2	1.98m	0.62m	1.48m
Grave Z1	2.24m	0.52m	1.24m

Grave-type B is the type found to the northwest of the cemetery, specifically in Trench R. These graves are aligned along an east-west axis, with the skulls to the west. Large roughly-hewn slabs seal the grave-cut which tapers slightly to the east. The graves are multiple and in one instance (i.e. Grave R) contained seven individuals.

Grave-type C is the type found to the west of the cemetery (represented by graves Θ2, Θ3, Σ1, Σ2 and Σ4). These graves are orientated east-west but, as opposed to those in Trench R, each grave contains only a single burial. Most of the skeletons associated with this grave-type have been positioned on their right sides, facing south, and secured in this position with the aid of small stones. No grave-goods accompanied the bodies. These five graves contained a narrow *loculus*, in which the skeleton was laid out, forming a wide platform feature within the northern section of the grave-cut. None of the *loculi* were sealed and were all filled with soil.

Grave-type D (represented by graves Θ1 and Σ3) is the type found in association with type-C

graves. These graves are composed of a simple cut and lack the platform feature associated with type C. The skeletons are supine with the head turned to face south. The left arm was slightly bent over the lower vertebrae with the hand placed on the pelvis.

Grave-type E is characterised by a stone sarcophagus and is represented by one unique shaft grave in Trench P in the southeast of the cemetery.

Grave-type F is represented by two robbed-out tombs to the southeast of the cemetery and is characterised by a rectangular receptacle constructed of adobe bricks. The receptacle is located centrally at the base of the shaft. This *loculus* was capped with horizontal adobe bricks, which sealed the receptacle.

Summary and Conclusions

In total twelve trenches (each measuring 5m x 5m) were opened in various areas of the cemetery. The objectives of this strategy was to help establish the variety of tomb types throughout the cemetery and the chronological sequence of various areas of the cemetery.

A total of 20 new graves were recorded and DNA samples were taken from all of the intact skeletons in order to help ascertain the ethnicity of the interments and whether specific tomb types are indicative of ethnic/cultural groups.

A complete contour survey of the cemetery was conducted incorporating previous excavation areas. Finally a digital map was produced recording all natural features and excavation trenches.

It is hoped that with the 2004 field season in addition to the previous work completed at Khirbat Kazūn, sufficient material evidence will be made available to understand the nature of this key site in the context of the Dead Sea region during the Late Roman period.

The Staff

The archaeological excavations were conducted by Amanda Kelly with the assistance of Salha Sulieman Ghareeb and Lisa Usman, physical anthropologist. The survey was carried out by Joseph Severin with the assistance of Neil Brodie. Leslie Acton was the conservator, Caroline Hebron illustrated the finds and Trevor Springett was the photographer. The Department of Antiquities was represented by Imad al Drous and Mohammed Zahran Hashoush. Locally hired workers included Mohammed Ahmed Muslim Atawheh, Mohammed Ibrahim Muslim Atawheh, Ziad Suleiman Muslim Ataweh and Noor Al-din Khaled Abdel Latif. The project was directed by Konstantinos Politis.

Acknowledgments

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Bibliography

Granger-Taylor, H.
2000 The Textiles from Khirbet Qazone (Jordan). Pp. 149-162; pl. 2, fig.9 and 4. in *Archeologie des textiles des origins au Ve siecle. Acte du colloque Lattes, octobre 1999.* Editions Monique Mergoil, Montagnac.

Hayes, J.
1972 *Late Roman Pottery.* London.

Politis, K. D.
2005 The Discovery and excavation of the Khirbet Qazone cemetery, and its significance relative to Qumran. Pp. 149-151 in *Qumran – The Site of the Dead Sea Scrolls: Archaeological Interpretations and Debates.* Conference held at Brown University, November 17-19 2002. Boston: Brill Academic Publishers.
1998 Rescue Excavations in the Nabataean Cemetery at Khirbat Qazone 1996-1997. *ADAJ* 42: 611-614.

BAYḌĀ DOCUMENTATION PROJECT

Patricia M. Bikai, Chrysanthos Kanellopoulos and Shari Lee Saunders

The objective of the project is to document all features in an area of Bayḍā that stretches from the highway in the east to (but not including) Sīq al-Bārid in the west, and from Sīq al-Imṭī in the north to the wadi in the south (**Fig. 1**). The strategy for documenting features consists of minimal clearance, mainly of windblown sand and other late debris, in order to define major installations so that they can be mapped and described. Only in a few instances has excavation been undertaken.

In the autumn of 2004[1], the focus was on a series of bedrock outcrops and an open area in what



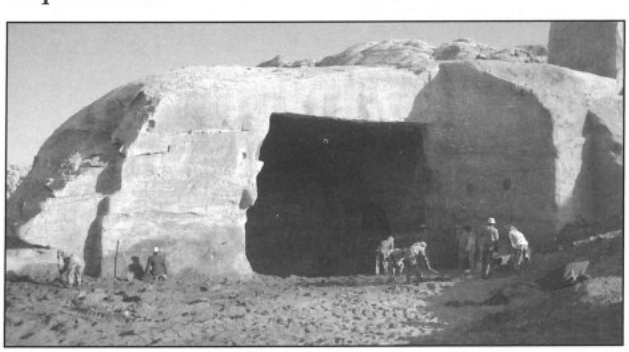
1. View of the study area, IKONOS satellite image by Space Imaging.

1. A report on the Fall 2003 and Spring 2004 seasons of the project will appear in the proceedings of the ninth conference on the Studies in the History and Archaeology of Jordan (Petra 2004). See also Bikai 2003, 2004a-c.

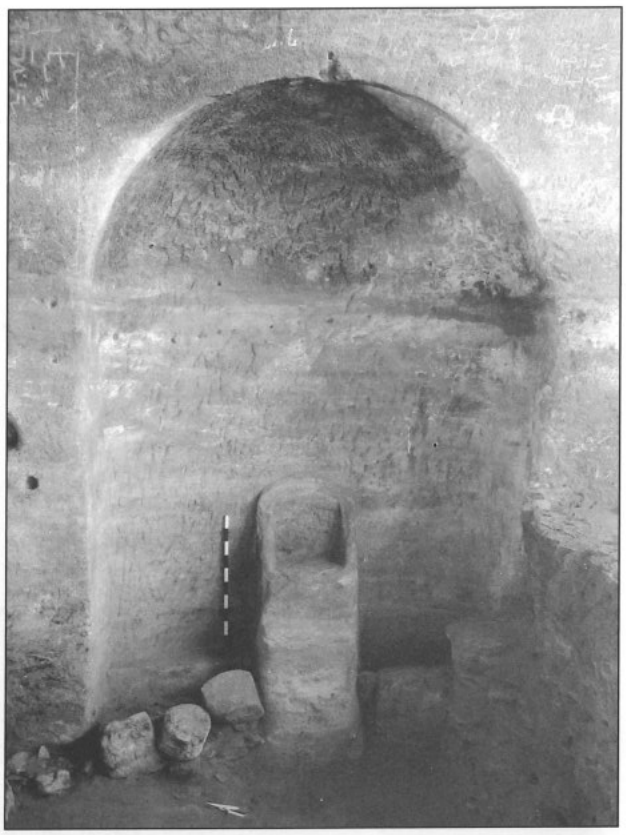
is called Khirbat al-Bayḍā. In this area are two large Nabataean halls cut into bedrock, Nabataean tombs, at least one cistern, and, nearby, numerous walls indicating habitation. Some of the habitation areas were tested and found to be very similar in that they all appear to be from late antiquity, i.e., perhaps mid-second millennium AD. The structures are poorly built but are so regularly laid out they may have all been constructed at one time, perhaps to accommodate agricultural workers or the like.

Nabataean constructions into bedrock are in evidence nearby but have suffered in recent years as they were used as animal pens, probably beginning in the era of the medieval houses, but continuing up to the present. The largest of these Nabataean rock-cut halls (7.60 x 8.70 x 7.60m high, **Fig. 2**) was cleared and it was found to have been reconfigured as a church in the Byzantine period. The modifications included the cutting of an apse, which included a bishop's chair, into the eastern wall of the chamber (**Fig. 3**). Finally, just east of Sīq al-Imṭī, a rock-cut cistern was documented (**Fig. 4**). This cistern is known locally as Bīr al-'Arāyis (Cistern of the Brides). It was cleared of debris by Diana Kirkbride while she was working at Neolithic al-Bayḍā in the 1950s and was cleared again by GTZ in recent times. With a capacity of 1075 cubic meters, it is the largest enclosed cistern in the region.

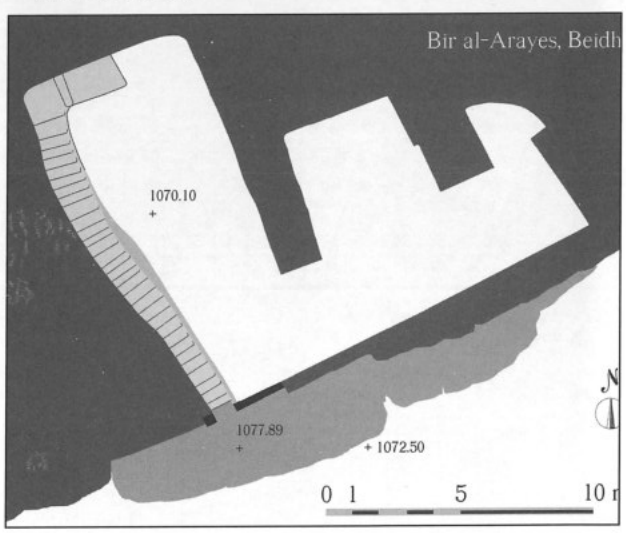
The fourth season in the spring of 2005, began with the documentation of features in the western part of the study area. In that sector more buildings of the medieval period were identified, as were installations cut into bedrock that included two wine presses, two cisterns, and large water channels. These water channels may have been connected to the main water system coming from the east on aqueducts. Finally, in the area are two rooms cut into bedrock. The larger of these is perhaps a Nabataean triclinium but this was not confirmed. Various nearby niches and installations were also documented, including a room cut in the cliff facing Sīq al-Bārid.



2. Nabataean hall (Locus 310), (photo by Patricia M. Bikai).



3. Apse and bishop's chair cut into Locus 310 (photo by Patricia M. Bikai).



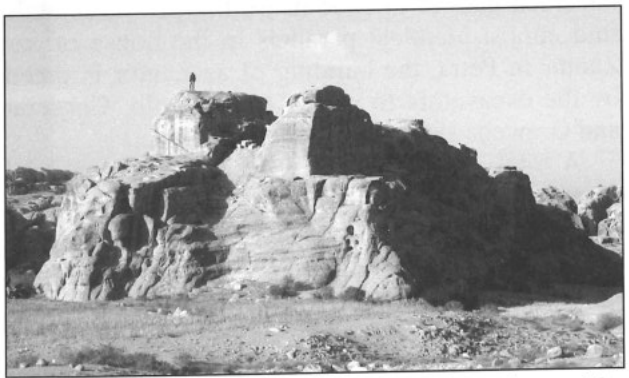
4. Plan of the cistern known locally as the Cistern of the Brides (plan by Chrysanthos Kanellopoulos).

Work then shifted to a high bedrock promontory on the eastern side of the study area. On the east end of this outcrop are two flattened areas on either side of a depression that is partially natural and partially excavated from the sandstone. Taken as a whole (the two flattened areas and the depression), the area measures 14.80 x 28m. The promontory slopes down to the west.

Near the base of that slope, clearance of a wall revealed remains of a massive portal leading to a complex above. The thick wall of the entry was secured to the bedrock with L-shaped cuts, a construction technique evident in several locations on the knoll. A large socle suggested the substantial size of the door. Inside the gate and some distance uphill, a small sounding uncovered smoothly finished white flagstones that probably had once paved the entire length of the ramped/stepped pathway that proceeded eastwards and upwards, climbing a height of ca. 8m. The size of the flagstones ranged from 44 to 61cm in length and from 32.5 to 43cm in width. They were set at a slightly oblique angle to the massive retaining wall (1.20-1.60m thick) that defined the pathway's north side.

At the top and east end of the promontory, the team excavated the depression between the two rock-cut squared projections which distinguish the knoll's east side (**Fig. 5**). The top edge of the depression had been cut to carry arch springers for a vaulted cryptoporticus that originally may have measured more than 20m in length. Due to the dangerous slope on the promontory's east side, the excavation team could not clear the entire length of the rectangular space. Cuts on the bedrock, however, suggest that a vault covered the entire space.

The north wall of the cryptoporticus was cut from bedrock, whereas the south wall was the natural rock face; the maximum width of this space is 3.65m. The floor of the cryptoporticus was created from cut bedrock and hard-packed sandstone fill. A natural crevice in the center of the depression had been filled with sandstone rubble and earth to create a level floor surface ca. 2.5m below the level of the springers. A 1.5m deep sounding into this rubble fill did not determine the depth of the crevice and no artifacts were found to help date the construction.



5. Sandstone outcrop at the eastern end of the study area (the promontory), the floor of the original building was at the level where the person is standing, the building materials including the capitals, were found in the notch between the two sections of bedrock (photo by Shari Saunders).

Likely, the creation of the floor was contemporaneous with a rock-cut basin located in the north wall since the basin is at an appropriate height from the floor for use as a watering station for pack animals. A tethering hole on its left side suggests this purpose. The basin (76 x 74 x 44cm) could hold ca. 80 liters of water, although 64 liters is a more realistic amount. Such an amount would be sufficient to water a few animals each day as a mature horse requires 30-45 liters of water per day. The basin was filled manually as there is no evidence of a channel to feed it from another source. Directly to the east of the basin is a tall plastered niche with a shallow basin cut in the bottom. This niche may be a manger. Four rock-cut holes in the upper sides of this niche are reminiscent of the construction of horse stalls at Mampsis (Negev 1971: 166-171). The two wooden beams that fit into these holes may have served as hitching rails for horses or donkeys. This basin, however, is rather low (ca. 35cm) for a manger, as it should be ca. 1m high for mature horses. Both the basin and the manger were finished with white plaster and combined suggest that this was a way station for animals that had carried materials for the original construction or goods for use while the building was occupied.

Large, irregularly shaped boulders capped the sandstone fill of the floor where a wall (Locus 442) was built across the cryptoporticus. This cross wall (3.36 x 0.58 x 2.22m) had a door in its first phase of construction. Later, the door was blocked with a mixture of cut blocks, small stones, a recycled doorjamb and a tethering stone. The period of time between construction and blocking may have been quite short as the method of construction is very similar. It has not been determined if the foundation of boulders is contemporaneous with the construction of the floor or if the floor was dug out in this area at a later date so that the boulders could be laid. The wall may have been constructed to support a weakened arch or it may have been intended simply to divide the space of the cryptoporticus.

The cross wall defined two areas of excavation. Within centimeters of the surface, column drums appeared on both sides of the wall. The fill to the east of the wall (Locus 446) was more than 2.5m deep and composed almost entirely of architectural fragments: column drums, capital and cornice fragments and a few ashlars. Six different mason's marks were inscribed on the exterior edge of six column drums. With the exception of a few iron nails, a hinge and wood dowels, no small finds were unearthed. On the west side of the cross wall, the fill (Locus 441) included fewer column drums (25% of the total) and significantly more ashlars

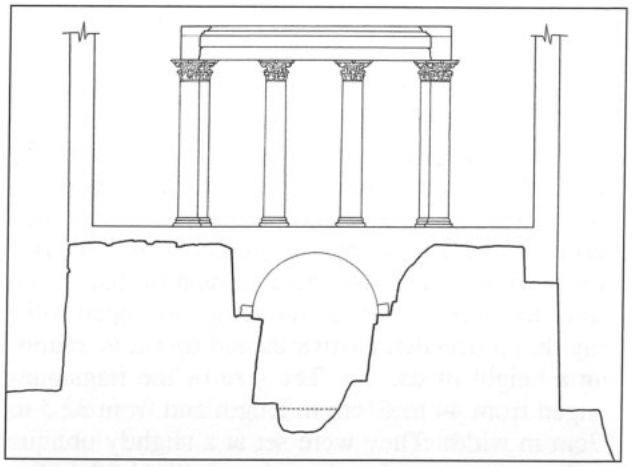
(82% of the total) as the excavation moved westwards towards the entry of the cryptoporticus. Here the deposition of architectural fragments was only ca. 1.5m deep as it lay on a 0.80m thick layer of hard-packed, wind-blown soil that had accumulated against the cross wall. Both layers of fill were compacted and the stones found there were covered with an accretion, suggesting that the cross wall also caused rainwater to collect in this area.

In only two instances in Loci 446 and 441 did two or three column drums fall in a line; in all other instances, the fill was a jumbled deposit that appeared to represent one deposition event. The insignificant numbers of ashlars and the absence of column bases and architraves suggest that this deposit is not the result of natural destruction, such as an earthquake, that would have brought all architectural elements tumbling down. Rather, the jumbled and selective nature of the fill suggests human dismantling of the building with some elements discarded into the collapsed cryptoporticus and some elements removed for reuse at another location. The thick layer of wind-blown soil on the west side of the cross wall indicates that the building was dismantled after the cryptoporticus had fallen into disuse and its entry was open to the weather.

The architectural elements recovered from the vaulted infrastructure were from a Corinthian colonnade that had stood above the vault on the flattened area of the promontory. The colonnade material includes column drums, at least five column capitals and one anta capital, a few wall ashlars, blocks of a heart-shaped corner pier and a number of cornices. The heart-shaped piers suggest that the colonnade was an interior one, most probably of a roofed colonnaded hall, an open-air atrium or, less probably, of a raised altar platform. The diameter of the columns is 0.61-0.63m. The overall width of the rectangle of the flattened area is 14.80m and the length about 28m. lengthwise, it must have accommodated structures other than the colonnaded hall. The width can accommodate the exterior walls, two columns and two heart-shaped piers (for a total of four piers). If the aisle were a reasonable width, there is no space for six piers.

Excavations to the west of the cryptoporticus revealed the infrastructure of the building's façade and the base of a staircase, the latter 2.5m wide. The elevated hall would have originally stood at least 5.50m above the floor of the vaulted infrastructure (**Fig. 6**).

The Corinthian capitals are of the general floral type, but the decoration features grapes and grape leaves, including grape leaves wrapped around the volutes (**Fig. 7**). Volutes and acanthus leaves are



6. Section through the eastern end of the promontory (plan by Chrysanthos Kanellopoulos).



7. One of the capitals (photo by Patricia M. Bikai).

treated with the fine "ripple" technique found, for example, in the capitals of the Great Temple (see Joukowsky 1998: 227). The boss on the each side of the capital is shaped in the form of a human head — a total of four heads for every column capital. Another set of capitals with seemingly the same dimensions, has a garland on the abacus and carved Medusa heads and palmettes on the abacus corners. These must have belonged to a second arrangement in the elevated structure, possibly a colonnaded gate or anteroom. Both types of capitals find almost identical parallels in the house of az-Zanṭūr in Petra, the building of az-Zanṭūr is dated by the excavators to after AD 20 (Kolb, Gorgerat and Grawehr 1999: 269, figs. 5-6).

A total of 22 sculptured heads were recovered from Loci 441 and 445. Twelve heads are female, eight are male and two are too fragmentary to determine their gender. All of the al-Bayḍā heads are carved from local sandstone and have similar dimensions, being approximately half life-size.

Four heads remained attached to capitals and two to capital fragments, providing solid evidence for their original placement. They were the decorative bosses that embellished the center point of the abacus on each side of the capital. In fact, the

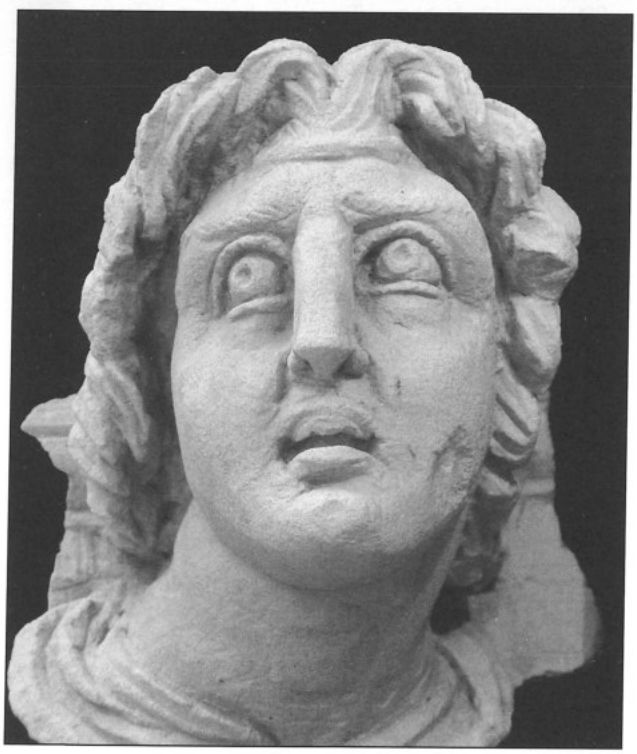
line that was cut into the top surface of capitals to guide symmetrical sculpting appeared on the flat crowns of nine heads. This evidence serves to identify the probable function of similar heads found in Petra (Fiema *et al.* 2001: 353, no. 130). Similar capital decoration has been well attested at Khirbat at-Tannūr (Glueck 1965: pls. 132-134); az-Zanṭūr (Kolb, Gorgerat and Grawehr 1999: fig. 6); Temple of the Winged Lions (Hammond 1997: 51); Mā'īn (Glueck 1965: pl. 132c); and the Ḥawrān (see Glueck 1965: 224). As elements integral to the architectural design of a building, the heads must be viewed as very high relief rather than sculpture in the round. Perhaps this limitation to the third dimension was what led Glueck to label the Khirbat at-Tannūr examples as 'masks'.

Initial examination of the al-Bayḍā group suggests multiple sculptors at work. Some faces are sculpted in a classicizing style whereas others are strongly provincial, but many share a mixture of features. Take, for example, al-Bayḍā Head 18 (**Fig. 8**): the wild, Alexander-like hair, the turned head with upward gaze, the furrowed eyebrows and slightly open mouth all feature in the pathos formulae of Hellenistic sculpture. A similar sculptural style is seen in the so-called "1967 Group of Sculpture" from Petra's Temenos Gate (McKenzie 1990: 134-135, and particularly pls. 62 and 65), and the Doric frieze of Qaṣr al-Bint (McKenzie 1990: pl. 68c). On the other hand, the rather harsh modeling with strong transitions between planes, the frontal aspect and the four columns of ringlets on each side of al-Bayḍā Head 11 (**Fig. 9**) are reminiscent of stylized Parthian sculpture. A group of sculpture from Petra, Khirbat at-Tannūr and Khirbat adh-Dharīḥ has been recognized recently based on their similarity their fleshy faces, ornamental hairstyles and stiffly carved features (Schmid 2001: 394). It would seem that some of the al-Bayḍā heads belong to this group.

The duality of style on the al-Bayḍā monument, which seems to have one building phase, suggests that sculptural style should not be used alone as a chronological indicator since the "1967 Group" is dated to the late first century BC, while the more stylistic group is dated to the middle or second half of the first century AD. It is interesting that the two examples from al-Bayḍā presented here share some stylistic features, such as strongly delineated eyelids and deeply carved pupils.

Preliminary observations suggest that the Bayðå heads represent Greco-Roman deities, although the paucity of depictions of their unique attributes makes identification difficult. Initial observations have suggested that the group includes Aphrodite/Venus, Bacchus, Demeter/Ceres, Dionysus, Hebe, Heracles/Hercules, Hermes/Mercury, Pan, Persephone/Kore and Zeus/Jupiter.

Currently, the heads and capitals are being conserved and restored.



8. "Hermes / Mercury" (photo by Patricia M. Bikai).



9. "Aphrodite/Venus" (photo by Patricia M. Bikai).

Acknowledgments

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Staff: Chrysanthos Kanellopoulos, architect; Shari Saunders, archaeologist; Julia Costello, archaeologist; Fawwaz Isahqat, surveyor (Hashemite U.); Fraser Parsons, site engineer and photographer; trainees: Aysha Shoman, Dina Namraqa, and Najd Sweidan; volunteers: Peggie Abujaber, Karen Asfour, Joyce Kasim, and Christopher Tuttle.

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Bibliography

Bikai, P.M.
2003 Beidha al-Amti. *ACOR Newsletter* 15.2: 1-3.
2004a Petra Environs: Beidha. *ACOR Newsletter* 16.1: 8.
2004b Beidha. *ACOR Newsletter* 16.2: 5-6.
2004c Beidha al-Amti. Pp 439-441 in S.H. Savage, K.A. Zamora and D.R. Keller (eds.), Archaeology in Jordan, 2003 Season, *American Journal of Archaeology* 108: 429-445.

Fiema, Z.T., Kanellopoulos, C., Waliszewski, T. and Schick, R.
2001 *The Petra Church.* American Center of Oriental Research Publication 3. Amman: American Center of Oriental Research.

Joukowsky, M.S.
1998 *Petra Great Temple Volume I: Brown University Excavations 1993-1997.* Providence, R.I.: Brown University Petra Exploration Fund.

Glueck, N.
1965 *Deities and Dolphins.* New York: Farrar, Straus and Giroux.

Hammond, Ph.C.
1977 The Capitals from "The Temple of the Winged Lions, Petra". *BASOR* 226: 47-51.

Kolb, B., Gorgerat, L. and Grawehr, M.
1999 Swiss-Liechtenstein Excavations on Az-Zantur in Petra, 1998. *ADAJ* 43: 261-277.

McKenzie, J.S.
1990 *Architecture of Petra.* British Academy Monographs in Archaeology No. 1. Oxford: Oxford University Press.

Negev, A.
1971 Mampsis: A Report on Excavations of a Nabataeo-Roman Town. *Archaeology* 24: 166-171.

Schmid, S.G.
2001 The Nabataeans: Travellers between Lifestyles. Pp. 367-426 in B. McDonald, R. Adams and P. Bienkowski (eds.), *The Archaeology of Jordan.* Sheffield, England: Sheffield Academic Press.

MOSAIC FLOORS IN THE BAPTISM SITE (BETHANY BEYOND THE JORDAN)

Mohammad Waheeb

Interest in the Baptism site started in 1996 when the Jordanian team with direct support of the General Director of Antiquities started archaeological survey on the eastern side of Jordan River, so as to protect the archaeological sites along Wādī al-Kharrār from direct and indirect threats of destruction caused by human and natural factors. Limited excavations conducted in selected locations during 1997 revealed the presence of more than 10 archaeological sites scattered in the area. The significance of the finds was properly understood by the team and early schemes were submitted to develop the site as tourist a destination (Waheeb 1997).

The Discovered Architectural Remains

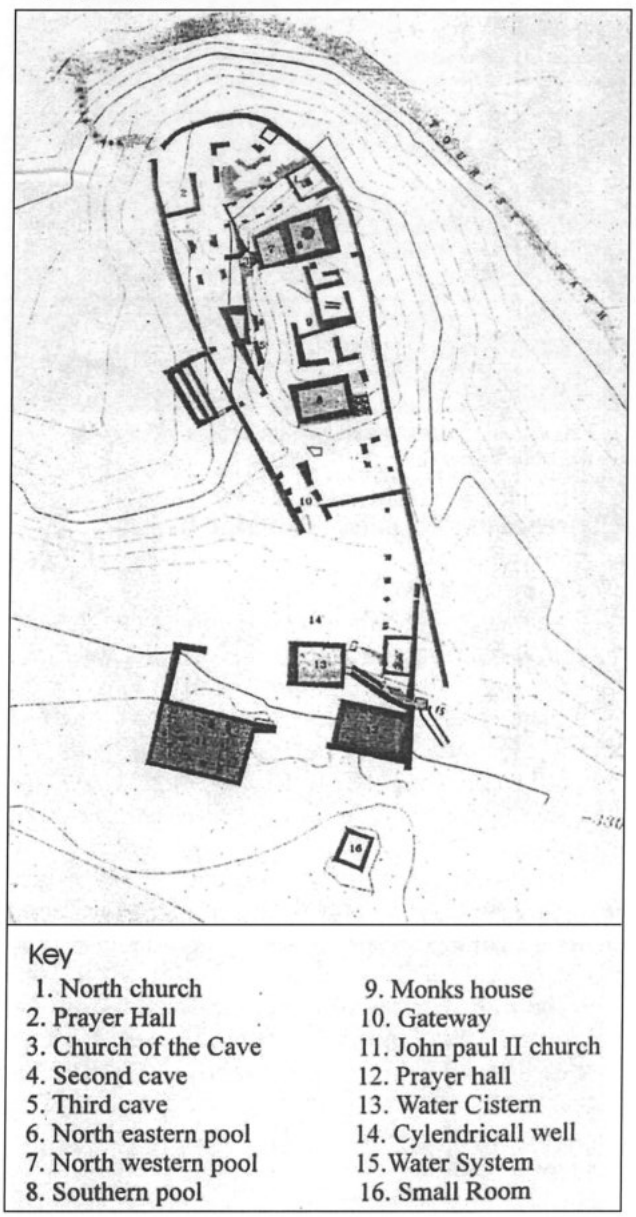
The following architectural remains were discovered during the systematic excavations between 1996-2002:-

- Tall Mār Ilyās: Churches with mosaic floors, water cisterns, pools caves of the monks etc. (Waheeb 1998, 1999) (**Figs. 1, 2**).

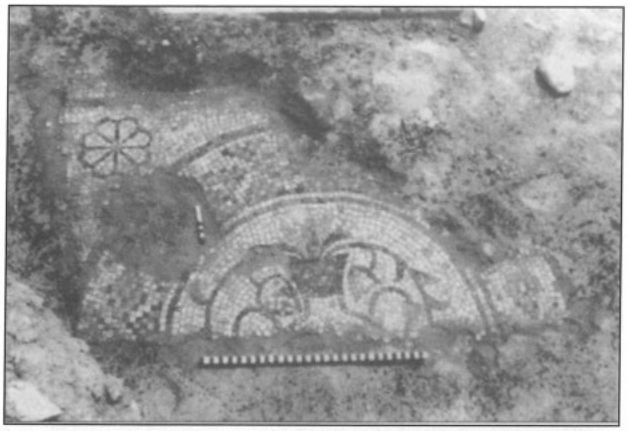


1. General view of Tall al-Kharrār with its churches.

- The Zur Area (Eastern Bank of Jordan River): Churches with mosaic floors, staircase, caves of the monks, large pool etc. (Waheeb 2001, 2002) (**Figs. 3, 4**).



2. Plan of the Tall al-Kharrār.



3. Remains of mosaic floor found in John the Baptist church – Jordan River.



4. Fallen stones rested directly on the mosaic floor of the John the Baptist church.

Churches and Mosaics (Tall Mār Ilyās)

The Northern Church

The church consists of two sections: the chancel screen, which measures 4.20m N-S x 4.15m E-W, and the nave which measures 8.85m E-W x 4.15m N-S. The chapel has two entrances, one located in the northern wall, measuring (70cm wide) and the other located on the western side. What distinguishes this church is the Greek inscription found inside.

The floor of the church was covered with a colored mosaic floor composed of a frame and crosses depicted with geometrical designs. Pillars along the northern wall of the church were designed to support the roof. No roof tiles were recovered from the excavations, and possibly the roof comprised of wooden beams which were washed away. The internal walls of the church were covered with a smooth white plaster layer. Other buildings associated with the church near the northern wall were severely damaged by natural factors during later periods. The available recovered material suggests a late Byzantine date.

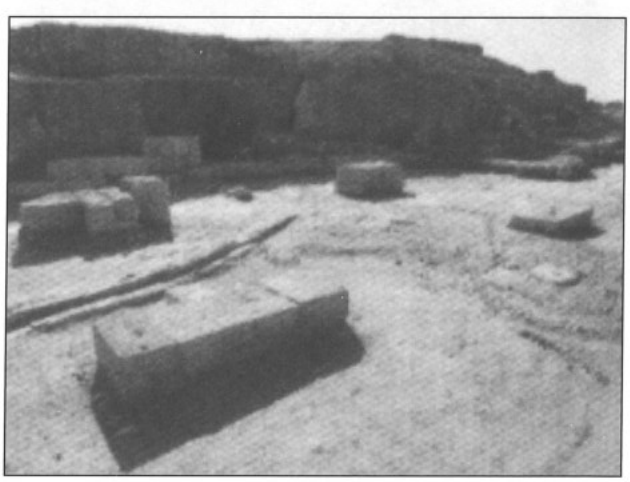
The Western Church

After cutting the western Lisan marl slope of the hill, a retaining wall was built, and afterwards the church which measures 13m x 13m was constructed, consisting of two parts. The apse (old cave) was cut in the natural rock and located under the northwestern pool. The apse was well prepared and a lamp niche was dug in its southern side. The remains of the door of the chancel screen are still visible. The other part of the church consisted of four bases built of well-dressed sandstone ashlars creating a nave and two aisles (Basilica type). The roof and the arch system were demolished, where only remains of arch springs were found.

The floor was covered with colored mosaics that were unfortunately totally destroyed. Only fragments with remains of gray lime mortar were found during the excavation. Some of these fragments show cross signs which decorated the floor (**Fig. 5**). It is vital to understand the reasons behind this destruction, since the nearby mosaic floor of the northern church was still preserved. Pottery sherds indicate a late Byzantine date.

The Mosaic Floor

The excavations uncovered a small building, which measures approximately 6m x 6m located north of the second church and west of the northern church. What remains from the site is the colored mosaic floor, decorated with floral designs, but in a poor state of preservation due to natural factors and erosion. The walls of the structure were built of fieldstone. Unfortunately, only the foundations are still *in situ*. The function of this structure should probably be interpreted in association with the nearby churches.



5. Fragments of mosaic floor (Church of the Cave).

The Prayer Hall

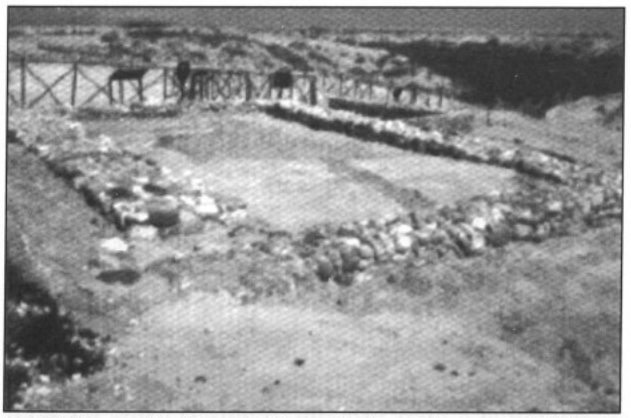
Excavations revealed the presence of a rectangular building of undressed fieldstones, measuring approximately 11.75m E-W and 7.30m N-S, located near the southeastern corner of Tall al-Kharrār. The floor of the structure was already in a bad state of preservation before the latest use of the building during the late Byzantine period. The floor was paved with a white mosaic pavement, while the ashes of the final destruction rested directly on the extant parts of the white mosaic. The ashy layer possibly represents the remains of fired wood beams, which were used in roofing the structure. The manner of construction and location of this structure supported our suggestion that the structure functioned as Prayer Hall for Christians, rather than as a chapel.

The available material recovered during the excavations gave the structure an earlier date, which is the late Roman period.

Two medium rooms were located adjacent to the north-eastern corner, and possibly served as service rooms related to the structure, the floors were paved with cobble stones, and fieldstones were used in building the walls. The rooms suffered severe destruction during the construction of the aqueducts in the Byzantine period (**Figs. 6 and 7**).

The Church of the Arch

Excavations conducted in area "C" to the south of Tall al-Kharrār uncovered a structure built of well-dressed sandstone blocks. The general shape of the structure is rectangular, its dimensions are approximately 13.5m E-W and 9m N-S, many parts of this building have disappeared, especially the upper courses, the walls and part of the floor, with only limited portions still preserved. What remains are a few stones resting on a lime-plastered surface overlying carefully prepared rubble stone and gray to dark ashy mortar which resembled the



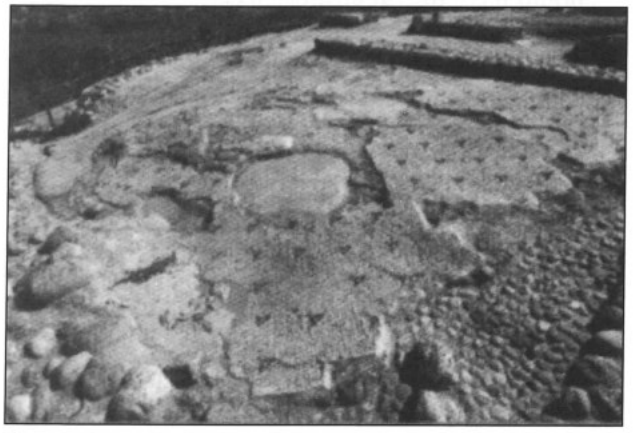
7. White mosaic floor of Prayer hall southeastern of Tall al-Kharrār.

bedding cement of the structure. The colored mosaic floor with cross marks depicted on it was largely destroyed and removed, and only a small portion in the south-eastern corner of the church is still in situ. The fill contained fragments of lime with some mosaic tesserae still adhering to it. Impressions on the mortar bedding and the springs of arches indicate that an arch system was used to support the roof of the structure. It is clear that the structure represents a small chapel located near the southwestern corner of Tall al-Kharrār. The chapel consisted of two parts, with three arches to support the roof. Courtyard remains were recovered near the northwestern corner of the structure. It is difficult to locate the doorway of the chapel, but the location of the courtyard suggested that the door was possibly located in the northern wall, especially the northwestern corner just opposite Tall al-Kharrār. The recovered material dated the structure from the fourth to the sixth century (**Fig. 8**).

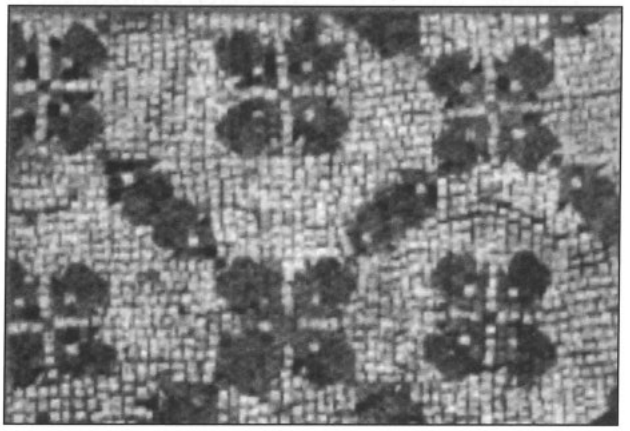
Churches of the Zur Area

The First Church

The excavations revealed several well-cut ash-



6. Mosaic of Prayer Hall (North West of Tall al-Kharrār).



8. Mosaic Floor related to church of the arch.

lars fallen and scattered between the foundations of the church, mixed with Byzantine pottery sherds and some coins. It is difficult to find standing pillars in the church although one of these pillars was found intact, fallen on the floor and consisting of well-hewn sandstone ashlars. Some plain white mosaic fragments were found scattered.

Unfortunately, the stones of the other fallen pillars and the church were removed and used to build other nearby structures.

A layer of dark ash was noticed under this pillar indicating a destruction phases. It is reasonable to assume that a high structure (church) using the arch and vault system was standing at the site. Many well-cut keystones were recovered scattered all over the site, indicating remains of fallen arches.

Judging from the available evidences it is clear that these arches were designed to support a church, which is later destroyed by the river, the water from the spring and by the earthquakes.

The Second Church

A marble floor of square, triangular and octagonal shapes is most likely part of a church built directly beside the first church.

When the first church collapsed and was destroyed, the builders decided to build another church, this time without pillars and vaults to carry the body of the church, the second church was built directly on the natural ground (the alluvial sand of the river) while the pillars of the first church to the north functioned as a protection wall against the threats of the floods of the river. Despite this, it is clear that the marble floor and the whole church were affected by the floods and the earthquakes, destroying the second church and giving the builders a reason to build the third church on the top of the second one.

The Third Church

The third church covered an area approximately 20 x 20m. The builders of the church used several materials to construct a unique church east of the Jordan River. Among the recovered materials were well-dressed sandstone ashlars, marble pavement of different kinds and colors, mosaic floors with floral and geometrical designs, which reflect high standards of skillful techniques.

The church consists of three aisles the northern aisle was built directly on a part of the first church while the central and the southern aisles were built on the top of an older structure possibly another church that was partly excavated.

The altar of the church was located in the midst of the central aisle and surrounded by marble pavement from the east side.

The floor of the church was paved with colored mosaic. Part of this mosaic is in situ in the chancel screen area which represents floral designs and rosettes. The western section of the church was partly damaged and removed, possibly by the flood of the river in the past. The builders of the church raised the level of the ground to keep the body of the church away from threats of the river flood. The thick layer of fill was added to the lower (former) church so as to raise the level of the ground.

The northern and southern aisles were paved with colored mosaic and are still *in situ*, especially in the southwestern corner of the southern aisle where the fallen stones of the church still rest on this floor.

General Description of the Mosaic Floors

Strengths

1- The mosaic floors in the Baptismal site are still subject to continue and intensive preservation works.
2- Wooden fences and shelters were built around and over the mosaic floors so as to protect it from natural threats.
3- The Baptism site has been declared on archaeological and natural park. This status affords protection to the site and establishes power of control for the relevant regulatory authority.
4- The primary asset for the Baptism site are the archaeological finds/churches, mosaic floors, pools, caves etc.
5- The remains of mosaic floors of the Baptism site are the only mosaics located close to River Jordan (east bank) in southern Ghawrs in Jordan valley, which may attract visitors to the whole area.
6- Awareness exists among key stakeholders regarding the importance of mosaic of the site and should have the highest priority.

Weaknesses or Threats

The baptism site is fragile (Lisan marl formation) and this affected and will affect mosaic floors causing more destruction to its foundation.

1- Frequent flashfloods occur during the rainy season in the Baptism site Area and this presents a direct threat to the safety of excavated and restored archaeological mosaic floors.
2- The current built wooden shelters over the mosaic floors cannot prevent seepage during rainy season.
3- There is no tradition associated with tourism or the concepts of sustainability in the local area,

and amongst the local people, especially in mosaics as traditional crafts.

4- Danger of fire is expected and up till now there is no mitigation measures adopted to reduce this threat.

Opportunities

1. The establishment of a mosaic school in the area since the Baptism site has the potential to become one of the most popular stops on the regional Holy land tourism circuit.
2. Enhancement of local community involvement in protecting the mosaic floors in and outside of the Baptism sites (field investigations revealed the presence of several mosaic floors surrounding the site in Roman, Kafrayn, Swayma etc.).

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References

Waheeb, M.
1997 Report On The Excavations At Wadi Al Kafrein Southern Ghors (Al-Aghwar). *ADAJ* 41: 463-468.
1998 New Discoveries Near the Baptism Site (Jordan River) (Al- Maghtas Project). *Occident & Orient* 3, No. 1: 19-20.
1998 Wadi el-Kharrar (al Maghtas). *AJA* 102, No. 3: 106.
1998 New Discoveries Near The Jordan River. *Al Reem* 62: 12-14.
1998 Wadi AL- Kharrar Archaeological Project (Al-Maghtas). *ADAJ* 42: 635-638.
1999 Wadi Al-Kharrar Archaeological Project: The Monastery. *ADAJ* 43: 549-557.

Waheeb, M.
1999 Tell El- Kharrar. *AJA* 103, No. 3: 514-515.
1999 Ancient Water Supply Systems in Bethany Beyond the Jordan. Pp. 545-547 in *Archaeology of Water in the Middle East.* International Symposium Men of Dikes and Canals. Petra, Jordan.
1999 Archaeological Excavations at the Baptism Site, *Bethany Beyond the Jordan.* Bible and Spade 14, No. 2: 43-53.
2001 Wadi al-Kharrar Archaeological Project, the survey *SHAJ* 7: 591-601.
2001 A New Discovered Church in the Baptism Site. *AJA.*
2002 Wadi Kharrar. *AJA* 106: 445.
2002 *Recent discoveries in Bethany Beyond Jordan, East Bank of Jordan River.* International Conference Science and Technology in Archaeology and Conservation, Hashemite University 12-18/2002, Jordan.

The ARCHAEOLOGICAL SITE OF QAṢR AL-UṢAYKHIM

Maysoun Al-Khouri and Giuseppe Claudio Infranca

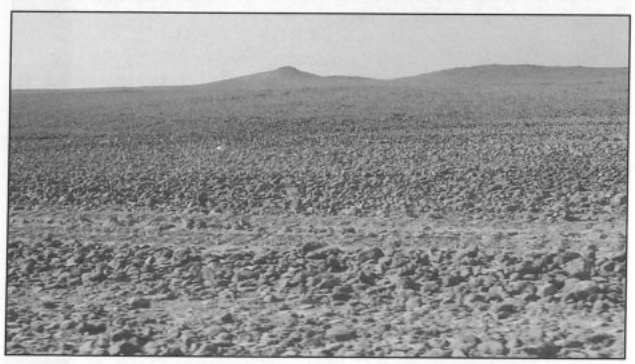
Introduction

The site of Qaṣr al-Uṣaykhim is situated on the northeastern side of Jordan, in the black desert called *al-bādiya*.

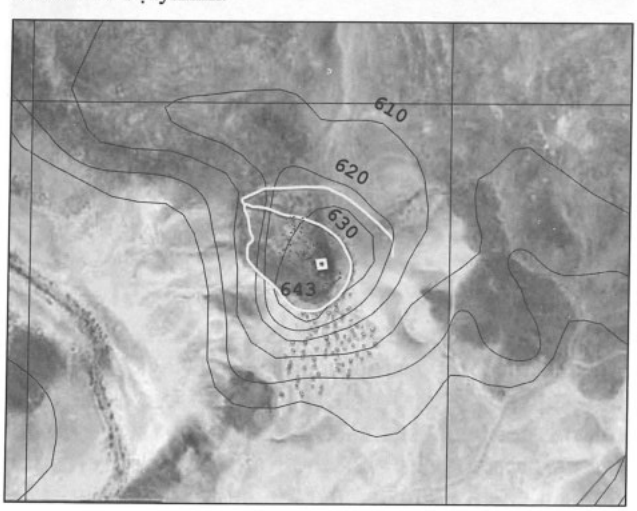
The desert castle belongs to the limes Arabicus, which is the eastern Roman frontier in Province Arabia, and is situated on a cone-shaped mound (**Fig. 1**) constituted of limestone overlaid with basalt stratifications, with two boundary walls around it, in a drop of water shape (**Fig. 2**), the Roman castle is today called by the Bedouins of the area Qaṣr al-Uṣaykhim. The name of the ancient site, however, remains unknown.

The hill, on top of which rises the castle, is called Jabal al-Uṣaykhim (**Fig. 3**). Its height is about 641m above sea level, from where one enjoys a spectacular view. The castle faces Wādī al-Uṣaykhim to the south (**Fig. 4**) and the contemporary Qaṣr al-Azraq to the northeast (**Fig. 5**), which is far about 19,2km away.

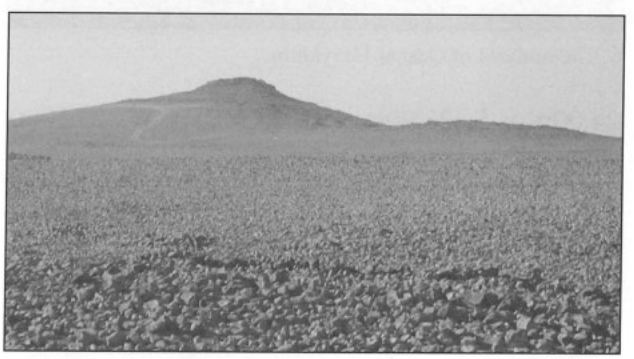
The remains of the Roman castle of the limes Arabicus are constituted by huge precisely squared stones (**Fig. 6**), also scattered around it in a disorderly fashion where the primary boundary walls of quadrangular shape and belonging to the first elevation of the castle (the castle walls measure N.



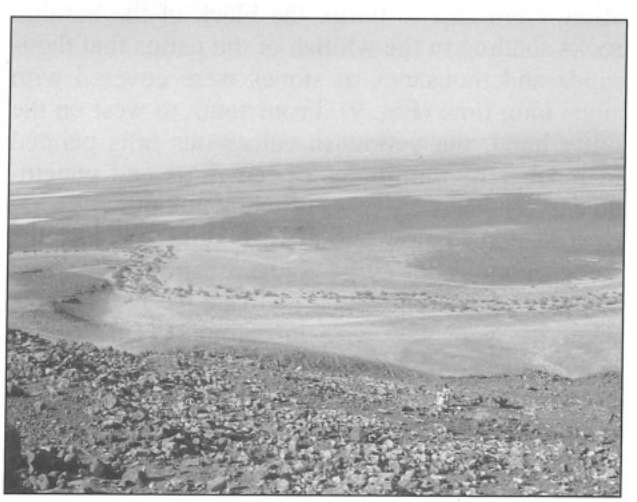
1. Jabal al-Uṣaykhim.



2. The site of al-Uṣaykhim.



3. Jabal al-Uṣaykhim.



4. Wādī al-Uṣaykhim.



5. Qaṣr al-Azraq.



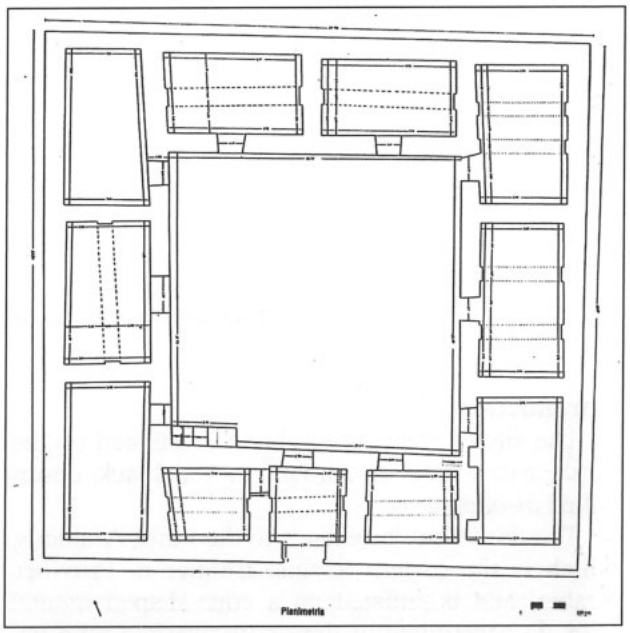
6. The remains of Qaṣr al-Uṣaykhim.

24.00m x S. 23.90m x E. 23.60m x W. 23.50m) (**Fig. 7**).

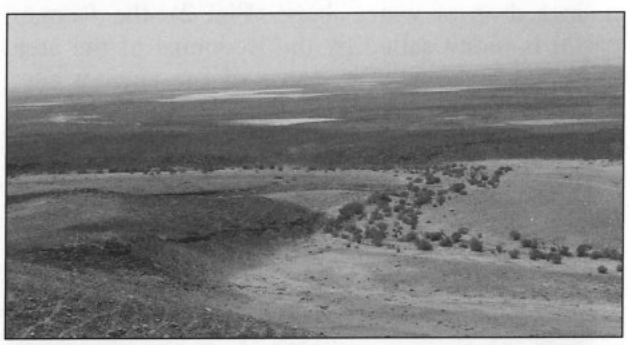
The landscape changed in both colour and geological aspects. From the layers of cooled volcanic lava, which had changed into a vast heap of black basalt stones, to the calcareous plain overlaid by a stratum of flints, where the Wādī al-Uṣaykhim crossed the territory with its winding path (**Fig. 8**).

The colour was unique in its chromatic variation, from east to north, the black of the basaltic rocks shading in the whitish of the patina that thousands and thousands of stones were covered with since long time (**Fig. 9**). From south to west on the other hand, the yellowish calcareous hills painted in red by the multitudes of red flints and punctuated everywhere by spots of white colour.

The plain below the al-Uṣaykhim hill had the same geomorphological characteristics as the top. It was, in fact, constituted by black basalt while the declivity were yellowish in colour because of the calcareous conformation mixed to the purple-red brought by the flint horizons, that run down to the plain with their shrill jingling. Because of this chromatic variation, the hill's name is al-Uṣaykhim, which in Arabic means strong change of colours from black to reddish (**Fig. 10**). Till today, the arid



7. Plan of Qaṣr al-Uṣaykhim.



8. Wādī al-Uṣaykhim.



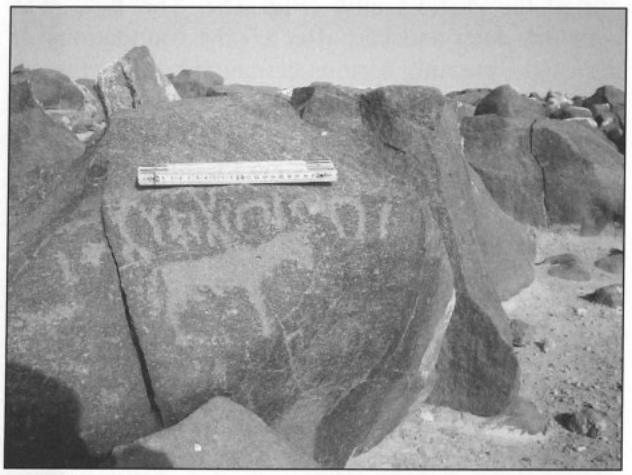
9. East side of the Castle.

landscape of Uṣaykhim is unchanged.

The *al-bādiya* around Jabal al-Uṣaykhim is today full of life and rich in archaeological and historical heritage, such as the Bedouin settlements, the epigraphy (**Fig. 11**), the rounded enclosures for domesticated animals, and the huge traps (**Fig. 12**), constituted by dry walls in basaltic stone, of vari-



10. West side of the Castle.



11. Epigraphy.



12. Huge traps.

ous shapes and sizes with their kilometric protuberances. Once upon a time, these traps were used by the lords of the desert for hunting, so much as to extinguish any presence of gazelles, foxes, ostrich, and other wild animals that lived in this area.

Aurel Stein was one of the first explorers to reach the castle in the desert in the twentieth century. He carried out his survey by flying in an aircraft, taking photographic documentation of his explorations, which was later continued by David Kennedy and Gregory (Kennedy 1982). Stein noticed the two boundary walls, and in describing them stated that they had been built later than the original construction of the castle by the auxiliary Arabic troops. He also suggested that within these boundary walls (of small construction size, the reason for which Stein believed them not to have been built by the Romans) the auxiliary troops had built their tents in the proximity of the castellum in order to inhabit them (Gregory and Kennedy 1985: 277).

Archaeological Excavations

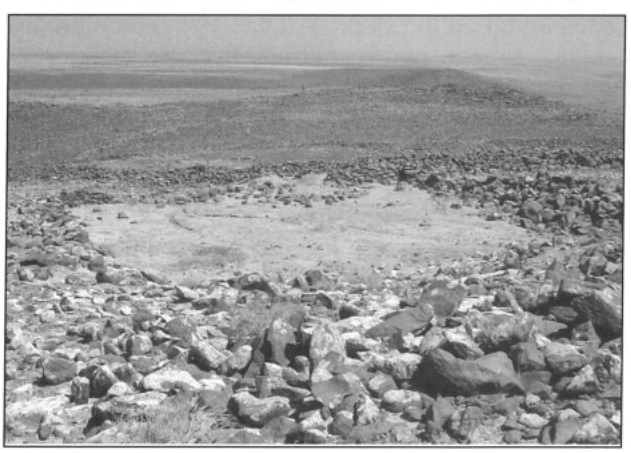
This is a joint project between the Department of Antiquities of Jordan and our Institute (Istituto Superiore per le Tecniche di Conservazione dei Beni Culturali e dell'Ambiente "Antonino De Stefano"). In this project of Archaeological Excavation and Restoration at Qaṣr al-Uṣaykhim there has been five archaeological missions initiated in 2000.

We studied the site and carried out archaeological excavations inside and outside of the Roman castle, and dated the castle to the third century AD.

We restore the foundations of the castle that in more points was opened by the clandestine. In addition, we carried out restoration in the boundaries of the castle (on the eastern side).

The two boundary walls have been studied, which we believe to belong neither to the Roman nor to a later period, but to an earlier period, owing to both their conformation and to the construction technique, which is quite primitive both in its manufacture and in its placement. On the other hand, within the boundary walls of Qaṣr al-Uṣaykhim, a rectangular feature (**Fig. 13**) was found, which was used to keep the water inside.

On the southern side, a series of small round feature (Ø 2,00m ca.) have been found (**Fig. 14**),



13. Rectangular stemming.



14. Round structures.

made of basaltic stone, possibly obtained from the stone blocks from the external boundary walls of the castle. We excavated these structures and we found a layer of calcium carbonate. The depth of the layer of calcium carbonate was of 30cm, and it extends directly on top of the bedrock.

It would appear for in the first time that these circular structures were used for agricultural cultivation, even though the plant species remain unknown, as no traces of seeds of vegetables have been found. The canalisation system was also investigated between circular structures where there was an evident water decanting, so it seems that they were used for collecting water; indeed these structures look likes other structures found in the desert of Negev and al-Ḥumayma (Oleson 1986).

A survey was carried out in the area above the slope's basin-like structures and it was gathered that the structures clashed with some well holes dug near the basalt quarries on the top of the hill. This induced the suggestion that from these wells water might come from, which was used to water the round structures below.

It cannot be believed that these circular structures found on the slope of the al-Uṣaykhim hill are neither Roman nor Byzantine, because their creation was the cause of the dismantlement of one of the two boundary walls of the Roman castle, also proving that the Romans would never have thought to build the structures creating such ruin. It could also give value to the theory that the circular structures are proof of an urban transformation of the castle (with the consequent search for food supplies) after the Roman or Byzantine soldiers had abandoned it.

On the other hand, another theory that can be formulated is that these basins had been built prior to the Roman settlement of al-Uṣaykhim hilltop and that the Roman army left them there untouched, and thus they survived in those conditions till the present time. In any case, the importance of the discovery of the basins confirms that the area was much frequented and that its vegetation and climatic appearances were quite different from those of the present day.

During the first excavation campaign two important conservation interventions[1] were carried out in the two holes illicitly excavated close to the western boundary wall under the arch that supported the castle's attic (**Fig. 15**). The hole was over 4m deep and had affected the foundations of the castle, creating serious damaged both on the relieving arch of the attic and the boundary walls of the central room on the western side. After strengthening all the masonry, the hole was filled with earth and rubble, packing down the various fill layers.

The second hole had been illicitly dug in the centre of the courtyard (**Fig. 16**) and it created a serious problem for movement within the site. The hole was thus filled with earth and stones recompacting the layers of the fill.

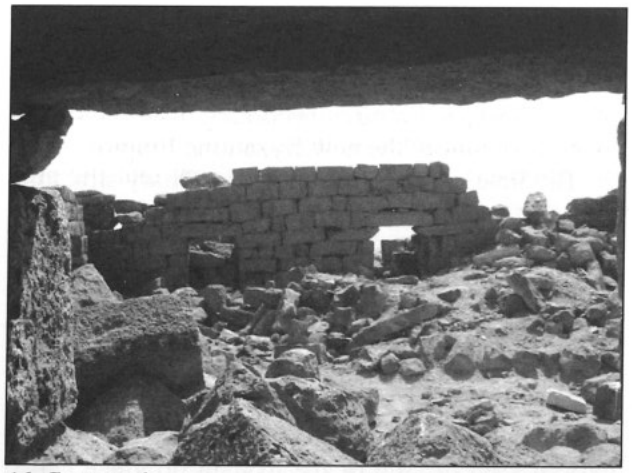
A survey was also carried out within the first set of boundary walls and the Castle where a great amount of ceramics (pottery sherds) from the Roman and Byzantine periods was found, which date the settlement. This important find was revealed in the rainy season, when which washed away.

Some conservation tests have been carried out, which are of extreme importance for future conservation project and reconstruction of the Roman



15. The arch in the western side of the Castle.

1. The project of conservation of Qaṣr al-Uṣaykhim was created by Prof. Giuseppe Claudio Infranca, Professor of archaeological conservation in the University of Reggio Calabria and in the University of Rome "La Sapienza".



16. Court yard.

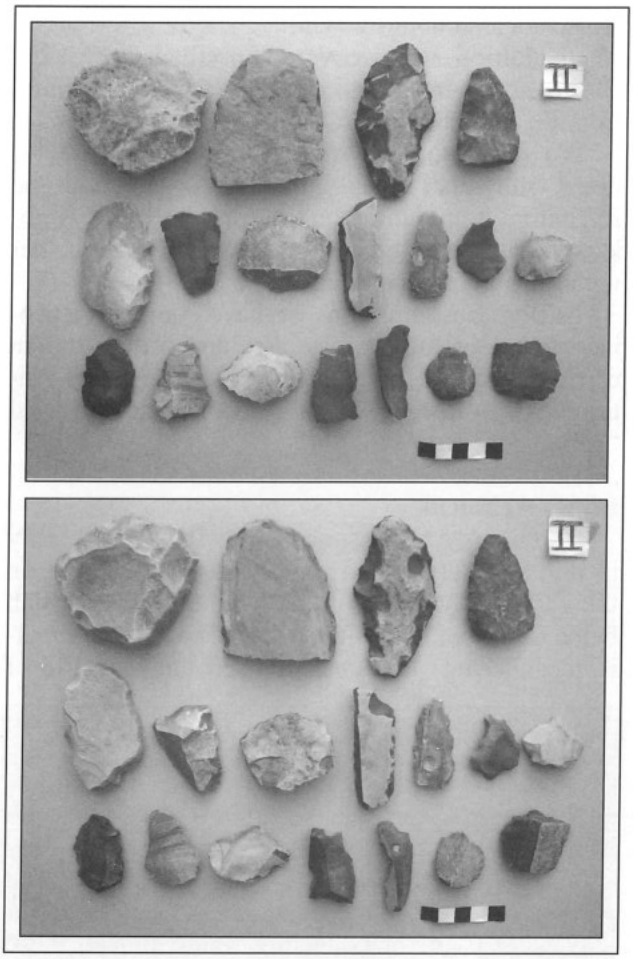
castle of al-Uṣaykhim.

Then a survey was conducted in the area around the castle, an urban installation in the vicinity of the Roman castle was founded (**Fig. 17**), with 105 structures built from un-worked basaltic rocks built with dry-stone technique and two surrounded buildings full of flint stone tools from the Neolithic period (**Fig. 18**). A large urban settlement surrounded by two imposing boundary walls. The thick urban settlement has been partly destroyed by the Roman use of the site and by the later use of the hill that overlooks the wadi below.

We think that the two settlements of Jāwā and al-Uṣaykhim were a part of the same prehistoric civilization, which was able to build extraordinary fortified cities, an articulated system of satellite-villages closely linked to the central settlement, ca-



17. Plan of the site of Qaṣr al-Uṣaykhim.



18. Flint tools.

nalisations, dams and cisterns for the water supply, essential for such arid territories.

We discovered a dam (**Fig. 19**) from the Neolithic period and we restored it, the dam is located in the north side of Jabal al-Uṣaykhim, it is of significant dimensions (20m) and it channeled the waters in an artificial canal built with great skill by the prehistoric population inhabiting the site. After studying the dam we think that it belongs to the same period as the urban settlement of al-Uṣaykhim. The dam is certainly one of the oldest



19. The Dam.

artificial canal built by man.

In addition, we discovered 36 villages (**Fig. 20**) of the urban installation near Wādī al-Uṣaykhim from the Neolithic period (**Fig. 21**).

We presume that Wādī al-Uṣaykhim was civilized with small villages, that also lasted under the Byzantine domination, and during the limes Arabicus where the military installations lived together with the native populations.

During these missions we have compiled a project of conservation of the area and of the Roman castle that was delivered to the Department of Antiquities. In 2003 we published a book, titled "*Limes Arabicus*"[2] .

Limes Arabicus

The limes Arabicus, needed by the Roman army in order to defend and protect the vast Empire on the eastern boundary, is one of the borders which better survived the political, military and diplomatic meanderings that characterised the long life of Rome's power over its own and neighbouring territories. Furthermore, a fact not to be overlooked, it has also survived the devastation and fragmentation of the Eastern Empire, becoming itself a fundamental column of the new Byzantine Empire.

The limes Arabicus, born as a military structure, was able in time to transform into a complex system, where civilians and military were able to live side by side with their military, social and commercial interests, all part of a wise game of diplomacy and power, where Rome drew the best advantages.

The Roman castle, situated along the limes Arabicus (**Fig. 22**), built on the highest top of that eastern strip of land of the Roman province called Arabia. The conical-shaped hill that dominated the underlying plain and overlooked the sinuous Wādī al-Uṣaykhim, reached the arid clearings of the Arab desert.

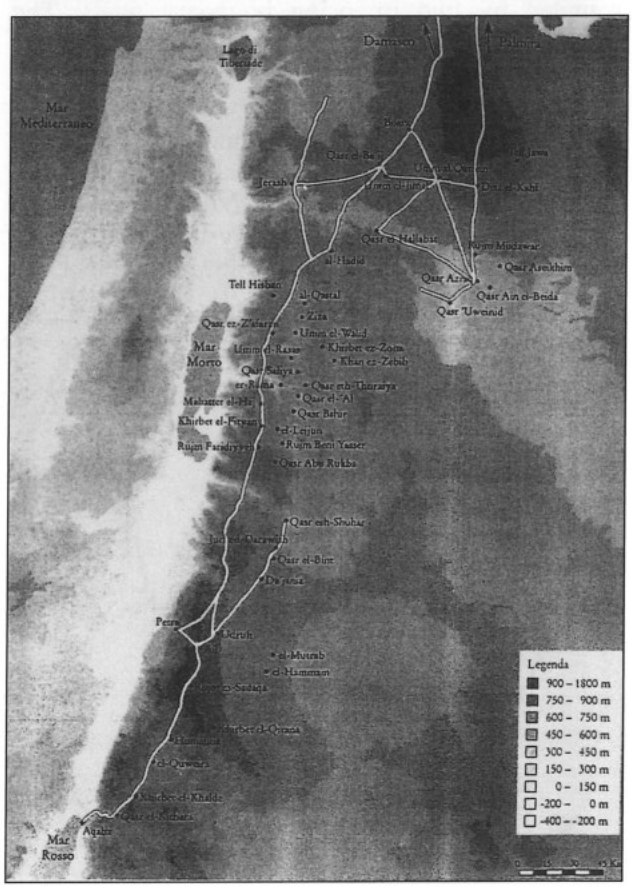
The province Arabia is where the oriental frontier had been created under the direct Roman control, and the army had already built the first military structures of the new alignment of the limes Arabicus. The reason that induced the Romans to



20. South village.



21. A hut from the village.



22. Limes Arabicus sites and streets.

2. The book 'Limes Arabicus' is edited by Maysoun Al-Khouri.

make such a shift in the alignment of the limes Arabicus was a strictly economic one, linked to the control of the principal silk, incense and spices trade routes from the East that arrived to Rome's Empire. It was thus of increasing importance the construction of a new limes which integrated the pre-existing one crossing it with the *Strada Diocleziana*, a road built for this new occurrence.

The conical-shaped hill of al-Uṣaykhim, today, as at the time of the ancient limes Arabicus, has an open view in all directions of the compass, it is a perfect site for a Roman castle (**Fig. 3**).

The arid environment where the Roman castle of al-Uṣaykhim was built, must have been surprisingly live with both trade of goods and peoples who crossed the frontier on a daily basis, and on a vegetation and faunal level for the rich and blooming environment.

It is known from the historical sources that the fortifications built during the third century AD were occupied by military garrisons until the fifth century AD perhaps because the great earthquake that was registered between 498 and 552AD. Furthermore, for a certainty, only the military settlements of al-Lajjūn, al-Fityān, and Yāssir remained to defend the limes orientalis during this last period.

In particular, the Roman castle of al-Uṣaykhim was under the military control of Castle al-Azraq, where the third Cyrenaica guaranteed safety and protection to the limes (Bowersock 1983: 98). Qaṣr al-Uṣaykhim together with Qaṣr al-'Uwaynid and Qaṣr al-Azraq were perfectly aligned in the complex military system to defend this part of the limes (**Fig. 22**). The auxiliary militias of Arab origin stayed at Castle al-Uṣaykhim.

In addition, the archaeological research carried out at Qaṣr al-Uṣaykhim has demonstrated that the castle was inhabited even well beyond the military use for the defence of the eastern front and was accepted by the indigenous populations as a harmonious architectural structure respected and appreciated by those who lived in the savannah. This demonstrates that the fortresses of the limes Arabicus became, subsequent to their military function, a place of life and a refuge for the stationary and nomadic populations of the area, thus giving depth and significance to the architecture required by the Roman army, which was never considered an enemy by these populations, who considered it a structure of their own. This had to do with the fact that auxiliary troops, constituted by indigenous soldiers, had always been sheltered, and these same troops had popularised and brought closer the entire border defensive system, making it become coherent with the environment, and socially and economically alive.

Thus, the examination of methodology has become innovative and functional as it demonstrates that the limes Arabicus was a complex system already planned in the times of Augustus that had matured in its most intrinsic potentialities with the military support firstly of the Flavians and Trajan, and later of Septimius Severus and Diocletian, who enlarged the territories while keeping the basic strategy unchanged. Then the activation plan of the limes Arabicus carried on its general strategic lines also under the Byzantine emperors until Justinian's time.

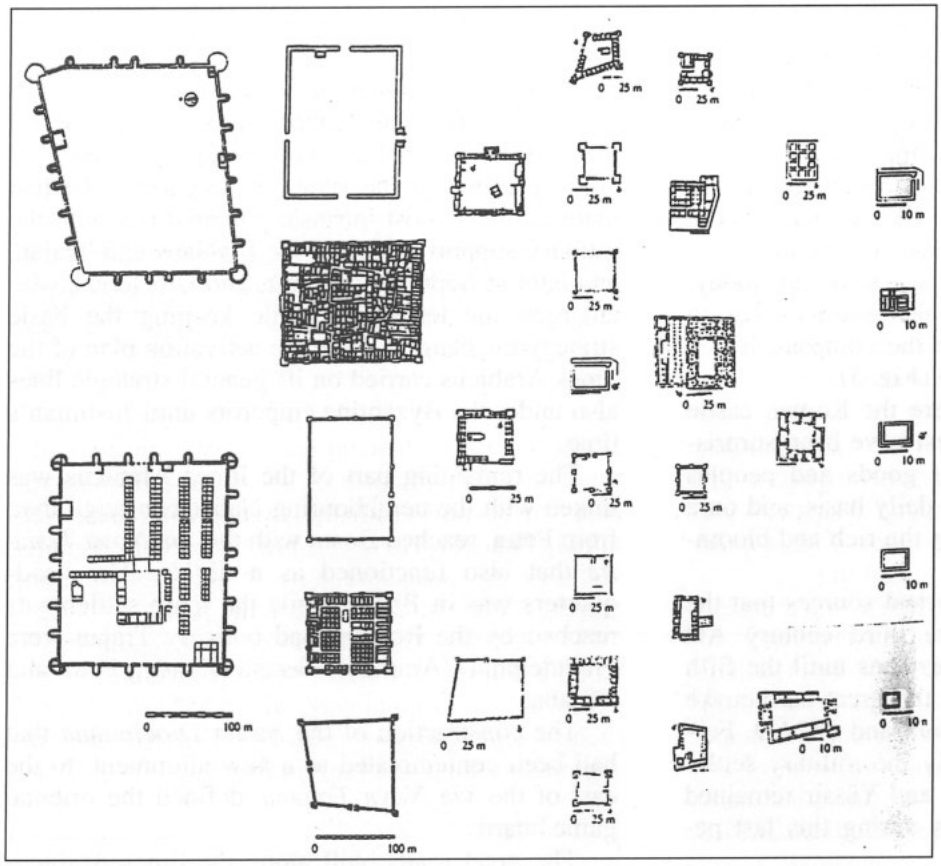
The remaining part of the limes Arabicus was linked with the neighbouring Nabataean reign that, from Petra, reached Bosra with the *via Nova Traiana* that also functioned as a divide. The headquarters was in Bosra, while the main settlements reached by the Roman road built by Trajan were Philadelphia ('Ammān), Gerasa (Jarash), Petra and 'Aqaba.

The construction of the *Strata Diocletiana* that had been contemplated as a new alignment, to the east of the *via Nova Traiana*, defined the oriental game board.

The great roads built along the limes Arabicus were fortified and under strict control of the army. Thus, while these run parallel to the border, the other secondary routes of the limes stretched straight across the border and beyond. The key role they played in the composition of the limes Arabicus was unavoidable. The defence structures of the fortified routes were constructed in a different way according to the topographic conditions or the military tactics: with walls, palisades, and ditches; apart from the fixed settlements that were the *castella*, forts, and blockhouses that were conveniently connected, as was the tower system that tightly controlled the borderline structure (Clausetti 1939: 43).

The typologies of the military installations (**Fig. 23**) created between the third and forth century AD are:

1. The *castra* and the large *castella* that housed first the legions of Rome and those of Byzantium after the fall of the Western Empire. The *castra* housed the entire Roman legion. Up to now only two of these great military settlements have been found, even though it is know from historical sources of other sites which would have housed other legions with the same characteristics, as in the case of 'Aqaba with the X Fretentis. The two *castra* mentioned are those of al-Lajjūn, which has an extension of 5.50ha, and of Udhru' with



23. Typologies of the military installation.

an extension of 6.00ha, both have a rectangular conformation. The so-called large *castella* which housed a whole legion or a large part of one, they were nothing but *castra* that were a military variant because of their conformation in the shape of a *castella*. The dimension of the large *castella* vary between 1 to 2ha, they come in two versions according to their planimetry:

a) Quadrangular, Umm ar-Raṣāṣ and ad-Da'jāniyya;
b) Rectangular, al-Ḥadīd and ḥumayma.

Amongst these large *castella* there is that of Umm al-Jimāl that varies slightly from the quadrangular form because of orographic reasons, but must be assimilated to this typology.

2. The *castella* where the Roman troops were permanently based: The *castella* housed some troops of the Roman legions and as the large *castella* had a quadrangular or rectangular shape. They differed only by the dimension that varied between 3500 and 6200m^2. The known *castella* of the limes Arabicus are: Qaṣr al-Azraq, Dayr al-Kahf, Khirbat al-Fityān.
3. Cohort *castella* in which it is presumed that both Roman and auxiliary troops were housed: The cohort castella (Causetti 1939: 12) with a length of about 40m to the sides of the square, measure that corresponded to the width of the front of a cohort. A cohort was a unit that constituted the garrison (presidium) of the castellum. The castellum was in fact a military community that did not have the status of colony or municipium. To the quadrangular typology belonged the castles of Umm al-Walīd, Qaṣr al-Bā'ij, and Jāwā, on the other hand those of Khirbat al-Qirāna, al-Quwayra, Qaṣr ath-Thurayya, Qaṣr al-Ḥallābāt, Khān az-Za'farān and Maḥa at al-Ḥaj, present a number of towers for sighting and defence. Finally, the castles with trapezoidal shape are: Qaṣr 'Uwaynid, Umm al-Jimāl, and Qaṣr al-Kithāra.
4. The blockhouses exclusively for auxiliary troops[3]: The blockhouses housed the auxiliary troops and their dimensions were always inferior to 1000m2.

The blockhouses were: Qaṣr al-Uṣaykhim, Qaṣr al-'Al that has a quadrangular shape, Khirbat az-Zūna also quadrangular but with towers in the cor-

3. In the limes Arabicus the auxiliary troops were exclusively made up by personnel of Arab descent.

ners. Rujum Banī Yāssir was of trapezoidal shape. A separate matter is the case of Rujum aṣ-Ṣadaqa.

5. The *turris* or the *burgius*: The *Turris* positioned along the limes Arabicus were observation posts, for liaison and transmission of fire or smoke signals, for the defence of water sources and advanced defence. As far as their architectonic forms are concerned, they were built with a quadrangular or circular plan. Along the limes Arabicus the towers that have been found are the exact same number of the ones that were once positioned in front of the enemy lines. Proof of this is the discovery, made during the surveys carried out of the territory around Qaṣr al-Uṣaykhim, of two towers belonging to the limes Arabicus. One has a rounded shape, it garrisoned a water source; the other, with a quadrangular plan, was used for signalling.

The *burgus*, on the other hand, were created separately from the military plan, designated for the enforcement of public law, this was a village with an embryo of municipality. However, this small civilian community had small pertinence with the limes arabicus, because no trace of any such thing has been found. On the other hand, there are some examples of *burgus speculatorius*, which was a small stationing, that ensured a street-police service and/or vigilance of the public order in the proximity of the villages of the limes Arabicus.

Finally, some examples of station have also been found in the limes Arabicus, these were military settlements made up of a few graduates or war veterans that carried out the task of fighting brigandage, very frequent in the oriental borderlands.

These new discoveries, which were made during the archaeological missions of the (Istituto Superiore per le tecniche di conservazione dei Beni culturali e dell'ambiente "A. De Stefano") are the sign that other surveys must be carried out to complete the exploration of the limes Arabicus.

The Construction Technique of Qaṣr al-Uṣaykhim

The castle was certainly built after having conveniently levelled the rocky terrain on the summit, and at the same time quarrying stone from it. The construction material for the castle had been found by the Roman constructors in the quarry that had been opened near the settlement (**Fig. 24**), and that functioned as fabbrica where today traces of manufacture and extraction of the large blocks used in the construction of the fortress are still visible.

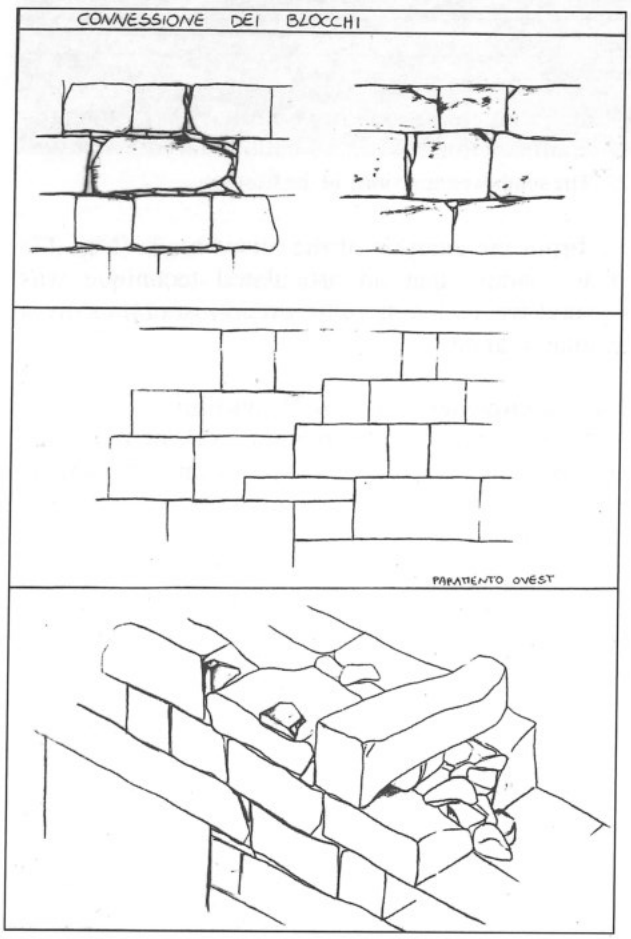
The traces of the castle, today, appear as a heap



24. Quarry.

of debris on which stand out majestic raised walls. The masonry structure of these raised walls appears to be built with the *pseudo-isodomus* technique (**Fig. 25**). However, after an accurate analysis of the structure, it is an autonomous construction technique used in the past.

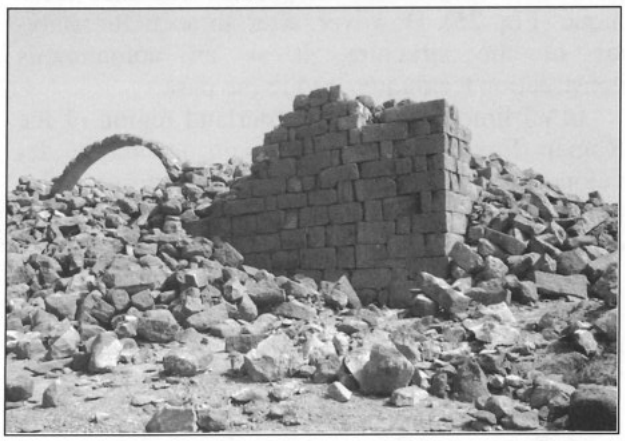
In all limes Arabicus, borderland region of the Roman Empire, a new building technique developed in an original way, which had strong architectural characteristics (**Fig. 26**). In Jordan the traditional building was built in this way.



25. Pseudo-isodomo technique.



26. Construction technique.



27. The south western corner of the Castle.

From the analysis of the raised walls (**Fig. 27**) it is evident that an articulated technique was created-we called it *opus pseudo-isodomus* in a Roman manner.

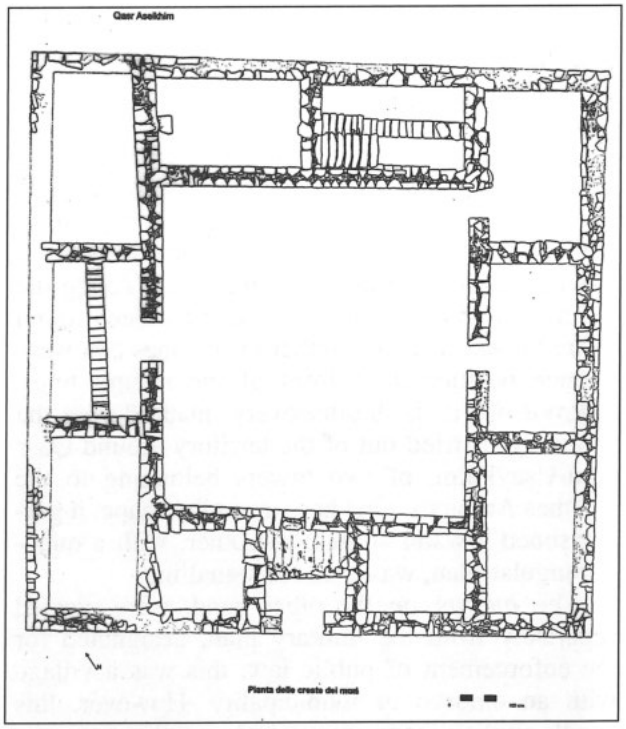
The *Anastilosi* of Qaṣr al-Uṣaykhim

The original construction work of the castle has been carried out by two groups of workers starting from the centre of each side for meeting at the corners. For this reason the sides do not measure up, but are slightly off (**Fig. 28**).

The *opus pseudo-isodomus* in a Roman manner is constituted of the reciprocal contrast between the blocks.

The *anastilosi* will proceed with only two groups of workers, working in opposite directions to reach the corner, as the Romans did in the original procedure.

The construction techniques used by the Romans at Qaṣr al-Uṣaykhim are still used in Jordan for the construction of dwellings and Bedouin villages close to the Jordanian desert, which often substitute the typical village tent. For this reason it



28. Plan of the walls of the Castle.

is easy to find skilled labour for a possible *anastilosi* of the castle, after studying the stratigraphic units of the collapses of Qaṣr al-Uṣaykhim.

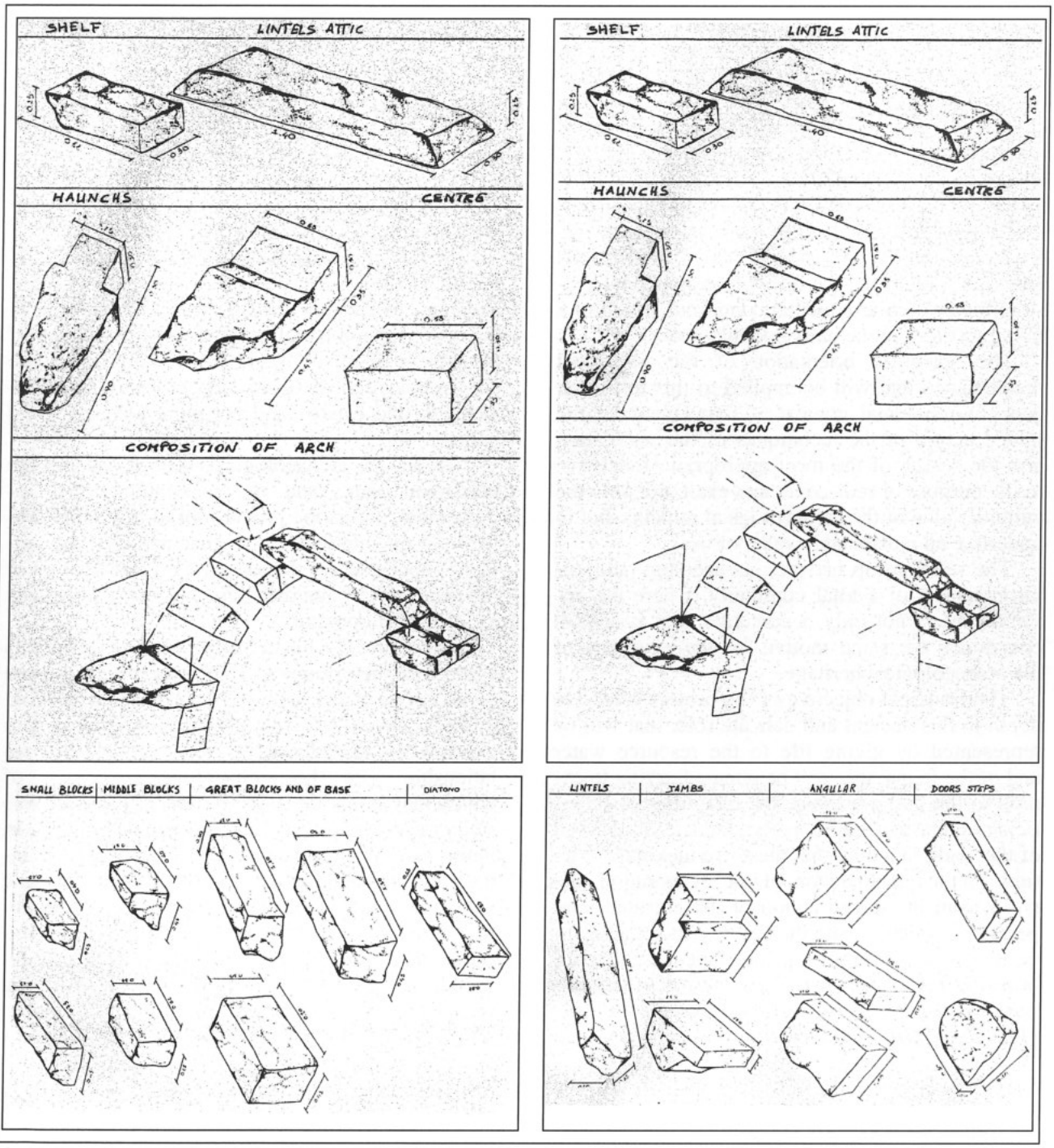
Using the skills For the ability and experience that some local workers still possess along with the guide of the Italian restorers they can rebuild the castle, using the *opus pseudo-isodomus* in a Roman manner. In order to facilitate this work, the use of a crane for the reconstruction will be carried out in quite a short time.

Analysing all the archaeological remains of the Roman castle of al-Uṣaykhim we created the *abacus* (**Fig. 29**) of all the original architectonic elements of the castle. The abacus is the most useful instrument that will allow the realization of the intervention of the archaeological conservation.

In this *anastilosi*, we will not use new materials but we will use the original stones with the original technique the *opus pseudo-isodomus* in a Roman manner.

Already in this analytic phase, it was possible to establish that all the architectural elements that composed the castle found on site (**Fig. 6**), for this important verification to proceed the intervention of the archaeological conservation that we called *anastilosi*.

One of the first steps will be carrying out the stratigraphic analysis of the collapses and thus proceed to free the rooms from the debris placing the retrieved blocks in an area close to where they will finally be placed.



29. Abacus.

As previously mentioned the work will have to start from the central room then to move towards the corners of each facing wall. This operation will have to be carried out by use of a crane, numbering the blocks according to the stratigraphy of the collapse.

Plan of Safeguard of the Area and Integration of the Monument

Connecting the project of restoration of the Roman castle of Al-Uṣaykhim, a plan of safeguard of the territory and the environment of Wādī al-Uṣaykhim has been proposed to guarantee an essential continuity of intents for the maintenance of the archaeological work and the environment, of which the area is rich so as to befit cultural resources.

The project acquits to the explicit wishes manifested by the local community that intends to preserve the archaeological site Qaṣr al-Uṣaykhim to-

gether with the environmental value that it possesses.

From here the duplicity of the project is born, that contemplates the integrated maintenance not only of Qaṣr al-Uṣaykhim but of the whole testimonies and archaeological remains present in the area, including the Bedouin villages, the Roman towers of the limes arabicus, the thousand of epigraphs of different epochs that have been recovered carefully by the team of Dr. Fawwaz al-Khraysheh imposing the difficult assignment to restore the best environmental conditions to return a living territory to the native populations.

The scientific orientation of the integrated maintenance that will be applied to this territorial and environmental context is that legacy to the joined action of the techniques of the restoration and the search of the most appropriate functions, to the purpose of rediscover and exalt, not only the cultural value of the archaeological remains, but to underline an indisputable value of use.

The relationship between archaeology and environment is of a total continuity, where the environment is not only a container, but it always constitutes the same motive for the existence of the archaeological heritage.

The principal objective of the project is to give depth to this ancient and delicate role, that will be represented by giving life to the resource water and of the fauna: this will be pursued, trying to exploit to the best advantage the quantities of superficial waters that sporadically stagnate on the bed of the wadi, avoiding that these are inexorable victims of the phenomenon of the evaporation, derived from the joined action of the elevated temperatures, together with the strong winds that insist on this zone, and inserting some special native arboreal kinds, to perennial character, with the purpose of stimulating the restoration of the environment of the wadi (**Fig. 30**).

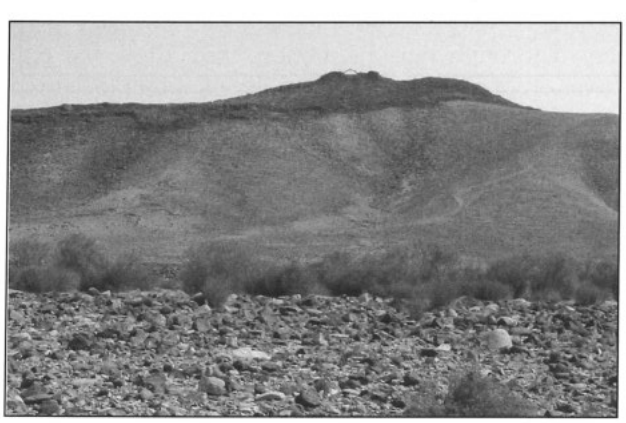
Secondly, the attention of the project will be stretched out to the realization of an archaeological basin will have as fulcrum Qaṣr al-Uṣaykhim and with the epigraphs, the traps and the archaeological work of the area, with the rests of the Bedouin villages founds on the banks of the wadi.

The creation of the archaeological basin of Qaṣr al-Uṣaykhim means to redeliver a territory to the contemporary society which lives in the area.

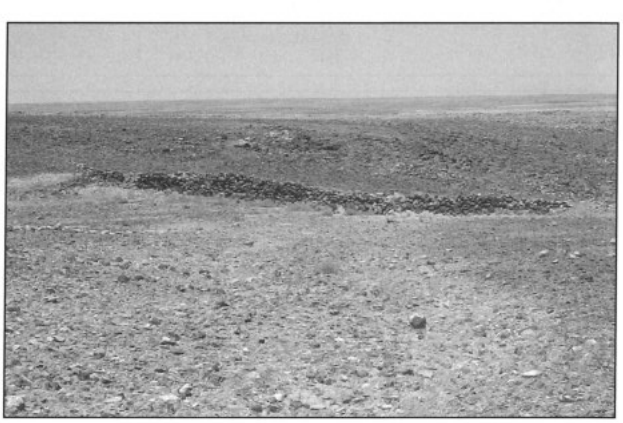
For best organization, it is thought that about the archaeological basin, as an agile tool of management, everybody should feel a protagonist of the actions that are required for the development of the area of Wādī al-Uṣaykhim. In Italy now there are Archaeological basins like *Cornus, Leopoli-Cencelle* and *Castro*, and not more archaeological parks.

Instead, the archaeological basin is seen as the maximum share and the maximum social involvement, and is the proper tool to manage a project and an intelligent plan that involves the resident populations in the same way as the visitors or the personnel of guardianship, and in the same way as the tourist operators.

Jordan already has a strong experience in this circle with the examples of Petra and Wādī Ramm, or as the so-called archaeological park in the historical centre of Mādabā, in which an open system exists where the inhabitants freely cohabit their relationship with the archaeological heritage of which they know the value of the cultural resource so do the custodians and the true protectors of it. In Petra and Wādī Ramm, these processes of integrated maintenance of the social and economic value was realized in spontaneously. In fact, the intervention of the Bedouin populations have imposed their way to converge the social and economic affairs on the cultural and environmental resources. Now these places can be visited without the necessary human and social context that pro-



30. Wādī al-Uṣaykhim.



31. The Dam.

liferates.

For all these motives that we have thought about, Wādī al-Uṣaykhim not a protected area but an open system in which the Department of the Antiquities is the principal promoting, holder, collaborated and sustained by the contemporary society and by the population of the residents that together manage all the actions to anticipate the safeguard for that territory and for those cultural resources.

The fruition of the archaeological heritage will involve as a result the necessity to create some special infrastructures of project to guarantee the correct management of the archaeological basin, not forgetting that it will include Qaṣr al-Uṣaykhim all the other archaeological work of the area.

Particularly the project foresees the realization of parking, where the visitors will leave their own vehicles, motorcars or bus, and from which will begin the driven visit of the area using the Pick-up of the Bedouins, they will also act as tourist guides. The parking will be developed on a surface of around 459m, there will be in an area to park the buses and another area destined to the motorcars. This last zone will be protected by a series of wooden structures with the same mats used for the Bedouin tent.

This great structure will be inserted in the environment, and will be realized with traditional constructive and material techniques of the area.

The area of the parking will be built with basalt stones, this solution will be inspired to the Bedouin traps for animals that are today still present in Wādī al-Uṣaykhim.

In the area of the services for the visitors will be a resthouse tent, a services tent and another tent for receiving tourists, and providing the necessary information.

Environmental aspects and project hypothesis for the safeguard of Wādī al-Uṣaykhim, from the archaeological studies in these regions we have been able to ascertain that the climate has not always been arid as it is today. This area in fact was populated, even though in an irregular way, since the prehistoric times, and testimonies exist relating to a climatic change during the last two millennia.

We know that in the past it is banks were rich with vegetation, today present in a sporadic way, which guaranteed in turn the maintenance of a lot of animals kinds, that were suited for the difficult climatic situation. Besides, there is certainly the presence of different fertile grounds, mainly in the numerous cities of the limes Arabicus that in the past had contributed to make this zone a place of attraction for the nomadic populations.

The actual state of degrade tied up partly to the geologic nature, that directed as consequence the almost total disappearance of one of the branches of Wādī al-Uṣaykhim, it has been one of the causes of the notable abandonment of the area.

In the project of conservation of the archaeological site of Qaṣr al-Uṣaykhim we tried to create all the presuppositions to return the castle of al-Uṣaykhim to a place of attraction for the local population.

The water is the principal objective in the project for the safeguard of the whole area.

The program of exploitation of the water resources of Wādī al-Uṣaykhim is tightly connected with the quantity of water and the economic resources in such operation. The safeguard plan of the environment of Wādī al-Uṣaykhim aim to increase the availability of alternative sources of water, among which it occupy a priority role of the use of the superficial waters. The artificial recharge of the superior water-bearing and stagnation and of maintenance of water.

From history, we have learned that the wadi constitutes the motive for the existence of the life in the zone. Instead from the ideological point of view it represents a potential water resource disposition.

Then the principal problem to be avoided is that of the evaporation, with the purpose to be able to exploit to the best advantage the precious quantities of superficial water. The excessive exploitation of the available water in the subsoil has changed the direct needs of the zone.

Our intervention foresees the realization of obstructions in the wadi, located in more points, for limiting the phenomenon of the evaporation to favour the infiltration of the waters in the subsoil. In this way we have created a natural recharge of the superior water-bearing, which will have as the first consequence the reinvigoration of the vegetation.

The recharge of the superior water-bearing, obtained through the obstruction, will allow the excavation of more wells that will constitute the principal water resource.

The wells foreseen by the project will be of low output. The structures of obstruction will be three and will be constituted by small dams, 3m of high and an ampleness of around 40m realized with loose material, with a nucleus of mud and covering in basalt, both are available *in situ*. The choice of this type of structure derives from the necessity to totally integrate in the environment of the wadi.

In addition, with the purpose to favour the infiltration of the water, the subsoil of the dam will

be endowed with a diaphragm in (bentonite) that will avoid stop of water by obstructions.

To this intention we have already restored a dam (**Fig. 19**) from the Neolithic period to the east of the Roman castle and of the Neolithic city. With this restoration we have been able to make green the grounds around the dam that it holds back the water for a long time.

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Bibliography

Bowersock, G.W.
1983 *Roman Arabia*. London.

Clausetti, E.
1939 Fortificazioni e Macchine Belliche. *Civiltà Romana* 11: 24-33.

Gregory, S. and Kennedy, D.
1985 Sir Aurel Stein's Limes Report. *BAR International Series* I: 272-277.

Kennedy, D.
1982 The Contribution of Aerial Photography to Archaeology in Jordan: With Special Reference to the Roman Period. *SHAJ* 1: 29-36.

Oleson, J.P.
1986 Humayma Hydraulic Survey: Preliminary Report of the 1986 Season. *ADAJ* 30: 17-26.

Vegenzio
De Re Militari, III.

JABAL AL-MUṬAWWAQ

Juan A. Fernández-Tresguerres Velasco

The excavations in the village of Jabal al-Muṭawwaq are financed by the Spanish Biblical and Archaeological Institute of Jerusalem and the Spanish Ministry of Culture. An agreement with the "l'École Biblique et Archéologique Française" of Jerusalem and with the IFPO, have made it possible to expand these explorations both at the site at al-Muṭawwaq and other sites in its proximity. This extra research has made it possible to clarify some aspects of the occupations of the region during the Bronze Age. During the last years, collaboration with the Department of Antiquities of Jordan as well as with the Spanish Embassy in 'Amman, has been of great importance. In this paper, we will limit ourselves to the presentation of the houses of the village of Jabal al-Muṭawwaq, other aspects will be dealt with in forthcoming articles.

The Village

The location of the village is on the south slope of the mountain, at an altitude between 500 and 550m.

It is distributed over an area of 900m from the west to the east and some 300m from the north to the south. It was built on irregular soil, the mountain slope steeps strongly towards the south and much stronger at the cliff, which marks the end of the village. However, towards the north the area is more levelled. In the centre, a riverbed leads to the valley. These facts influence the way in which the houses of the village were distributed. Taking this into account, we divide the village into three sectors: The Western Sector, flatter and larger, the Centre, around the mentioned riverbed and the Eastern Sector, distinguished by its strong slope.

The village is surrounded by a rudimentary wall, which was constructed, judging by the debris next to it, of big blocks at the base with smaller ones on top. A great part of the wall was demolished, especially in the north because of the construction of tracks and terraces. Although it will be described, together with other structures in a later article, it is convenient to know about its existence. An important part of the wall, of more than 150cm height, has been conserved in the western part of the village, covered by an accumulation of fallen blocks from the higher area. In the North Sector, some big aligned base stone blocks are conserved. The south line of the rudimentary wall was placed on the borders of the cliff. In the Central Sector up to three wall lines can be observed in three different steps formed from the mountain rock. In the Eastern Sector, it seems to descend from the north to the south. This is hard to tell since it has disappeared almost completely. Only some big blocks make it possible to follow its path over the agricultural terraces of the Early Bronze.

Some gates have been identified, which were similar to those of the houses. One of them, known since the articles of Hanbury-Tenison as South Gate, presents a higher complexity. We mention it here, because it is at the end of the road that ascends from 'Ayn Khuraysin.

The Houses

Kind of Construction

All the houses have an oval floor. According to the topographic peculiarities, the construction techniques were modified slightly. Generally, where the difference in unevenness of the soil was minor, big natural stone blocks were piled up on their long narrow side on the ground. If the mountain rock had cracks or irregularities, these were filled with earth and little cobbles to level the soil. On the other hand, where the soil was even, it served as a base for the houses. If there was a bigger slope, little terraces were created to correct the unevenness. While in the Western Sector the terraces are minor, in the Eastern Sector, with a bigger slope, they were constructed with big stacked blocks, which sometimes were higher than one metre.

The courts were marked by stone blocks of a similar size. There was no need to construct terraces here since the unevenness did not cause any problems.

The Walls

In the houses where they have carried out scans, or where they have excavated an important part (11 in total), it shows that the wall tumbled inwards. The chalk blocks (unfashioned, naturally broken) that form the base of the wall, can reach a length of up to 2m, with a width of up to 49 centimetres and a height of a little over a metre. They were placed on one of the smaller sides. The stones of the upper rows have remarkable smaller sizes (length between 0.70 and 0.35m, width between 0.20 and 0.40m and a height that rarely reaches 0.50m). The holes caused by irregularities of the blocks were filled with little stones, which were inserted as wedges. In some cases, the wall collapsed towards the interior of the house over the original floor. If the houses were inhabited afterwards, it would have been over the collapsed walls.

The Floor

In all the excavated houses the floors have a similar form. If the mountain rock that was used was irregular, a layer of brown reddish earth was used to create a more even soil. It was then filled with little stones and covered by a greyish red plastered floor of poor quality and although it offered certain hardness it broke up easily. Not in one excavation have we seen that it was rebuilt.

The Gates

The houses have one single door in one of its large sides, which generally gives access from the court. The gate is not always recognizable. Of the fifty houses studied as sample, only in 24 of them the entrance could clearly be observed. In the others the wall seems to have had no opening in its line. If an opening is observed, it is not clear if it was a door. In two cases we observe an open gate in the wall of the court but not in the wall of the house.

The orientation of the doors is not uniform, the door towards the north predominates: in thirteen cases (they slightly divert towards the northwest or towards the northeast), in five cases they are orientated to the east and in four cases to the west. Normally, the situation was influenced by the topographic circumstances or to the location of the court, which was constructed where it was possible. The situation of other rooms and the sloping of the ground was taken into account.

The structure of the gates is similar. The worst constructions were generally made with irregular, more or less cubic, blocks that did not stick out of the base of the walls. In the other houses we see more care in the choice of materials. They searched for long prismatic blocks that were more regular. Although the break of the stones is always natural, the height of them is always irregular. The stone blocks are normally more than a metre in height (between 110 and 140cm.) and the width is generally 75cm (in the case of the courts were the gates are conserved, the width can reach 163cm). These measurements are approximate. Because they are partially buried, it is not always possible to determine their height.

In house 20, next to one of the jambs, there is *in situ* a small prismatic block of 17 x 22 x 8cm, with a small hole of about 6cm in diameter, over which the gate turned. The threshold is normally made of a more or less prismatic form, even on one of its sides, with a thickness of more or less 13 to 15cm. The width of the gate is variable, depending on the thickness of the blocks, but they can be up to 56.7cm thick (**Fig. 1**).

No lintel is conserved which is still placed over the jambs. However, some of the prismatic blocks that have fallen next to the door exactly cover the gag. Some of them are thicker than 20cm.

A remarkable case is that of the double door of habitat 109, located in the central zone next to the wall and the edge of the cliff that forms a step over



1. House 20. Door.

a lower terrace. The gate of this house, was made with two pillars, it opens towards the south. In an obtuse angle there is another pillar, which creates another gate that opens to the west, towards the ramp of stones and earth, which effaces the unevenness with the lower terrace (**Fig. 2**). The lintels were found next to the jambs.



2. House 109. Door.

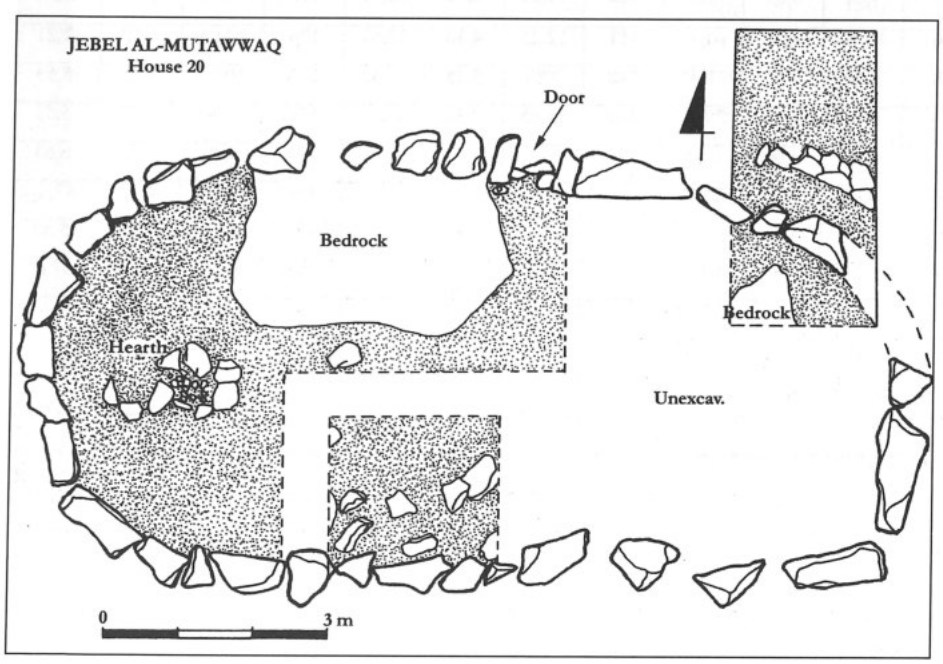
The only specimen gate which was completely conserved opens in the wall to the west of the Big Enclosure. It is half buried by a mound. The lintel of this door is placed over two pillars and on top of the smaller blocks that form a kind of capital. It is bigger in proportion than the gates of the houses, the lintel measures 99cm in width by 69cm in length with a thickness of 40cm. The blocks that support it are 36 x 19 x 34cm. Its height is not known because it is partly buried.

The Distribution of Space

Although the majority of the excavated houses have only been submitted to partial research, two of them were excavated almost completely (20 and 81). The distribution of the features seems to indicate a functional differentiation of space.

The hearths are situated in one of the far ends of the house. In room 81 they are located in both ends. The hearths are made of little, more or less cubic stones which are wedged into the ground, creating thus a wind stopper. A semicircular structure of stones surrounded by ashes, which might have served as an outdoor oven, was found outside house 109.

In the houses 20 (**Fig. 3**) and 81 the majority of the pottery material was concentrated in one of the rooms. These consisted of sherds of big jars, hole-mouth jars and some bowls, together with basalt tools (a fragment of a crucible with remains of adhering copper, stands out in house 20). On the other side of the habitat, less pottery sherds were found. This suggests a distinct use of the domestic space. More data is necessary to confirm this.



3. Sketch of House 20.

However, the collected data so far seems to indicate that some zones were used for domestic activities and some were probably used for social like and leisure activities. The zones were probably separated by perishable structures (except for a partial separation in house 81).

The court was also used for domestic activities. In house 83 sherds of storage jars were found. Another court of the Western Sector shows flag stones of little over a metre long and more or less a metre wide. These were made of rather regular cubic blocks of which the upper side was even. They would have served for some domestic activities.

The Roof

No remains have been found which shed light on the way the houses were covered. We could suppose that the roof was made of some beams and stalk supported by wooden pillars. No tracks of posts were discovered, however, some stone slabs were found (houses 20, 81 and 100) placed along the axis — although not necessarily in the centre — which might have served as timber roof supports. The banks of the az-Zarqā' and the nearby wells could have supplied enough material for the roofing.

Proportions of the Houses

Table 1 shows the proportions of 44 of the best conserved houses of the village. The ones, which are smaller than 10m are exceptional (only 10): twelve are between 10 and 11m, and only 5 are bigger than 13m. The width of the houses varies between 3.30 and 5m.

If we are aware of the fact that the floor is oval and that there are irregularities in the construction, it is easy to understand that it is difficult to calculate its surface. The proportions oscillate strongly: between 65.62m^2 and 21.35m^2. The average house in al-Muṭawwaq would be 10.62m long and 4.21m wide with a habitable surface of 44.19m^2.

Nothing seems to indicate real differences in hierarchy between the inhabitants of al-Muṭawwaq, we could therefore conclude that the difference in the size of the houses would be rather because of its use or the size of the family, than because of the function the family had within the group (**Table 2**).

The Courts

Next to the houses there are courts of different sizes, adapted either by the conditions of the soil or by the accumulation of the houses in a certain space.

Table 1: Proportions of the houses according to the sectors of the village.

West Sector 17 houses				Central Sector 15 houses				Central Sector North 4 houses				East Sector 8 houses			
Nr House	Long	Width	m^2	Nr House	Long	Width	m^2	Nr House	Long	Width	m^2	Nr House	Long	Width	M^2
20	11,75	5,25	61,68	85	9,60	3,65	35,04	152	14,30	3,70	52,91	175	10,45	5,70	59,56
15	11,10	3,50	38,85	86	10,10	4,00	40,40	151	12,25	4,30	52,67	174	10,05	4,20	42,21
6	10,20	5,50	56,10	98	6,10	3,50	21,35	148	9,80	5,35	52,43	173	10,30	3,45	35,53
7	10,50	4,75	49,87	90	8,10	3,70	29,27	146	11,65	3,80	44,27	170	13,80	4,75	65,55
38	8,40	3,60	30,24	95	8,00	3,00	24,00	-	-	-	-	177	9,90	3,70	36,63
37	11,30	5,30	59,89	96	6,80	3,50	23,08	-	-	-	-	176	11,00	4,30	47,3
76	12,80	3,85	46,50	98	7,50	4,40	33,00	-	-	-	-	172	8,20	4,35	35,67
77	8,15	3,70	30,15	102	7,90	3,80	30,02	-	-	-	-	171	9,40	4,00	37,6
75	6,15	4,10	15,21	83	13,60	4,60	62.74	-	-	-	-	-	-	-	-
40	14,70	4,15	61,00	94	10,00	4,70	47,00	-	-	-	-	-	-	-	-
39	7,00	4,10	28,70	104	10,35	4,00	41,40	-	-	-	-	-	-	-	-
35	10,70	4,05	43,33	107	9,45	3,55	33,54	-	-	-	-	-	-	-	-
30	14,15	3,80	53,77	105	10,15	4,55	46,18	-	-	-	-	-	-	-	-
24	7,85	5,10	40,03	106	10,30	3,30	33,99	-	-	-	-	-	-	-	-
22	6,60	4,30	28,38	104	10,80	3,80	41,04	-	-	-	-	-	-	-	-
65	10,10	4,55	45,95	-	-	-	-	-	-	-	-	-	-	-	-
48	12,50	5,25	65,62	-	-	-	-	-	-	-	-	-	-	-	-

Table 2: Average proportions of the houses per sector.

West Sector			Central Sector			Central Sector (north)			East Sector		
Long	Width	m^2	Long	Width	m^2	Long	Width	m^2	Long	Width	m^2
10,23	4,40	45,01	9,88	3,87	36,18	12	4,28	50,57	10,38	4,30	45,00

It is unusual to find a house between two courts or in the middle of one (77). Neither is it common that the courts are delimited by the walls of other houses. In the structure of house 36, the court was delimited in the north by the houses 37 and 28 and in the east partially by house 41. Unfortunately, no doors were conserved which could indicate if we have a communal court or a court of one single family. In the Eastern Sector, this phenomenon is more easily perceived. In the area of the wall (houses 30 and 31) the rooms are situated against the wall. The area has changed too much to infer if courts have existed. The houses 37, 38 and 39 all seem to correspond to a set surrounding a court. Although, within them there are some partial divisions (a straight wall in north-south direction and one in an angle northwest-northeast). In the Central Sector the houses 96 and 98 seem to form an assembly and in the east we see something similar in the set of houses formed by 166, 160 and 170. This distribution could be related to familiar associations. A singular case is house 48, which is linked with assemblies of a ritual kind (Small Enclosure and Big Tumulus). Table 4 shows that all the researched courts exceed $100m^2$ and some even $200m^2$.

Although the findings of the excavations of the courts were limited and in some occasions (20 and 81) offered no significant material, in other excavations proof of domestic activities was found, as we have indicated earlier.

The Distribution of the Village and the Location of the Houses

The village is situated on the south slope of the Jabal al-Muṭawwaq, it spreads out over an ample surface with clearly differentiated sectors from a topographic point of view.

1. The Eastern Sector can be found over a terraced zone which starts at the border of the cliff and extends to a river bed at some 4000m to the east. From the north to the south this sector is about 188m. The northern part is the most even zone, even though it is sloping slightly from the north to the south. A terrace in the rock, oriented from the west to the east, delimits it in the south. Normally, one of the lines of the walls is found on the border of the slope break. This is not the border of the village, which sometimes grew beyond the village wall.

This irregularity forced the houses to be distributed in a different way. Next to the wall, the houses are constructed against the wall. Not always was the city wall used as wall for the houses, in these cases there was a space between the houses and the wall, which might have been used as a storage room. This was discovered at house 29.

In the centre of the sector, the houses were dispersed in a rather anarchic way, although the destruction of the surface of a big area makes it impossible to fully establish the arrangement of the village. The southern area of the Western Sector presents a higher complexity. An example of this is the group of houses and courts 21-23, between which it seems there was an alley. We see something similar between the houses 20 and 19, which are separated by a street. Both passages belong to the same road, which leads in a straight angle to the wall in the south.

Another group that seems to form a group of houses and courts is the one formed by the habitats 40, 36, 41 and 41 bis, and 37, 39 and 38. To the northwest of this group a round tower, built with big stone blocks, was found, and in the southeast, there is the opening in the wall, which leads towards the so-called Small Enclosure.

To the north some houses can still be recognised. However, due to the construction of a track and of terraces, it is difficult to establish the density of the occupation of this area. We suppose it must have been high. The 84 houses that were counted in this area are only an estimation. Although, some were severely destroyed, others conserve the perimeter in its integrity.

2. The part west to the Central Sector was constructed around a river-bed, it is about 286m from the west to the east and approximately 156m from the north to the south. In the western part of the sector, the rooms and courts were placed tightly together, more or less parallel or oblique to the slope, as occurs in the earlier mentioned case in the area near the cliff, where the topography requires a stepped profile. The houses were constructed parallel to the wall on the highest step and perpendicular to it on the lower step. In this sector, the earlier mentioned house 109 with the double gate was found. The highest zone of this sector and the grounds to the east of

the river-bed is more even, offering a more organised area.

Over a hillock that restrains the village, we find an extension consisting of a group of seven houses separated from the rest of the village outside the range of the wall.

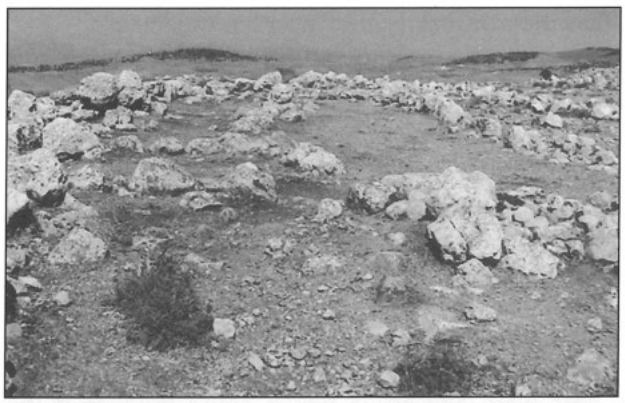
To the east, the Central Sector is delimited by a hillock, over which the Big Enclosure was built. In its centre, we find a big sharp rock sticking out and a small altar before it.

3. Following the line of this possible sacred area, there is the Eastern Sector, in which the slope forced the creation of terraces. These parallel alignments of big non-fashioned blocks extending towards the east were constructed at the same time as the village. They had to prevent the strong erosion and allow agricultural use (in one of them the only hoe of basalt of the village was found). The chronology of the terraces seems to correspond with the earlier construction of the village, because when it extended towards the east of the Great Enclosure it was constructed partly over the terraces.

This sector extends over a surface of 209m west to east, by 175m north to south. The houses were generally built parallel to the slopes.

House 81

1. House 81 (**Figs. 4, 5**) is a peculiar case, both because of its size and its floor, which is oval and more complex than those of the other houses. It is situated at some 170m to the east of a big mount erected at an outstanding part of the Western Sector. At 13.90m to the Southwest of this house there is a circular structure of stone with an open gate to the east. This structure provided a lot of pottery with some characteristics that highlight the group of al-Muṭawwaq. There are some other, much destroyed structures between the structure and house 81.



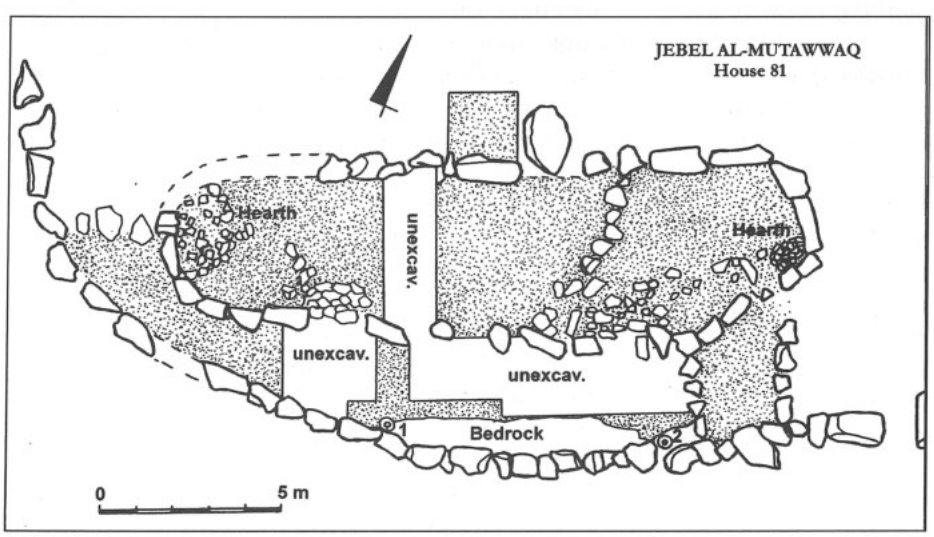
4. House 81.

The proportions of house 81 exceed those of the rest of the habitats of the village, It is 16.80m long. Although, its width of 4.30m is within the limits and is even a little minor to the average width of the houses of the Western Sector (4.40m).

Other characteristics make it different from the other houses, the existence of two gates oriented to the south (different to the ones of the village), which give entrance to a little room and a corridor which encircles the southern part of the house.

The centre of the house, i.e. the big oval floor, was made with the usual characteristic big blocks. The first row was placed directly on the very even mountain rock of the northern part of the habitat. This caused the wall to follow a more correct alignment. On the contrary, the south wall is irregular in its alignment because of the irregular alignment of an overhanging rock, which reaches its highest point in the southern room and the corridor. This rock made it necessary to use smaller blocks that were adapted to its profile.

The stratigraphy is simple. A layer of reddish



5. Sketch of House 81, Jabal al-Muṭawwaq.

brown earth forms level 1 with a thickness of 18 to 21cm at the sides, and of 34cm in the centre. It was formed at different times. Within this layer, there are more compact layers, due to the exposure to air and to natural forces. Under this layer there are accumulations of stones which came from the collapsing of stone blocks that formed the walls (their dimensions are between 0.70m and 0.35m length, they are therefore smaller than the ones that formed the base line of the walls). The plastered floor of the house, compact and of a whitish colour, covered in some areas by a layer of ashes, is in the base of the layer. The regular surface was destroyed in wide areas by the collapsed walls. The substratum is not very compact. It is made of grey earth and cobbles, dispersed there to level the irregularities of the rock.

Over the plastered floor, medium sized blocks, were aligned side-wise, oblique to the axis of the house. This way the space was divided into two sectors. The smallest, to the east, is 4.80 x 4.30m. The western part of the house is 12m long and its width is a little less than 4m. At the end of each of these rooms there is a big hearth covered with ashes as we have already described.

Two even flagstones served as base of the two roof pillars.

2. A little room of 2.80m long by 2m wide is embedded to the south of the east room. It is lifted some 50 to 60cm over the floor of the house because of the step in the mountain rock. It is delimited by medium sized blocks placed on the rock, but because its surface is irregular (there is a hollow of almost 50cm in the centre), earth and cobbles were used to even it. In the south it is closed by the large corridor wall that stretches out 14.30m from the east to the west, later turning to the northeast forming an arch.
3. This corridor must have formed part of the court of the house, since we did not find anything in the northeast that could be interpreted as closure (despite the fact some little blocks that were aligned there). Its length is of some 16m and its width is around 2.5m, narrowing in its eastern part (1.56m). The floor is made out of the same rock (even in the south of the corridor) although lightly inclined towards the north forming a step that was used as a shelf.
4. In appearance the house lacked gates, at least constructed in the usual way of al-Muṭawwaq. Nevertheless, the wall that closes the main room in the south is interrupted at three points: two give access to the corridor and the other gives access to the living room. The level difference of 55 to 60cm between the floor of the corridor and the floor of the room is overcome with little rudimentary steps of blocks of stapled stones, which can be found in these kind of places. The little room is entered through a natural sloping flat part of the same rock, which, together with other blocks which are inclined naturally, offers the only exit of the house, through an interruption of its wall in the northeast corner of the room, to the outside.
5. Without going further into details, we mention an earlier noted fact, the biggest accumulation of pottery and basalt tools was found in the western room of the house, while less finds were found in the eastern room.

In the corridor, on the bank formed by the step in the rock on which the wall of the corridor was placed, four jars were found, placed close to the wall in zones protected by sticking out edges of the stone blocks and covered by a very thin layer of earth and cobbles of 5 to 10cm thickness. One of the jars, decorated with broad stripes and rounded knobs in the neck, contained remains of a very developed fetus or a newborn child. It is the first discovery of this kind in the village of al-Muṭawwaq. The other vase also contains bones of a child. They are so fragmented that it is difficult to identify them.

Everything indicates that house 81 was unique in the group of al-Muṭawwaq, which stands out from the all seemingly uniform habitats of the village observed until now.

The Number of Houses per Sector

Every number we present approximates the reality, taking into account the high level of destruction suffered in every area. In the Western Sector 84 houses have been identified. Although, many are intact, others are only partly preserved.

In the Central Sector 71 habitats were identified besides the nine isolated structures to the northeast of the sector on the mountain slope that dominates the village. The Eastern Sector, the latest expansion of the village, has 22 houses.

The total of preserved houses is approximately 186. If we suppose that the framework of the village followed similar models to the ones we know, the sum of some extra 100 houses seems admissible. The estimations of the dimensions of the population are risky, especially when we do not know if the whole village was inhabited at the same time. However, a population of some 1.500 to 1.700 inhabitants seems reasonable.

Conclusions

Al-Muṭawwaq is a village in a steppe area, open

in the north to the Ḥawrān, in the east to the desert and through the az-Zarqā' valley to the valley of the Jordan, and in the west to more benevolent areas (from a climatic point of view). It was probably not inhabited during a very long period and abandoned without a new population settling in its place. Everything seems to indicate a peculiar evolution of the eastern area of Trans Jordan during the Early Bronze I. This makes it different from the development of the zones to the west of the Jordan, especially the coastal areas which, despite of interruptions in the occupation throughout the Bronze Age, followed a more coherent development. Its lifestyle was probably based on cattle raising and on agriculture of non-irrigated land in the higher areas. Alternatively, they might have used an incipient irrigation in the valley through which the az-Zarqā' flows and may have made use of the wells of the Khuraysin and the Qunayya. It seems it did not guarantee the stability of the villages in the area (as it also did not consolidate in Jāwā, despite the complex irrigation techniques). Other villages grew in nearby more favourable areas, also during a short period of time (Jabal Makhad, Marayim, Abū ath-Thawwāb, to name some). It might be possible that they were the continuation of the complex of Muṭawwaq during the Early Bronze Age. This possibility makes it necessary to analyze the evolution in the future as a different element of the western Early Bronze Age. It offers peculiar characteristics, related to an area that is more favourable to complex exploitation systems due to the few guarantees for stability they offer.

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REPORT ON THE AL-KHAZNA COURTYARD EXCAVATION AT PETRA (2003 SEASON)

Suleiman Farajat and Sami Nawafleh

Introduction

The decline of tourism in the area in 2003, due to the war on Iraq, has played a major role in the beginning of excavation at the al-Khazna Courtyard in Petra. It is well known that this area is usually full of visitors during the high seasons (March, April to mid-May and September to October of each year), thus creating a practical obstacle to the progress of excavation due to visitor inconvenience and even danger to the visitors who may get too curious. As for the main scientific aims of the project, they may be summarized as follows: 1- attempting to solve the controversy regarding the nature of al-Khazna, as there are around 25 different opinions concerning the nature and date of al-Khazna (**Table 1**, after McKenzie 1990: 7); 2- uncovering part of the paved courtyard that is an extension of as-Sīq and understanding its nature and relation to al-Khazna, and finally 3- the "rock-cut shelters" to the north of the monument presented an indication that there were remains still buried.

Following the written approval of Dr. Fawwaz al-Khraysheh, Director-General of the Department of Antiquities, an archaeological team was formed from the Petra Archaeological Park personnel under the direction of Suleiman Farajat, Sami al-Nawafleh, Hiyam Tweissi and Muhammad Salamin, as supervising archaeologists, Qais Tweissi as conservator, Saleh al-Nawafleh as site draftsperson, Sabri Fdoul as photographer, as well as Amer Bdour of the Ma'ān Antiquities Office, who did the pottery drawings.

The project originally employed 12 technical laborers then the number was raised to 24.

Excavations and Results

The project had two main parts: the excavation and the conservation and protection of the site from flooding as well as assuring the safety of visitors.

The excavation started on 14 April and continued through to 30 September 2003. Most of the terrace adjoining al-Khazna was excavated in eight soundings and trenches, in addition to cleaning two large and one small tomb.

Squares 01-03 measured 4 x 4m each; Sounding 04 measured 8 x 3.4 - 4.2m; Sounding 05 measured 8.3 x 2.6 - 3.3m; Soundings 06 and 07 measured 6 x 4m each; and Sounding 08 measured 5 x 3m (**Fig. 1**). Squares 02, 03 and Sounding 04 were in the northern front section adjacent to the rock-cut of the al-Khazna terrace, while the rest were to the south. Including the tomb interiors, a total area of 252m^2 was excavated after the removal of the balks.

The results obtained during the excavation period allowed us to define four main phases

1. Phase 1, the oldest, represented by Tomb 62A (Incense Tomb).
2. Phase 2, represented by Tomb 62D (Window Tomb), the side Tomb 62E (Staircase Tomb), Tomb 62B (Obliterated Tomb), and Tomb 62C. The latter is located between the Window and the Obliterated Tombs, only its entrance was partially exposed in a small sounding due to time restraints.
3. Phase 3, represented by the al-Khazna Façade (no. 62).
4. Phase 4, represented by floors, paved courtyards, the central staircase, the side staircase, walls, water drainage channels and dams.

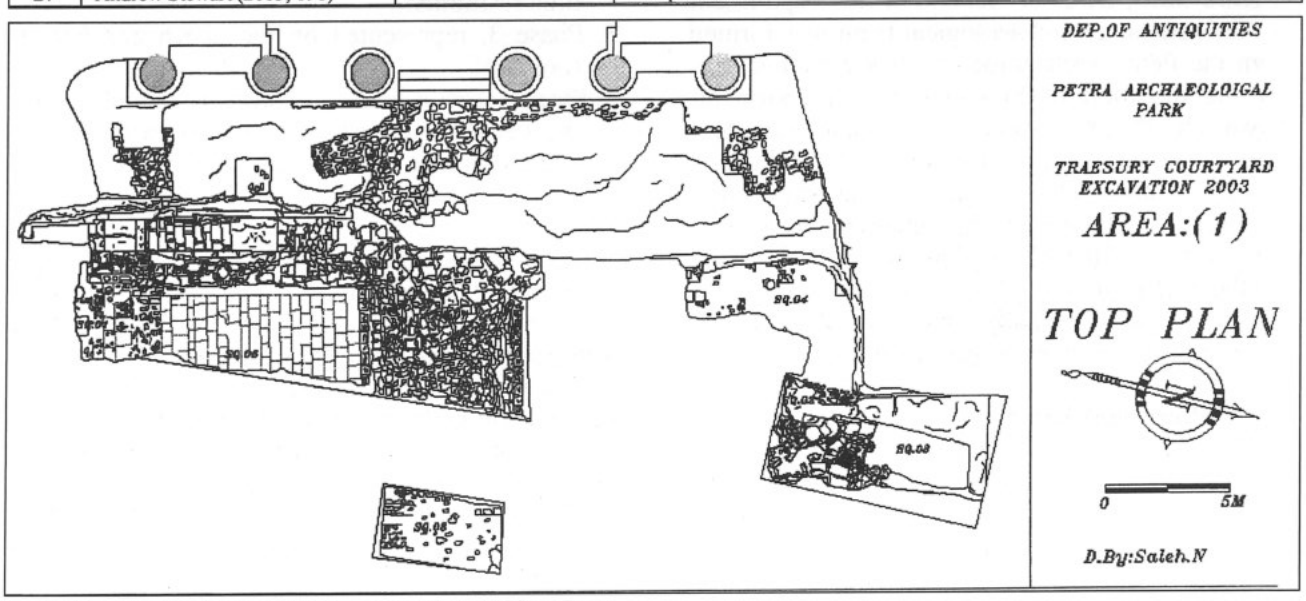
Phase 1

The oldest phase is represented by Tomb 62A, called the "Incense Tomb". It was cut in the southern part of a rock-face at 2.69m from the surface. The tomb façade measures 2.54m in height and 4.55m in width. A channel (10cm deep x 2.54m high x 0.7m wide) was cut in its northern side.

The tomb is simple and for a single burial. The entrance is rectangular (1.63m high and 0.93-0.98m wide), topped by a frame of 0.43m high above a sill. The frame has a number of small holes for a plaque inscribed with the name of the deceased, which was probably of metal.

Table 1: Petra: Chronology of al- Khazna (from no 1-25 after Mckenzie 1990: 7)

No	Scholar	Date of Khazneh	Basis for Date
1	Brunnow and von Domaszewski (1904,186)	Hadrianic	Roman. Hadrian visited Petra.
2	Dalman (1908,47;1911;107;1912,77)	1st cent A.D	Style. In "Hellemistic" category.
3	Wiegand(1912,10)	Augustan	Comparison of garlands.
4	Kennedy (1925,vii,51,54)	After A.D106	Roman Temple Tombs not at Madain Saleh
5	Ashby (1927,132)	2nd cent A.D.	No reason given
6	Rostovtzeff (1932,44)	Late Hellenistic	Style. Similarity to second Pompeian style.
7	Ronczewski (1932) Schlumberger (1933,284-290)	Not after Augustus Hellenistic	Comparison of capitals.
8	Watzinger (1935,77)	Late Augustan	Capitals (Ronczewzki 1932) Similarity to late second and third Pompeian styles.
9	Robertson (1943,220-221)	After A.D.106	Roman Temple Tombs not at Madain Saleh. "General baroque effevt". Unlike Tomb of Hamrath, Suwaida.
10	Wright (1962,37-44) Wright (1973)	Mid-late 2nd cent A.D. not before c.A.D.100	Roman Temple Tombs not at Madain Saleh Similar to Temenos Gate –mid-late2nd cent.AD. History. Comparison of an iconographic detail.
11	Bennett (1962,237) C.H.	2nd cent. A.D.	No reason given
12	Parr (1967,49)	After c.A.D.50	After paving of Siq.
13	di Vita (1968,74,77)	end Hellenistic/ Augustan	Capitals dissimilar to Temenos Fate. Plan details similar to Alexandrian tombs.
14	Starcky (1966,944;1971,82)	Augustan	Capitals (Ronczewksi 1932). Similar to stucco decoration on side of Kasr el Bint. Similarity to second Pompeian style.
15	Lauter (1971,172)	Before 9 B.C.	Capitals similar to Temenos Gate ---before 9 B.C
16	Browning (1973,91)	Aretas III	Sequence. History
17	Lyttelton (1974,70-75)	Aretas III	Comparisons---1st cent.B.C. Or early 1st cent.A.D. History --- Aretas III.
18	Andreae (1977,575)	Late Hellenistic	Capitals (Ronczewski 1932). Similar to temenos Gate --- 9 B.C.
19	Negev (1978,957)	c.25 A.D.	History. Tomb of Aretas IV.
20	Hadidi (1980,107-108)	Hadrianic	Comparisons.
21	Schmidt-Colinet (1980,92-98)	Aretas III	Details similar to Kasr el Bint.
22	Zayadine (1980b,24)	Towards end 1st cent B.C.	Capitals similar to Kasr el Bint.
23	Ward-Perkins (1981,329)	After A.D.106	Sequence. History. (Does not specifically mention Khasneh).
24	Bowersock (1983,62)	Aretas IV	Kasr el Bint and Main Theatre --- early 1st cent A.D. Similarity to second Pompeian style.
25	MacDonal (1986,149)	After A.D 106.	Classical influence stronger in Roman period there.
26	Robert Wenning (2003, 141)	3rd Quarter of 1st cent.B.C	Capitals
27	Andrew Stewart (2003, 198)	Aretas IV	Comparisons .



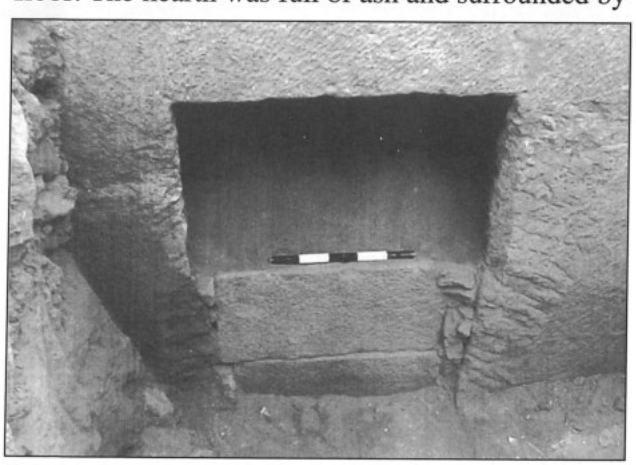
1. Top Plan of al-Khazna courtyard excavation (2003) at Petra.

The entrance was blocked by four courses of limestone ashlar blocks, the outer faces of which are well dressed while the inner faces are rough with traces of quarrying tools. Two of the courses were found *in situ* (**Fig. 2**), their lengths were 0.80 and 0.83m, and the gaps between their edges and the tomb entrance were filled with mud and small stones. The third course (length 0.85m) was found leaning inward, while the fourth (length 0.83m) was on the floor inside the tomb. The displacement of these two courses is evidence that the tomb was robbed at a later period. The total height of the courses is 1.58m, which indicates that the remaining height was for mud mortar joining the courses.

The length of the grave is 2.30m, its height 1.63m and width 0.80-0.86m. The northern wall has a roughly worked niche (1.69m high, 0.80m wide and 0.30m deep) that was probably for placing a nefesh next to the head of the deceased, or for funerary offerings and personal effects.

The opening of the tomb caused it to be filled with flood debris that were found in relatively hard compact silt layers, varying in colour between brown and red. When these were excavated we noticed the remains of a fine grey line surrounding the place of the body, most probably indicating a wooden coffin that disintegrated. This is further supported by the discovery of four bronze pieces with remains of wood (**Fig. 3**). What we found of the skeleton are a hip, an arm and some hand bones, the rest was probably washed away by floods. A few Nabataean sherds were also found.

The Hearth: An interesting feature that was found on Floor 19, at the level of the floor of the tomb — below the present as-Sīq floor and paved courtyard — was a large hearth situated in front of the tomb entrance, next to which was a placed lamp on the floor. The hearth was full of ash and surrounded by



2. The entrance of tomb 62A with two courses of limestone ashlar blocks found *in situ*.



3. Part of wooden coffin inlaid on bronze frame found inside tomb no. 62A.

lime stones that in turn surround a circle of sand stones. The hearth is 1.6m long and 0.6m wide, and is 2.35m away from the tomb entrance. Inside we found burnt bones and a number of painted Nabataean sherds (**Fig. 4**), as well as sherds of jars and lamps, iron fragments, and a quantity of burnt myrrh and incense. This may be the first time that such incense was found in Petra. The presence of the hearth outside the tomb indicates that funerary rites were carried out there. Additionally, three of



4. No of broken vessels found in a hearth in front of tomb no. 62A.

the painted bowls were restored and — judging by the stains inside them — it is obvious that one piece of incense was placed inside each bowl, and probably they were used only once. We also found many stones in the hearth that may have been used to smash the bowls to prevent their reuse, as intentional breakage were obvious on one of the bowls. Murray and Ellis had suggested that the painted Nabataean vessels were used in religious ceremonies after which they were smashed to prevent their reuse (Murray and Ellis 1940: 21). The pottery of this hearth was examined by Dr. Stephan Schmid who estimated the date (25BC–1AD) (pers. Comm.).

Phase 2

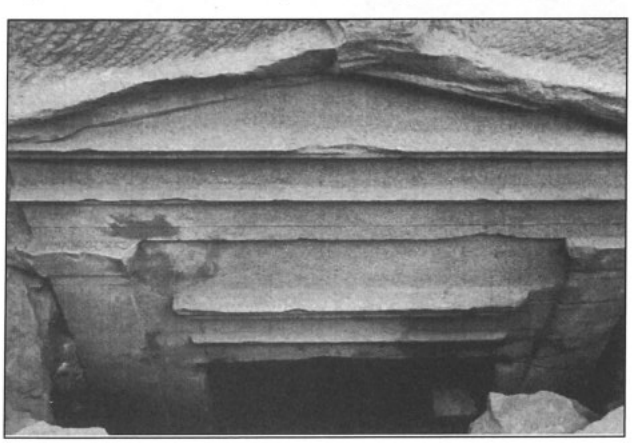
Represented by Tomb 62D (Window Tomb), Tomb 62E (Staircase Tomb) and Tomb 62B (Obliterated Tomb).

The Window Tomb (62D): This tomb was carved in the rock face in front of al-Khazna, at around 5m from the front staircase. The entrance and façade of the tomb were blocked with stone ashlars, some of which are very large, and most of which came from the black iron-rich vein in front of al-Khazna. The roof of the tomb, which is directly in front of the main staircase of al-Khazna, was used as a front courtyard and paved with stone slabs similar to the pavement of the lower courtyard, however only one paving slab was in situ in front of the staircase.

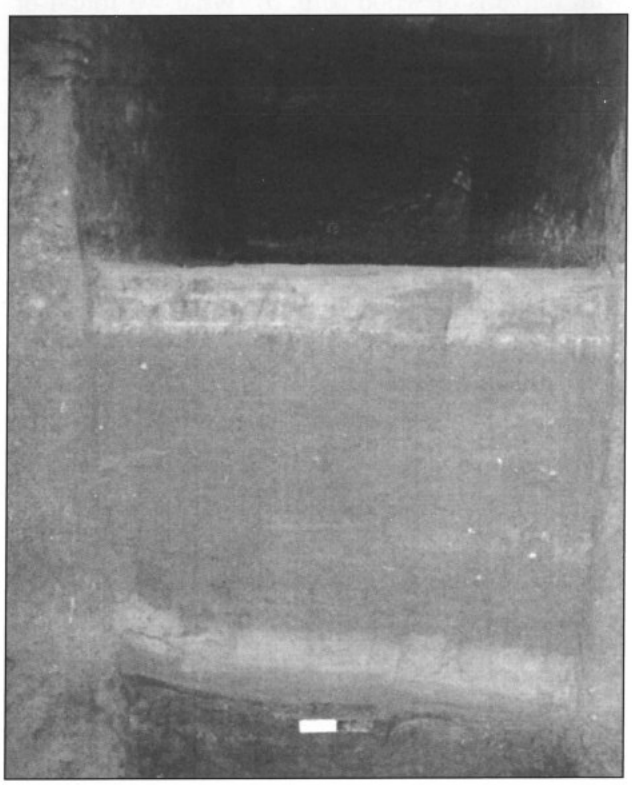
We exposed the facade of this tomb (**Fig. 5**), which was neatly blocked while leaving a gap of around 5cm to protect it during the construction of the staircase leading to al-Khazna. The façade itself is well dressed and of one level. On the upper part there are rough anvil marks around the pediment, while the rest of the façade has smooth marks and elements, including the pediment that is decorated with three solid urns, one at each end and one at the top. This is followed by a rectangular frame with a cornice at the bottom, which divides the upper part of the entrance into two rectangular fields. The entrance has two engaged columns with Nabataean capitals that have knobs in the middle (the protrusion on the southern capital is eroded), and there is another rectangular frame between the two capitals.

The façade is 5.40m high, and the entrance was 1.85m wide then narrowed down to 1.16m by building a course at either side. It seems that the structural aim of the northern course is to support the window through the staircase. The entrance has two engaged columns other than those of the façade which are 3.55m high and 0.39m across. There are two parallel examples to this façade at Wādī Farasa and the façade on the exterior northern edge of Sīq al-Bārid (Zayadine and Farajat 1991: 275-311).

The entrance leads to a chamber below the terrace of al-Khazna, which was full of debris that may have drained through the widow during flood episodes. The debris was 1.30-1.90m high (**Fig. 6**), and formed of 10 layers, 9 of which were silt while the lowest one — directly on the floor — was coarse. The colors varied from light grey to deep red and brown. The top two layers were of very hard and compact silt, probably due to their absorption of water that entered through the window made with the staircase after the blockage of the



5. The façade of tomb 62D.



6. Stratigraphy and layers inside the loculus of tomb 62D.

tomb entrance, when a door was made to connect the Staircase Tomb with the Window Tomb.

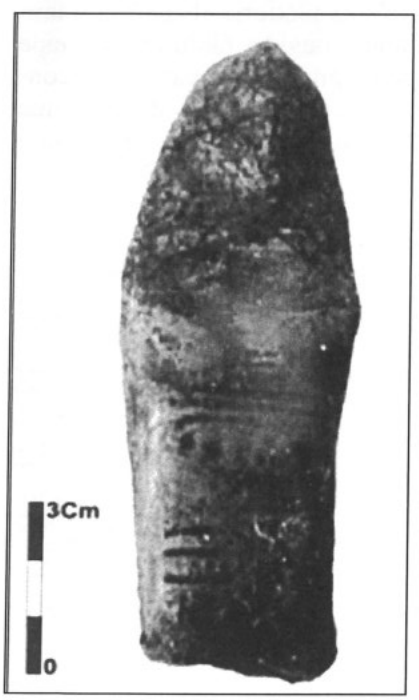
The layers directly on the floor were 0.05-0.10m thick, full of sherds, stones and bones. The most interesting was the layer on the floor inside the entrance, which was original and not accumulated or moved by floods. It consisted of deep red sand and sandstone slabs. From it we recovered a small terracotta figurine (**Figs. 7, 24E**), an unpainted ceramic bowl and some pottery sherds. The layer covered an area of 5.80 x 1.60m. Upon clearing the chamber, we noted that the floor and ceiling slope from the back toward the front wall (east to west), and there were white salt incrustations on the upper parts of the walls. There were also eight rock-cut "hangers", four of which were in the ceiling and the rest in the north wall, probably for hanging funerary offerings. In the upper northern section of the back (west) wall, there is a rock-cut niche, 0.11m deep, 0.32m wide and 0.65m high, the upper part of which has two holes for attaching a statue.

In the western wall of the chamber we uncovered a rock-cut burial place, 2.57m high, 2.85m deep and 1.15m wide that was full of the same debris layers as the chamber. The lowermost layer was also deep red in colour, 0.20m thick and contained a few pottery sherds. It seems that the burial was closed off by a wall, the lowermost course of which remains at a height of 0.30m. No bones were found in the burial place so it is possible that they were washed somewhere else, as human and animal bones were found on the main chamber floor, including a fractured but complete human skull that was 2m away from the burial, next to the door connecting this tomb with the Staircase Tomb. The Danish team working at Shakārat Musay'īd did a reconstruction of this skull that belonged to a man of around 50 years of age and had noble features. The skeleton of a ram was also found on the floor of the chamber, in the southeast corner next to the main tomb entrance.

The Staircase Tomb (62E) (**Fig. 8**): The façade of this tomb is of the "Hegra Type" according to McKenzie's classification. It is 6.26m high and 6.93m wide. At the top there is a straight cut, 32-44cm wide that seems to have been made after the façades and probably is contemporary with the carving of al-Khazna. Wall 22, of which we revealed nine courses of the western face, would have been at least up to this cut, so that the top of this wall and the straight rock-cut would have carried the roof and decorations. Thus the façade of the Staircase Tomb and the staircase would have been covered in a way that is amenable with the general setting of al-Khazna, and in accordance with the visual order of al-Khazna and the courtyard.

The façade has two large pilasters, the capitals of which were cut off during carving al-Khazna, along with the top of the tomb that most probably had a crow-step design. We only uncovered a small section of the pilaster at the northern edge of the façade while most of the column at the southern edge was found; it is equal in height to the façade and its width is 0.67m, the height of the base is 0.16-0.59m as it rests on the staircase leading to the main tomb, onto a small pilaster base 0.20m long and 0.56m wide, its base 0.11m high and 0.20m wide. This small capital is pure Nabataean, 0.24m high and 0.72m wide.

At the centre of the façade there is a large door with a triangular pediment, most of which had been



7. A terracotta figurine found inside tomb 62D.



8. The entrance of tomb 62E.

intentionally chipped off. Many relief fragments from the façade were found incorporated into the staircase and in front of the tomb. The remaining part of the pediment is 0.68m high and 1.48m long, while the original length was 4.35m. It is at 0.65m below the top of the façade and below it there is a plain rectangular attic, 3.47m long and 0.27m high, above a cornice of 1.72m preserved length and 0.11m height (partially destroyed, its full length would have been 3.60m). There is another plain tablet below the cornice, 3.46m long and 0.13m high.

The door is framed by double pilasters that are better cut than those at the façade edges. The outer pilaster has quarter column attached to it with a single capital. Its height is 3.04m and width 0.61m; its base is 0.32m wide and 0.16m high. The capital is of the second Nabataean style that is characterized by a tongue below each horn, some of its projecting parts are missing. Its height is 0.54m and is 0.92m wide. There is a groove of 0.37-0.54m in width next to this column.

The northern column is similar to the southern but we could not expose it totally as a small east-west wall (no. 24) covers its lower part to the height of 1.62m and a width of 0.62m. The capital is complete, 0.92m high and 0.55m wide. It is again of the second Nabataean style according to Mckenzie classification known at Hegra with similar examples at Petra, e.g. (**Fig. 9**) Uneishu Tomb No. 813 and Façade 559. Schmidt-Colinet argues that the horned capital may be explained as a geometrically reduced form or an abstraction of the Graeco-Roman Corinthian capital (Schmidt-Colinet 1987: 142).

There is a plain attic between the two columns, 0.44m high and 1.02m long, above a fluted frieze 2.26m long and 0.28m high, then a plain frieze of 1.72m in length.

The inner entrance to the tomb is rectangular, 2.56m high, 0.98m wide and 3.62m from the ground level, again framed by a pair of pilasters with plain capitals. The southern column is at a distance of 0.29m from the main column next to the door; it is 2.36m high and 0.30m wide, its capital is 0.32m high and 0.24m wide. The northern inner pilaster is 0.29m wide, and 1.10m of its height was exposed while its capital had been destroyed by Wall 24 that covers it to protect the entrance from the flash-floods. This column is 0.31m away from the main column of the northern façade. There is a cornice with incised decoration above the doorway, while the floor is solid rock. The façades are separated by large grooves that seem to have been blocked with ashlars, thus distinguishing them from the rock face and other façades even at a distance.

The Chamber of Tomb 62E: The archaeological evidence indicates that this tomb was cut after the Window Tomb (62D), and there are differences in the exterior architectural features, while the chamber was not completed. The doorway opens onto a chamber that was full of flood debris. Removal of the debris exposed a semi-rectangular chamber with a floor that slopes from west to east. At the centre of the rear western part, we exposed a rectangular rock-cut platform surrounded by four channels. The surface of the platform bears haphazard scratches, probably as a result of sharpening the metal tools used for carving, and it seems that the platform was left on purpose as a step to aid the carver while cutting the interior of the chamber. Directly to the north of this platform there is a quantity of white gypsum, roughly circular in shape with a central circular groove, probably for containing the water used to cool and dampen the cutting tools, and for avoiding the dust that would affect the breathing of the carver (**Fig. 10**).



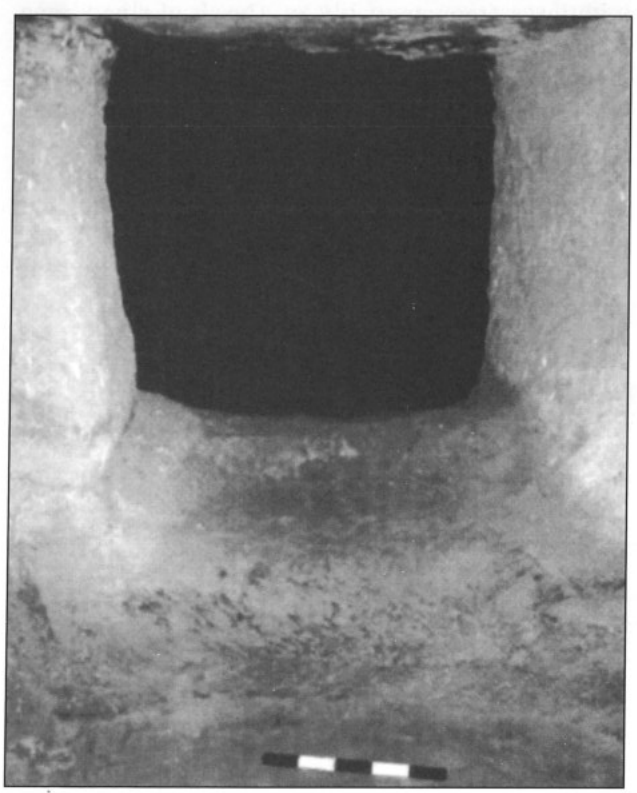
9. A horned capital of Hegra Type with quarter column engaged to pilaster decorated the entrance of tomb 62E.



10. Rock cut plate form and a circular shape of white gypsum with central circular groove.

In the western (back) wall, which is 7.17m in length, there is an unfinished groove that may have been intended as a loculus, while in the northern part of the eastern wall, which is 7.00m in length, there is a small niche topped by an unclear nefesh probably symbolizing the buried person, as we found remains of a human skeleton including the skull, long leg bone, and some foot bones, all of which were at 20cm above the floor. Next to the bones there were two cover slabs.

In the northern wall there is an entrance leading to Tomb 62D which was not finished, as there is a long line near the eastern edge where the carver intended the entrance to finish (**Fig. 11**). This line also indicates that the carving of the entrance was done from the Staircase Tomb chamber and not from Tomb 62D. The visitation to Tomb 62D, after blocking its entrance, was done from the main lower paved courtyard through the staircase then the main chamber of the Staircase Tomb and through the doorway into Tomb 62D (Window Tomb). This doorway between the Staircase Tomb 62E and Window Tomb 62D attests to the importance of the Window Tomb that was left open for visitation for a long period of time. The archaeological remains of pottery found inside the tomb also indicate the continuity of offerings. The entrance additionally helps in the ventilation through the window cut into the slope, thereby creating an air current inside the Tomb 62D chamber.



11. An interior entrance leading from tomb 62E to tomb 62D.

Both the western and northern walls were well finished, as opposed to the cutting of the eastern and southern walls, while the ceiling has rough and fine anvil marks indicating that both pointed and flat anvils were used. It also seems that the ceiling was cut in different phases whereby the carvers partitioned it into several longitudinal sections extending north-south, each being 0.88-0.90m wide. We noted that the sections start at the northern edge of the ceiling going towards the south however it seems that the ceiling was never finished. As for the dimensions of the walls, they are 7.17m for the western wall, 7.00m for the eastern, 6.31m for the southern and 6.39m for the northern, while the heights from the floor reached 2.04m in the southwest corner and 2.51m in the northeast corner. The entrance between the two chambers is 1.64m high, 1.60m wide, 0.67m deep at the western jamb and 1.14m deep at the eastern jamb.

In the southwestern corner we found a hearth 3.40m long and 1.73m wide. It was surrounded by irregular sand and lime-stones, concentrated in the eastern part. The northern edge of the hearth was at the platform, and the western and southern edges at the chamber walls. The hearth was full of ash, bones and pottery sherds. It seems this tomb was never finished as indicated by the unfinished loculus in the western wall, as well as an irregular form in the western part of the southern wall where another loculus may have been intended. The floor and ceiling of this tomb are lower than the floor and ceiling of Tomb 62D.

The Side Staircase of the Staircase Tomb: We exposed the lower courses of a wall separating the Staircase Tomb from the paved courtyard. The entrance to the tomb was reached from the courtyard by a staircase adjoining the tomb façade and Wall 22. The staircase extends on the southern side, and ends at the tomb entrance on a natural rock floor in front of the lower tomb threshold, which is 1.37m long. It is composed of 11 steps, the uppermost two being rock-cut while the other nine were built of sandstone blocks and mud mortar (**Fig. 12**). The heights of the steps vary between 0.14-0.22m, the depths are 0.23-0.28m and the average length is 0.42m. The height of the staircase is 5.12m, and at its top there is a platform with a channel-like cutting in the middle. Two steps that were discovered in front of the tomb entrance during the excavation may have originally been on this platform and were removed by floods or human action, thus the total number of steps could have been 13.



12. The staircase of tomb 62E.

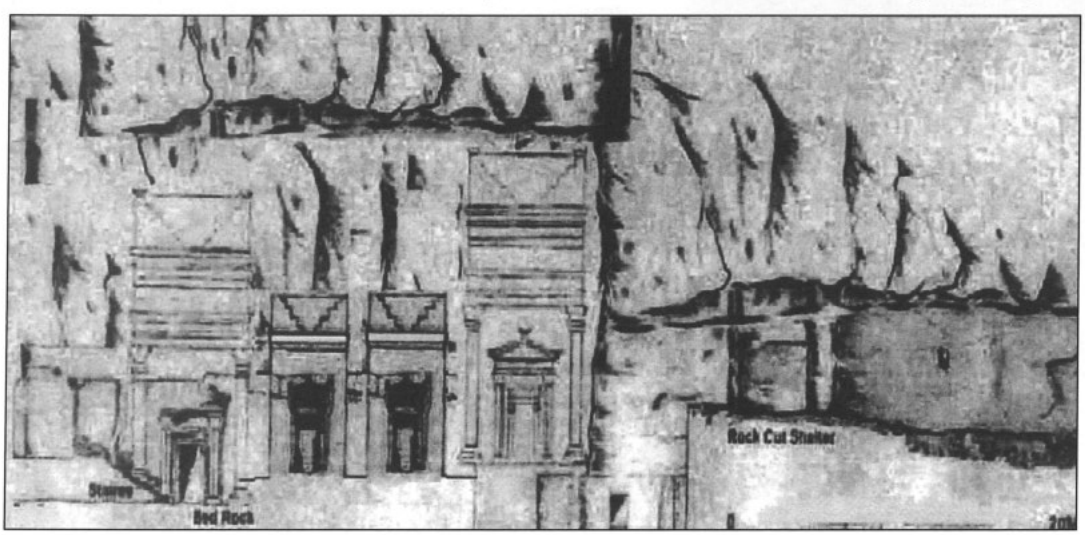
Phase 3 (represented by the façade of al-Khazna)

When talking about al-Khazna, we should imagine the site before cutting the façade. The archaeological evidence we discovered show that the two tombs (the Window Tomb and the Staircase Tomb) were cut at the site prior to al-Khazna. Both are of the Hegra style and most probably had attics with crow-step designs (**Fig. 13**). When the decision was taken to carve al-Khazna, it was necessary to remove the attics of the tombs and some of their other decorations, including the column capitals in the case of the Staircase Tomb, in order to create enough space for the carving of the façade. As the façade was carved from the top down to the bottom, the carvers used the tops of the existing tombs as supports and then cut them off as they went down. This substantiates the theory that the grooves on both sides of al-Khazna were for scaffoldings, as they are found at around 11m above the al-Khazna platform, which would have been just above the heights of the removed tomb attics. Another indication that the pre-Khazna tombs rose to this height are the remains of carved long grooves on both sides of the slope around al-Khazna, at a level slightly below the "scaffolding" grooves. We believe that these long grooves represent the inner limit of the rock overhang that protected the pre-Khazna façades. Additionally there are more "scaffolding" grooves on the inner rock-faces surrounding al-Khazna, below the level of the long grooves mentioned above.

We do not want to go into the artistic and architectural details of al-Khazna, but it is worth mentioning that its southern part has suffered from erosion, mainly caused by rain as a result of the blockage of the channel above the façade, which we will mention later on.

Phase 4 (represented by the floors, paved courtyards, central staircase, water drainage channels and dams)

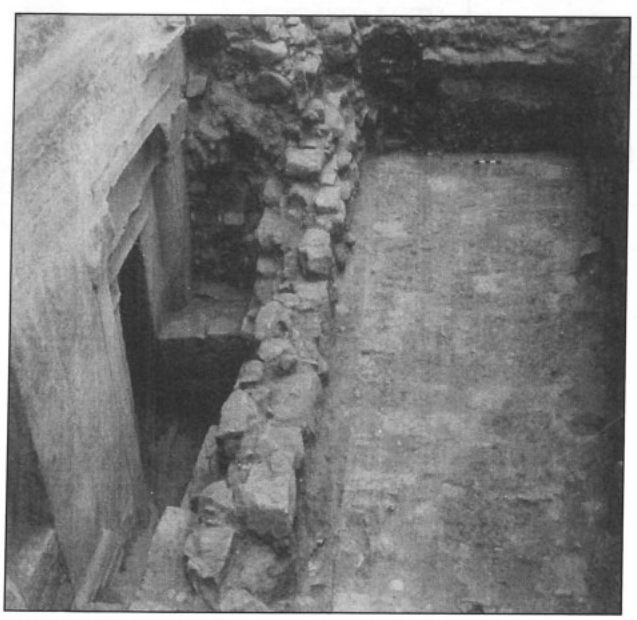
After choosing the first three excavation squares, the pottery readings indicated that the oldest archaeological stratum was in Square 3 locus 20, which is grey in colour and composed of sand mixed with limestone and sandstone cobbles with appreciable amounts of pottery sherds directly on natural rock this. It became clear that this layer was a leveling floor to even out the rock. Above this level was Floor 20, which is somewhat compact and light cream in colour, composed of sand mixed with large amounts of pottery sherds and had bone fragments on top. This floor is contemporary and associated with the tomb 62A found in this square. This square also had large amounts of cobbles and medium-sized stones that were transported by the flooding in as-Sīq, and accumulated through the time of desertion of the city or at least this site. The compact flood layers had some pavers from as-Sīq, and their removal posed a great difficulty for the



13. An imagination reconstruction for tombs no. 62A, 62B, 62C, 62D and 62E.

excavation team as we found a large rock, probably fallen from the mountain top next to al-Khazna on the northern side and then moved by floods onto the Tomb 62A entrance. The layers in front of the tomb and above Floor 19, which are below the paved floor level, were composed of fine red sand.

It seems that during a later period, and because of an important project, the area was backfilled and its level was elevated. What is curious is that the material used for the backfill may have been the sand resulting from the carving of al-Khazna (fine red sand). This use of material would have saved effort, time and money as huge amounts of rock were cut out for the chambers and niches. The backfill elevated and leveled the front courtyard to ease its paving, as remains of the paved courtyard were found with the bedding directly above the rock outcrop into which Tomb 62A was cut. The paving was also found in Square 2, where the bedding was made of small limestone fragments — the lower being irregular in shape while the top ones had flat surfaces — bound with mud mortar. Superfluous materials, including column drums, were also used for the preparation of the irregular area for paving, as this courtyard is at the confluence of three wadis (Wādī Sadd al-Jarra, Wādī Khubtha and as-Sīq) in addition to water falls from the surrounding areas. In the exposed part of the courtyard, the paving could be seen as remains of lines in mortar (Squares 01, 04, 06 and 07), indicating that the paving was rectangular in shape with varying dimensions (**Fig. 14**), although most were close to the dimensions of the paving found next to the upper staircase of the al-Khazna platform. The floor below the pavement was mixed with pottery sherds. To get rid of rainwater, the southwestern part was lifted to form a slight slope towards the north and east. It was also noted that the courtyard had a drainage system as we found a channel heading east then dipping towards the north.



14. The remains of the mortar that used to fix the pavement.

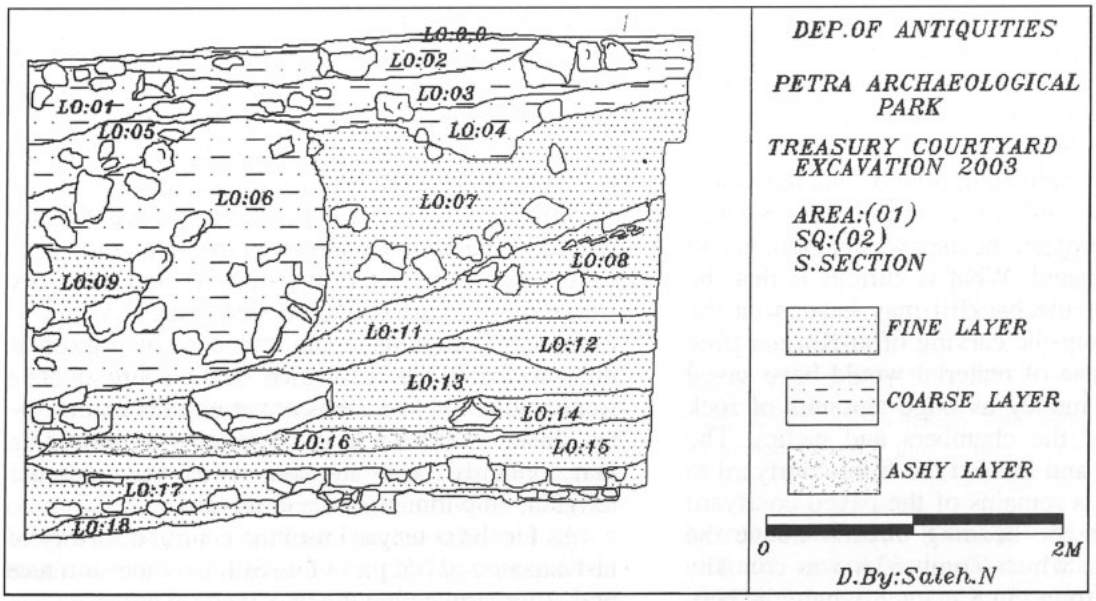
Some pavers were found *in situ* (Squares 02 and 04), and whether the courtyard pavement was eroded away by floodwater, or purposely removed, this would have happened at a later stage. We also found large amounts of burnt incense over most of the courtyard, part of which was *in situ* over a stone that may have been converted into a small altar. There was also a large burnt layer in Square 02 that contained burnt incense, which indicates the religious importance of the courtyard.

As for the courtyard itself, it is 6.37m below the last exposed paved part of as-Sīq, i.e. there is a natural slope connecting the two exposed areas.

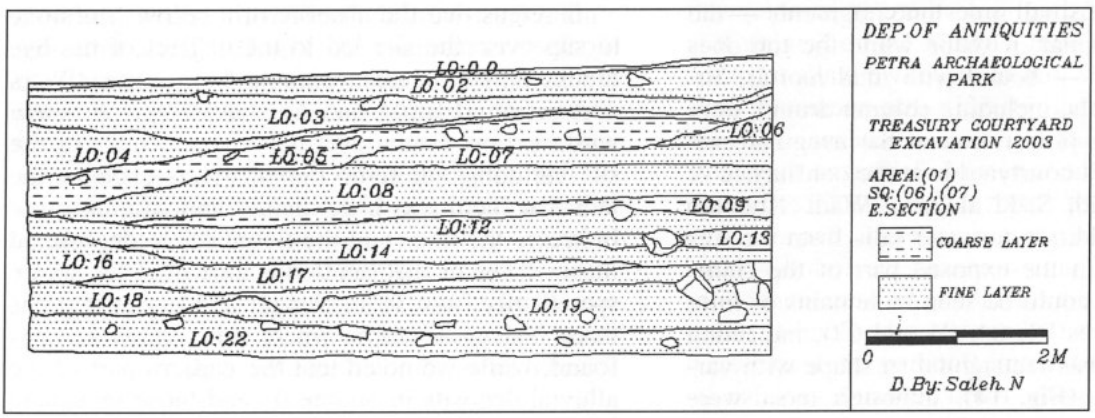
It seems that the absence of a central authority to supervise the site led to the neglect of the hydraulic system maintenance and consequently its destruction (Farajat and Falahat 1993), as there was a yellow sandy layer that covered most of the site including the tomb floors, which explains the fact that there was little archaeological deposition between this layer and the floors (three deposits at most). It seems that the flood came from the south, specifically from Wādī Dangūr al-Khazna that has three Nabataean dams where this yellow sand is found, while we noted that the western part of the alluvial deposits in Square 02 and those in Square 04 were brought by the floods from the mountain slope to the east of al-Khazna through the cleft there. The eastern part of the deposits, close to as-Sīq, were brought from there as we found a number of as-Sīq pavers in them (**Figs. 15A, B and C**).

A small altar was found at floor level in Square 04, measuring 0.40 x 0.43m. It was full of burnt incense that would have been used as offering during the religious ceremonies in the courtyard (**Fig. 16**). At the same level we exposed remains of the pavement with five complete and two broken pavers *in situ*, while eight others had been moved. They are all of sandstone with level smooth tops and rough bottom surfaces to embed them well into the mud mortar and lower bedding described above.

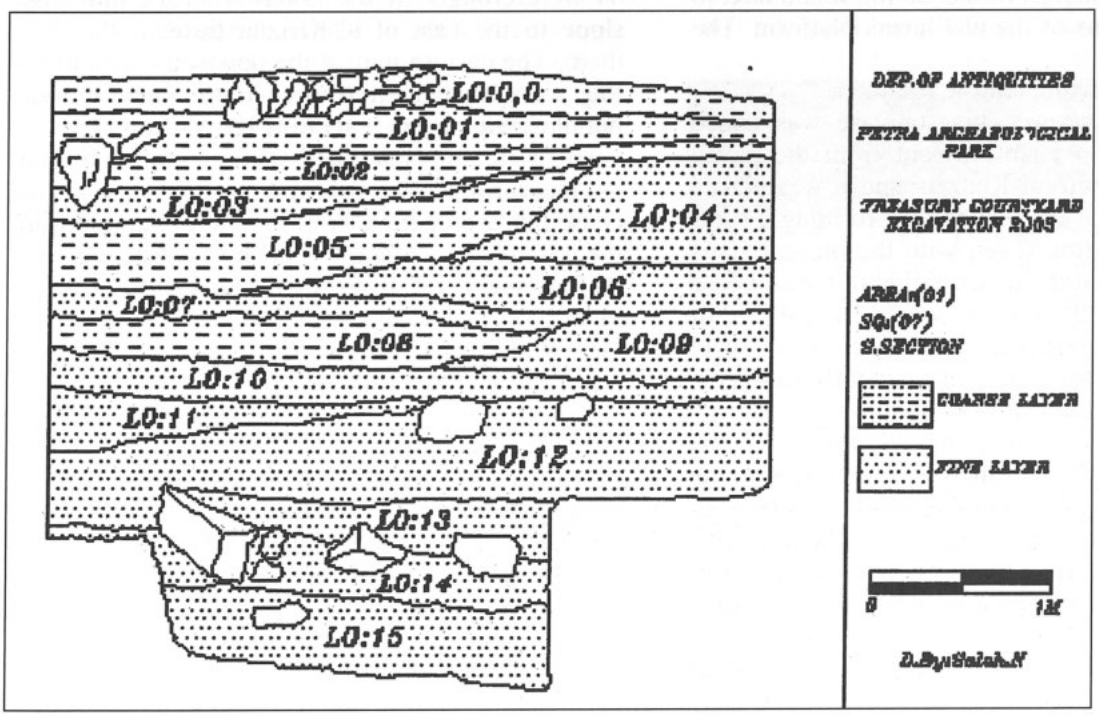
Above this level we exposed a rough layer composed of sand and limestone cobbles with some black stones that seem to have been cut from the black vein in front of the present staircase to al-Khazna. At this level we also found a quantity of burnt incense, pottery sherds, an iron nail and a nail head. In this Square 04 we also found the back rock wall of a monument that may have been a



15A. S. Section of SQ. 02, Treasury courtyard.



15B. E. Section of SQ. 06, 07, Treasury courtyard.



15C. S. Section of SQ. 07, Treasury courtyard.



16. A small alter at floor level in situ found in Square 04 measuring 0.4 x 0.43m full of burnt incense.

room or tomb, and we called it 62B. The centre of this wall is slightly protruding and is roughly worked, measuring 4.66m in length and 1.43m in height. In the northern side there is another wall cut in the rock (0.66m length x 1.43m height). It is well hewn and the join of these two walls form the northwestern corner of 62B that seems to have been removed after finishing al-Khazna. The waterfall at the northern part of al-Khazna may have played a role in the removal as it falls directly onto 62B and poses a danger when it carries large amounts of rock and stone, as we found a large rock that seems to have fallen at a later stage within Layer 10 that is 0.63m above the floor. It seems this area suffered from flooding at least seven times as attested by the flood deposit layers. No archaeological remains were found in this Square 04 other than the remains of the paved floor and bedding. The most important small finds were three arrow-heads and a white marble fragment.

The Central Staircase: This staircase was added during Phase 4 to enable ascent from the paved courtyard directly to al-Khazna, and it was placed directly in front of the façade thus forming a symmetrical composition (even with the present staircase). It seems that the construction of the staircase was started after the completion of the carving of the al-Khazna façade, and most of its stones were cut from the iron-rich vein that currently forms the front courtyard of al-Khazna.

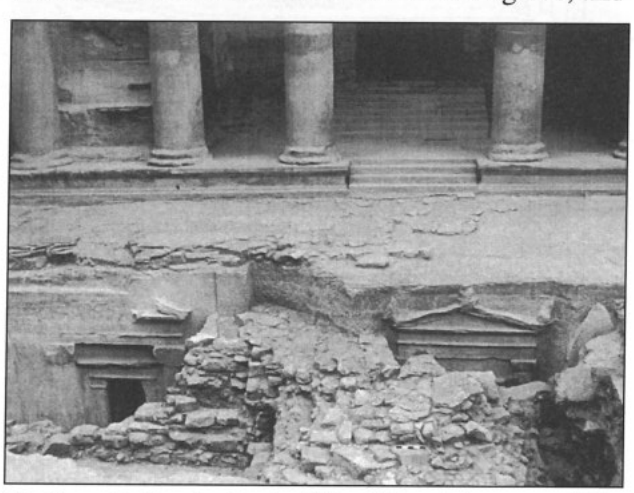
This staircase was supplied with a window next to the doorway at the northern side, connecting the upper part of the lintel and the northern outer wall of the staircase. This window is channel-like, measuring 0.81m wide x 0.30m high at its northeastern edge, and 0.65m wide x 0.37m high at the entrance. The function of this window is to supply the Window Tomb with light and ventilation after its doorway was closed with the staircase that was partly constructed of elements from the southern tomb façade (the Staircase Tomb), including the pediment, in addition to the iron-rich black stone. These huge amounts of large stone slabs were well compacted and carefully arranged so as not to affect the tomb façade. The staircase slopes from the western side adjoining the al-Khazna platform and the Tomb 62D façade, down to the east at the centre of the courtyard. All the steps are lost either by floodwater or human intervention (**Fig. 17**).

Sounding No. 8, measuring 8 x 5m, was opened in order to locate the foundation of the staircase. The foundations for four steps at the eastern end of the staircase were found at the bottom of the sounding (**Fig. 18**), making the length of the staircase 12.73m, its width 5.65m and its height at the tomb 5.4m. The total length up to the central doorway of al-Khazna is 27.52m. We also found the northern and southern foundations of the staircase, extending east-west and built with yellow limestone blocks over natural rock (**Fig. 19**). These limestone blocks may have been brought from outside Petra and mortared to the bedding of the paved courtyard.

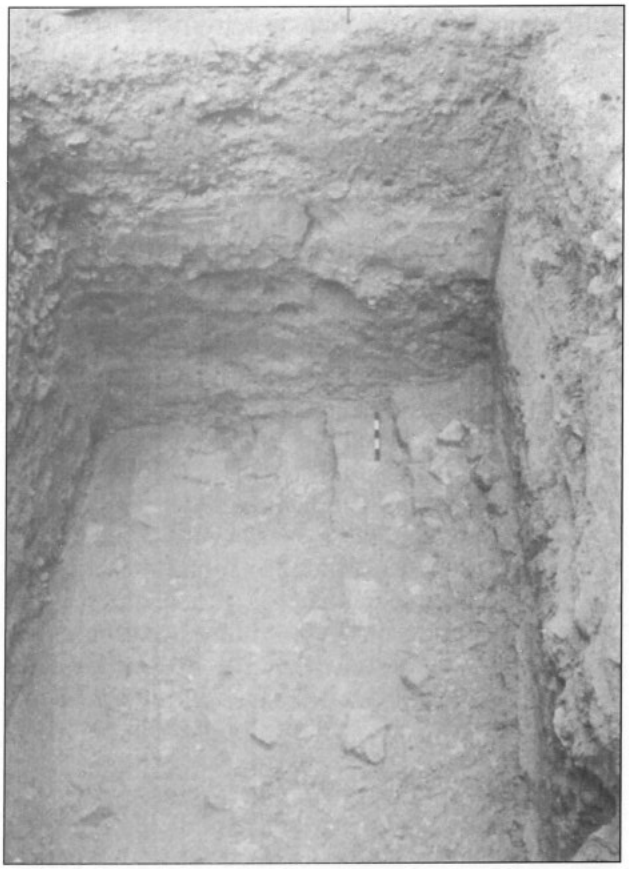
The substitution of the main entrance to the Window Tomb with a window and side entrance indicates that the tomb was used for a long period of time. The importance of the tomb and the person buried there is also indicated by the fact that the stone mass for the staircase was carefully constructed so as not to affect the façade.

The Archaeological Evidence for the Disfigurement of the al-Khazna Façade

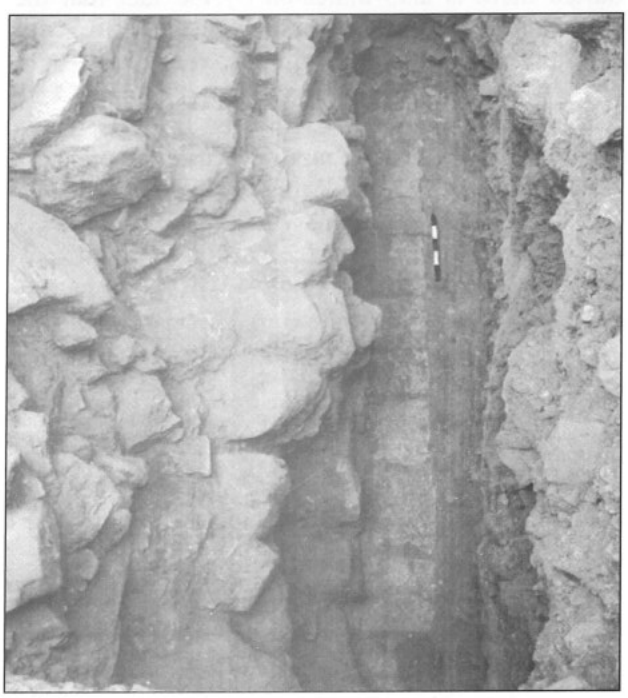
The evidence found during excavation indicates that there was intentional disfigurement of most human and animal representations on the al-Khazna. It seems that the motive was religious, and



17. General view for tombs 62D, 62E and the ramp of the staircase.



18. Sounding no. 8, represent the foundation of four steps at the eastern end of the staircase.

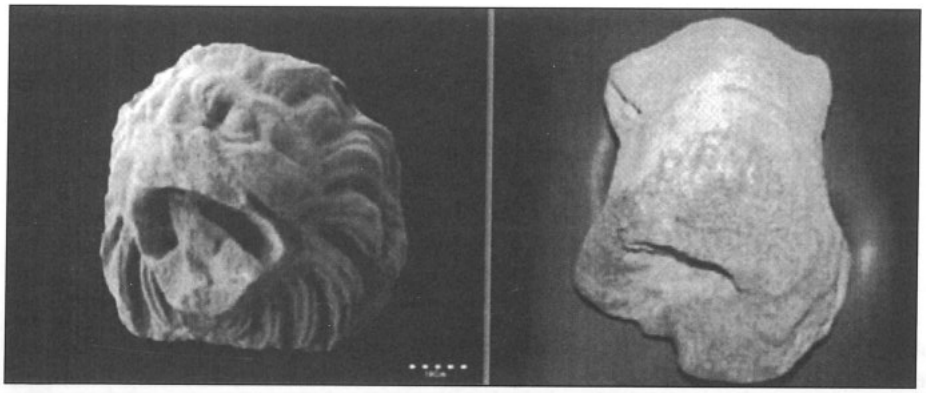


19. The northern foundation of the staircase running east-west and built with yellow limestone blocks over natural rock.

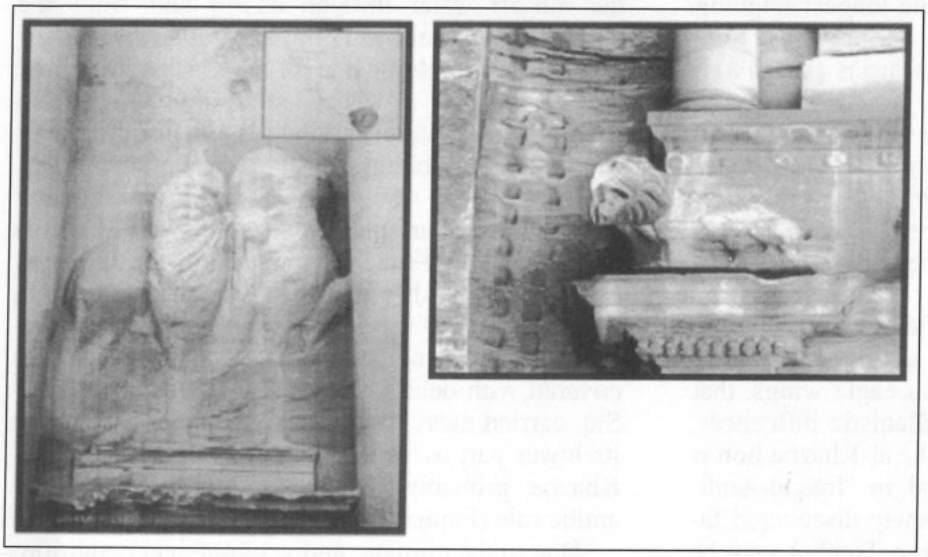
here we should point out the arguments of Patrich and Hammond who believe that an iconoclastic activity took place during the reign of Malichus II AD 40-70 (Patrich 1990: 157).

The more recent iconoclastic movement took place during the Byzantine period (Leo III), and was mainly concentrated in churches. The animal and human representations on the Petra Church mosaics, however, were not affected as the church was in use up to the early seventh century and lost its importance when the Seat of the Bishop was moved to Rabba Areopolis, while the iconoclastic movement started during the reign of Leo III in 726AD, (Zayadine 1971: 71-76) i.e. after the destruction of the Petra Church and when its mosaics were under debris. Here we believe that the Christians of Petra abided by the call of Leo III and did not find "icons" other than those on al-Khazna to destroy. A fact that supports this theory is that all the statue fragments were found in the upper levels close to the surface. These fragments are of animal and bird heads as well as some architectural decorations, such as the head of the lion on the southern part above the lower level that was found in the northern part of the staircase slope at 1.53m below the surface. There was also the muzzle of the horse on the lower southern part of the façade, parts of an eagle wing and decorations from above the burial chambers. Close observation of the lion head revealed that it was cut off the southern lion, as all frontal and lower facial and hair details, seen from the courtyard, were carefully executed while details on the side adjacent to the façade were neglected and only roughly outlined. The same holds for the horse muzzle where the nostril and mouth were artistically executed on the frontal side and absent from the back. Our attempts at comparing the fragments with the bodies gave perfect matches as seen in (**Figs. 20-21**). This also holds true for the eagle wing.

The Restored Frontal Column next to the entrance (Column no. 3) was not purposefully destroyed but naturally eroded by floods and moisture from the underlying tombs. During excavation in Tombs 62D and 62E, we noted that there is a high moisture level resulting from the water seeping in and being trapped inside, as the deposits there were wet and difficult to excavate, and water droplets seeped down the rock walls. This negatively impacted the porch columns of al-Khazna which rests directly above the tombs. We think that this problem was solved after evacuating the mud from the tomb chambers. We found the Column 3 fragments at a depth of 0.30m below the surface which indicates that the collapse was recent and would have happened less than 500 years ago, and if we trace the descriptions and drawings of travel-



20. A relives of a lion head and horse muzzle.



21. An imagination reconstruction of the lion and horse original location.

ers who visited Petra such as Birkhardt 1812, David Roberts 1839 and Laborde 1838 (Joukowsky 1998: 30) we see that they sketched the al-Khazna façade with the column missing and its fragments fallen, we also see that its lower part had eroded substantially, which would have weakened it and led to the collapse of the upper part.

The Architectural Elements and Decorations of the Staircase Tomb and Window Tomb

The architectural rock carving at Hegra — Madā'in Ṣāliḥ forms a distinctive artistic school from which we have several names carved on the façades dating mostly to the first century BC to 76AD. The architectural style of the Tombs 62E and 62D façades discovered in front of al-Khazna fit well into this school.

Al-Khazna was a holy monument for the Nabataeans, and its visitation was considered a holy pilgrimage. The excavations proved this belief, as the front courtyard was a large public courtyard prepared for a significant monument, and people used to go there for blessings and prayers. Incense was burnt during these rituals as offerings to the gods, and large amounts of that incense were found on the courtyard floor, as well as on a small altar where we found around two kilograms.

The Nabataeans carved several types of monumental tombs, some were simple like Tomb 62A, as well as family and royal tombs such as the Urn Tomb, which are large and care was given to their details and protection. Accordingly, and judging by the large dimensions of the burial chamber of Tomb 62D, the large size of the loculus in there, and the care for its façade after it was covered with the staircase, we think that Tomb 62D was for a well-known and prominent person, so much so that it was considered necessary to keep it open for visitation and blessings for a long period of time. Access was from the front courtyard, down by the carved staircase in front of Tomb 62E, then from Tomb 62E through a doorway opened with the purpose of reaching the burial. What also proves this is that the façade of Tomb 62D and the northern part of the façade of Tomb 62E, especially the column and pediment that were buried after the decision to build the staircase, were not affected by natural erosion or human factors. Thus they kept

their details in contrast to the parts left exposed for a long period of time, where we can see the erosion of the façade and its elements.

We think that a large project was carried out by royal decree, with the al-Khazna as its main element to honour the soul of the person buried in the main tomb. This may have taken place during the reign of Aretas IV (9BC-40AD) and the main lower tomb may have belonged to one of his family members or one of his wives. Such a magnificent architectural achievement would have required much time and effort, therefore it was most probably done during the reign of the longest reigning Nabataean king (i.e. Aretas IV), during whose time there were important building projects throughout the Nabataean kingdom. This project was comprehensive and included the necessary infrastructure: a paved courtyard, large staircase, water drainage system, and the building of several dams to provide water for the pilgrims as well as protection for the monument and the underlying tombs (**Fig. 22**).

It became obvious to us after this excavation, and mainly through the finds of the statue fragments such as the lion head and eagle wings, that the al-Khazna façade bears Hellenistic influences, where the posture and form of the al-Khazna lion is similar to that at Qaṣr al-'Abd in 'Irāq al-Amīr (Zayadine 1991b: 5-24). The newly discovered facades (the Window and Staircase Tombs) may be classified as belonging to the Hegra Type, which is common at Petra. Laila Nehmé recorded 70 façades of the "Proto-Hegra Type" and 72 "Hegra Type" at Petra (Nehmé 2003: 158). At the sides there are columns with horned capitals. The two stories, or levels, are separated by two oblong tablets each with a cavetto, and at the top there are the two large segments of the crow-step attic.

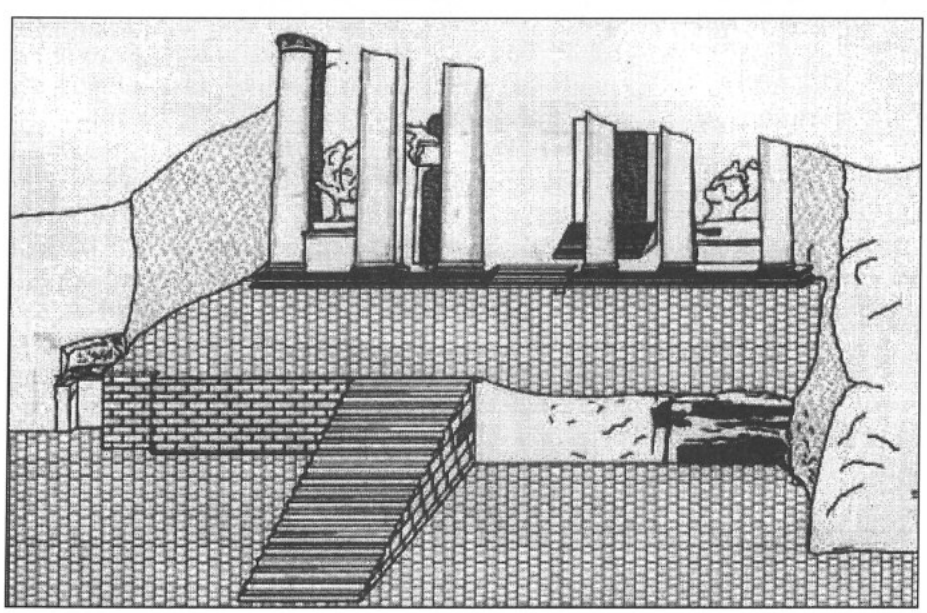
The dated façades at Hegra indicate that this type pre-dates the year 27AD, and the horned capitals with the mouldings confirm that the façades are of the "Hegra School", dating them to the period of Aretas IV who carried out large projects at Petra such as the Temple of Qaṣr al-Bint.

The Main Water Run-off and Floods

The al-Khazna courtyard is a meeting point for the run-off water through as-Sīq and from the mountains adjacent to Petra, as well as the run-off at the south-eastern side of al-Khazna from the area of Dangūr al-Khazna and originating from Brāq and al-Qanṭara, and the run-off from Jabal al-Khubtha overlooking al-Khazna from the north. The Nabataeans also considered the run-off water from the ash-Sharā plateau through Wādī Mūsā, as they carved an 88m long tunnel in front of as-Sīq entrance and built a dam to divert the water from as-Sīq (PNT 2003: 1-32). When the Nabataean water control system went out of use and the dam was covered with debris, the running water entered as-Sīq, carried away most of its pavement and buried its lower part as well as the front courtyard of al-Khazna, probably at a late phase after the Byzantine rule (Farajat and Falahat 1993: 25-32).

Due to the climatic and geographical conditions of the Petra area, it is prone to large-scale flooding at least once or twice each century (such as the famous 1963 flood that killed a group of French tourists in as-Sīq).

Preliminary analysis of the excavated strata in-



22. An imagination of the upper and lower courtyard and staircase of the al-Khazna.

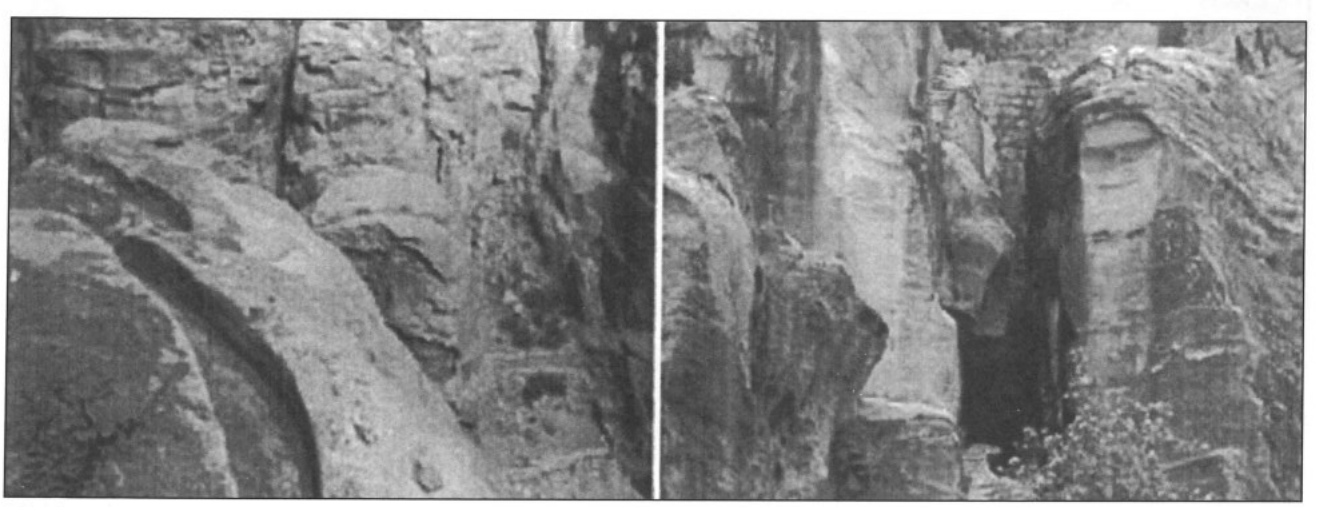
dicates that there were at least 15 floods in the area of Square 02 (**Fig. 15A**), eight of which were concentrated in the western part of the square and would have originated from the water fall on the northern slope of the mountain in which al-Khazna was carved. The soil of these deposits was of fine red sand resulting from the erosion caused by the water. Six flood deposits in the eastern part of the same square seem to have originated through as-Sīq, as indicated by the presence of as-Sīq pavers in the alluvial deposits that were coarse in texture and included wadi pebbles, and flint and limestone cobbles in a light grey sand matrix. At least five substantial flood layers from as-Sīq were contiguous with layers from the water fall, indicating that they were contemporary and that the rainy seasons were torrential, while there were another five seasons of relative aridity out of the 15 floods that were detected in Square 02. In Squares 06 and 07 we also detected 15 floods of two sources (**Figs. 15B, C**), the water fall on the southern slope of the mountain in which al-Khazna was carved, and Wādī Dangūr al-Khazna, as Layers 3, 11 and 13 came through as-Sīq, Layer 15 came from the southern water fall, while 11 alluvial layers came from the second major source (Wādī Dangūr al-Khazna) all of which were of red loose sand with cobbles and small stones except for Layer 8 that was compacted and similar to Layer 8 in Square 07. We noted that Layers 9, 12, 13 and 14 do not continue in the northern sector of Square 07 indicating that it was affected by a flood source other than that affecting the southern sector (Square 06, where the above-mentioned layers were excavated). The area of Square 07 underwent 15 floods as well, nine from as-Sīq that were in the northern part of the square, five from the southern part of Wādī Dangūr al-Khazna, and only one from the al-Khazna water fall.

The Site Protection Project

As mentioned above, the protection of this site from floods is a subject as old as Petra itself. The Nabataean concern with the subject is evident through their construction of dams and channels to divert water from the site. The protection of the façades was achieved either by carving them under rock projections or supplying channels at the top in order to divert water from above. Both protection methods are found at al-Khazna, as we discovered a channel carved in the slope above the overhanging rock (**Fig. 23**). The technical team of the Petra Archaeological Park cleared and conserved this channel, which is 16m long, 0.6m wide and 0.3m deep. The dimensions of this channel are large and other than the importance of the façade, they indicate that large amounts of rainwater fell during that period. When this channel was obstructed by debris, rainwater fell on the southern part of the façade and resulted in its erosion. This also indicates that the choice of the topographic and climatic site for the carving of the façades was done after detailed studies of the site from all aspects.

We discussed several suggestions and plans for the post-excavation protection of the site from flooding, especially that winter was closing in. The plan adopted was one that could be achieved quickly and accurately, and constituted of the following.

We covered the mortar remains of the paved courtyard with thick plastic sheeting and covered it with a 10cm thick layer of fine sand, thus creating an insulation layer between the courtyard and the large amount of coarse fill for the area between the



23. A water channel at the top of the al-Khazna to divert rainwater from above and one of the water dams to the south of al-Khazna portion.

eastern edge of Squares 01, 06 and 07, and the southern edge of Square 01. We also built a wall parallel to the Staircase Tomb and the northern solid rock-face (extending north-south), and next to Wall 22, so that its foundations came directly onto the plastic sheeting, while its southern end met another modern wall that we built in an east-west direction parallel to Wall 24 and adjoining the southern solid rock-face.

The exposed faces of the modern walls were covered with aluminium sheets painted a "rose colour" (close to the natural colour of the area). The height of the modern walls is just below the upper al-Khazna courtyard, and galvanized metal mesh was placed to connect the eastern edge of the upper Khazna courtyard and the top of the modern wall so as to allow the viewing of the Tombs 62D and 62E façades. A small course of stone and mud was built adjoining the western edge of the metal mesh in order to divert the water collecting at the northern part of the upper courtyard away from the two newly discovered façades.

The project also included the clearance of the channel at the mountain slope above al-Khazna and the restoration of its eroded parts, thus assuring the diversion of rainwater.

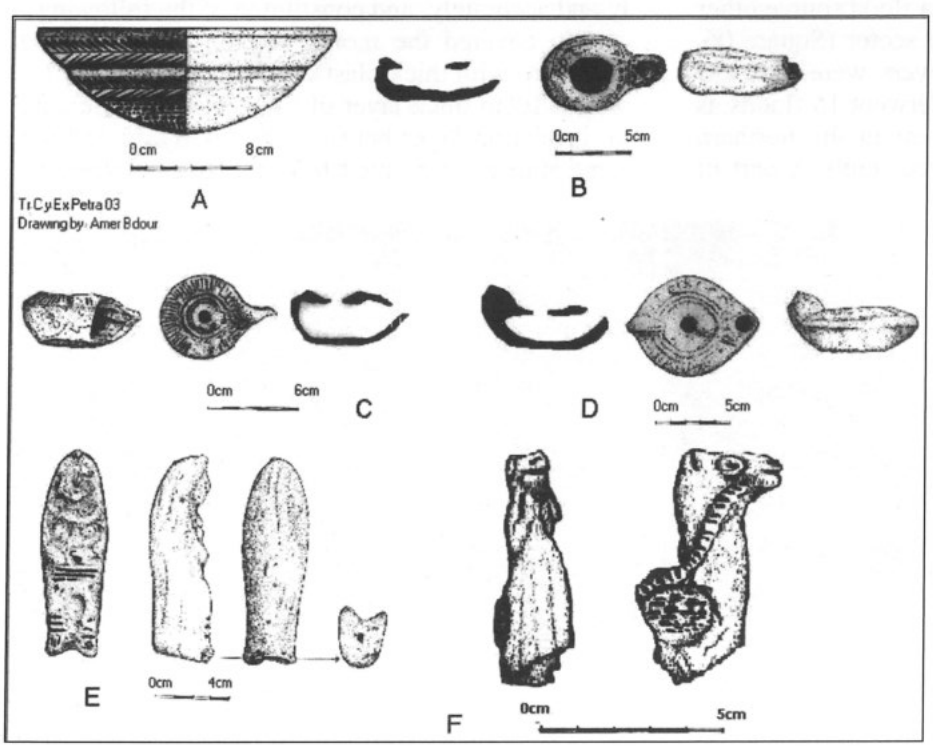
At the same time, we opened the waterway of Wādī Dangūr al-Khazna that extends in front of as-Sīq and slightly raised its sides to assure that the water coming through this wadi and as-Sīq would be diverted away from al-Khazna in its new appearance. The floors of Squares 02, 03, 04 and 08 were also covered by the method mentioned earlier then filled up thus protecting the site and the safety of visitors.

Summary

The first phase at the site represented by Tomb 62A (the Incense Tomb) may be dated to the second half of the first century BC, according to the painted pottery discovered in the hearth in front of the tomb, and furthermore as this tomb was found below the level of the paved courtyard that is an extension of the as-Sīq pavement, then the present pavement of as-Sīq was executed at a later period, probably at the beginning of the first century AD.

The second phase — that is represented by the Window and Staircase Tombs, and according to the architectural decoration and typology of the façades that are similar to the "Hegra School" — may be dated to the beginning of the first century AD. Such tombs that consist of two levels, with crow-steps decorating the upper level, are numerous at Petra as well as Hegra. According to the pottery finds (**Fig. 24C, D**) and coins, these tombs were in use at least till the beginning of the second century AD.

As for the al-Khazna façade, which we ascribe to the third phase, we think that it was executed only a short time after the carving of the Window and Staircase Tombs. We think that all these monuments were done within a period of 40 years, dur-



24. Pottery finds from the al-Khazna courtyard excavation 2003.

ing the reign of Aretas IV when there were construction projects throughout the Nabataean Kingdom, especially at Petra and Madā'in Ṣāliḥ/Hegra where the tombs are dated to between 1BC and 75AD (Patrich 1990: 120). As well as tomb façades, the reign of Aretas IV was also a period of monumental constructions such as temples (Joukowsky 1998: 25).

Meshorer also points out that eight out of ten known Nabataean coins were struck during the reign of Aretas IV, which indicates an economic boost during the period (Meshorer 1975: 41). The riches may have been used by the Nabataean king to get Rome's support for his reign, such as the lavish banquet he gave at Rome honouring Tiberius' accession to the throne in 14 AD, when he gave expensive gifts including golden crowns (Tacitius 1998).

At Madā'in Ṣāliḥ, Jaussen and Savignac published 82 tomb façades, 31 of which were dated by inscriptions that included the names of owners, their positions, and the year of the king's reign. Names of master carvers were found on 16 of the façades (Wenning 2003: 140). Schmidt-Colinet points out that 13 of the inscriptions may be attributed to members of the same family or clan ('Abdobodat), and only two of them date from the first quarter of the first century AD, while nine date from the second quarter of the same century. Nineteen of the 31 dated façades were done during the reign of Aretas IV (McKenzie 1990: 119, Table 2).

Table 2 lists dated tombs executed during the reign of Aretas IV, and shows that there were three periods of absence that lasted for over seven years each. One explanation may be that Aretas IV had employed the master carvers of Hegra to carry out the carving of façades at Petra during these periods that are 9-1BC, 8-15 AD and 16-26 AD (McKenzie 1990: 26). However, the earliest period is a time when Aretas IV was facing great difficulties with Syllaeaus who tried to seize the Nabataean throne after having control over the kingdom's affairs during the reign of Obodas III (Meshorer 1995: 175) thus it is improbable that building activities took place at Petra, although the latter two periods are good candidates for calling upon the masters for carving in Petra.

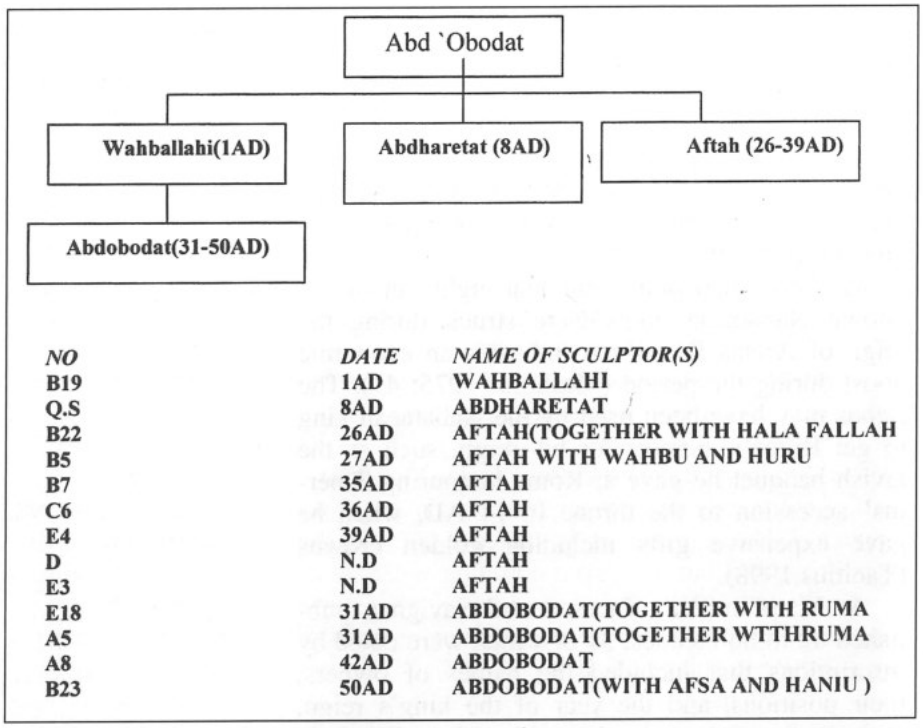
Table 3 lists the master carvers, the three sons of 'Abdobodat, namely Wahaballahi who was mentioned once in 1 AD, 'Abdharetat who was also mentioned once in 8 AD and Aftah who was mentioned seven times between AD 26-39 (Schmidt-Colinet 1987: 143). The three may have worked at Petra at the same time between 8-26 AD, as this may answer the obvious question of where did 'Abdharetat and Wahaballahi work after 8 AD? and where did Aftah work before 26AD?

Table 2: Madā'in Ṣāliḥ; list of dated tombs during Aretas IV reign.

TOMB NUMBE	DATE
B6	A.D.1
B19	A.D.1
A3	A.D.5
E1	A.D.7
GASR ESSANE	A.D.8
First Gap (8 – 15 AD)	
E3	1B.C-AD4O
D	A.D.11-40
C7	A.D.15
C17	A.D.16
Second Gap (16 – 26 AD)	
B22	A.D.26
B5	A.D27
A5	A.D31
B1	A.D31
E 18	A. D 31
B10	A. D 34
B 7	A.D 35
C 6	A. D36
E 4	A .D 39
E 6	A .D 39

The infrastructure executed after the al-Khazna, such as the paving of the courtyard and the construction of the staircase, dams, water drainage system and façade protection system indicate that this monument was a famous Mausoleum that attracted many pilgrims who practiced religious rites and burnt large amounts of incense that were found during the excavation. Finally we may conclude that al-Khazna was executed during the first century AD and most probably during the reign of Aretas IV who was married with two wives, Queen Ḫuldu (9BC-16AD) and Queen Shaqīllat (17-40AD). It is believed by some archaeologists that the Nabataean queens were like the Ptolemaic Queens, they were associated with Isis. Parlasca referred to a coin belonging to K. Schmitt-Korte with Queen Ḫuldu wearing an Isis crown similar to the one at the Khazna (Parlasca 1998: 69, fig. 2). This opinion is supported by many archaeologists like Stewart who believe that the woman at center of the upper story of the Khazna with the corna copia is often identified as Isis, the solar disk and horns that crown the pediment below this figure showing Isis's attribute U-shaped. Isis title "savior at Petra" in a second century AD Egyptian papyrus, and a

Table 3: After Schmidt - Colint 1987: 143.



NO	*DATE*	*NAME OF SCULPTOR(S)*
B19	1AD	WAHBALLAHI
Q.S	8AD	ABDHARETAT
B22	26AD	AFTAH(TOGETHER WITH HALA FALLAH
B5	27AD	AFTAH WITH WAHBU AND HURU
B7	35AD	AFTAH
C6	36AD	AFTAH
E4	39AD	AFTAH
D	N.D	AFTAH
E3	N.D	AFTAH
E18	31AD	ABDOBODAT(TOGETHER WITH RUMA
A5	31AD	ABDOBODAT(TOGETHER WTTHRUMA
A8	42AD	ABDOBODAT
B23	50AD	ABDOBODAT(WITH AFSA AND HANIU)

coin portrait of Ḫuldu, Aretas IV first wife, wearing an Isis crown (Stewart 2003: 198), and Mesheror noted that the coins of the fifth year of Aretas IV having on it's reverse a figure of a woman crowned facing left and raising her hand, and he suggested that this woman is Ḫuldu Aretas IV first wife. He thinks that this woman reveals that it is the queen in the form of Tyche or Isis (Mesheror 1975: 45).

The Archaeological Small Finds

Pottery (**Fig. 24**)

The pottery assemblage included painted bowls; unpainted bowls; lamps; jar sherds; unguentaria and terracotta figurines.

Painted Bowl (**Figs. 24A, 26**): A painted bowl found broken, now mended but with a few sherds missing. It is of the type known as Nabataean eggshell painted ware. The shape is circular with a diameter of 19.4cm, and the thickness is 0.3cm.

It was made on a pottery wheel using fine light brown clay without any grit. The surface has a selfsame slip, on which are painted concentric circles containing designs resembling feathers, needle-like patterns, and dots. It was probably fired in a kiln which had a high temperature (between 700-800° C).

The bowl was found in front of Tomb 62A (incense tomb), in a hearth that was full of Nabataean pottery sherds. Traces of burnt incense on the bowl suggest that it was probably used during a cultic process as a funerary object or dedicatory offering. It dates to the period between 25BC-1AD.

Parallels

(Zayadine 1974: 135-145, e.g. sherd 57, p. 243/ first century BC; Stucky et al. 1991: 251-273, e.g. Bowl fragment no. 25, fig. 5; Parlasca et al. 1997: 126-144; Schmid 2003: 75-81).

Hand Made Lamp (**Fig. 24B**): The filling hole is large, a piece of the nozzle is missing, and there is almost no handle. It is decorated by an incised circular line surrounding the filling hole. On the interior edge of this line there are hash marks toward the filling hole for two-thirds of the circumference. On the front third, the hash marks are replaced by 5 excised dots. This decoration continues on the nozzle, with a single incised line at its join to the body. Between this line and the nozzle hole, 3 additional excised dots have been placed. Most of the dots have been defaced. The fabric is a light brown color.

Parallels

15 examples on az-Zanṭūr (Horsfield 1942: 159 no.241, Taf 29; Lindner 1986: 107 lower row middle, 110 lower row left; Zanoni 1992; Glutz *et al.* 1996: 317ff. no. 13).

Date (on evidence of az-Zanṭūr) to the second half of the first century BC — first quarter of the first century AD.

Lamp (**Fig. 24C**): Complete mould-made lamp, oval in shape with a flat base. Its handle, nozzle, and filling hole are all small. The upper part is concave, surrounded by grooves, and decorated with dots. It is light brown in colour. It was found inside the window of tomb 62D.

Parallels

158 Examples on az-Zanṭūr

(Negev 1974: 28, no. 88 shown on Plate 87 as no. 87, 1986: 136, nos. 1180-1188; Bailey 1994: 87f; Hammond 1973: 33f.47 no.93f.96; Lindner 1986: 107 Abb.14, 109, 1989: 76 Abb.25; 'Amr 1987: 30. 272. no.16f. Taf. 13f; Khairy 1990: 8ff.Abb. 1-5 Taf.1f; Barrett 1998: 275f.280 94-P-26).

Date (on evidence of az-Zanṭūr) to the first century AD. On az-Zantur there seems to be a tendency that the lamps with such a thick wall as the "Khazne - example" were produced towards the end of the first century AD.

Round Lamp with Small Filling Hole (**Fig. 24D**): Half of the nozzle and a piece of the body are broken away. The upper part is concave around the small, round filling hole, so it could have served as a funnel. It is decorated by three concentric grooves, which are in turn surrounded by incised lines similar to solar rays. It is mould made and has a flat circular base. The fabric is a light brown colour. It was found on Wall 22 in front of the entrance of tomb 62E.

Parallels

41 examples on az-Zanṭūr (Kurdi 1972: 87, no. 9-11, Taf. 2f; Murray and Ellis 1940: 26. 28 no. 12. 16 Taf. 36; Horsfield 1942: 144 no. 161 Taf. 21; Hammond 1973: 27-49. 36. 48 no. 134; Rosenthal and Sivan 1978: 98 no. 399; 'Amr 1987: 33, 277. PL 34f. Taf. 16f; Hammond 1065: 80 (No Fig.), for the dating of phase 1c in the theatre see 65); Zayadine 1981: 371f. no. 3, 8 Taf. 122).

Date (on evidence of az-Zanṭūr) ca. 80AD/ early second century AD.

Female Figurine (**Figs. 7, 24E**): A small hand modeled female figurine, possibly representing Aphrodite (al-'Uzza). It is 11cm in height. The drapery folds trend toward the right. The torso and breasts are clear, but the face is not. The hands are joined, resting on the abdomen. The head is veiled, and none of the hair is visible. A slight protrusion on the top of the head could be a crown; on the other hand, it could be associated with a means of suspending the figurine, as there was a hanging hole carved above the niche beneath which it was found. The fabric is light brownish in colour and has small white grit. The artifact seems unusually light in weight.

Parallels

(Zayadine 1982: 365-394. e.g. P561) standing Astarte Figurines.

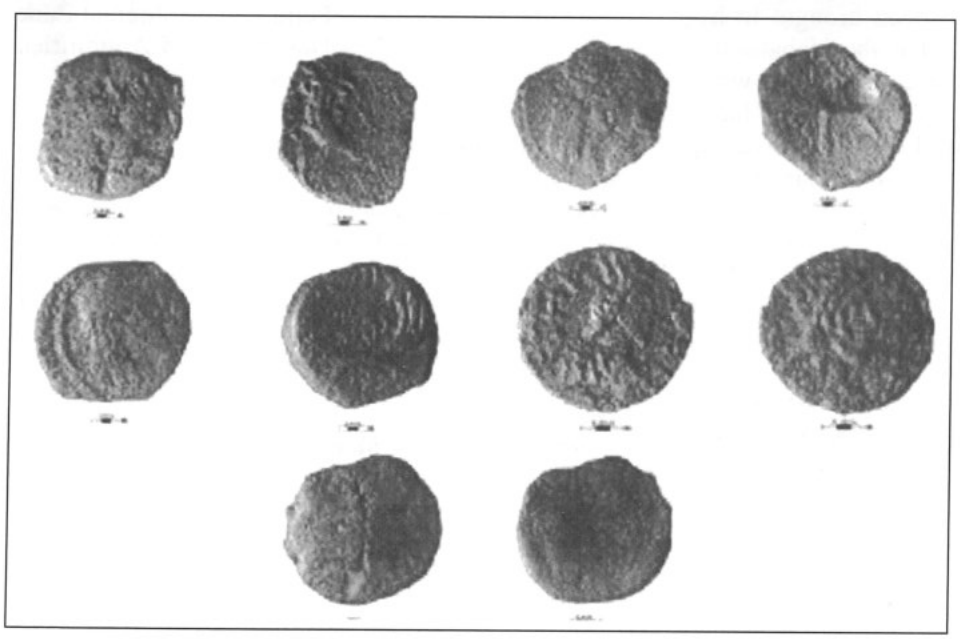
Camel Figurine (**Fig. 24F**): An incomplete camel figurine of which only the front exterior part was found. It consists of the head, neck, and part of the chest. The mouth, eye and ear are very clear. There is a shield, or part of the saddle (Hawdaj), evident as a circular shape decorated with excised dots. This feature is beneath a bridle, or rope, that extends between the mouth and the back. The artifact is hand modeled, and the interior portion, which was probably plain, is missing. The fabric is a light brown color.

Parallels

(Parlasca 1997: 87-105. e.g. Kamel typus L. Recnte Seite, Zeichung Pp. 30-37).

Coins

Five coins were recovered (**Fig. 25**) from the excavation and read as follows:



25. Four Nabataean coins and one Roman found above the floor.



26. Painted Nabataean Bowl.

- Coins A, B, C and E are Nabataean bronze coins of the first century AD. Coins C and E may be of Aretas IV and Shaqīlat (18-40AD).
- Coins A and B are of Rabel II with the obverse bearing the image of Gamīlat (80-105AD).
- Coin D is a small issue of the second century AD, probably of Antoninus Pius (mid-second century AD) or Commodus (176-192AD).

Animal Bones

A substantial amount of bones were recovered during the excavation. The preliminary study of the animal bones by Dr. Jacqueline Studet of the Swiss team working at az-Zanṭūr indicates that they belong to a variety of animals including rams and camels. The latter could have been brought in by floods and it is highly likely that the Nabataeans offered animal sacrifices. Other animal bones were found in the hearths mentioned above that have been burnt, and analysis showed that they have cut marks indicating their slaughter and severance.

Human Bones

The most significant human bones were two skulls, one from Tomb 62D and the other from the Staircase Tomb which is being studied by Niels Lynnerup Director, of Laboratory of Biological Anthropology, the Panum Institute in cooperation with the Danish team working at Shakārat Musay'īd, who supplied us with the information mentioned above in the Second Phase section.

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References cited

'Amr, K.
1987 The Pottery from Petra, a Neutron Activation Analysis Study. *Bar International Series* 324. Oxford.

Bailey, D.M.
1994 Imported Lamps and Local Copies. Pp. 79-99 in J. Aviram, G. Foerster and E. Netzer (eds.), *Masada IV, the Yigael Yadin Excavations 1963-65, final reports.* Jerusalem.

Barrett, D.G.
1998 The Lamps. In M. Joukowsky (ed.), *Petra great temple, Vol. I: Brown university excavations 1993-1997.*

Bellwald, U. *et al.*
2003 The Petra Siq. Nabataean Hydrology Uncovered. Amman: Petra National Trust.

Farajat, S. and Falahat, H.
1993 The Role of the Nabataean Hydrolic System in the

Protection of the Monuments at Petra. siti e Monumenti Della Giordania.

Glutz, S. *et al.*
1996 *Tera Archeologice II.* Mongraphien der Schweizerisch-Liechtenstienischen Stiftung fur Archaologische Forschungen. Ausland (SLSA).

Hammond, P.C.
1965 *The Excavations of the Main Theatre at Petra,* 1961-1962, Final Report. Colt Archaeological Institute Publications. London: Bernard Quaritch.
1973 Pottery From Petra. *PEQ* 105.

Horsfield. G. and Agnes
1942 Sela, the Rock of Edom and Nabataean. *QDAP* 9.

Joukowsky, M.
1998 *Petra Great Temple. Volume I: Brown University Excavations 1993-1997.*

Khairy, N.I.
1990 The 1981 Petra Excavations, Vol. 1. *Abhandlungen des Deutschen Palastinavereins* 13. Wiesbaden: Otto Harrassowitz.

Kurdi, H.
1972 A Nabataean Tomb at Sadagah. *ADAJ* 17: 85-87.

Lindner, M. (ed.)
1986 *Petra — Neue Ausgabungen und Entdeckungen.* Munchen: Delp.
1989 *Petra und das Konigreich der Nabataer: Lebensraum, Geschichte und Kultur Eines Arabischen Volkes der Antike.* 5th edition. Munich: Delp, Nurnberg: Naturhistorishe Gesellschaft.

McKenzie, J.S.
1990 *Architecture of Petra.* British Academy Monographs in Archaeology, no. 1. Oxford: Oxford University Press.

Meshorer, Y.
1975 Nabataean Coins. *Qedem* 3. English Translation by I.H. Levine. Jerusalem: Institute of Archaeology, Hebrew University.

Murray, M.A. and Ellis, J.C.
1940 *A Street in Petra.* London: British School of Archaeology in Egypt.

Negev, A.
1974 *The Nabataean Potter's Workshop at Oboda.* Rei Cretariae Romanae, Favtorum, Acta, Supplementa Vol. 1. Bonn: Rudolf Hablet.
1986 The Late Hellenistic and Early Roman Pottery of Nabataean OBODA, Final Report. *Qedem* 22. Jerusalem: Institute of Archaeology. Hebrew University of Jerusalem.

Nehmé, L.
2003 The Petra Survey Project. In G. Markoe (ed.), *Petra rediscovered:* Lost City of the Nabataeans. New York: Abrams.

Parlasca, I. *et al.*
1997 Terrakotten, trinkschalen und goldschmuch: Nabatäisches Kunsthandwerk-exquisite Massenware. Pp. 126-144 in T. Weber, R. Wenning (eds.), *Petra Antike Felsstadt zwischen arabischer Tradition und griechishcer Norm.*

Patrich, J.
1990 *The Formation of Nabatean* Art. Jerusalem: The Hebrew University.

Rosenthal, R. and Sivan, R.
1978 Ancient Lamps in the Schloessinger Collection. *Qedem* 8.

Schmid, S.
2003 Nabataean Pottery. In G. Markoe (ed.), *Petra rediscovered*: Lost City of the Nabataeans. New York: Abrams.

Schmidt-Colinet, A.
1987 The Masons Workshop of Hegra, its Relations to Petra and the Tomb of Syllaios. *SHAJ* 3: 143-150.

Stewart, A.
2003 The Khazneh. In G. Markoe (ed.), *Petra rediscovered:* Lost City of the Nabataeans. New York: Abrams.

Stucky, A. *et al.*
1991 Swiss-liechtestein Excavations at Ez — Zantur in Petra 1989. The second campaign. *ADAJ* 35: 251-273.

Tacitus
1998 *The history.* William Heinemann, London.

Wenning, R.
2003 Rock-Cut Architecture of Petra. In G. Markoe (ed.), *Petra rediscovered:* Lost City of the Nabataeans. New York: Abrams.

Zanoni. I.
1992 Tonlampen. Pp. 311-330 in A. Bignasca *et al.* (eds.), Petra ez Zantur I. Ergebnisse der schweizerisch — liechtensteinischen ausgrabungen 1988-1992.

Zayadine, F.
1971 Deux Inscriptions Grecques de Rabbat Moab (Areopolis). *ADAJ* 16: 71-76.
1974 Excavations at Petra (1973-74). *ADAJ* 19: 135-150.
1982 Recent Excavations at Petra (1979-1981). *ADAJ* 26: 365-393.
1991b Les Tobiades en Transjordanie et a Jerusalem. Pp. 5-24 in E. will and F. larche (eds.), *Iraq-Al-Amir, Le chatean du Tobiade Hyrcan.* BAH 132. Paris.

Zayaine, F. and Farajat, S.
1991 The Petra National Trust Site Project: Excavation and Clearance at Petra and Beida. *ADAJ* 35: 275-311.

AL-KHAZNA, THE TREASURY RE-VISITED
A FORGOTTEN DOCUMENT OF LEON DE LABORDE

Fawzi Zayadine

Preliminary

There is no doubt that the recent excavation at Al-Khazna courtyard by the Department of Antiquities, under the supervision of Suleiman al-Farajat and Sami al-Nawafleh in 2003, revealed crucial evidence for both interpretation and dating of this masterpiece of rock-cut architecture in Petra. There were conflicting opinions regarding the different issues concerning this monument. The 28 various assessments expressed by the authors have been summarized in one table by Judith Mckenzie (1990: 7, Table 2). However, the analysis of two famous explorers, Léon de Laborde and Linant de Bellefonds was not considered by this author. They arrived at Wādī Mūsā in March 28th, 1828, coming from 'Araba and Wādī Ṣabrā, at a time when plague had desolated the country. The details of this expedition were recently published in an instructive volume by C. Augé and P. Linant de Bellefonds, a relative to the explorer by marriage (Augé and Linant 1994). The two authors enhanced the publication by a good preface and excellent notes, in addition to the most significant lithographs of the two French explorers. The purpose of the present paper is to present a so far forgotten document of Laborde which belongs to Carlos Muños de Laborde, Comte de La Vinaza and Marquis de Laborde. The permission to publish this document was granted to me by the Marquis, through his son Mr. Juan Luis de Laborde, whom I met by chance in the General Consulate of Spain in Frankfurt/Main in Germany. He was designated later in 1991 as the permanent representative of Spain at UNESCO in Paris. When I asked him if he was a relative to the famous explorer, he mentioned to me that his father is a descendent of Laborde and inherited the honorific title of "Marquis". In surprise, I asked if his family still keeps any archives of his ancestor. He approached his father who was generous enough to send me an offset copy of the above mentioned document entitled: "The Nabataeans". In order to better understand and appreciate it, it is essential to introduce it by a short account of the career of the two explorers and on their expedition to Petra.

Léon de Laborde

He was born in Paris in 1807 in a renowned family: his father, Alexandre Louis Joseph de Laborde, was a diplomat and state advisor under Napoleon I and published remarkable works on the art and monuments of Spain. He then was elected to the Academy of Inscriptions and Belles Lettres in 1813. In order to give a solid education to his son Léon, he sent him to the University of Göttingen, in the kingdom of Hanover, Germany. This was a famous University, one hundred years old, where the young Laborde was educated in the Old Testaments in ancient Greek and Latin, in the Medieval and modern history, in addition to modern languages of German, Italian and English. As he was in possession of a firm education, Alexandre de Laborde took his son on an expedition to the East in 1826-27 from Turkey, they passed to North Syria, followed the sea coast to explore the Lebanon, visited Damascus, the Ḥawrān and Palestine. From Jerusalem, they traversed the Jordan Valley to Jarash and 'Ammān, which was in ruin, they reported. Because of tribal tensions, the party could not reach Petra. But Léon de Laborde did not abandon his dream to explore the famous Nabataean city. A new expedition was organized in the company of engineer Louis Maurice Linant de Bellefonds. His father took him in 1817 for cruise in Greece, Syria, Palestine and Egypt. He was fascinated by the antiquities of this country and decided not to return to France but rather explore the heritage of the Pharanonic civilization. He was the first European to visit the oasis of Siwa, in the Libyan Desert in 1820 where the famous temple of the Ammon oracle was located. In 1823 he crossed with the Italian traveler Ricci, the western coast of the Sinai. Their intention was to reach Wādī 'Araba and Petra, (but the insecurity forced them to return from Ras Mohammad to Cairo). There he met with Laborde in 1827 and both of them organized the ex-

pedition to Petra. Linant de Bellfonds had good relations of with the local population, as he was one of the engineers of the Canal of Suez which was initiated by Ferdinand de Lesseps (1859). They hesitated on the way to undertake this adventure: were they going to imitated J.L. Burkhardt who was dressed like a poor bedouin an mounted on horse back to follow the caravans to Makka? In this case it was not possible to establish contacts with tribal leaders and to produce any drawing or plan. The two explorers decided to travel in the formal way: In 'Aqaba they were introduced to the Turkish governer, Ḥassan Aghā and waited until the two tribe leaders of the 'Alāwīn arrived to accompany them.

The document is short (**Fig. 1**) but will be summarized hereafter, since it is not easy to offer a faithful translation of it, but we can look forward to a full publication of the French text, probably in *Syria*. Apparently, it was written in 1864, because he indicated at the end of the document: "When I came back to France, I published my drawings; they were received with suspicions which were hardly dissipated by the reports of the travelers who followed me. The duc de Luynes ordered a photograph to be made this year (1864) of the Khazné of Petra and this reproduction which is certainly exact confirms, if not my artistic talent, at least my accuracy". Photographs were a technique, still uncommon at that time. It is not easy to guess the occasion, which warranted the diffusion of this text. It can be surmised that when he was designated in 1863 as the director of the "Collection of Inventories and Documents" (Augé and Linant 1994: 13), he might have prepared this document to be included in the collection, as one could deduce from his introduction: "The Nabataeans claim they were the oldest population on earth". He then proceeds to the description of the Khazna: "A huge monolithic tomb, carved in rose sandstone, on a surface of 1.200 square meters". This figure, no doubt, is overestimated, because the exact measures of al-Khazna, according to the photogrammetric plotting by the National Geographic Institute in Paris are 25m wide by 38.40m high, which equal 810m square meters. On the other hand, it is not known where he found the statement about the origin of the Nabataeans. He probably followed the Biblical account of Genesis 25: 13, where Nebayôt is the first son of Isamaël. However, this Arabian Tribe is not identified with the Nabaṭu but was associated with the Qedarites (Starcky 1966: col.903). At any rate, the document is written in the romantic style of the 19th century, but with a precise scientific description and accurate dating, it goes on:

"…. on March 27th, 1828 I came to sit down at a place chosen the day before. My guides, two leaders of the powerful tribes of the desert were unable to obtain for me but a week of stay from the inhabitants of Petra which I intended to employ in executing some twenty drawings and plot the plan of this huge city. Thus my time was limited and I had to employ it in the best way". The two tribe leaders were Ṭawālib and Ḥusayn, from the 'Alāwīn, a sub-tribe of the Ḥuwayṭāt (الحويطات).

This limited time he was allowed to stay was imposed by the plague epidemy (Reinaud 1835: 20). To avoid this catastrophic disease, the population abandoned the ruins of Petra and settled in the surrounding hills. Laborde apparently observed the Khazna at sunrise.

He goes on: "suddenly, before twilight could be dissipated, the daylight burst with violence and its light invaded the valley". Then the author is captivated by the beauty of the monument and its architectural style; he compares it to the decoration of the Opera (in Paris), the largest in the world at that time, built by architect Garnier in 1862 and adorned with rich statues and reliefs. He is fascinated by the spectacle of al-Khazna at sunrise and specifies that the Arabs called "Khazné", treasury, the most beautiful of all the monuments carved on the rocks that enclose Petra. "They believe that it conceals the treasures of the Pharaos ... for us, isn't it a treasure, since this is a masterpiece, so far the most elegant?" But the most surprising feature in the document is the chronological appreciation of the author; the first element of his arguments is that the Romans were "lacking the sense of originality, refinement and exact proportions. They brought in their colonies the art they received from Greece. They employed mercenaries but were unable to bring with them architects, sculptors and masons; "they employed the artists of the conquered countries", and those local artists created "outstanding monuments in Baalbek, Palmyra, Bosra, Gerasa and Philadelphia, in the Ḥawrān and at Petra, in the heart of the deserts".

The opinion that the Romans were incapable of genuine art was common among the scholars of the 19th century. What is new in the argumentation of Laborde is that the East was bored with the old art and was in search of a new one. The Oriental Imagination, he states, was no more satisfied with a monotonous plan of one order... it challenged the one plan and superimposed several stories. The oriental architects developed vaults and domes and erected "long porticoes with a double elevation of colonnades; they created a new architecture". For the chronological appreciation, Laborde expressed the most unexpected opinion for his time: "We

Les Nabathéens

se disaient le plus ancien peuple de la terre. A une époque très reculée, ils établirent leur capitale dans un entonnoir de rochers qui formaient une enceinte fortifiée naturelle. Cette ville s'est appelée Petra, elle a donné son nom à l'Arabie Pétrée



Pétra

Grand tombeau monolithe sculpté dans un rocher de grès rose qui, sur une surface de 1,200 mètres, ne présente ni une strie, ni une fissure, ni une altération dans sa teinte harmonieuse. Ce monument, quoique d'une seule pierre, a les dimensions de la façade de celui de l'Étoile.

Le 27 mars 1828, j'étais venu m'asseoir devant ce monument, à une place choisie la veille. Mes guides, deux chefs de puissantes tribus du désert, n'avaient pu obtenir des habitants de Pétra, qu'un séjour d'une semaine, que je me proposais de consacrer à faire une vingtaine de dessins et à lever le plan de cette immense ville. Mon temps était donc compté; j'avais à cœur de le bien employer.

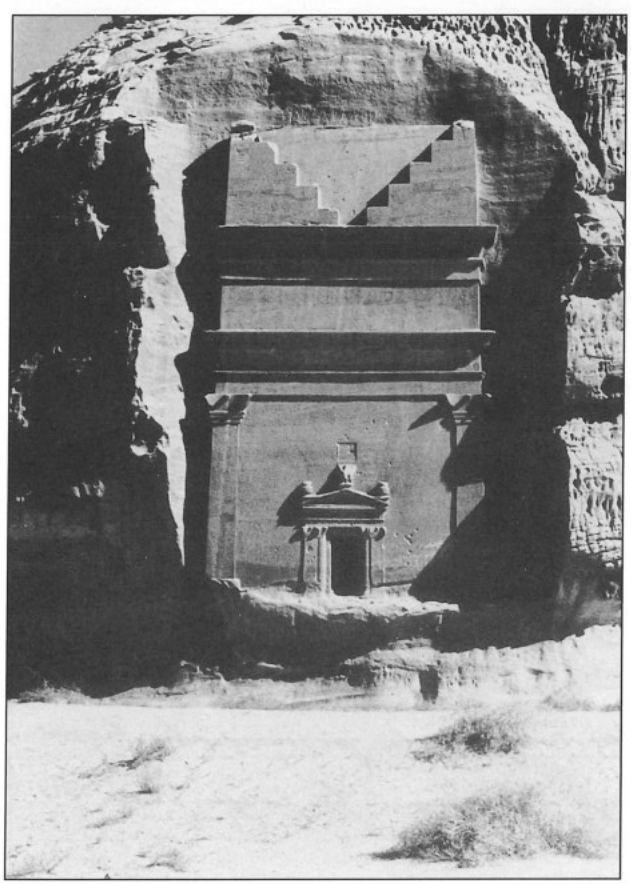
Il faisait nuit; à peine si la transparence de l'air laissait distinguer, au milieu des rochers, les principales lignes de l'Architecture. Tout d'un coup, sans que le crépuscule ait

1. Offset copy of the first page of Laborde's document, property of Marquis Carlos Muñoz de Laborde.

should relate this masterpiece of architecture to the first years of the Christian era, and far from considering it as the decline of the Greek art, which was corrupted by the Romans, we must regard it as "a genuine creation, the signal and the first landmark of a new Oriental architecture which is, in fact, our modern architecture". Let us now turn our attention to the recent excavation and examine the elements they offer to the interpretation of the archaeological results and the sculptured iconography.

Four chamber-tombs have been so far exposed under the Treasury. Their function as tombs was confirmed by the bones collected in the courtyard, with a human skull that was 2m away from the burial. The Danish team who undertook some conservation on the skull identified it as belonging to a man "of around 50 years of age and had noble features" (Farajat and Nawafleh 2005: fig. 9). Animal bones were also identified, especially a skeleton of a ram which was found on the floor of the chamber, in the southeast corner, next to the main tomb entrance. This was most probably the remain of a funeral banquet or maybe of a sacrifice. But of special concern is the fact the chamber-tombs were in use at the time of the carving of al-Khazna: the top of Tomb 62E was cut together with the larger part of the pediment over the doorway (see fig. 18 in Farajat and Nawafleh 2005). On the other hand, the entrance to Tomb 62D, exactly in front of the stairway leading to the vestibule of al-Khazna was blocked by the ramp of the stairway leading to the vestibule and a doorway was opened in the partition wall between the windows Tomb 62D and the staircase Tomb 62E. The Nabataean pottery, which was examined by S.G. Schmidt, can be dated between 25BC and the first century AD. And the architectural decoration corroborates this chronological estimation. The horned capital (fig. 11 in Farajat and Nawafleh) has good parallels at Hegra-Madā'in Ṣāliḥ: SJ B1 and E 18 are dated to 31AD (Healy H5 and H36 respectively) (**Figs. 2A, 2B**). The outer frame of the doorway of 62E consists of a pilaster with an attached quarter column, a design which is comparable to the frame of both B1 and E18 of Hegra (**Figs. 2A, 2B**).

The role of al-Khazna as a monument dedicated to the funeral cult can be assumed with more probably after the recent excavations. If the lower tombs are to be dated around 31AD, under the



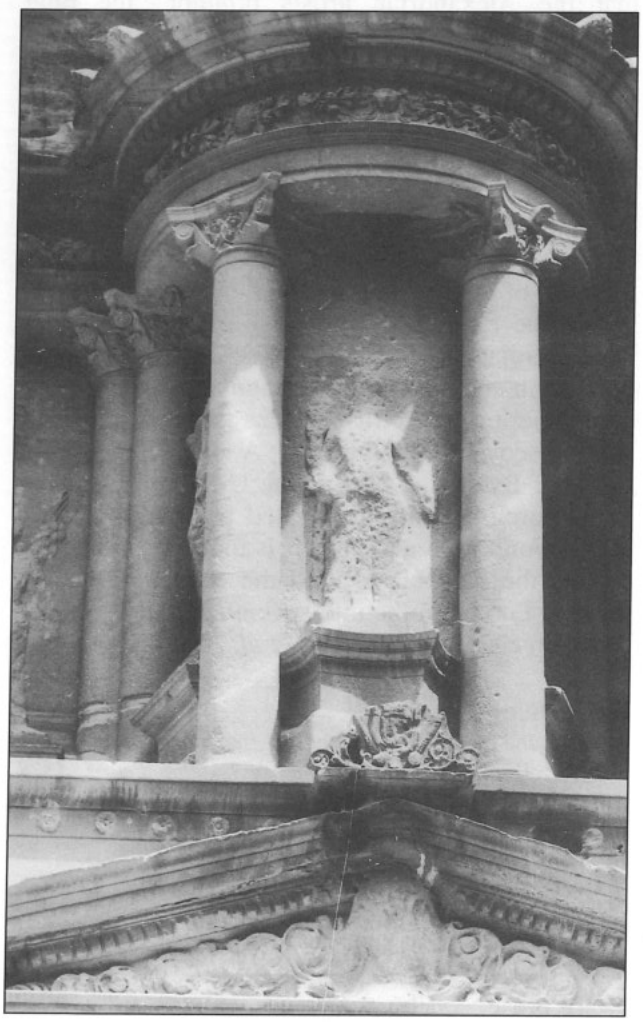
2A. Tomb B1, Healy H5 of Hegra-Madā'in Ṣāliḥ, dated 31AD.



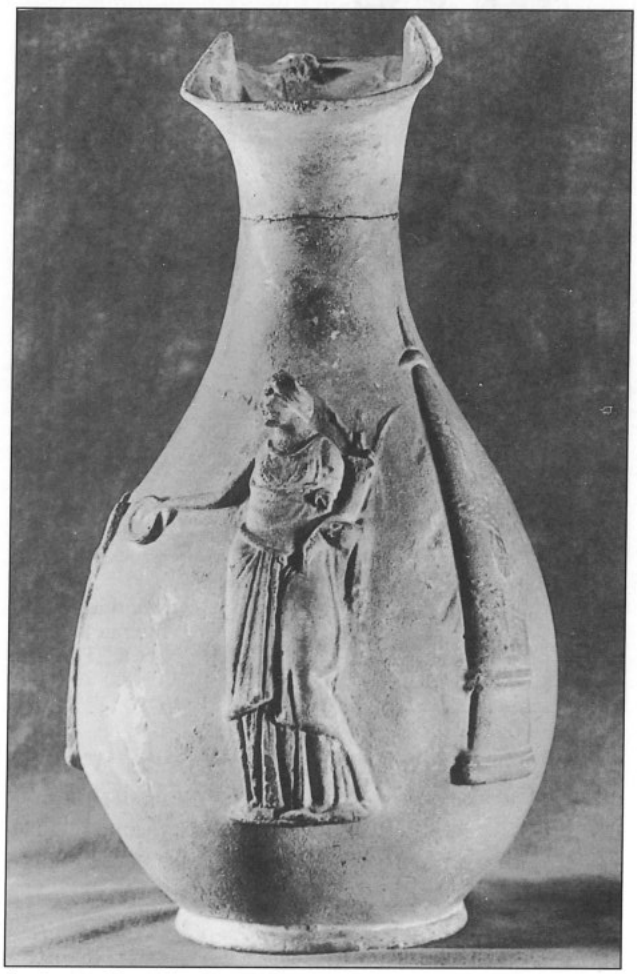
2B. Tomb E18, Healy 36 of Hegra-Madā'in Ṣāliḥ, dated 31AD.

reign of Aretas IV (9BC-40AD), al-Khazna itself should be dated to this period. This conclusion of Léon de Laborde was also reached by Bowersock (1983: 62): "furthermore, with an early date secured for the Qaṣr al-Bint and theater, it becomes highly probable that the stunning façade of the so-called khazneh ("treasury") belongs to the same age". It is possible to assume in this case that this monument was the mausoleum of Aretas IV and his family. When the upper order with the tholos (round kiosk) is considered, the relief of standing Isis with head turned to the right and holding in one hand a phiale (cup) and in the other a cornucopia (**Fig. 3**), this representation was adopted by the Ptolemaic queens who identified themselves with Isis, on the faience vases (=oinochoe) (see Lyttelton 1990: 21 and Pls IV-V). Figure 4 depicts Berenike II, wife of Ptolemy III (246-221BC). The Isis Tyche on the tholos of al-Khazna (**Fig. 3**) would represent a Nabataean queen. Parlaska (1998: 64-70) has drawn the attention to the coins of Aretas IV and his first wife Ḫuldu 5BC-14AD. On the reverse of this coin is represented the Nabataean queen (**Fig. 5**), face turned left, wearing the crown with the stylized Isis attributes (Meshorer 1975: Nos. 53-54, Pl. 4; Parlasca, 1998: 69, figs. 1-2). The schematic attributes of Isis over the head of Ḫuldu are well carved on the lower level of al-Khazna and consist of the sun-disc, flanked by two horns and ears of corn (**Fig. 6**).

To sum up, if the Khazna was the mausoleum of Aretas IV and his family, the Isis relief on the upper kiosk would represent a Nabataean queen,



3. The relief of Isis on the Khazna, note the attributes of the goddess on the lower acroterion.



4. Queen Berenike II on oinochai, after Lyttelton (1990: 28-29, Pls IV-V, 1).



5. Coin of Aretas IV, reverse, head of queen Ḫuldu, wearing the Isis crown, after Parlasca (1998: 70, fig. 2).



6. Mourning Isis, figurine from Petra (Parlasca 1998: 70, fig. 1).

possibly Ḫuldu, the first wife of Aretas IV. This conclusion is but a working hypothesis, which needs to be substantiated by more evidence from the completion of the excavations under the Treasury.

Iconoclasm, Nabataean Style?

In two well documented approaches (Patrich 1990: 132-37, 153-57) and in a article, 1990: 185-196; Negev 1994: 419-448 argued that iconoclasm was practiced by the Nabataeans and touched several monuments at Petra. The two authors quote Strabo (Geog. 16, 4.26) who notes: "Most of the country is well supplied with fruits except olive; they use sesame-oil instead... embossed (relief) works, paintings, and moulded works are not produced in their country". The *geography* of Strabo dates back to the reign of Augustus at the turn of the first century BC-AD. This statement is contradicted by recent discoveries: Olive and olive oil were produced in the first century BC-AD at Petra ('Amr *et al.* 2000: 239, 2001: 265-66) as well as frescoes ('Amr *et al.* 2001: 266, fig. 19). It appears that the report of Strabo who did not visit Petra on the funeral traditions of the Nabataeans: They "bury even their kings beside dung-heaps" (*Geog.*16,4.26) is a literary topos under the influence of Greek poets. The Khazna, which was a royal mausoleum is the best evidence of the inaccuracy of Strabo. If we return to the problem of iconoclasm, Patrich relates the movement to groups and classes in the Nabataeans society (1990: 37). But Negev speculated "that behind the conservative circles that initiated and pushed the iconoclastic reform (or reaction) were members of the ancient priestly families" (1994: 422). He goes further and assumes that iconoclasm was ordered by the Nabataean kings themselves. He dated the Khazna and Qaṣr al-Bint to the reign of Obodas III (30-90BC), and involves into wild imagination when he reports that the Alexandrian artists brought "the blue prints" of the treasury with all of the reliefs, and presented them to the king, in the second half of the first century BC. Then the king ordered "to ovoid the sculpting of any offensive details, such as facial features, hands feet and so on" (Negev 1994: 428). That there was traces of hammering on the animate figures is inaccurate. The excavation team of the recent project found in front of the Khazna the head of the lion that was in the southeastern angle of the monument and fragments of the horse head (Farajat and Nawafleh 2005: fig. 20). Strangely, Patrich and Negev seem to ignore the long Byzantine period at Petra and that several churches were discovered in the city. A cathedral with a baulk of Byzantine papyri, the Urn Tomb and the blue church, recently excavated by Patricia Bikai, in addition to the ad-Dayr. It is more logical to associate the iconoclasm with the Byzantine movement of Leo III in the mid-seventh century AD (for the main church, see Frösen *et al.* 2002).

References

Augé, C. and Linant de Bellefonds, P. (hereafter Linant)
1994 *Pétra retrouvée, Voyage de l'Arabie Pétrée, 1828, Léon de Laborde et Linant.* Paris, Pygmalion, Gérard Watelet.

Bowersock, G.W.
1983 *Roman Arabia.* London: Harvard Mass.

De Luynes, D.
1874 *Voyage d'exploration à la mer Morte, à Pétra et sur la rive gauche du Jordain.* Paris.

Farajat, S. and Nawafleh, S.
2005 Report on the al-Khazna Courtyard Excavation at Petra 2003. *ADAJ* 49.

Fiema, Z.T. *et al.*
2001 *The Petra Church.* Amman. ACOR.
Healy, J.F.
1993 The Nabataean Tomb Inscriptions of Mada' in Salih. *Journal of Semitic Studies*, Supp. 1.
Jaussen and Savignac
1909 *Mission archéologique en Arbie* I. Paris: Ernest Leroux.
1914 *Mission archéologique en Arbie* II. Paris.
Laborde, L., Linant de Bellefonds, L.M.
1930-33 *Voyage de l'Arabie Pétrée.* Paris.
1836 *Journey Through Arabia Petraea.* London.
Lindner, M. (ed.)
1997 *Petra und das Könichreich de Nabatäer.* Munich.
Lyttleton, M.
1974 *Baroque Architecture in Classical Antiquity.* London.
1990 Aspects of the Iconography of the Sculptural Decoration of the Khazneh at Petra. Pp. 19-29 in F. Zayadine (ed.), *Petra and Caravan Cities.* Amman.
McKenzie, J.
1990 *The Architecture of Petra.* Oxford Univ. Press.
Meshorer, Y.
1975 *Nabataean Coins.* Qedem 3. Jerusalem: Hebrew University.
Negev, A.
1994 Khaznet Fir'un at Petra – Iconoclasm Nabataean Style. *ARAM* 6: 419-448.
Reinaud, M.
1835 Rapport sur le voyage dans l'Arabie Pétrée de MM. Léon de Laborde et Linant. *Extrait du Nouveau Journal Asiatique*: 1-34.
Parlasca, K.
1998 Bemerkungen zum Isiskult in Petra. Pp. 64-70 in U. Hübner, E. A. Knauf and R. Wenning (eds.), *Nach Petra und ins Königreich der Nabätaer.* Bonn: Bonner Biblische Beiträge, Philo.
Patrich, J.
1990 *The Formation of Nabataean Art.* Jerusalem. Pp. 153-157.
1990 Prohibition of a graven image among the Nabateans: The Evidence and its Significance. *ARAM* 2 1&2: 185-196.
Schmidt-Colinet,
1983 Dorisierende Nabatäische Kapitelle. *Dam.M.* 1: 107-112, Pl. 66,d.
Schmitt-Korte.,
Nabataean Coinage, Part II, New Coin Type and Variants, Num. Chron., 117f, Nos. 53-57, Pl. 13.
Strabo
1966 *Geography.* Trans. H.L. Jones, London: Loeb Class Library.
Wenning, R.
1993 Eine neuerstellte Liste der Nabatäischen Dynastie. *BOREAS* 16: 25ff.
Zayadine, F. (ed.)
1990 *Petra and the Caravan Cities.* Amman: Department of Antiquities.
1991 L'iconographie d'Isis à Pétra, in Religion, Mythologies. *Mel. Ecole Fr. De Rome* 103: 283-306.

PRELIMINARY REPORT RHETORIUS MONASTERY BETHANY BEYOND THE JORDAN

Rustom Mkhjian

Introduction

Rhetorius monastery is considered one of the most important sites in Bethany Beyond the Jordan chronologically and historically speaking. Since it is related to Elijah the prophet "with whose spirit and power John the Baptist came to the site from where Elijah ascended to the heavens to make ready a people prepared for the Lord". According to the description of some pilgrims and travelers. (**Fig. 1**).

As a result of continued cooperation between the Department of Antiquities (DoA) and the American Center for Oriental Research (ACOR) in the documentation and preparation of restoration plans for the Baptism site, the second phase took place in January – February 2005 concentrating on the monastery, where Engineer F. Ishaqat of the Hashemite University carried out the survey of the entire site.

The present study focuses on some pilgrims' accounts, descriptions of monasteries next to memorial churches, and the architectural remains of the monastery.

Pilgrims Accounts

Pilgrims and historians visited the site throughout history and carefully described what they saw, leaving us with their precious notes.

Among them were Theodosius, Antoninus, John Moschos, Willibald, Abbot Daniel, Theoderich and Abel.



1. Rhetorius monastery from north west (Rustom Mkhjian / 2005).

Theodosius (530AD), said " … Where the Lord was baptized beyond Jordan there is a little mountain called Hermon. There holy Elijah was caught up ... It is 5 miles from where the Lord was baptized to the place where the Jordan enters the Dead Sea".

Antoninus (570AD), added " … On the far side of Jordan is a spring where St. John baptized. It is 2 miles from the Jordan. Elias stayed in this valley when the raven brought him bread and wine … one and quarter miles from the river is the mountain of Elias. … A host of hermits in the vicinity of the valley".

John Moschos (619AD), said " … A monk called John wanted to set off from Jerusalem and visit Sinai. After he had crossed the Jordan, a fever gripped him and he was forced to rest in a cave. John appeared to him in this place, exhorting him not to continue any further on his journey, for this cave is greater than the whole of Mount Sinai. Our Lord often walked in it when he visited me. The monk obeyed and transformed the cave into a church, and gathered brethren about him. The place was called Sapsas, and to the left of it was the brook Chorath (Cherith) where Elias lived during the drought in Israel. So much for the story. Sapsas is an abbreviation of Sapsaphas of the map of Madaba, which marks this place and the monastery of the Baptist …".

Willibald (754AD), said " … the Monastery of St. John the Baptist, where there are about twenty monks. One night they remained there, and then went on above a mile to the Jordan, where our Lord was baptized …".

Abbot Daniel (1106AD), said " … not far from the river, a couple of bow-shots to the east, is the place where the prophet Elias was carried to heaven in a chariot of fire; and here, too, is the cave of St. John the Baptist. A beautiful stream of water, which flows over pebbles into the Jordan, is found here; the water is very sweet and very cold, and it was drunk by John, the Forerunner of Christ, when

he inhabited this sacred cavern".

Theoderich (1172AD), visited the place on the banks of the Jordan where our Lord was baptized, and went back to Jericho. He said " ... more than sixty thousand men standing thereon, almost all of them carrying candles in their hands. ... there was a still larger number of pilgrims in Jerusalem who had recently visited this place. ... In the very place where our Lord was baptized by John there is a great stone".

Abel (1932AD), visited the site carefully describing it, leaving us with precious notes and pictures; such as his picture on Elijah's hill (**Fig. 2**).

Monasteries Next to Memorial Churches

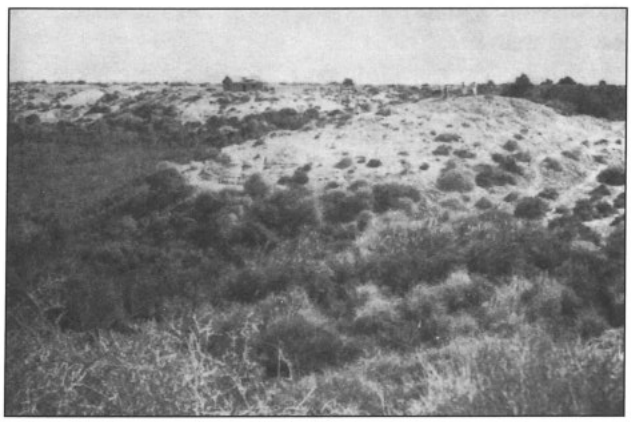
Various types of monasteries are noted in the Holy Land, such as the *Laura*, the *Coenobium*, the *Fortress Monasteries* and the *Monasteries next to memorial churches*.

Monasteries next to memorial churches were all coenobia, and were generally situated along the pilgrims' route intending to serve the needs of pilgrims coming to holy places from all over the Byzantine Empire.

The monastery of St. Peters Church (Qaṣr 'Alī), the monastery of St. Adam's Church (Khān Ṣalība), the monastery of Galgala (Ghallghals) and the monastery of St. Thon the Baptist (Qaṣr al-Yahūd) were all situated on the pilgrims' route from Jerusalem to the traditional site of Jesus' baptism. The distance between these monasteries being 5 to 10 kilometers.

The dominance of the church building and its separation from the other elements of the monastery is noted. And it is important to note that they also served as resting stations for pilgrims.

The Rhetorius monastery is one of the most important monasteries on the pilgrimage route, being the closest to the memorial churches where Jesus was baptized on the eastern part of the river Jordan.



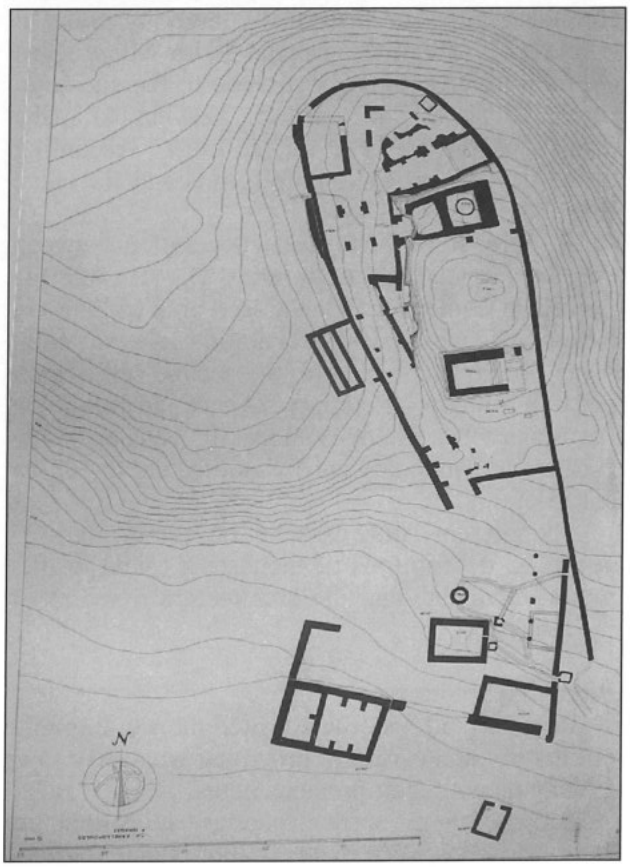
2. A picture of Abel on Elijah's hill from the west /1932.

Rhetorius Monastery (Figs. 3, 4)

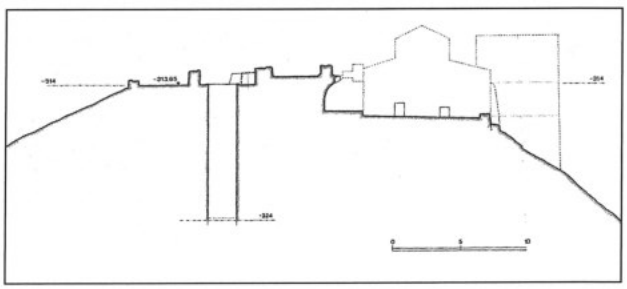
The monastery was named after Rhetorius the abbot who headed it. The inscription was found at the apse of the northern church at the monastery.

The monastery is located on a little hill about 5 miles north of the Dead Sea, constructed at the western edge of Wādī al-Kharrār that connects the monastery with the place where Jesus was baptized just east of the river Jordan today, at a distance of a mile to the west.

It is also on the pilgrimage route from Jerusalem and Bethlehem to Mount Nebo through Bethany beyond the Jordan, providing services to the visitors of the place where Jesus was baptized and many important biblical events took place.



3. Plan of Rhetorius monastery (Chrysanthos Kanellopoulos / 2005).



4. Section of the Rhetorius monastery EW (Chrysanthos Kanellopoulos / 2005).

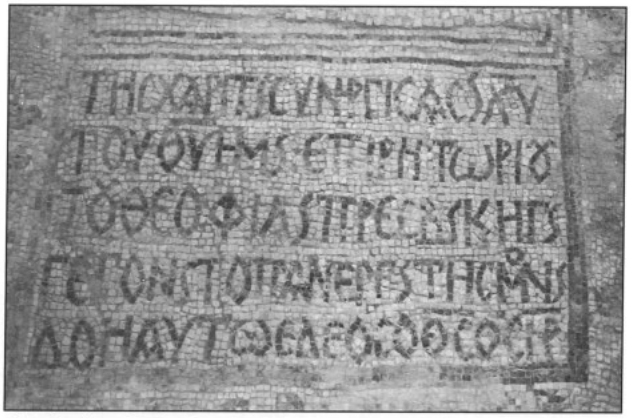
The Construction

As in the case of many archaeological sites, material available at or near the site were utilized for its construction; fields stones, sandstone ashlars, mud brick were used as the foundations and walls of the structures whereas reeds, bamboo and willow was likely to have been used in some cases as the ceiling of a structure.

A lime mortar was used between ashlars and to join the fieldstone used as foundations. It was also used as a base of mosaic floors and plaster of the inner walls and floors of some architectural elements (churches, cisterns, pools, etc.).

The monastery that was built in the fifth century AD on a small, low hill is surrounded by a wall from its eastern, northern and western sides and it consists of important archaeological and architectural elements:

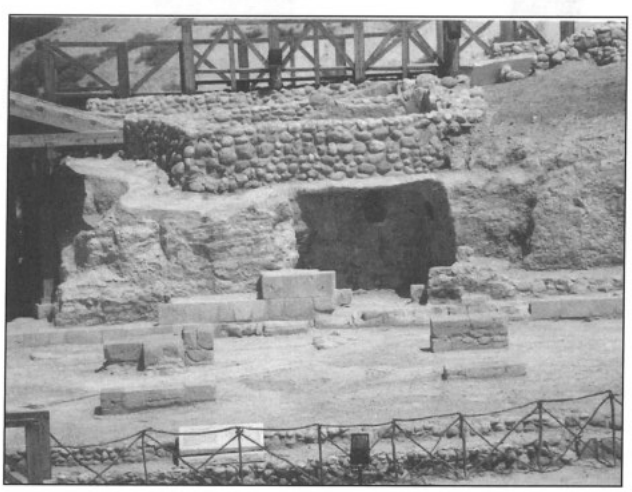
- *The monks' living quarters:* that covers most of the northern area of the monastery and was badly damaged through natural causes.
- *The northern church:* is well preserved consisting of a rectangular apse (4.60m long x 4.22m wide) and a nave (9.65m long x 4.00m wide getting narrower at its western end). It has two entrances, in the northern and western walls leading into the nave. A colored mosaic floor includes geometric designs with the cross marks at their corners and center, within a surrounding frame. A Greek inscription set in the apse area reads: "By the help of the grace of Christ our God the whole monastery was constructed in the time of Rhetorius, the most God-beloved Presbyter and Abbot. May God the Saviour give him mercy" (**Figs. 5, 6**).The cave church: the cave church consists of two parts. A semi-circular apse was cut into the natural rock of the north-western edge of the hill. Two lamp niches carved in its southern and eastern walls can be seen today with a chancel screen in front of the apse (2.30m wide x 1.85m long). The second part of the church consists of a nave and two aisles (9.65m long x 14.55m wide), separated by columns. Still in place are only the four column bases built of well-dressed, square-cut sandstone blocks, a few tesserae of the colored mosaic floor found *in situ* are well preserved and protected until today (**Fig. 7**).
- *The western part:* the western side of the hill, that is formed of lisan marl, was cut and the foundations of a retaining wall can be seen. A long corridor (4.0m wide x 28.0m long) extended from the south to the northern area leading into the cave church from the south. Part of the area found between the corridor and the retaining wall might have been used as a storage area.
- *The pools:* two pools rectangular in shape (3.80m x 3.00m and 4.30 x 2.30m) from the Late Roman period are located on the top of



6. The inscription in the apse of the northern church (Rustom Mkhjian / 2005).



5. The nave of the northern church from the east (Rustom Mkhjian / 2005).



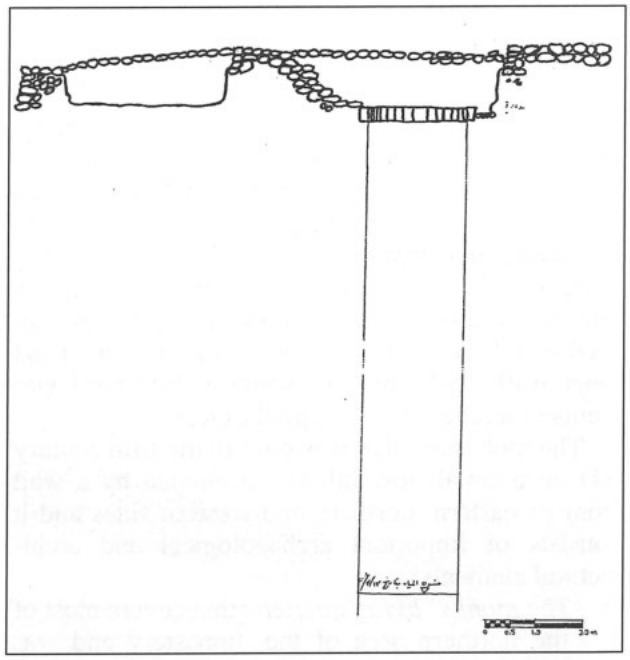
7. The cave church from the west (Rustom Mkhjian / 2005).

the northern edge of the tall overlooking the northern church. Excavations under the damaged floor of the north-eastern pool revealed a well dating from the Early Roman to Late Byzantine periods. Circular on top (2.10m in diameter), it is built of well-cut sandstone ashlars, having a depth of 10 meters, hence arriving at the aquifer of the holy valley (**Figs. 8, 9**).

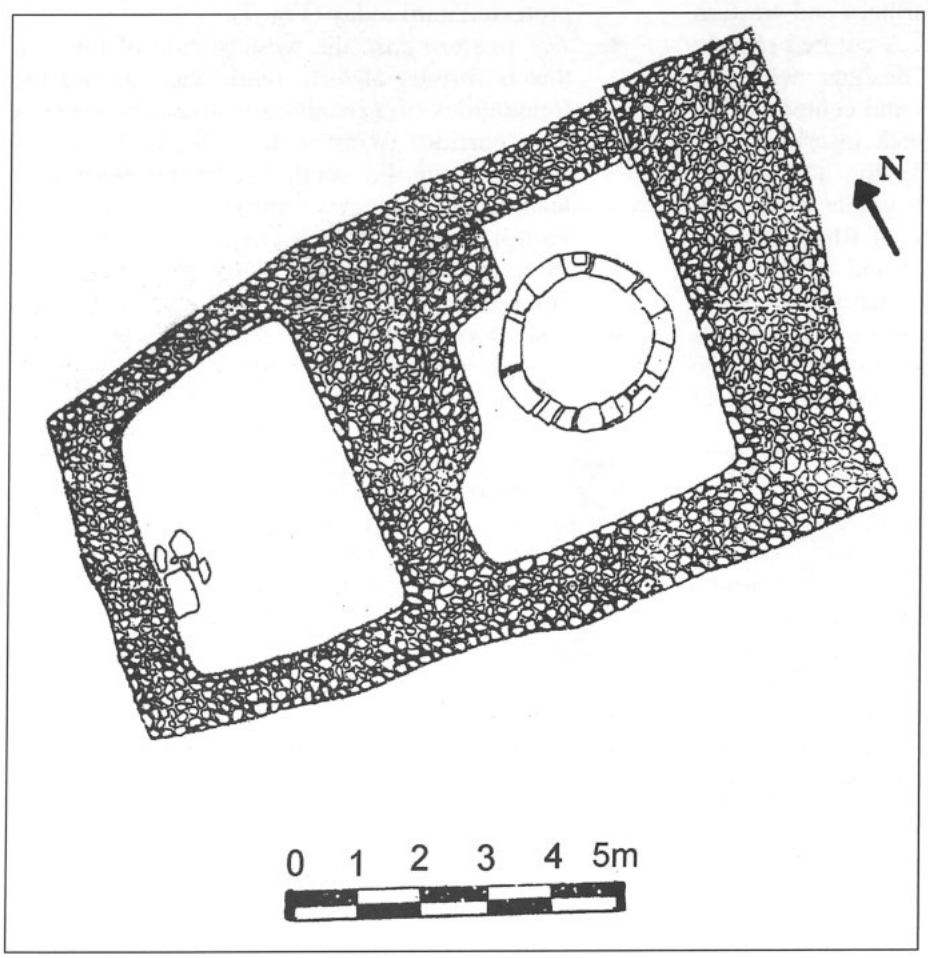
A third pool on the southern slope is rectangular in shape (5.30m long x 3.70m wide) has a staircase on its eastern side extending the full width of the pool (**Figs. 10, 11**).

The southern part of the monastery consists of a water system, a chapel and a prayer hall:

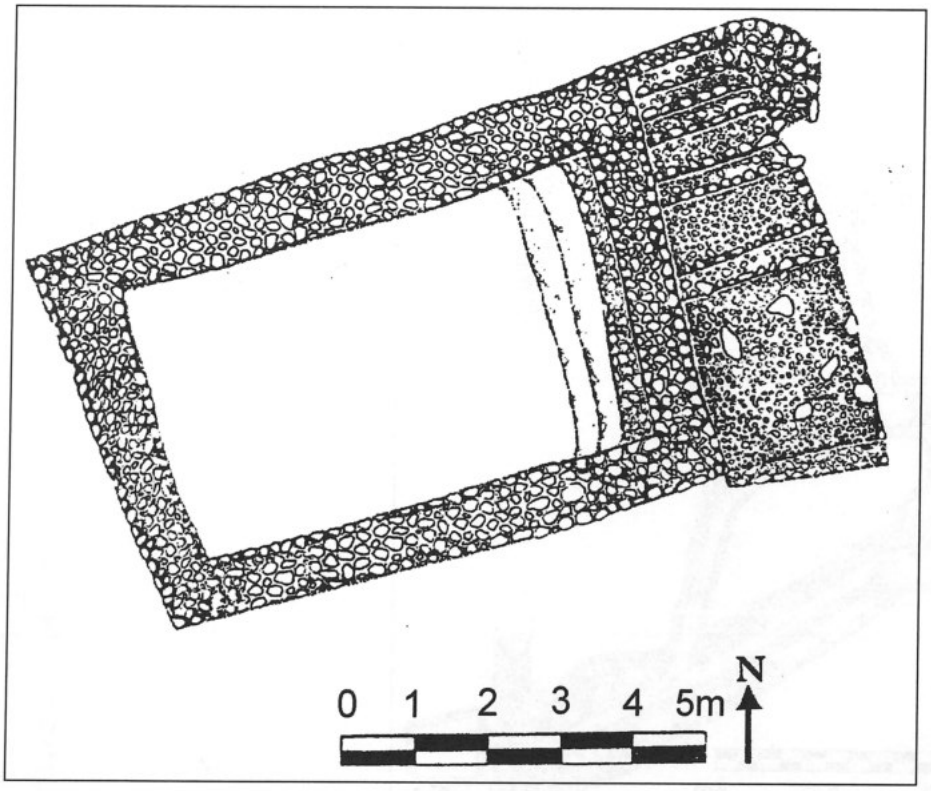
- *Water system:* The water system is located between the prayer hall and the nearby small chapel. The water was carried to the system in ceramic pipes through settling basins before emptying into a cistern and a well connected with water channels. The cistern (6.30m long x 4.30m wide with a total capacity of approximately 100m cube) was dug out of the natural lisan marl rock, it is the largest reservoir discovered at the site, built during the fifth and sixth centuries AD. Well-cut sandstone ashlars were used to build its inner sides, while a thick layer of lime was added and cov-



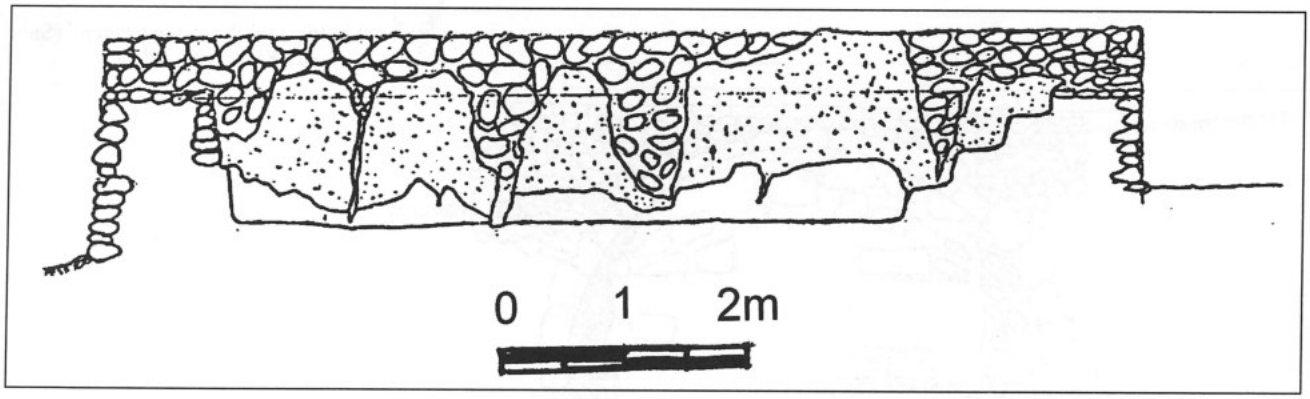
9. Section of the northern pools (Rustom Mkhjian / 2002).



8. Plan of the northern pools (Safinaz Kubagah / 2002).



10. Plan of the southern pool (Safinaz Kubagah / 2002).



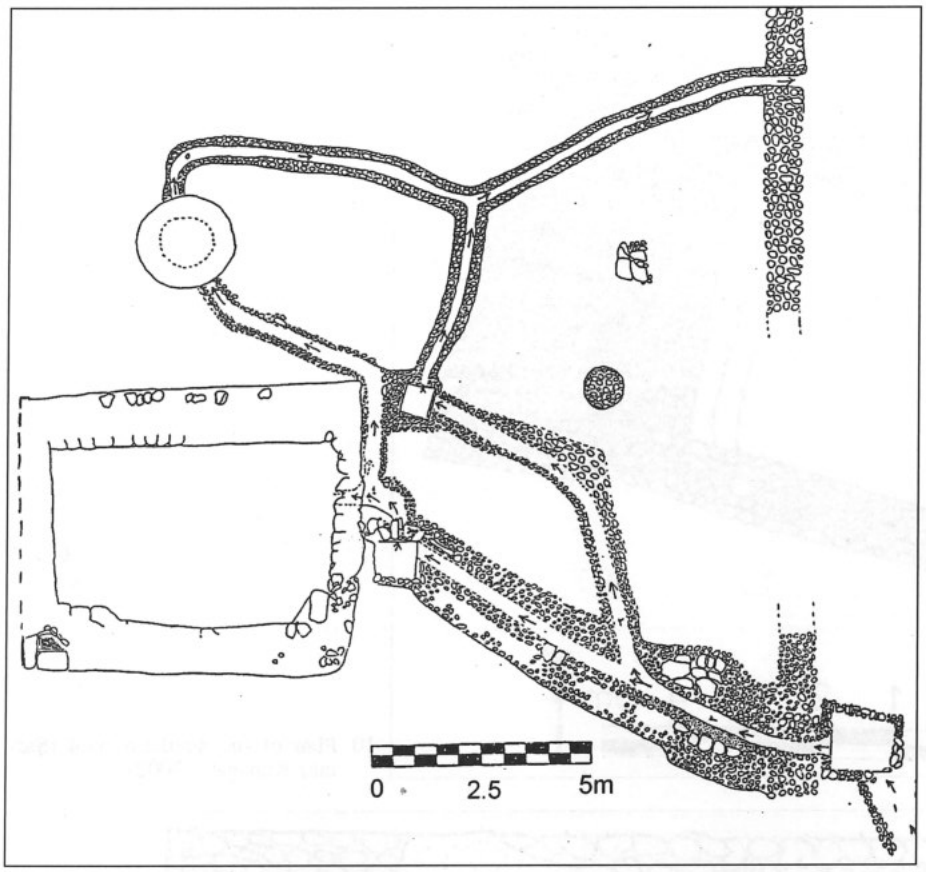
11. Section of the southern pool (Rustom Mkhjian / 2002).

ered by a smooth layer of plaster to prevent any seepage. The cistern was roofed by a vault system and carried a white mosaic floor on top. A canal feeds a cylindrical well (3.25m in diameter x 5.40m deep with a total capacity of approximately 45m cube), is located near the northwestern corner of the cistern dating from the Byzantine period (**Figs. 12, 13, and 14**).

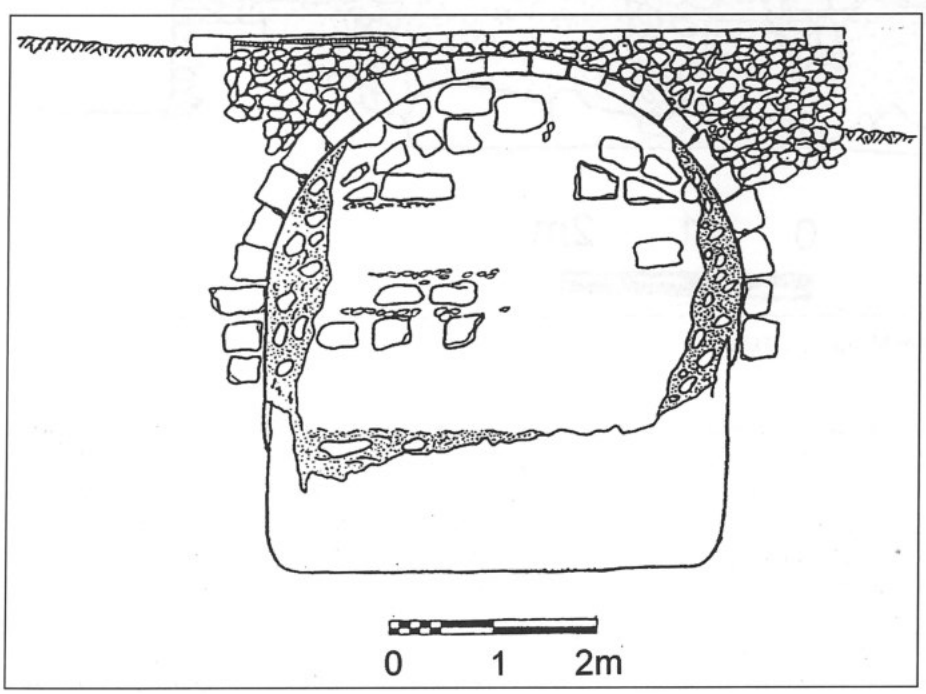
- *The chapel:* A rectangular chapel (13.65m x 9.45m) is located south of the main site, connecting it with the surrounding plain. It was built during the fifth – sixth centuries AD. It had a mosaic floor with cross decorations and arches supporting the roof, of which one has been restored (**Fig. 15**).
- *The prayer hall:* (10.70m x 7.40m) this presumed prayer hall dates from before the fourth century AD. It is a rectangular structure built of undressed fieldstones, a plain white mosaic pavement covers a large part of the floor. The ceiling was probably wooden (**Fig. 16**).

Conclusion

The Gospels verified Bethany beyond the Jordan as a site where many important prophetic actions took place, the pilgrims and historians visited and carefully described the site and its importance, the archaeological and architectural discoveries along with the mosaic map of Mådabå and the local community all together reassure the Holiness of



12. Plan of the water system (Safinaz Kubagah / 2002).

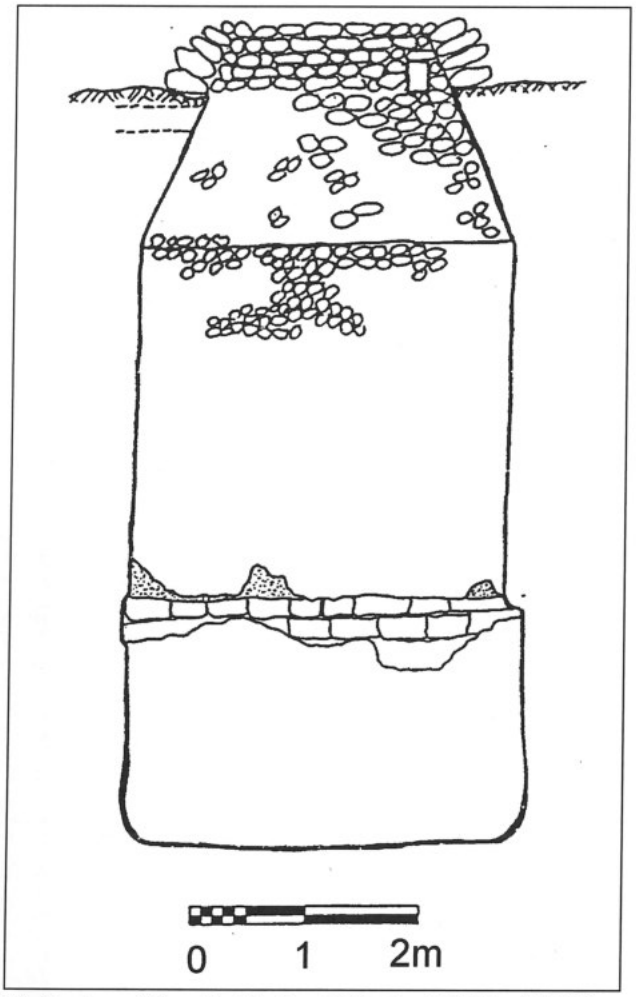


13. Section of the cistern looking west (Rustom Mkhjian / 2002).

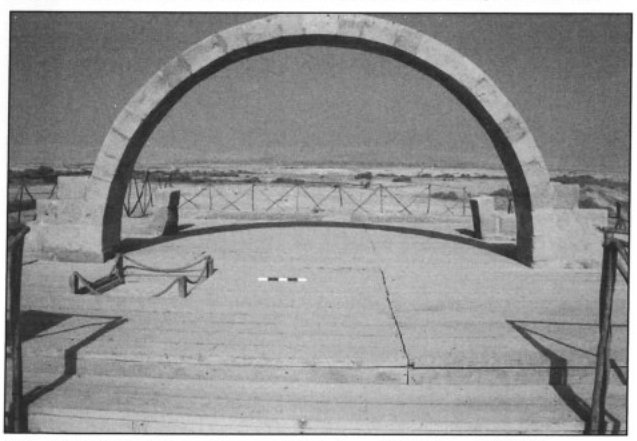
this site.

The Rhetorius monastery is unique in many ways too, although most of the pilgrims did not concentrate on its architecture, most of them linked it with the site from where Elijah ascended to the heaven and specified its distance from the place where Jesus was baptized. It is one of the most important monasteries on the pilgrimage route, being the closest to the memorial churches where Jesus was baptized east of the river Jordan where large numbers of pilgrims arrived.

Although major parts of the monastery were de-



14. Section of the cylindrical well (Rustom Mkhjian / 2002).



15. The chapel from the east (Rustom Mkhjian / 2005).

stroyed through natural causes, enough architectural remains allow the reconstruction of the monastery on paper.

For all this it took the attention it deserves as a site of unique importance for humanity.

Acknowledgements

The author is grateful to H.E. Dr. Fawwaz al-Khraysheh Director General of DoA and to Dr. Pierre Bikai and Dr. Patricia Bikai of ACOR for their support to the project. H.E. Dia al-madani Baptism site commission director, Asem Asfour and the editorial board for their assistance, which is much appreciated.



16. The prayer hall from the east (Rustom Mkhjian / 2005).

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Bibliography

Mkhjian, R. and Kanellopoulos, C.
2003 John the Baptist Church Area: Architectural Evidence. *ADAJ* 47: 9-18.

Mkhjian, R.
2004 John the Baptist Church Area: New Evidence Regarding the Basilica and four Piers. *ADAJ* 48: 239-241.

Waheeb, M.
1998 Wadi al- Kharrar Archaeological Project (Al- Maghtas). *ADAJ* 42: 635-638.

Theodosius
1893 Theodosius on the Topography of the Holy Land. J.H. Bernard (trans.), *Palestine Pilgrims' Text Society* II, 1893 reprint: New York: AMS, 1971.

Antoninus
1896 Holy Places Visited by Antoninus Martyr. A. Stewart (trans.), *Palestine Pilgrims' Text Society* II, 1893 reprint: New York: AMS, 1971.

Kopp, C.
1963 *The Holy Places of the Gospels.* R. Walls (trans.), Pp. 123-124. 1963 reprint: Herder West Germany.

Willibald
1895 The Hodoeporicon of Saint Willibald. W.R. Brownlow (trans.), *Palestine Pilgrims Text Society* III. 1893 reprint. New York: AMS, 1971.

Daniel
1895 Pilgrimage of the Russian Abbot Daniel in the Holy Land. C.W. Wilson (trans.), *Palestine Pilgrims Text Society* IV.1893 reprint: New York: AMS, 1971.

Theoderich,
1896 Theoderich's Description of the Holy Places. A. Stewart (trans.), *Palestine Pilgrims' Text Society* V, 1893 reprint: New York: AMS, 1971.

Abel
1932 Exploration du sud- est de la Vallee du Jourdain. *Revue Biblique.*

Hirschfeld, Y.
1992 *The Judean Desert Monasteries in the Byzantine Period.* New Haven and London: Yale University Press.

الربيع، هديل
٢٠٠٢ تقنية النظام المائي في وادي الخرار خلال العصر البيزنطي. رسالة ماجستير، الجامعة الأردنية، عمان.

KHIRBAT MARBAṬ BADRĀN/ RUJŪM ABŪ NUṢAYR: INDUSTRIAL AND AGRICULTURAL PRODUCTION CENTER PRELIMINARY STUDY OF THE EXCAVATIONS DURING 2003-2005

Adeib Abu Shmais

First, I would like to express my appreciation to General Director Dr. Fawwaz al-Khraysheh for his special support of the first season, and the encouragement of digging to achieve a new reason or idea of building these massive structures. Our discovery would not have been possible without his efforts.

Adeib Abu Shmais, the archaeologist, directed the local team: Ashraf al-Khraysheh, Mashhour Abu Mater, M. Sarhan, M. Saqer and Mus'ab Abu Izhari. The drafter and surveyor was Qutayba Dasuqi, Gandi and Osama were photographers.

According to an archaeological survey in 1988 (ASGA) carried out by the Department of Antiquities, this site was assigned as Wādī Marbaṭ sites from (No. 8-23.Pal.G. 23910-15275). The settlement was established during the Late Iron II/ Persian period, often called Ammonite towers despite the reuse and extension of these structures in the Roman period.

Our fieldwork and regional survey began on May 14 until July 3, 2002. The background studies included:

1- This region has heavy cultural remains during the Ammonite period, from the late part of eighth century until the end of sixth century BC, spread out along the eastern plateau of al-Baq'a valley revealing large architectural structures; rectangular, squared with external additions/courtyards and circular units (Thompson 1972). These were built from rough-cut megalithic stones (the stone hewned from the outer face) spread on a flat area. Most scholars classified this type of building as military camps and signal towers at the frontal border of the Ammonite state. Others said it might be associated with agricultural fields, over looking farm stores or permanent watchtowers (Younker 1991).

These structures may have served during the political conditions of late Iron II period to protect the industrial rural centers of the Ammonite Kingdom. This settlement consisted of an integrated village with architectural landmarks and clear cultural accumulations, so our exploration had taken place for the first time and revealed the presence of layers of cultural remains.

There are still three examples of these forms of settlements, considered by some as watchtowers for their occurrence of the site such as Rujūm 'Ayn al-Bayḍa, and Umm as-Suwaywīna.

2- One kilometer northeast of al-Marbaṭ settlement is another site called Khirbat Badrān (Glueck 1939), Umm Ballāna. It is a large tall containing a square structure from the same period, and other remains from Roman/Byzantine and early Islamic village.

3- The archaeological survey of greater 'Ammān ASGA took place in the year 1988 and also mentioned these cultural remains. Presence on settlements includes Iron Age, Roman/ Byzantine and early Islamic culture (Abu-Dayyeh *et al.* 1991).

Geographical Situation

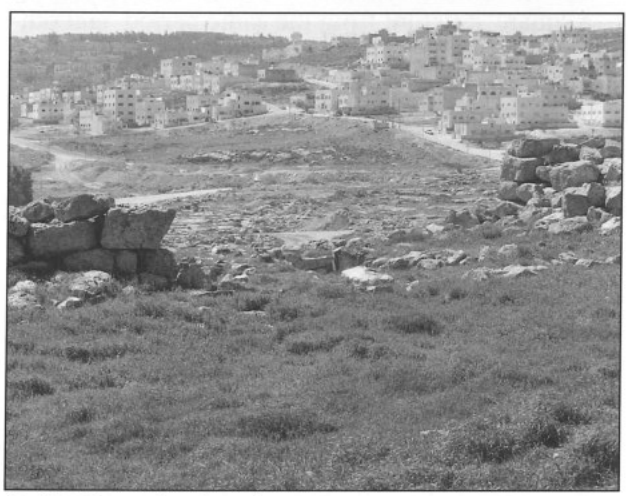
The region is on the northern plateau of the al-'Āṣima governorate area (UTM 772568E 3552400N, asl 913m), and extends for nine hectares. This area is influenced now with dense development of the Abū-Nuṣayr Housing City and the Jordan highway road (**Fig. 1**).

They have completed the infrastructure of this new settlements, and have effected directly the cultural remains which spread on the eastern mountains of Wādī al-Baq'a (Shafā Badrān*, al-Marj, Rujum al-Muraygha, Khirbat Umm Ballāna, Ṭāb

* Al-Baq'a — the Cananite origin of this word continued in Aramaic dialect and in old Hebrew; Buq'at Hayam, means the lake.
Shafa means nature terrace, and sediment situated on the banks of the valleys in the hinterlands. The Aramaic word has the same meaning in Arabic (the lip); the best-fertile lands for planting sorts of trees (McGovern 1983) described Wādī al-Baq'a as the largest hydrological basin in east Jordan. The anthropological and archaeological studies result based in facts on the cultural evidence because of the existence of water resources.



1. Geographical and contour map. Rujūm Abū Nuṣayr.



2. Abū Nuṣayr housing city.

Krā': Abu Ghanemah: 1982) (**Fig. 2**).

Cultural Evidence

The traditional history referred to Ammonite Kingdom territories (Jel'ad I Kgs 4: 13, 4:19) in the Bible text it is referred to as Bani 'Amon.

Moreover, Beit Amman is mentioned in Assyrian inscription in the seventh century BC.

The impression is that this culture was connected with Persian-Hellenistic one. Very few Roman pottery sherds were found in these structures (Glueck 1937-1939, 1970: 181). Glueck mentioned this site in a sketch drawing and called it 'Kherbit Morbat Bedran'. On a Jordanian map today, Rujum al-Muraygha is 500m southeast of our site (See **Fig. 1**).

Al-Marbaṭ is a valley across the east side of the settlement and falls into the az-Zarqā' River. It is an essential position for an occupation. This site has proved this within the fields of the al-Marbaṭ valley.

The environment of this area still has springs with the highest average rainfull in the eastern bank of Jordan River. Moreover, birds immigrate to these fields yearly. These two events were observed on 29/8/2002 and 6/9/2003.

In July 2002 work began for suggesting to excavate the site, there was no proposed planning more than what I mentioned before. The team examined the occupational mound beyond to choose sectors between structures large stones were scattered on a flat area. Some of these stones were used as animal pens from about one hundred year ago. 35 days were used to document, survey and clean the area before excavation took place.

Phase I

Modern animal pens covered the surface of this ancient settlement mound, reusing the falling stones by stacking them as a rectangular or oval shapes consisting of one course. It spread over 85% of the site. The earth was used as the floor of these pens, which mixed with the remains of sheep and goats was 40cm thick. This could date back to 100 years ago.

In a systematic survey, we identified 30 fragments of various basalt basins, 14 upper loaf shape millstones (ULSM), 8 querns, 2 obvious cisterns, group of cup holes, 3 wine presses, and a group of caves. These caves are in general, tombs of Bronze Age and Iron Age, some have a hole in the ceiling, so the cave at one time was used as a dwelling, 113 characteristic pottery sherds of the Iron Age and some other architectural elements were found. This collection indicated a seasonal domestic life. The destruction consisted of hewn stones reused as shelters for animals. This place is now called Rujum aṣ-Ṣunnā', which means the 'makers taken place', and to the northeast there is a cemetery. The study of these artifacts, which were discovered among the destruction, dated mainly to late Iron II period (**Fig. 3**).

The topsoil layer contained the same typology of these tools that were collected from the destruction of the site. There are the remains of the



3. Discovery of walls in the destructions of Iron II period. Area: A. looking east.

upper story of the structure.

Phase IIa

A rock tumble is the major destruction of this layer, 120cm deep. It consists of rough-cut limestone mixed with soft soil (10YR5/3 Brown), fragments of loom weights, charcoal and pottery sherds; in between domestic buildings A: A1: 3, A: A2: 4, C: A2: 2. This excavated area is located between structures No. 1 and No. 2 (**Fig. 4**).

The stratigraphic relationship of these walls is not visible from any direction in order to connect it with the structures mentioned above, A: A1: 7. The place of mud fabric used to prepare loom weight was discovered *in situ*, and plaster walls consisted of light red soil mixed with marl built against wall no. 3. This could have functioned as a store (U shape basin) (**Fig. 5**).

The following items could explain that function

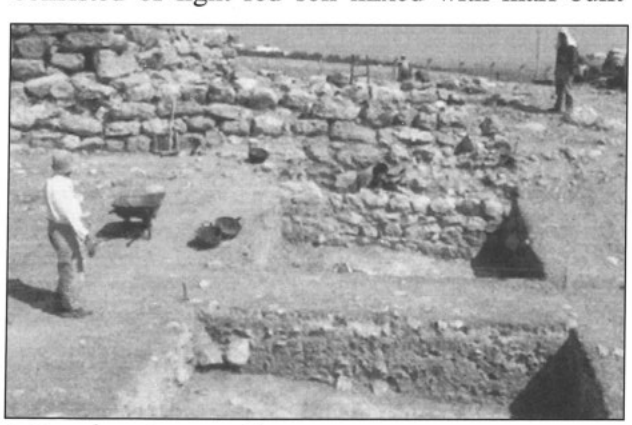
1- Measures 90cm curve plaster line wall, 7-5cm thick, this could be a wall ca.102cm diameter, 120cm high and has a smooth surface from both sides. Ashy soil and collapse material filled the basin. The majority of loom weights were discovered in this fill; including 152 complete objects, it is well-fired, and there were a number of fragments. This number would seem to indicate a factory and production center. We found an amount of clay used to prepare loom weights.
2- The base of the U-shaped plaster walls laid on top of a rubble surface.
3- The bottom of the basin was built directly on the floor, similar to the one that discovered in Ḥisbān (Paul 2000).
4- There is no trace of firing from the exterior or the interior of the plaster wall.
5- There is a pillar stand in front of the basin used as a door jamb, 65cm high and situated on the floor (**Fig. 6**).
6- Platform/bench located 1.5m opposite the plaster store where the paste of clay was prepared, A: A: 12. It consisted of two courses along the west side of the room.

The function of plaster fragments curved to make a wall of a big storage pit. Therefore, the large number of loom weights discovered right there would indicate evidence of a production store. In addition, it could be related to this complex, and dated to the end of sixth century BC.

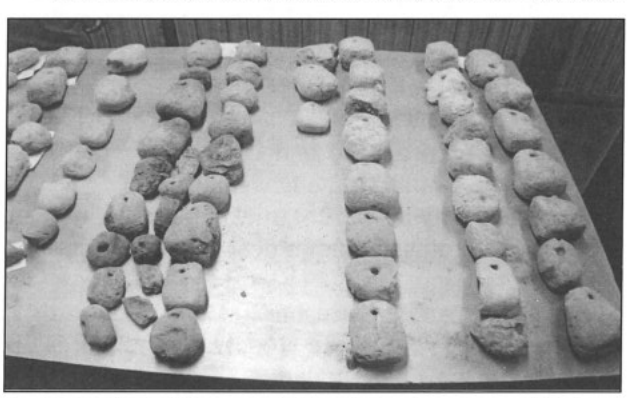
Phase IIb

The collapse debris in A: A1: 13-15 and A: A2: 15-16 related in general to the second story of the construction, which consisted of parallel corridors/ walls (**Fig. 6**).

The thickness of this stratum measured 104cm.



4. Location of excavated area.



5. Assemblage of loom weights and the store case of U shape plaster wall.

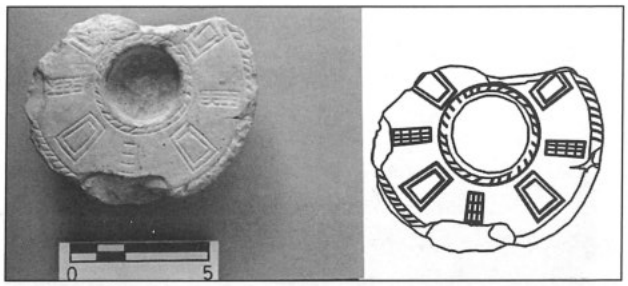


6. Pillars in structure No. 5, looking south.

Each wall integrated to the same building, and a basalt quern for grinding was found on the floor. This collapse could indicate an earthquake occurred during the control of Persian but the Ammonite presence was still commonly influenced with eastern culture; such as ornamental designs, in the discovery of bronze fragments.

In A: A2: 12, a subsidiary wall of 35cm thick, and one row of stones occurred in the eastern section of the stone pit (kuwwāra). This kind of architectural feature used in ancient times and continuing in local traditional system is called al-Khābyia (store room). The main walls are running in an east-west direction. Pottery sherds include two sherds of Attic ware (fifth to the forth century BC). The presence of late Iron II/Persian pottery and the type of construction provided the main reason for dating these huge structures to the sixth century BC (Younker 1996; Bienkowski 2000). This destruction strata has the following finds:

- Burnt wheat seeds found just above the floor and beside the kuwwāra.
- Iron sickle, in a very bad condition, which appears to be similar to the new shapes.
- The black ashy layer 7cm thick containing animal bones, including a unique deer horn (Persian fallow deer).
- One of the finds in season 2003; A circular disk of local marble (steatite stone), interpreted as an Iron Age cosmetic palettes (Thompson 1971), and a weight object with Ammonite inscription (**Fig. 7**).



7. Cosmetic palette.

- Some of the pillars consisted of one stone (**Fig. 6**) (structure No. 5 pillar house) and floor pavements consisted of flagstones or hard beaten earth, Sqs A: A2: 16 and B: A2: 14 this technical style spread out before the Iron age, but more specially during Iron II. The pillar of wall construction A: A2: 3 has three holes as a socket. This could be a new technique in this phase in this period. Parallels include al-'Umayrī (Herr 1999), Jalūl (Younker 1996; Younker and Merling 1999), and Jāwā (Daviau 1996).

Pottery Assemblage

1. Surface collection has a very few late Hellenistic/Roman ones found in the first level of the destruction.
2. The dominant is late Iron age and close to Ammonite pottery. This remains had been located in general between structures 1 and 2.
3. Two sherds of Attic ware, fifth-fourth century BC. were found in this fill. My next study will emphasized on pottery sherds to clarify the connections of Iron Age culture and dating.

Conclusion

This type of construction still needs more discussion. Some observations have come from old sources; The Bible, Egyptian, Assyrian and Holy Qur'ān mentioned the people who lived in the land of Can'ān (Tyrant nation) or Giants. I guess that this title came from the huge size of boulders used in their buildings. These styles of structures can be seen around 'Ammān area today, scattered on the open fields, that called Ammonite towers, the period of biblical Ammonite. However, many of these structures flourished under the Persian impression (late Iron II):

1- These constructions did not command strategic views of the surrounding regions. However, it looks after agricultural fields as permanent watchtowers (Najjar 1992). Therefore, it could be constructed as production centers and stores, trace of cement plaster covered 2.8m of wall 1 in B: A2 : Structure 2 from the exterior side (**Fig. 8**), so this massive structures must be used



8. Cement plaster covered the exterior wall of structure No. II.

to keep their production, and it is out of military functions. In addition, this production needs to be in safe so as to help them in the next dry seasons. Some fortifications built in the Roman period as farmsteads as an example similar to this style of buildings. Therefore it is the center of production and the storage of the rule of the region, (Shaykh of the tribe or the feudal prince).

2- There is no military function such as fortified gate, surrounding wall (casement wall). None of spears or weapons found in or out side these buildings or city fences. More over the largest fields around 'Ammān today have these structures.

3- These constructions are not located near or on any ancient site. It is just among the main fields. So it is considered as agricultural complex.(Najjar 1992; Waheeb 1992). I can add it could be related to the important commercial roads and stability, and this will arrange independent economy.

4- These centers referred to the authority and orders under the kingdoms of Iron II period, so as to turn the direction of the tribes.

5- The conflict in late Iron II - Hellenistic period was the major reason to protect these centers by building this style of structures in view of the economical situation. In addition, to investigate this idea, Siran inscriptions referred to the centers of farming production, which mentioned agricultural constructions such as: cisterns, springs and gardens (Siran: Aramaic word means gardens, and still used in Arabic dialect today). The inscription dated to the seventh century BC, Ammonite culture (Thompson and Zayadine 1973). Moreover, statistics show numbers of loom weights indicate a center of wool production/textile (**Fig. 5**).

In Arabic, al-Marbaṭ means place for resting the animals' (eg. camels, horses). This could refer to the economical function of these structures. The weaving process needed permanent sources of water for wool production in the places where loom weights were found (mass produce). The stream in the valley confirmed the reason for establishing the wool industry fabric in the al-Marbaṭ settlement.

Therefore this site reflects or emphasizes the trade roots managed by the Ammonite Kingdom. In addition, the nature of their land was strengthened because:

- Ammonite Kingdom depends on trade routes and their region touches the desert area, which is expressed in their culture.
- The people still live as tribes in a semi nomadic life. That is a good reason to build it in the rural regions (more than 20km from the center of Rabbit 'Ammon). And they still believe in 'Ashtar which is represented in the land or earth.

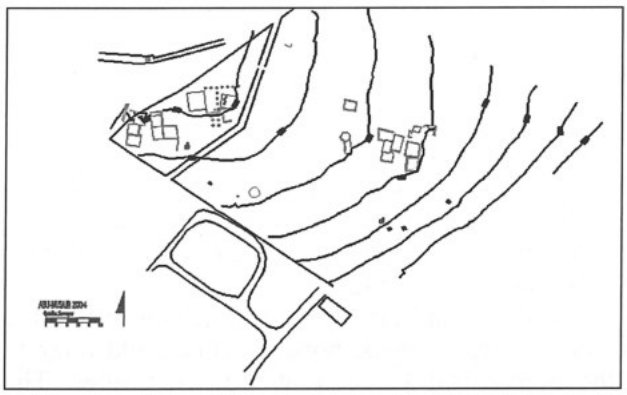
6- In west bank of Jordan River the structure that called Migdalin has the same style of al-Marbaṭ structures (new discovery in Ṭabaqat Faḥl revealed a temple of early Iron I in this style of architecture).

7- Some scholars called these structures real estate and private administrative buildings. Is this too far off for this type of structure? Therefore, they had stored the industrial productions; for example, wine was the tribute sends to Persia instead of their protection (Herr 1995a and b). The majority of pottery finds are wine jars, and Keltter mentioned to these sites as a vassal state (Keltter 1991). This could be represented in al-Marbaṭ site as followings

1- This site still has eleven major buildings in seven hectares. It is considered as one settlement occupied in the late Ammonite period (**Fig. 9**).

2- In Arabic the name of the site means 'the place were horses or camels stayed' and in the Holy Qur'ān it is mentioned as a military camp, which supports the truth of the old commercial ways (al-Munjd 1986).

3- Rujum al-Muraygha has the same meaning as that mentioned above (item 2), but this could be so-called in the late Ottoman period, which is



9. Top plan of the settlement showing the contour topography area.

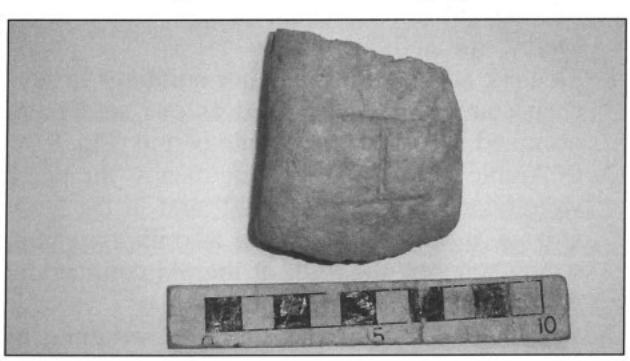
close to this site.

4- This site leads to the main trade routes during Iron Age period. The smelting Iron Age site of Abū ath-Thawwāb/ar-Rumān (Herr 1995b), 2km north, supported this idea as a production center of loom weights and cloth. The number of weights was required for the number of threads on each loom weight and the density of the woven fabric. Moreover, there must be large number of sheep and goats, water and labor.

5- Clay weight with an Ammonite inscription (*alif*) reflects the trade routes and the progressive nature in this culture. Therefore a group of stone weights found in the Iron Age construction and potter's mark Ammonite letter *Zayn* found on a handle of a jar (**Fig. 10**).

Late Ammonite had obtained their independence under the foreign ruler, Persians, and organized their production dependent on natural sources in the agricultural landscape. Hence, the water produces the mechanism of making wool, and this is implicated in our understanding of controlling the hinterland. In addition, their regular contact provides the wool textile from their environment life.

Through this study we can say that the last stage of Iron II based on this model of structures and Abū-Nuṣayr was a kind of architectural models that reflected the power of the existing system of sovereignty on their land.



10. Ammonite inscriptions.

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Bibliography

Abu Ghanemah, K.
1882 Abu-Nusair Excavation. *ADAJ* 16: 16-17.

Abu-Dayyeh, A. et al.
1991 Archaeological Survey of Greater Amman, Phase I, final report. *ADAJ* 34: 387ff.

Bienkowski, P.
2000 The Persian Period. Pp. 347-358 in B. MacDonald et al. (eds.), *The Archaeology of Jordan.*

Daviau, P.M.M
1992 Preliminary Report of the Third Season of Excavations at Tell Jawa, Jordan (1992). *ADAJ* 37: 325-340.

Glueck, N.
1937 Explorations in Eastern Palestine, III. *AASOR* 18/19: 181-200, 269
1970 Other Side of the Jordan. Published by *ASOR*. Cambridge

Herr, L.G.
1995a Wine Production in the Hills of Southern Ammon and the Founding of Tall al-'Umayri in the Sixth Century BC. *ADAJ* 39: 121-125.
1995b The Late Iron II- Persian Ceramic Horizon at Tall 'Umayri. *SHAJ* 5: 617-620.

Kempinski, A.
2002 Kabri: The 1986-1993. Excavation seasons. *Tel Aviv:* 363-366.

Kletter, R.
1991 The Rujm el-Malfuf Building and the Assyrian Vassal State of Amman. *BASOR* 284: 33-50.

McGovern, P.E.
1985 Environmental Constraint for Amman settlement: Baq'ah valley. *SHAJ* 2: 141-148.

Najjar, M.
1992 Preliminary Report on the Result of Khilda Excavation/Amman. *ADAJ* 36: 412-420.

Paul, J.R.
2000 *Tell Hisban and Vicinity in the Iron Age*, Unpublished Dissertation, Andrews University.

Thompson, H.O.
1971 Iron Age Cosmetic Palettes. *ADAJ* 16: 61-70.
1972 The Excavation of Khirbet al-Hajjar. *ADAJ* 17: 47-72.

Thompson, H.O and Zayadine, F.
1977 The Tell Siran Inscription. *BASOR* 212: 5-12.

Younker, R.W. and Merling, D.
1999 Tall Jalul. *ACOR* Newsletter 11: 1 6-7

Yassine, K. (ed.)
1988 *Archaeology of Jordan;* Essays and Reports. P 17. Amman: University of Jordan.

Waheeb, M.
1992 Al-Mabrak: A Fortified Agricultural Complex East of Amman (Late Bronze age-Iron Age): Preliminary Report. *ADAJ* 36: 408-

THE HELLENISTIC PETRA PROJECT: EXCAVATIONS IN THE CIVIC CENTER, PRELIMINARY REPORT OF THE FIRST SEASON, 2004

David F. Graf, Leigh-Ann Bedal and Stephan G. Schmid
with a Coinage Report by Steven E. Sidebotham

The primary objective of the Hellenistic Petra Project (hereafter HHP) is to locate, define the character, and determine the perimeters of the early Hellenistic settlement of the Nabataeans at Petra. In spite of 75 years of excavation at Petra, the period between the fourth and second century BC remains elusive and relatively unknown, so we established it as our primary focus for excavations. The methodology is to place a number of small exploratory soundings at strategic locations in the civic center in the Wādī Mūsā basin. By these small surgical cuts into the central urban landscape of the Nabataean capital it is hoped that we can expose evidence for the prior settlement during the late Achaemenid Persian and early Hellenistic era. The first season was conducted between July 31 and August 12 of 2004, a rather brief period, but intense and productive, as the following report will indicate. The project director is David F. Graf (University of Miami). The co-directors were Professor Stephan G. Schmid (Université de Montpellier) and Dr. Leigh-Ann Bedal (Penn State at Erie) who directed their respective soundings; the former also served as the ceramicist and general photographer for the project. Professor Steven E. Sidebotham (University of Delaware) was the numismatist. Student volunteers included Darius Jahann and Justin Lowry from the University of Miami. The project was supported by a grant from the Council of Research Administration at the University of Miami and a very generous contribution by Paris Katsoufis of Miami. The project is licensed by the Department of Antiquities of Jordan. The Project Director and Co-Directors wish to express their appreciation to Dr. Fawwaz al-Khraysheh, the Director General of the Department of Antiquities, and his staff for their support and assistance with the project, particularly Sulaiman al-Farajat the Deputy Inspector of Petra and Haroun Amirat our representative. We also wish to thank Dr. Jean-Francois Salles, and his staff at the 'Institut Français Proche-Orient', for their support and interest in the project.

At present, the prevailing opinion is that Nabataean society was primarily if not totally nomadic until ca. 100BC, when what we regard as "Nabataean" material culture begins — i.e. with the appearance of distinctive pottery (Schmid 2003: 75), coins (Bowsher 1990), and monumental architecture (McKenzie 1990: 106). As a result, ca. 100BC is presumed the pivotal turning point in which the Nabataeans made a transition from a nomadic to a sedentary life-style. As a result, before 100BC, the Nabataeans are regarded as nomads (*cf.* Schmid 2001a-c). The basis for this view and the traditional starting point for the early history of the Nabataeans at Petra is the eyewitness account by Hieronymus of Cardia in 312/11BC. (preserved in Diodorus XIX.94.10; *cf.* II.48.1-2). In this report, the Nabataeans are depicted as strictly pastoralists, not living in houses, completely nomadic, and as brigands preying off sedentary cultures. Although his account is widely regarded as trustworthy (Parr 2003: 28), it perhaps is better seen as a highly stylized literary description that has embedded in it the stock motifs of traditional Greek ethnography for cultures on the margins of the civilized world (Graf 1990: 52-53; *cf.* Bosworth 2002: 188-191, who notes Diodorus' details "should provoke disquiet rather than confidence...its literal truth is highly debatable"). The problem with interpreting the account as an accurate portrayal of Nabataean society in the aftermath of Alexander the Great's conquests is not only the inherent inconsistencies in the account, but its conflict with the images emerging from contemporary documents and archaeological evidence for Nabataean society in subsequent centuries.

These new sources help illuminate the "dark" centuries of early Nabataean history between 312/11BC and 100BC. Recently published Idumaean ostraca from the Negev in Palestine establish that a "Nabataeanized" Arab population was already part of the sedentary culture of the region in the late Achaemenid and early Hellenistic period (Graf 2003: 332-334), and there is no reason to believe the Transjordanian Nabataeans were laggards and

had not achieved a similar status at the same time. In ca. 257BC, the Zenon papyri refer to the Nabataeans as part of the regular Transjordan landscape (Graf 1990: 69-75) and in the newly discovered Milan papyrus containing the epigrams of Posidippus of Pella produced at the Alexandrian court in the reign of Ptolemy Philadelphus II (286-246BC), there is a reference to the "fighting Arabian horsemen of the Nabataean king" (Bastinanini and Gallazzi 2001: 34, col. II, 15-16, AB 10; with Graf 2005). This is the earliest extant reference to a Nabataean king, a century earlier than previous references. It is perhaps supported by another reference to a Nabataean king in a newly published Aramaic text from Syria which is dated perhaps to the late third century, but certainly the second century BC (Milik 2003: 275), and is probably earlier than the previous earliest reference to a Nabataean king from Khalutzah (Elusa) in the Negev from ca. 168BC (see Bowersock 1983: 18). By the last half of the second century BC, the Nabataean capital of Petra was an international focal point. In 129BC, Moschion, an envoy from Priene in Western Asia Minor, was sent to Alexandria in Egypt and 'Petra in Arabia' (Hackl *et al.* 2003: 126-127), and a few years later in 126BC the Han Dynasty Chinese envoy Chang Ch'ien was sent Bactria to investigate the western regions beyond, and in his report reference is probably made to Petra (as *Li-Kan = Rekem;* Graf 1996: 207-210). These sources suggest that the Nabataeans had an established state with Petra as their urban center decades before the hypothesized transition in 100BC, if not before.

In contrast, the archaeological evidence in support of these rather striking substantive written allusions is rather limited. Indications of an earlier Hellenistic settlement exist, but the finds have been scattered across the civic center and lack any stratigraphical context. Many of these finds were made in the earlier British excavations at Petra, beginning with the first excavations by the Horsfields between 1929-36 (Horsfield and Conway 1930: 379, and Horsfield 1939: 87), and later by the excavations of Peter Parr between 1958 and 1964. These finds include fragments of a black glazed Attic lamp of early Hellenistic date (Horsfield 1941: no. 108), a Ptolemaic coin (no. 121), and an ostracon inscribed in Greek of the second century BC (Horsfield 1941: 115). In addition, sporadic finds of early Greek stamped amphorae have been found at Petra by the Horsfields and in subsequent excavations. More than three dozen have now been recorded, scattered widely across the whole civic center: at Katute in the dump south of az-Zanṭūr (Horsfield 1939: nos. 41, 91-103), another near the foot of Umm al-Biyāra (Khairy 1990: 51), thirteen from the Swiss-Liechtenstein excavations at az-Zanṭūr (C. Schneider in Bignasca *et al.* 1996: 130-132, nos. 1-13), several more from the Temple of the Winged Lions (as cited in Parr 2005), a surface find from the "Great Temple" excavations (S. Tracy in Joukowsky 1998: 376), and the rest from beneath the Colonnaded Street (Parr 2005). The Greek inscriptions on the handles yield dates stretching from ca. 240BC (Schneider 1996: 129, no.1) to the early first century BC. None were found in clear stratified contexts, but in fills, dumps, or confused and "unscientific controlled" strata (Parr 1989: 185; *cf.* R. A. Stucky in Bignasca 1996: 389).

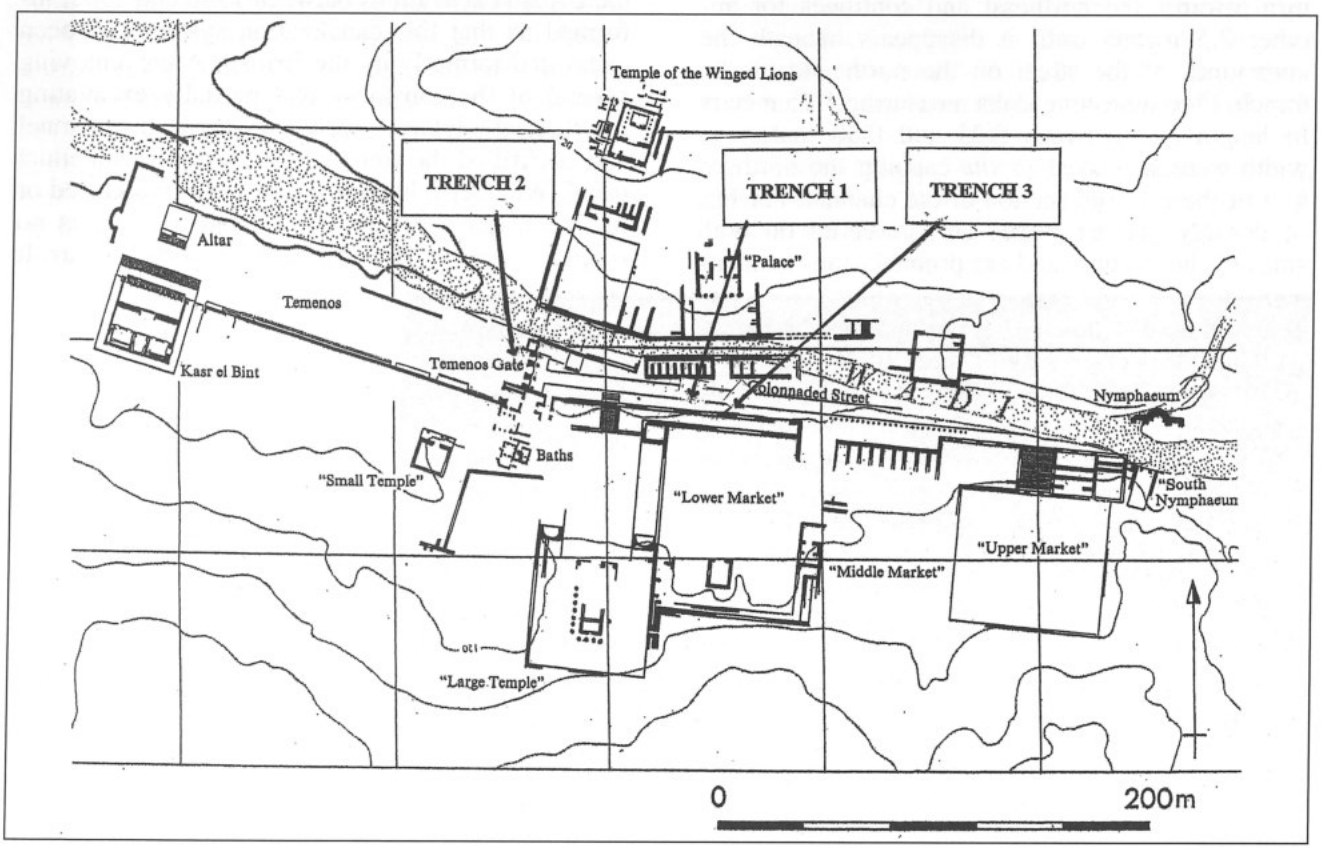
Nevertheless, these numerous finds are extensive enough to prevent them from being characterized as merely intrusive elements. They are widespread and ample enough to suggest that the foundations of an earlier settlement either were removed and scraped from the hills above for the construction of the later Nabataean settlement or that such a settlement still lies buried beneath later constructions.

The hint that the latter is the case is suggested by the British excavations conducted along the Colonnaded Street between 1958 and 1964. The intent was "the excavation of a stratified sequence of structures and associated artifacts spanning, if possible, the whole range of the occupational history of the site, but relating particularly to the earlier phases, when the Nabataeans were exchanging their nomadic way of life for a sedentary one" (Parr 1990: 15). In regard to the latter, this goal was attained only in Parr's Trench III, flanking the street some 90m east of the Temenos Gate, where some 2-3m beneath the street level, built directly on the wadi bed, some rough simple, unsophisticated rectangular structures were discovered built of rough wadi boulders and clay, with clay ovens and floors that were dated tentatively to between the fifth and early third century BC (Parr 1960: 127-129; 1965: 528-529; 1970: 354; *cf.* 1990: 15-16). The associated finds included Hellenistic black-glazed sherds and coins from the Phoenician coastal cities, in particular of Arados from the third century BC (1960: 130-131; 1963: 100-101). The final report of these finds is still awaiting publication and, until it appears, the discoveries are begging for confirmation. Parr's important observation that there were "well stratified deposits beneath the paved street and the colonnades, offering promise of an undisturbed sequence of structures" (1990: 15) had never been pursued and was still waiting corroboration forty years later. The genesis of the HPP began in discourse and interchanges between Stephan Schmid and David

Graf about these matters in 2004, culminating in our plan to resume inquiry along the Colonnaded Street. Since Parr's Trench III was located in front of the Garden Terrace where Leigh-Ann Bedal was conducting excavations (Bedal 2002), we approached her for permission to excavate the area adjacent to the former British excavations and in front of her project. Not only did she agree, but offered to join our expedition. The various sections of the following report were written primarily by the listed parties. This introduction, the final editing of the text, and the conclusions that follow were written by Graf, the overall supervisor of the project. The two areas chosen for soundings were adjacent to the Colonnaded Street near Parr's Trench III and at the western terminus of the street, just inside and to the northwest of the Temenos Gate. The authors wish to express their appreciation to Peter Parr (London), Kay Prag (Manchester), and J.M.C. Bowsher (London) for their counsel, interest and support of the project.

I. Excavations along the Roman Paved Street

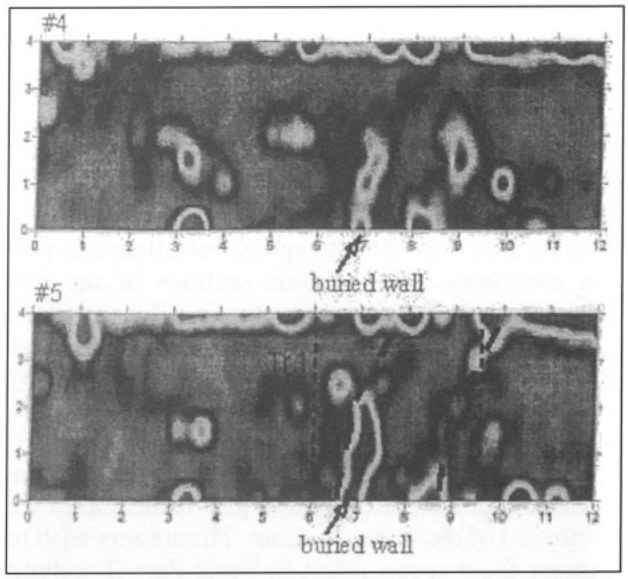
The length of the Colonnaded Paved Street is approximately 234m, measured from the eastern end near the "Trajanic or Upper Market" to the Temenos Gate in the west. Recent soundings at the eastern end of the street revealed several hard-packed dirt surfaces, partially paved with small irregular cobbles, beneath the present paved street, dating probably to the first half of the first century BC (Fiema 1998: 416; *cf.* Parr 1970: 364). These remains suggest a fairly broad earlier street (ca. 18m) existed in the Nabataean period, approximately the width of the Temenos Gate (Kanellopoulos 2001: 13). Beneath the current pavement, the ceramics extend from the first century BC to the beginning of the second century AD), with a coin of Rabbel II dating to AD 76-101, suggesting the street and colonnade were constructed around the end of the first century AD (Fiema 1998: 416). No remains of any construction prior to the first century BC at the eastern end of the street were discovered. The heavy alluvial deposits in this area suggest that the banks of Wādī Mūsā was much wider in antiquity, and that sandstone erosion deposits lined the southern banks of the wadi, creating a serpentine effect (Fiema 1998: 417-418). For this reason, among others, we preferred to place soundings further west along the street. Two trenches were placed alongside Parr's trench III, one just to the west, and the other adjacent to it immediately to the east, some 85-95m east of the Temenos Gate (**Fig. 1**).



1. General plan of the City Center area with the location of trenches 1, 2 and 3 (after McKenzie 1990: map 8).

Trench 1 (Leigh-Ann Bedal)

The first sounding was placed a few meters west of Parr's Trench III, and between the southern curb of the paved street and the terrace of the Portico Wall in front of the Garden Pool (*cf.* **Figs. 1, 2**). In a Ground-Penetrating Radar (GPR) study carried out in 2003, under the auspices of the Petra Garden and Pool Complex Excavations (Grealy 2004), a section of wall was revealed running north from beneath the Portico Wall to the paved street at a depth of 24 to 40cm below the present street level (**Fig. 3**). The location of this buried wall approximately six meters to the west of Peter Parr's Trench III (see **Fig. 7**) made it an excellent candidate to begin the search for remnants of any architecture predating the monumental construction within the Petra Basin. The trench was laid out 3.5m EW and 4.5m NS around the presumed buried wall. After clearing 0.20 meters of topsoil, consisting mainly of loose sand badly disturbed by modern activities along the street, the remnants of a large water canalization channel were revealed measuring 1.25 meters wide. The channel originates from an arched opening built into the lower courses of the Portico Wall that was exposed with the removal of the topsoil. It runs northward from the Portico Wall for 2 meters and then makes a 25° turn towards the northeast and continues for another 2.5 meters until it disappears beneath the curbstones of the street on the north end of the trench. Five limestone slabs measuring 1.25 meters in length and between 0.25 and 0.50 meters in width were preserved *in situ* capping the northern half of the exposed section of the channel. Patches of densely packed stones are preserved on both sides of the channel and are probably the remnants



3. Horizontal amplitude slices #4 and #5 generated by GPR showing the feature originally identified as a "buried wall" at a depth of 0.24-0.40 meters below the surface. The dotted line marks the outline of the canalization system that was discovered in the course of excavation of Trench 1. The high amplitude reflection along the north end is the stone curb that lines the street.

of the foundation trench (**Figs. 4 and 5**).

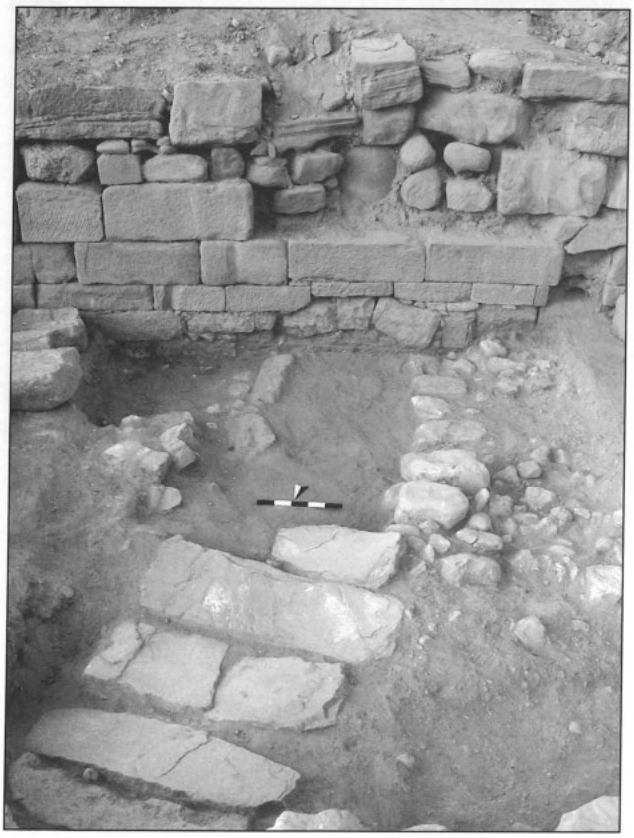
Trench 1 was abandoned when we learned from a local Bedouin named Mufla, who participated in the British excavations between 1958 and 1962, informed us that this canalization system had been excavated formerly by the British. After removing several of the capstones and partially excavating the channel's interior, we covered over the channel and backfilled the trench, preserving the aqueduct canal. Whether it had been previously backfilled or had been left exposed is not clear, as there is no reference made to it in the earlier reports by Parr. It



2. Aerial view of the south slope of Petra, showing the locations of Trenches 1 and 3 and Parr's Trench III along the paved Colonnaded Street (foreground) and in front of the Garden Terrace Complex. The Great Temple Complex is at the right edge of the photograph [photo by Sara Karz Reid, Brown University].



4. View of the canalization system from the top of the Portico Wall with capstones still *in situ* on the north end.



5. View of the canalization system from the street, looking south. The Portico Wall has an arched opening built into its lowest courses to allow the channel to pass through it, transporting water from the southern slopes.

seemed clear now that the "buried wall" detected by the GPR study was in reality the channel's west wall as it projects from beneath the Portico Wall into the space along the street. Because the canalization system dominates the area of Trench 1 and because its construction must have cut away or destroyed any earlier structures, it was decided that further efforts in this location would be ineffectual for the objectives of this field project.

Nevertheless, some of the archaeological evidence recorded during the sounding was interesting. Five coins were found in the topsoil above the channel, without any stratigraphical context. One is a bronze coin of Aretas IV dating to AD 39/40 (Catalogue no. 1) was found in the topsoil above the southernmost capstone. Four other bronze coins were discovered in the fill to the east of the capstones: one is a well preserved issue again of AD 39/40 of Aretas IV (catalogue no. 2), but the others can only be identified as 'Nabataean' (catalogue nos. 3-5). In addition to the coin finds, the bottom half of a moulded terracotta figurine of a seated figure (**Fig. 6**) was found during the excavation of the upper layers of the fill inside the channel near the junction with the Portico Wall. Since the channel was previously excavated, the figurine fragment may have been washed through and from the canalization system (from underneath the Garden Terrace and/or the Great Temple's Lower Temenos) in the intervening decades.

Trench 3

For the reasons mentioned above, it was decided to move our exploratory trench to the east of Parr's Trench III and contiguous with it. This second probe lasted ten days and proved to more successful in reaching pre-100BC levels. Trench 3 was laid out again to the south of the paved street, in a narrow (2.5 meter wide) space between Parr's Trench III and a Late Roman (or Byzantine) wall that divides the space between the Portico Wall and the street. This location was chosen because of its potential of exposing the eastern extension of



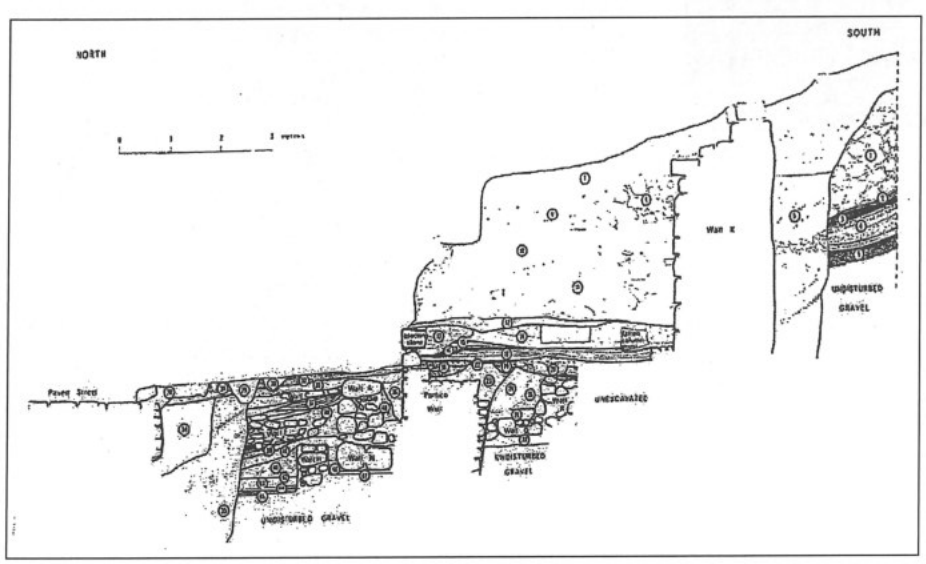
6. Fragment of a seated figurine, terracotta.

Parr's Phases I-VIII and the early structures he attributed to the third and second centuries BC (1970: 352-362, 369-370) (*cf.* **Fig. 7**). In Trench 3, we uncovered the remnants of at least nine occupation strata, four of which (Strata I, II, III, and V) contain structures that predate the construction of the Portico Wall. Due to a constrained time schedule and the difficulty of finding space along the street that is not obscured by structures or the display of architectural elements, a small trench (4.5 x 2.5 meters) was laid out to the south of the street, with Parr's Trench III and a Byzantine period wall (Stratum IX) defining the western and eastern trench lines (**Fig. 8**). After excavating the top levels (Strata IX and VIII), the decision was made to restrict the area of excavation to the northern third of the trench (an area of 1.25 x 2.25 meters) in order to achieve the deepest levels in the space between the limestone wall (ST7) and the large foundation trench. This final sounding exposed Strata VI, V, IV, III, II and I.

Stratum I (Levels 14 and 15): The earliest occupation level, Stratum I, was discovered at the bottom of the smaller sounding, at elevation 890.90 meters, approximately 1.50 meters below the level of the paved street. A section of wall (ST13) rests directly on a natural undisturbed gravel deposit (Lo 54) that lined the wadi bank. The wall, which is composed of a single course of wadi limestone (0.30 meters wide), runs northeast for 0.75 meters and curves sharply to the north where it disappears into the base of the north baulk (**Fig. 9**). A deposit of ash (Lo 53) containing the jawbone and teeth of a sheep/goat was built up against the inside curve of the wall. No clear remnants of a floor were found in association with the wall (ST13). The recovery of a few course pottery sherds and a Greek amphora rim found in the fill (Lo 52) immediately



8. Trench 3 before excavations began. The paved street is in the foreground. Parr's Trench III is visible along the right edge of the photo with the Portico Wall running across the center of the photo and Wall K in the background. The Byzantine wall that marks the east edge of the trench is in the left foreground.



7. Section of Trench III (Parr 1970: fig. 1).



9. Wall ST13 runs northeast-southwest across the gravel deposit at the bottom of Trench 3. To the north of the wall is an ash pit that contained animal bones. Wall ST12 of Stratum II can be seen in the north baulk above the Stratum I wall.

above the wall and gravel deposit may be useful for determining a rough date for the wall. It seems that this Stratum I occupation coincides with Phase I in Parr's adjoining Trench III which is also characterized by a structure built of thin walls of rough limestone and a clay floor, resting directly on undisturbed gravel (Parr 2005: 3).

Stratum II (Levels 12-13): The next occupation layer is at 891.10 meters, approximately 0.20 meters above Stratum I and comprised of a meter long stretch of wall (ST12) that is visible in the north baulk (**Fig. 9**). The wall is of similar construction to the wall in Stratum I, but stands a few rough courses (0.50 meters) in height. A clay floor covered with a lens of black charcoal (Lo 51) ran across the eastern half of the sounding and underneath the wall (**Fig. 10**). This charcoal layer was primarily of burnt wood fragments, in which the grain of the wood was still visible in some of the splinters. Since this charcoal layer was of similar constituency and content, five samples were taken for carbon 14 testing. The test was conducted by Beta Analytic Radiocarbon Dating Laboratory in Miami, Florida, in April of 2005, and yielded a date of 2490 +/- 40B.P., with a calibrated sigma 2 date (95% probability) of 790 to 420BC and a sigma 1 calibrated date (68% probability) of 780 to 520BC. (Our appreciation is expressed to David Swetland of Coconut Grove, Florida for his gift in support of the Carbon 14 Test). Although the result is much earlier than anticipated, there is no reason to doubt the reliability of the test (see the discussion below). But the date yields only the time when the wood was cut, not when it was in use and burned, which may be centuries later (see the following discussion). The fact that the charcoal layer is sandwiched between Greek amphora fragments in Stratum I (Lo. 52) and Stratum III (Lo. 50) supports a late Classical or early Hellenistic date for the charcoal layer, but microscopic comparison of the similar fragments may reveal they should be associated with the same amphora. No precise date can be attached to these finds at this time. A bronze coin (catalogue no. 18) found in the clayey fill (Lo 50) above the charcoal lens was the earliest context for a coin in this trench, and provided the possibility of a *terminum ante quem* for Stratum III. However, it was so badly deteriorated that it disintegrated while cleaning and was unidentifiable. Nevertheless, the indications are that Stratum II represents an occupation in the Late Achaemenid or Early Hellenistic era.



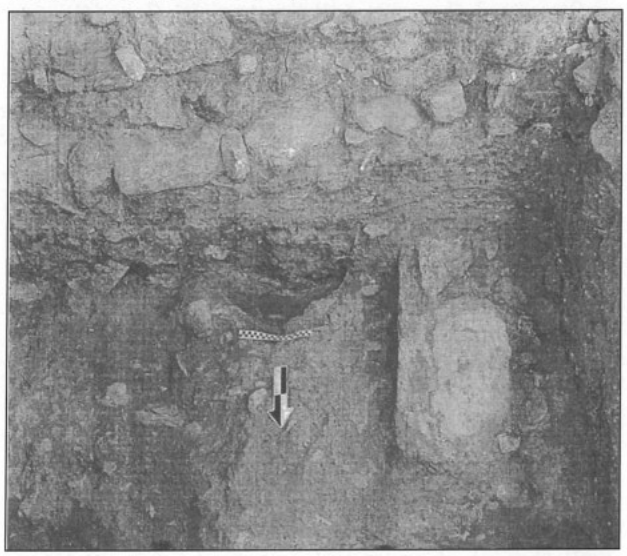
10. In Stratum II, a charcoal deposit covered much of the excavated area of the floor associated with Wall ST12 which is seen protruding form the north baulk in the lower left corner of the photo.

Stratum III (Levels 10-12): The third occupation stratum was found at elevation 891.90 meters. A wall (ST7a) of irregularly coursed wadi limestone packed with small stones and clay is oriented along the same alignment as the wall in Stratum II and forms the southern baulk of the sounding. This wall, which is preserved to a height of 1.0 meter (only 0.50 meter above floor level), is a significantly more substantial structure than those in Strata I and II. The associated floor is comprised of fieldstones embedded in a thick clay surface (Lo. 47) which covers the stone-filled foundation trench (Lo. 49) for Wall ST7a. In the clay deposit (Lo. 50) underlying the foundation trench, and just above the charcoal layer (Lo. 51) of Stratum II, a Greek amphora fragment and a few coarse ware body sherds of probably Hellenistic date were found.

Built up against the north face of the wall is a partition wall or possibly a workbench (ST10), oriented north-south and 0.90 meter in length. This feature is constructed of a core of limestone covered with a coat of mud approximately 0.10 meter thick. Only 0.10 meter of this feature was visible above the associated floor surface (Lo. 46), while its foundation extended down nearly 1.0 meter below the floor surface. Immediately to the east of

ST10 is a small, half-circular *tannūr* or oven (ST11) built up against the wall. The hard-baked clay walls are preserved to a height of 0.34 meter around a shallow pit fill with a thick layer of ash with five animal bones (**Fig. 11**). It is difficult to correlate the Stratum III features with the comparable features in Parr's Trench III, but a careful study of the plans and stratigraphic sections for his Trench III, suggests that Wall ST7a may be equated with Parr's Wall N (**Fig. 7**). Another possibility is that the workbench (ST10) is the eastern terminus of Parr's Wall H or of another contemporary construction (**Fig. 12**).

Stratum IV (Levels 6-9): This stratum is characterized by a series of fill layers that occupy the space between the constructions phases in Stratum III and Stratum V. A hard-packed clayey soil, probably incorporating clay packing sloughed off from the wall surfaces, covers the floor in the excavated space (Lo. 45). A thin lens of gray ashy soil covers the top of the fill, the *tannūr* and the workbench, and runs up against the north face of Wall ST7 at 892.00m. Above this ashy lens is a 0.75m deposit, consisting of alternating compressed layers of clay surfaces, course sandy rubble, and ash lenses (**Fig. 13**), interspersed with several small pits (Lo. 42-45). The inconsistency in their thickness and coverage made it difficult to define and trace each layer in such a narrow excavation area. According to Parr's original report, Phase IV of his Trench III is "represented by a series of thin gray occupation levels alternating with harder layers and floor surfaces" (Parr 1970: 357). The character of the deposits suggests that the space was occupied rel-



11. Stratum III features during the process of excavation. The *tannūr* (center) and partition wall or workbench (ST10) (at right) are built up against the north face of Wall ST7a. The layers of gray ash and burnt soil inside the *tannūr* are clearly visible. In this photo, the floor stones are not yet articulated.



12. A view of Trench 3 after the removal of the floor (Lo. 26) of Stratum III, showing at left some of the rubble fill of the foundation trench for Wall ST7a (at back). The thick clay facing of the partition wall/workbench (ST10) is clearly defined as it was traced below floor level. The function of the pile of round stones against the north face of ST10 was not determined unless they were part of the foundation fill.



13. The east baulk showing the alternating layers of clay surfaces, course sandy rubble, and gray ash lenses of Stratum IV, above the stone rubble foundation trench fill of Stratum III along the north face of Wall ST7. At the top of the photo are dressed blocks in the lower course of the Byzantine Wall (Stratum IX).

atively consistently throughout the period between the Stratum III and IV construction phases. A preliminary study of the pottery sherds from this deposit reveals a transition from a few body sherds of course ware (Lo. 44) to a mixture of course ware with a few fragments of finer ware and a single body sherd of early Nabataean fine painted ware (Schmid, phase 1) and a large Hellenistic amphora handle without a stamp (Lo. 42). A polished hemisphere shell, possibly a game piece, was found in the lower deposit at 892.10 (Lo. 43). A single bronze Nabataean coin (see catalogue no.17) was discovered near the top of the deposit (Lo. 42) at 893.35, sealed by the clay floor bedding of Stratum V, and appears to be of the first century BC, and provides a *terminus post quem* for the Stratum V construction.

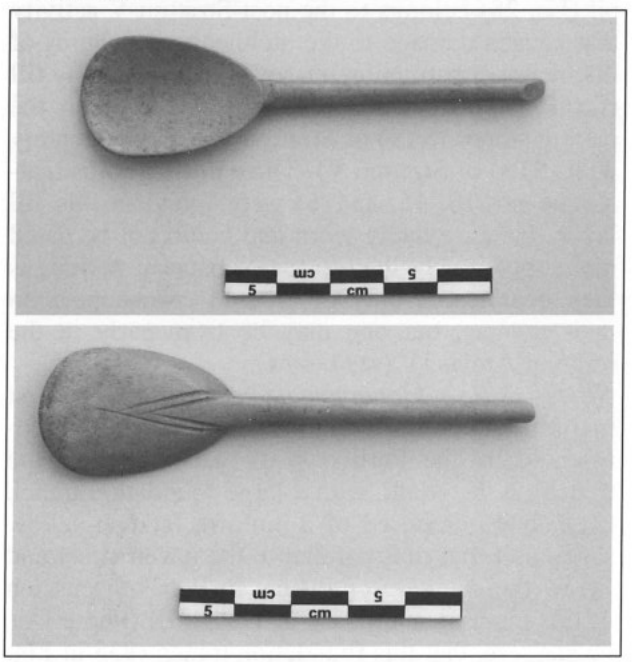
Stratum V (Levels 5-6): The last of the pre-monumental occupation levels in Trench 3 is located at 892.75 meters and is characterized by a limestone wall (ST7b), 0.75 meter wide, of similar construction to those in earlier strata, except that stones are larger and more regularly laid. The wall is oriented slightly northeast-southwest and is built directly on top of the wall in Stratum III (Wall ST7a). A finely worked bone spoon (Inv. #17) with a double "V" incised on the back and the end of the handle broken off (**Fig. 16a and b**) was discovered wedged against Wall ST7b just above floor level. The polished surface has an unusual green discoloration. To the north of WallST7b, remnants of a badly disturbed stone pavement (ST9) are laid out on a layer of course sandy fill (Lo. 29 and 30) and yellow clay sub-floor (Lo. 41) (**Figs. 14 and 15**). A small bronze ornament (Inv #18) was found in the yellow clay sub-floor (Lo. 41).



14. A rudimentary wall (ST8) runs across the top of the broken paving stones of Floor ST9 to the north of Wall St7b (at left).



15. A layer of yellow clay (center) formed a subsurface for the paved floor and floor bedding of Stratum V north of Wall ST7b. At right is the unexcavated foundation trench (Stratum VII).



16. (a) Bone spoon; (b) Back of spoon with double "V" incised into the base of the broken handle.

In his summary of Phase V in Trench III, Parr (2004: 2-3) describes "...walls...made of only irregularly coursed limestone boulders taken from the nearby wadi and packed with smaller stones and clay, they are sturdy, being between 0.85m and 1.0m in thickness, and their rough construction was originally concealed by a surface rendering of clay. Although now largely broken or destroyed, the contemporary stone paving was originally regular and carefully laid." It is reasonable to conclude that our Stratum V features and those of Parr's Phase V in the adjoining Trench III are contemporaneous. The coins found in the associated surfaces of the levels associated with Parr's Phase V in his Trench

III were of the early Nabataean anonymous Athena/Nike type (Parr 2004: 3), now dated between 129/8 and 104BC, co-terminus with the earliest Hasmonean issues (Kushnir-Stein and Gitler 1992-1993: 18-19; *cf.* Bowsher 1990: 226), and several decades earlier than previously assumed (Meshorer 1975: 9-12; Schmitt-Korte 1990: 125-26). This agrees with the Nabataean pottery found associated with Parr's Phase V, which includes one sherd of the simple linear style of the beginning stages of Nabataean painted ware, dating to the late second and early first century BC (Schmid 1995: 640).

Stratum VI (Level 4-5): A single row of limestone rocks and small roughly hewn blocks (ST8) run east-west across the top of the Stratum V floor (**Fig. 15**). This feature along with a small ash-filled pit (Lo. 28) belongs to the post-Stratum V activity that caused damage to the architectural features of that major construction phase. A layer of rubbly fill (Lo. 27) approximately 0.17 meter deep covers the paving stones (ST9) of Stratum V and rudimentary wall (ST8) of Stratum VI. Three bronze coins (catalogue nos.10, 15, and16) were found in this fill layer. Two are badly worn and could not be dated more specifically than to the Nabataean period, as they bear traces only of crossed cornucopiae on their reverse, but one may be from early in the reign of Aretas IV (see below).

Stratum VII — Monumental Construction: The first major urban construction phase in Trench 3 is represented by the Portico Wall, which borders the trench on the south, with a large foundation trench beneath it composed of a uniform reddish-yellow sandy soil that runs parallel to the paved street and below the southern curb line. In Parr's discussion of this monumental phase in Trench III (Phase IX), he suggests that this foundation trench (#35 in **Fig. 7**) is associated with a monumental terrace wall built in support of a terrace fronting the Portico Wall. He equates the unidentified terrace wall (buried under the paved street) with Wall K, which, along with the Portico Wall, forms a double retaining system for the monumental garden terrace to the south that overlooks the excavation area (Parr 1970: 364, fig. 1). In Trench 3, this foundation trench occupies the northern half of Trench 3 and was left unexcavated due to limited time for removing such a large quantity of earth that offered little chance of exposing any earlier construction phases. A bronze coin (catalogue no. 14) found in the Stratum VI fill was sealed underneath the overflow from the trench's fill that spread across the top of Lo. 27 and could have helped to indicate a possible *terminus post quem* for the Stratum VII monumental construction, but it is extremely worn and was unidentifiable. The foundation trench associated with the Portico Wall, located between Wall St7 and the Portico Wall, was also left unexcavated, but it is visible in the section of the baulk marking the division between Parr's Trench III and our current Trench 3. The trench fill is also composed of a uniform reddish-yellow sandy soil.

Stratum VIII (Levels 2-3): Above the top surface of the Stratum VII foundation trench and extending southward across the top of Wall ST7b is a sequence of compressed surfaces, and occupational debris fills (Lo. 21-25) that were badly disturbed by pits and construction activities that made it very difficult to excavate with any accuracy (comparable to Parr's Phases X-XI). The best that can be said is that these layers represent the period of occupation between the construction of the monumental architectural features of Stratum VII and the final construction phase that is represented in Trench 3. A bronze Nabataean coin (catalogue no. 11) with crossed cornicopiae was found in a disturbed area near the north face of the Portico Wall.

Stratum IX – Byzantine Wall and pavement: Immediately below topsoil, two small patches of floor paving (ST2 and ST6) composed of irregularly shaped field stones were preserved in the eastern half of the trench and continuing underneath the Byzantine Wall that was apparently constructed as part of a larger building program initiated to divide the area flanking the south side of the street into small spaces, possibly shops (*cf.* Fiema 1998; Kanelloupoulos 2001). A fragmented Greek graffito was discovered on the west face of the wall's bottom course, but it is not clear if is in reuse in the rather haphazardly constructed "Byzantine" wall or if it was inscribed after the wall was constructed (see the following epigraphic addendum). The precise date for the wall and the laying of the pavement then remains to be determined. Associated with the pavement are two cylindrical sandstone installations (ST3: dia. 0.23, h. 0.35; ST4: dia. 0.15, h. 0.40), each pierced by a 0.10 meter square socket (**Fig. 17**). One of these socket stones was previously propped on its side against the Portico Wall, demonstrating that they are not in their original location.

Epigraphic Addendum (David F. Graf)

The only inscription found during the HPP 2004 season was this fragmented and not very important Greek graffito that was etched into one of the stones of the wall constructed between the Portico Wall and the street described above (**Fig. 18**). The reading is clear

Mnēestḥē *L*[....] Remember L[....]



17. Stratum IX pavement and socketed stones.



18. Greek Graffito on Byzantine Wall at east edge of Trench 3.

The name of the individual is missing, except for the initial letter — the tail of the *lambda* is just barely visible. The temptation would be to assign the script of the graffito to the "square alphabet" (on the basis of the square *theta* and *sigma*) known at Gerasa in the first and second centuries AD (Welles 1938: 358-360), but square forms reappear in late antiquity and the "sagging" *mu* in the graffito is normally a later form. More importantly, there are examples from Petra of the 'square' script being used in the fourth century AD (see Sartre 1993: no. 81) and perhaps even later (Merkelbach and Stauber 2002: 445, no. 22/71/01). The square *theta* and *sigma* also have parallels in epigrams from Bostra, one of indeterminable late antique date (Merkelbach and Stauber 2002: 424, no. 22/42/11) and the other with a precise date of 410/11AD (Merkelback and Stauber 2002: 425, no. 22/42/98). [My appreciation is expressed to G. W. Bowersock at Princeton for bringing these references to my attention]. This evidence demonstrates just how dangerous it is to attempt to date inscriptions solely by any presumed paleographical development without any contextual indicators (*cf.* McLean 2002: 43-45). It is then difficult to decide whether the graffito was inscribed earlier on a block and reused in the construction of the wall or inscribed after the wall was constructed sometime in late antiquity. This ambiguity precludes this brief text from being considered as a *terminus post quem* for the date of the wall.

II. The Temenos Gate

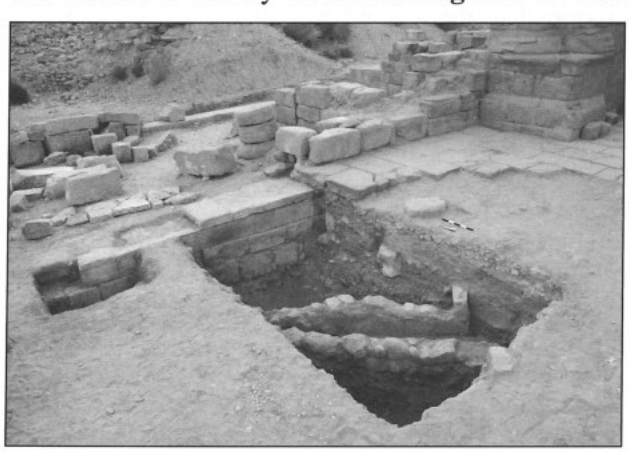
The second area we selected for soundings was near the Temenos Gate, the terminus of the paved street and the entrance to the sacred precincts or forecourt of the temple of Qaṣr al-Bint. The date of all these constructions — Colonnaded Street, Temenos Gate and Pavement, and Qaṣr al-Bint — remains at issue (see Kader 1996: 108-114). Parr dated the Paved Street to sometime after AD 76 (1970: 370) and probably shortly after the Roman annexation in AD 106 (*cf.* Kirkbride 1960: 121), but subsequent proposals suggested an earlier date in the Nabataean era, either in the reign of Rabbel II (by Starcky 1966: 947-48), or even much earlier, to just after 9BC (McKenzie 1990: 36). In similar fashion, the date of the Temenos Gate was initially assigned to the second half of the second century AD (Parr 1960: 131) or even later "as a civic embellishment of the prosperous Antonine and Severan days" (Wright 1961: 126). At any rate, a subsequent date to the pavement is required for the Gate, since some of the pavement was removed when the foundation for the Temenos Gate was constructed in the existing sacred complex, and replaced with smaller slabs (Parr 1960: 131-132; Wright 1967-68: 20). In addition, there are also indications that the present gate may not be the original one, since earlier architectural fragments are reused in the present gate, and some relief panels were found nearby that suggest an earlier monumental gateway once existed (Parr 1967-68: 17; *cf.* Schmid 2003c: 382-383), with a proposed date per-

haps in the early Augustan era (Wright 1967-68: 25). Such a date would correspond with the latest proposal for the date of Qaṣr al-Bint, sometime either in the reign of Malichus I (59BC - 30BC) or Obodas II (30-9BC), and perhaps preceded by an even earlier Hellenistic structure (Zayadine 1991: 292, 2003: 201). If this observation is correct, it is possible that the current paved road leading from the markets in the east through the monumental temenos gateway and to Qaṣr al-Bint in the west was the location of a former *via sacra* that was constructed over an even earlier Nabataean settlement located along the southern banks of Wādī Mūsā adjacent to and perhaps beneath this route. These problems needed clarification and provided the raison d'être for a sounding in the vicinity of the Temenos Gate.

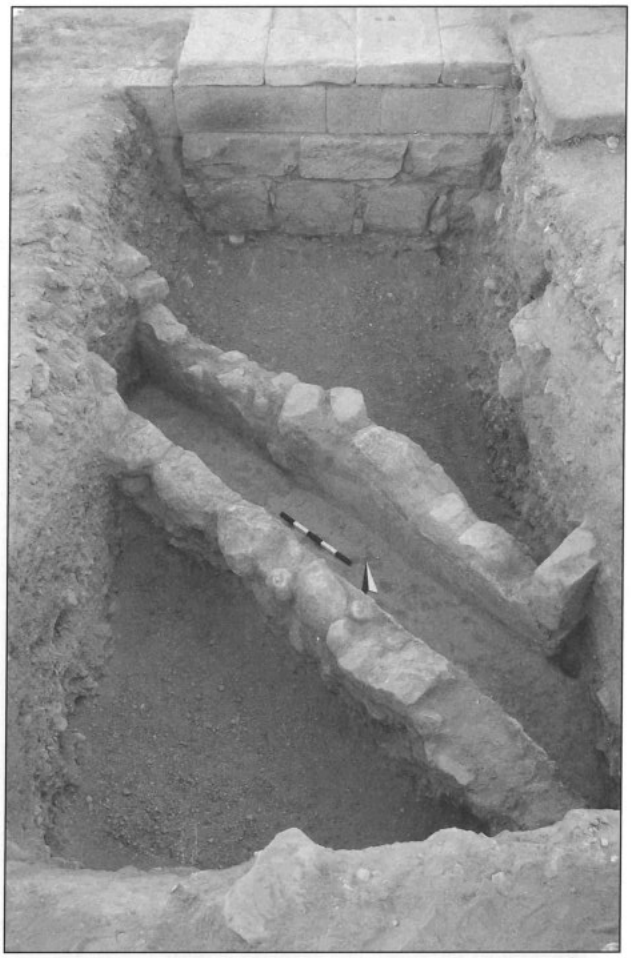
Trench 2 (Stephan G. Schmid)

Trench 2 was located just a few meters to the northwest side of the Temenos Gate (see **Fig. 19** for the general location). The main trench was 5m by 2.5m, with an adjacent small sounding 1m square added just to the northwest for interpretative reasons.

The lower layers of this sounding were composed of yellowish gravel containing small and large stones, indicating that the ancient riverbed used to be somewhat larger than the actual one at this location. The narrower riverbed is probably the result of a retaining wall that was built already in Nabataean times as we shall see below. The earliest built structure in trench 2 is a quite substantial water channel that runs in a SE-NW-direction (**Fig. 20**) directly into the gravel mentioned above but without any visible traces of any foundation. Immediately towards the SE-corner of trench 2 the channel turns into a cistern. The very beginning of this cistern is clearly visible on **Figure 20**. The



19. Trench 2 NW of the Temenos Gate, general view (Schmid).



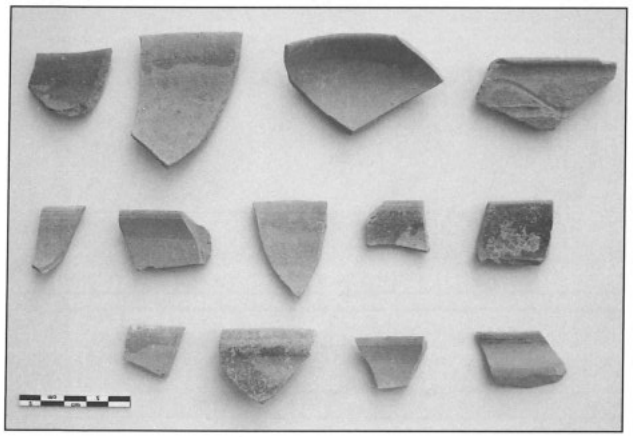
20. Trench 2, early Nabataean water channel and later wall (Schmid).

channel is built of not very well hewn limestone boulders, most of them probably collected directly from the ancient riverbed. The outer surface of the channel walls is not aligned and offers a rather careless picture; the inner surface was carefully covered with fine hydraulic mortar. The dimensions of the canalization are 42-45cm for the inner width, approximately 110cm for the outer width and ca. 50cm for the preserved height. The channel initially was covered by huge slabs measuring 70 x 115cm, one of which was actually found *in situ*. In the hope of finding some pottery fragments mixed with the hydraulic mortar as a chronological indicator for the date of the construction of the canalization, a few mortar samples were collected and crushed. In contrast to the Nabataean hydraulic mortar of the first century AD from elsewhere, this mortar did not contain any remarkable pottery fragments and was much finer in composition. The other chronological indications for the channel are the following: the channel is blocked and interrupted by a huge wall built in an EW-direction at the northern part of trench 2 (*cf.* below and **Figs. 20,**

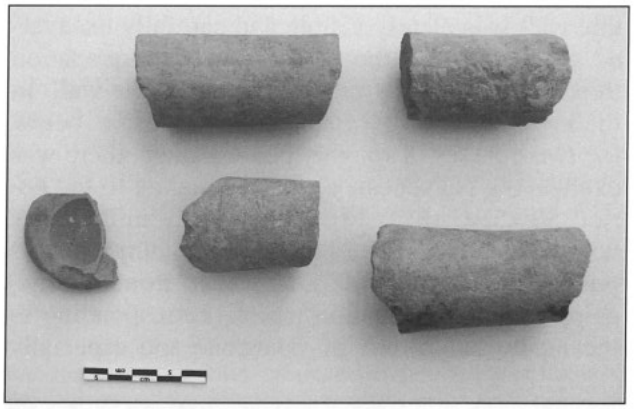
21). The relationship between the earlier channel and the later wall is clearly visible on **Figure 21**. Since we have a rather precise date for the construction of the later wall of the third quarter of the first century BC, the channel must be earlier. The other chronological indication is offered by the fill in the channel which contained a surprisingly large amount of homogeneous Nabataean pottery of the later second and the first half of the first century BC (phase 1 according to Schmid 2000) as illustrated on **Figure 22**. A further confirmation of this general date for the fill is provided by the several fragments in it of Greek/Hellenistic amphora handles and a base of an Eastern Sigillata A open form (**Fig. 23**). The closest parallel for this construction technique and the dimensions of the aqueduct is the initial water installation discovered in the Siq of Petra, and dated by U. Bellwald to the early first century BC (*cf.* Bellwald *et al.* 2003: 35-40). Despite the fact that we are missing any precise chronological indication for the construction of the channel found in trench 2, the associated evidence indicated above makes it very likely that it was constructed no later than the late second or beginning of the first century BC. The main interest of this discovery goes far behind the simple finding of a water channel. It is clear that the population of Petra was large and sophisticated enough to construct such an extensive water management installation. This implies that there was a certain degree of urbanization already existing at Petra by 100BC (see Schmid 2001A, 2001B, 2001C).



21. Trench 2, early Nabataean water channel cut off by later wall (Schmid).



22. Trench 2, pottery of the late second / early first century BC from channel fill (Schmid).



23. Trench 2, Eastern Sigillata A and Hellenistic amphora handles from channel fill (Schmid).

As mentioned above, the next clearly detectable construction in trench 2 is a substantial wall, built from sandstone ashlars, that runs EW in the northern part of the trench (**Figs. 19-21, 24**). There is a good chance that this wall corresponds to a wall, running in the same direction, that P. Parr discovered in 1958/1959, just to the NE of the gate (*cf.* Parr 1960: 132 pl. 22b). The foundation of this wall consists of two layers of massive sandstone ashlars, dug into the riverbed mentioned above. On top of these foundation layers, there is one course of well-dressed sandstone blocks with the characteristic Nabataean 45 degree dressing, covered by a row of surface slabs. The foundation trench of



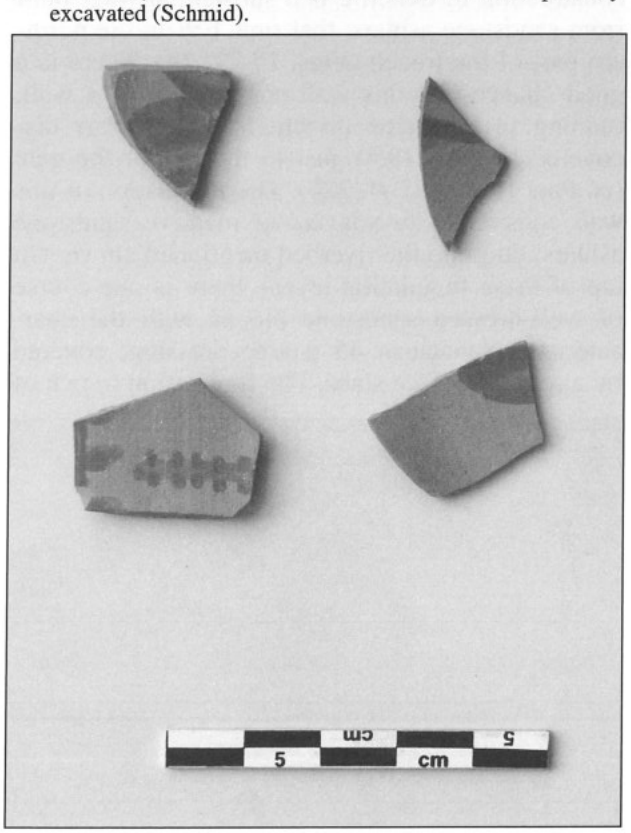
24. Trench 2, Nabataean wall with stylobat and half column base on top (Schmid).

this wall was clearly visible and carefully excavated (**Fig. 25**) and the finds from the foundation trench allow a rather precise dating for the wall. In the lower level of the foundation trench, i.e. below the two courses of roughly hewn ashlars, there was exclusively Nabataean pottery belonging to the period 50-25BC (**Fig. 26**) and probably rather early within this span (for a detailed chronology of this pottery see Schmid 2000). However, from the lower part of the foundation trench, corresponding to the nicely cut course of sandstone and especially the covering slab, there were Nabataean pottery fragments (**Fig. 27**) of the early first century AD (phases 2c and 3a according to Schmid 2000). As a preliminary hypothesis, we would suggest that the initial wall was built in the third quarter of the first century BC and then underwent a rebuilding of its upper part during the reign of Aretas IV. As we shall see below, these chronological indications are of the uppermost importance for considering the complex problem of the chronology of the Temenos Gate and the paved street.

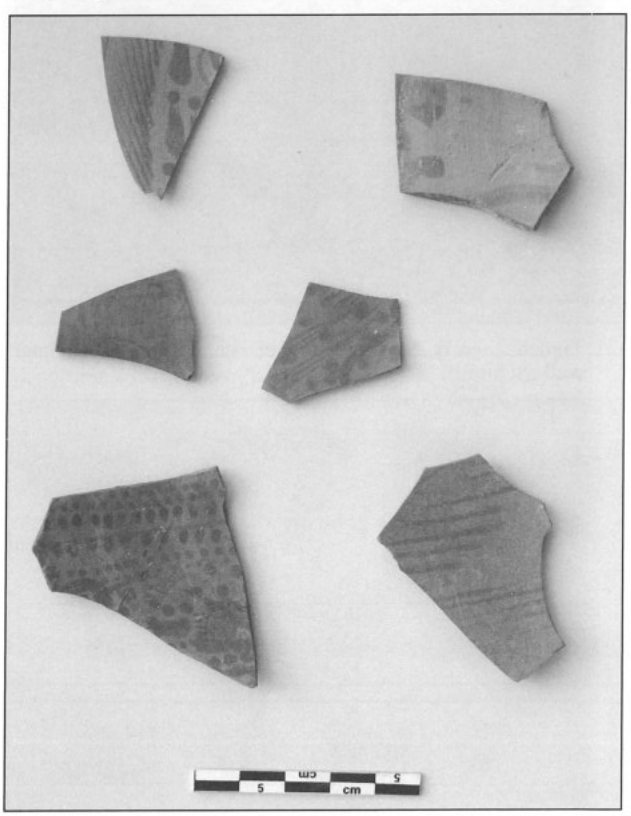
On top of the covering slabs of the Nabataean wall stands a half-column base related to a kind of bay. As can be seen on **Figure 28**, the actual visible pavement of this part of the temenos is clearly later than the half column and, therefore, the wall beneath it as well. Since the covering slabs and the Nabataean wall beneath them continues for several meters in a western direction (and probably towards the west in Parr's trench of 1958/1959), we can assume that a colonnade was flanking the temenos at an earlier stage. When the pavement was constructed, a specially curved slab was set in place to help provide contour for the half column base and then overbuilt by massive stones (**Fig. 28**). In order to find out more about the chronology of the pavement, the two slabs bordering trench 2



25. Trench 2, foundation trench of Nabataean wall partially excavated (Schmid).



26. Trench 2, pottery of the third quarter of the first century BC from the lower part of the foundation trench for the Nabataean wall (Schmid).



27. Trench 2, pottery of the early first century AD from the upper part of the foundation trench for the Nabataean wall (Schmid).

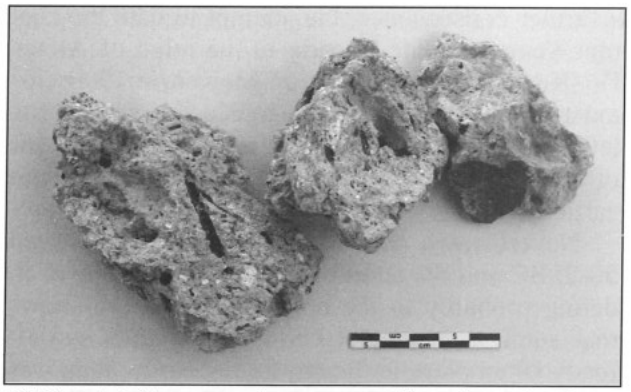
were lifted and the area beneath them was carefully excavated (**Fig. 29**). As is clearly visible on **Figures 28 and 29**, the massive floor slabs are laid into a layer of ashy, whitish-gray mortar that was spread on a layer of smaller broken slabs. A close-up of some of these mortar samples (**Fig. 30**) shows the amount of ash and small fragments of charcoal mixed in the plaster. This mortar and the technique of abetting floor slabs into mortar are not



28. Trench 2, stylobat with half column base and later added pavement slab (Schmid).



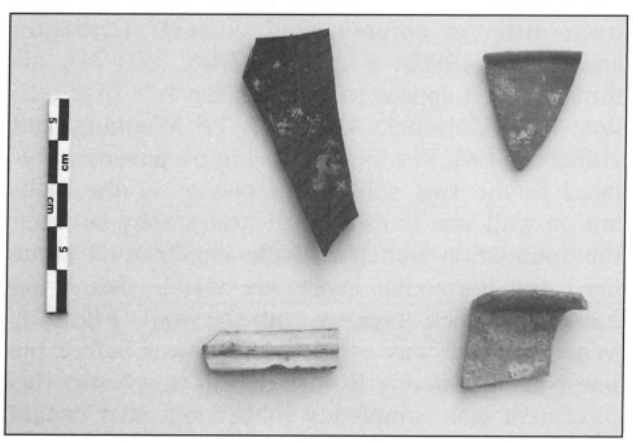
29. Trench 2, small sounding beneath pavement slab (Schmid).



30. Trench 2, fragments of mortar containing charcoal and pottery from the pavement slabs bedding (Schmid).

common in the Nabataean period, at least not until the very end of the Nabataean kingdom. This observation is confirmed by the pottery that was extracted from the mortar mentioned above (**Fig. 31**). Some characteristic rim sherds as well as some painted sherds characteristic of the last quarter of the first century AD (phase 3b according to Schmid 2000) were found beneath the slabs.

These results confirm a *terminus post quem* within the last quarter of the first century AD for the construction of the paved street, at least in this western part of the civic center. This observation is of the highest significance for the chronology of the main monuments of this area, particularly for the controversy concerning the date of the paved street and Temenos Gate. Parr's original proposal was for a date after AD 76 (1970: 364-370), but subsequently it was suggested it was constructed perhaps even earlier, with a *terminus post quem* as early as 6BC in the reign of Aretas IV (McKenzie 1990: 35-36; Kader 1996: 136-144). With the results from our 2004 season, we can definitely date the pavement east of the Temenos Gate to sometime after the last quarter of the first century AD, placing at issue any proposal for an earlier date. As



31. Trench 2, pottery of the last quarter of the first century AD from the bedding of the pavement slabs (Schmid).

a further consequence, the attempt to date the current Temenos Gate to early in the reign of Aretas IV (Kader 1996: 136-144; *cf.* McKenzie 1990: 36) must also be removed from consideration. What is left unresolved is whether there was a predecessor of the present Gate in the first century BC or even earlier.

Nevertheless, the massive wall built between 50-25BC and the additional colonnade on top of it, dating probably to the reign of Aretas IV, shows that some monumental building activities had already taken place in the city center earlier than was previously thought. Since, evidently, this wall continues on the other side of the Temenos Gate (Parr 1960: 132), we may propose that this is one of the earlier monumental arrangements of the city center. The half column base mentioned above belongs to a type that can be found at Petra for instance at the temple of the Winged Lions, the Urn Tomb and the theatre, and that is virtually identical with the column bases from Machaerus (on the bases from Petra see McKenzie 1990: pl. 50e-g; on Machaerus and other Herodian luxury buildings *cf.* Japp 2000; Netzer 1996, 1999; Lichtenberger 1999; Roller 1998; Nielsen 1994: 181-208; for historical aspects related to Herod and his family see Kokkinos 1998). Hence, we can hypothesize a colonnade, several dozen meters long, maybe doubled by an analogous structure on the other side of the — not paved — street and dating to the decades between 30-10BC or slightly later. It is possible that this sandstone structure was once decorated with reliefs. However, the group of limestone blocks of sculpture found in the southeast vestibule should only be considered with caution as part of such a construction. Not only are they from various unstratified contexts (Wright 1967-68: 21), but they also do not constitute a homogeneous group — there are differences in style, composition and technique, and they appear to be from different chronological contexts (Lyttleton and Blagg 1990a: 97, and 1990b: 270-74), although some appear to be from the late first century BC (McKenzie 1988: 87; *cf.* Wenning and Hübner 2004). For the time being no pavement related to the two subsequent phases of the Nabataean wall was found. In the stratigraphy between the foundation trench and the canalization some hard and horizontal layers are visible that could have functioned together with the wall (**Fig. 32**). Whether there was ever any pavement before the late Nabataean/early Roman period or whether this pavement was completely robbed out later cannot yet be decided by the evidence of our rather small trench.



32. Trench 2, E-stratigraphy (Schmid).

Since all of the aforementioned scholars agree on the fact that the Temenos Gate is slightly later or at the best contemporary to the paved street, the gate in its actual version too has to be dated after the last quarter of the first century AD and the construction of the street. However, since there are clear indications for earlier monumental buildings in this part of the city, an earlier gate cannot be excluded. Although four bronze coins were found in Trench 2, all of them were discovered in the fill above the aqueduct and offer no contribution to the chronological development of either the wall or the aqueduct. These include a Nabataean coin found in the surface levels of the trench (no. 9), and three coins from Phoenician mints found in the mixed fill just below the surface (nos. 6-8). The latter all date to the third century BC and attest to earlier activity in the civic complex before the construction of the aqueduct and wall. For further discussion of these coins, see below. In conclusion, despite the small surface excavated and the limited time available, some important results regarding the evolution of the city center of the Nabataean capital were achieved. It is possible that with one or two additional trenches in the Temenos Gate area the complex chronology and history related to the monumentalization of the city center can be gained in the near future.

III. The Numismatic Evidence (Steven E. Sidebotham)

During the 2004 season of the Hellenistic Petra Project, 18 coins were recovered from all three soundings, both of those adjacent to the paved street (trenches 1 and 3) and the other just to the northwest of the *temenos* gateway (trench 2) leading to Qaṣr al-Bint. All the coins are *aes* (copper alloy) issues; no silver or gold was recovered and no hoards were found. The coins were chemically cleaned using a solution of hydrochloric acid di-

luted with water. Coins were weighed on an Acculab Pocket Pro C/60 precision electronic balance with a gradation of 0.01 grams. Almost all of the attributable or identifiable coins are, not surprisingly, Nabataean. The six coins illustrated from the catalogue represent the best preserved of the eighteen coins. Of these, catalogue nos. 1-2 (from trench 1) are common Nabataean issues of Aretas IV (Schmitt-Korte 1990: 122), but in exceptionally good condition. Their excellent state of preservation suggests deposition soon after minting in AD 39/40. In contrast, catalogue no. 10 is clearly Nabataean, but much of the coin is missing and was struck off center, making attribution difficult. But either the letter ḥ or *-t* appears between the crossed cornucopiae. If the former is the case, it is probably of Aretas IV with a date of 6-4BC (Meshorer 1975: nos. 71-72), but if the latter, of Rabbel II, AD 101/102 (Meshorer 1975: no. 163; Schmitt-Korte 1990: 124, no. 86). Graf suggests the former is the case, since the largeness of the letter indicates it stands alone, and especially since only one bust is visible on the obverse.

Of greater importance are the three issues from Phoenician mints from Trench 2 (catalogue nos. 6-8). One of these is extremely worn with a trident/anchor counter stamp on the reverse that appears to be of Ptolemy Philadelphus II (catalogue no. 8 from trench 2). The centering hole found on Ptolemaic Alexandrian bronze issues is absent and the die positions are atypical of such coins, suggesting it is probably from one of the Ptolemaic mints elsewhere, and we propose either Tyre or Sidon. The counter stamp was placed on the reverse after the coin had been in circulation for an extended period of time. The trident/anchor device typically appears on foreign coins circulating in Seleucid territory between 175-162BC (Houghton 2004: 56-57; *cf.* Mørkholm 1984: 108; for general discussion see Le Rider 1995). The trident countermark, however, also appears on Ptolemaic coins of the third century BC, including early issues (between 285 and 265BC) of Ptolemy II Philadelphus (Svoronos 1904: 59, no. 81; *cf.* Davesne 1987). The extensive wear of this coin suggests that it had been in circulation for a long time prior to its loss. Thus, while it may be an early issue of Ptolemy II, it was not deposited at Petra until perhaps a century or more after striking. There are ample parallels for lengthy circulation of coins and Ptolemaic era coins have even appeared in second century AD contexts at Cyrene. In contrast, the two coins from the Phoenician city of Aradus (catalogue nos. 6-7 from trench 2) are both excellent examples of the autonomous coinage of the north Phoenician island (Rey-Coquais 1974: 157; *cf.* Hill 1910: xiv-xv; Seyriq 1951: 215-216, 1964: 34); their preservation, though not as fine as those of catalogue nos. 1-2, suggests deposition not too long after minting. One of the issues (catalogue no. 6) is undated, and dates proposed for this issue range from 245-243BC, just before the dated issues begin in 243/2BC (Duyrat 2004: 227-232), to just a little later, between 240 and 237BC (Hill 1910: 13); the other Aradus issue (catalogue no. 7) has a specific date of 238/7BC (Hill 1910: 13). For the possible political and economic significance of their appearance at Petra, see the discussion below.

The remainder of the specimens in the catalogue can be either designated as only generally "Nabataean" or are completely unidentifiable; the latter are, in all likelihood, Nabataean as well. One coin disintegrated into small particles upon cleaning (catalogue no 18 from trench 3). A number of the coins (catalogue nos. 3, 5, 9, 11-13, 15-16) preserve only enough traces of crossed cornucopiae on the reverse to be identified as "Nabataean". Several Nabataean rulers used this device including Syllaeus, Aretas IV, Malichus II and Rabbel II. The reverse of catalogue no. 17 may preserve an eagle, a Nike figure or, less likely, the palm of a hand. These devices were used by Aretas II, Aretas III, Obodas II, Malichus I, Obodas III and Syllaeus, so the coin should be given a first century BC date.

The catalogue is presented by trench and the following abbreviations are used

AE	*aes* (copper alloy)
g.	grams
mm.	millimeters
r.	right
l.	left
Obv.	obverse
Rv.	reverse
Inv.	inventory

The catalogue is arranged as follows: 1)* indicates that the coin is illustrated; 2) Inv. no., 3) level/locus no.; 4) date excavated [day-month-year]; 5) AE followed by size in mm.; 6) weight in g.; 7) Obv. [if preserved]; 8) Rv. [if preserved]; 9) date and place of minting [if ascertainable]; 10) Obv. and Rv. die positions [if extant]; 11) published parallels [where possible].

Trench 1 (five coins)

*1) Inv. no. 5; level 2/locus 15; 1-8-04; AE 16; 2.37g.; Obv. bust of Aretas IV right; Rv. two cornucopiae crossed with inscription *ḥrtt* (= Aretas); 39/40 AD, Nabataean;↑; *cf.* similar Meshorer 1975: 105, no. 115; Schmitt-Korte 1990: 114, nos. 37-41 (**Fig. 33a, b**).



33. Coin No. 1, obverse (a); reverse (b).

*2) Inv. no. 6; level 2/locus 15; 1-8-04; AE 18; 4.81g.; Obv. jugate busts of Aretas IV and Shuqailat r.; Rv. two cornucopiae crossed with legends ḥrtt/šqy/lt (= Aretas/Shuqai/lat); 39/40AD, Nabataean; ↑; *cf.* similar Meshorer 1975: 105, no. 112; Schmitt-Korte 1990: 122-123, nos. 77-81 (**Fig. 34a, b**).

3) Inv. no. 4; level 2/locus 15; 1-8-04; AE 13; 1.53g.; very worn; Obv. bust r.?; Rv. two cornucopiae crossed, inscription lost; unattributable Nabataean.

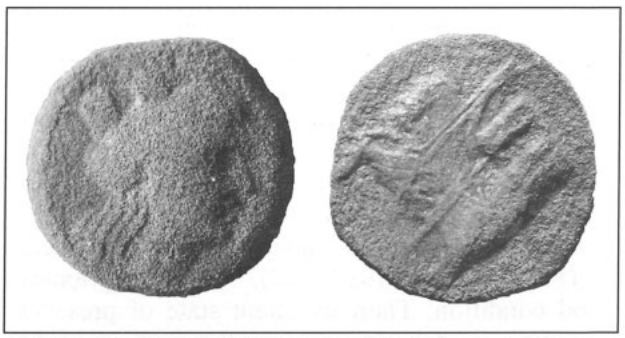
4) Inv. no. 3; level 2/locus 15; 1-8-04; AE 15; 1.51g.; very worn; unidentifiable.

5) Inv. no. 1; level 1/locus 11; 31-7-04; AE 11.5; 0.72g.; very worn; Obv. [bust r., lost]; Rv. two cornucopiae crossed; unattributable Nabataean.

Trench 2 (four coins)

*6) Inv. no. 20; level 2/locus 36; 8-8-04; AE 16; 2.97g.; Obv. head of Tyche with turreted crown and flowing hair; Rv. prow of galley armed with a ram l., with figurehead of Athena fighting l. with shield and spear; above horizontal club, and perhaps slight traces of A (R)to the r.; either ca. 246-243BC or 240-237BC (see discussion above), from Aradus; ↑; Hill 1910: 13, nos. 88-90, Plate III.3-4, and Duyrat 2005: nos. 1357-1373, Plate 18 (**Fig. 35a, b**).

*7) Inv. no. 8; level 4/locus 7; 22-8-04; AE 16; 2.77g.; Obv. head of Tyche r., wearing turreted crown; perhaps faint AR (for Aradus) right [border of dots]; Rv. prow of galley armed with ram l., with figurehead of Athena fighting l. with shield and spear; below in Phoenician letters "year 22;(= št 22)"; 238/237BC, from Aradus; ↑; Hill 1910: 13, nos. 92, Plate III.6 and Duyrat 2005: 1418-1422, Plate 19, no. 1419 (**Fig. 36a, b**).



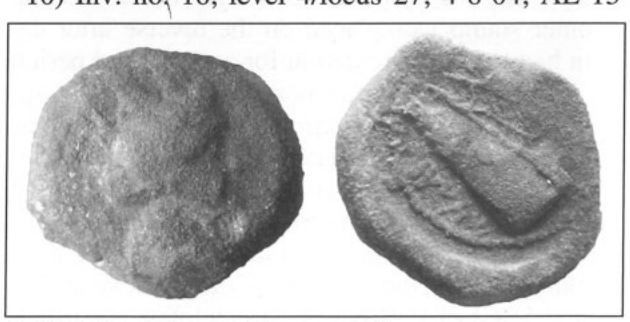
35. Coin No. 6, obverse (a); reverse (b).

*8) Inv. no. 13; level 5/locus 32; 4-8-04; AE 26; 13.03g.; Obv. bust r.; Rv. eagle stg. l., head to r.; no extant legend, trident counter stamp (see discussion above); unattributable Ptolemaic, likely Ptolemaic II Philadelphus from a Phoenician mint (Tyre or Sidon); ↑ (**Fig. 37a, b**).

9) Inv. no. 7; level 3/locus 5; 2-8-04; AE 16.5; 2.66g.; Obv. indistinct; Rv. two cornucopiae crossed; unattributable Nabataean.

Trench 3 (nine coins)

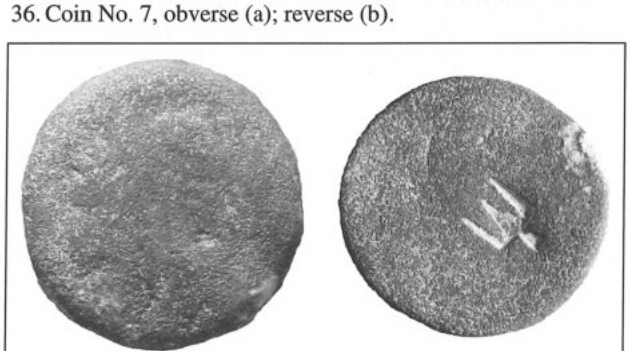
*10) Inv. no. 16; level 4/locus 27; 4-8-04; AE 13



36. Coin No. 7, obverse (a); reverse (b).



34. Coin No. 2, obverse (a); reverse (b).



37. Coin No. 8, obverse (a); reverse (b).

(1/3-1/4 of coin missing); 1.43g.; Obv. bust r.; Rv. two cornucopiae crossed, between them, either the letter *ḥ* or *-t* (struck off-center); Nabataean; either Aretas IV between 6-4BC (Meshorer 1975: nos. 71-72), or Rabbel II, AD 101/102 (Meshorer 1975: no. 163; Schmitt-Korte 1990: 124, no. 86); see the discussion above; ↑ (**Fig. 38a, b**).

11) Inv. no. 9; level 2/ locus 21; 3-8-04; AE 15; 2.17 g.; Nabataean; Obv. bust r. (indistinct); Rv. two cornucopiae crossed; unattributable Nabataean.
12) Inv. no. 11; no level recorded/locus w. balk trim; 3-8-04; AE 14; 1.53g.; very worn; Obv. indistinct; Rv. faint, two cornucopiae crossed; unattributable Nabataean.
13) Inv. no. 12; no level recorded/locus "W balk N"; 4-8-04; AE 13; 0.97g.; very worn; Obv. (bust r., lost); Rv. two cornucopiae crossed; unattributable Nabatean.
14) Inv. no. 10; level 2/locus 20; 3-8-04; AE 10; 1.08g.; extremely worn, unidentifiable.
15) Inv. no. 14; level 4/locus 27; 4-8-04; AE 14; 0.97g.; very worn; Obv. bust r. (very indistinct); Rv. two cornucopiae crossed (struck off-center); unattributable Nabataean.
16) Inv. no. 15; level 4/locus 27; 4-8-04; AE 14; 1.57g.; very worn; Obv. bust r. (very indistinct); Rv. two cornucopiae crossed; unattributable Nabataean.
17) Inv. no. 19; level 6/locus 42; 7-8-04; AE 14; 0.97g. (weight of two fragments); Obv. Indistinct; Rv. possibly stg. eagle or Nike fig., less likely palm of hand; unattributable Nabataean, but probably of the first century BC (see the discussion above).
18) Inv. no. 24; level 12/locus 50; 11-8-04; 0.21g.; unidentifiable fragments.

Conclusions

The primary objectives of the HPP were to expose traces of the pre-100BC settlement and, if possible, discover stratified deposits of this earlier period. In this regard, both of our selected areas for soundings in the ancient civic center of Petra were successful in exposing remains of the pre-100BC Hellenistic period and contributed to our understanding of early Nabataean society. Parr's observation that beneath the Colonnaded Street there were "well stratified deposits" offering an "undisturbed sequence of structures" proved to be accurate. The goal of our trench 3 was to link up with Parr's Trench III from his excavations in 1958-64 that provided stratified evidence of a pre-100BC settlement, perhaps as early as the Achaemenid Persian period, but certainly the early Hellenistic era. The finds in our adjacent Trench 3 revealed similar humble dwellings, constructed with very rough limestone, verifying Parr's reported discoveries, although a precise chronology for these structures has yet to be determined. In similar fashion, our trench 2 revealed architectural constructions of the first century BC, including an impressive canalization system that dates probably to the early first century BC, and a colonnaded wall built sometime in the third or fourth quarter of the first century BC. Some fragments of black-glazed Attic ware and Greek amphorae were found in both trenches, but the crucial evidence for an even earlier occupation was the carbon 14 test of the burnt wood in trench 3 and the Phoenician coins in trench 2. Both of these finds deserve further comment, as it appears that they push the chronological settlement at Petra back to the earliest stages of recorded Nabataean history.

1. The Radiocarbon Test: In our Trench 3, the earliest occupational level was covered with a black ash of burnt wood, scattered over the whole area of the trench.

Of the five samples of this burnt layer retrieved from Stratum II, four were submitted to Beta Analytic, Inc. (in Miami Florida) for high precision radiocarbon testing. The sample tested comprised 2.8 grams of clean charcoal, provided from the 130.9 grams of bulk sediment/gravel submitted to the laboratory. Of this amount, 5.0mg of charcoal was processed, after complete pretreatments, for 14C AMS (Accelerator Mass Spectrometry) dating. No anthropogenic contamination was detected in the tested sample — such as modern preservatives or fungicides — during the pretreatments. As indicated above, the result was a ^{14}C AMS date of 2490 +/- 40 BP, with a calibrated sigma 2 date (95% probability) of 790 to 420BC and a sigma 1 calibrated date (68% probability) of 780 to 520BC, using the INTAL 98 calibration curve (Stuiver *et al.* 1998; Talma *et al.* 1993). The calibration graph indicates a long plateau in the



38. Coin No. 10, obverse (a); reverse (b).

curve of three and half centuries in time for this BP date, a rather lengthy two-sigma range, implying a probability for the real age across the entire plateau (i.e. not more probable in one region of the range or another). However, since the burnt layer was sealed between two strata where Greek amphora were present, a date later in the curve seems more likely. (My thanks to Daren Hood of Beta Analytic Inc. and Dr. Massimiliano Galeazzi of the Department of Physics at the University of Miami for helpful advice in interpreting the results of the ^{14}C test). It should be emphasized that the ^{14}C date only indicates when the wood was cut, not when it was used and later burnt, and timber is known to have a long life of use in the Near East. For example, according to recent ^{14}C AMS dating of the cypress beans in the al-Aqṣa Mosque at Jerusalem, constructed in AD 705-715, there were beams that yielded dates of the ninth and first centuries BC as well as beams dating to the Byzantine period (Lipschitz *et al.* 1997: 1047-1050). The early date of the late Iron Age-Hellenistic period should then not be dismissed, but regarded as illustrative and suggestive for the dating of Strata II. Beta Analytic is the world's largest professional radiocarbon dating service, a regular participant in the International Radiocarbon Inter-comparison Studies, and is always within the core region of the mean consensus dates of the study materials (see Scott *et al.* 2004; *cf.* Boareto *et al.* 2003).

Although of only relative importance, this indication of a date for our Stratum I-III in Trench 3 for the Achaemenid Persian period and/or early Hellenistic era should not be found surprising. Stratum IV seems to clearly mark the transition to the first century BC, so that the prior stratified finds suggest a pre-100BC date. It should also be noted that the Persian period is known from nearby Tall Ṭuwaylān in the modern village of Wādī Mūsā, where excavations uncovered a cuneiform tablet dated to the "accession year of Darius king of the lands" (Dalley 1984; *cf.* Dalley in Bennett and Bienkowski 1995: 67-68). This Darius must be identified with one of the three Achaemenid Persian kings of that name, indicating a date of either 521BC (Darius I), 423BC (Darius II), or 335 (Darius III). The unsettled dynastic succession in the accession year of Darius I suggests the king in this tablet should be identified with one of the latter two kings. This tablet records a transaction drawn up in the Ḥarrān for a local Edomite, suggesting that this area of Edom was inhabited in the Persian period. This agrees with the proposed date of the excavated settlement at Ṭuwaylān, which is generally placed between the early seventh century BC to "possibly as late as the forth century BC (Bennett and Bienkowski 1995: 103). Our finds in the Petra basin would support this latter date. The hypothetical end of Edom associated with the Babylonian invasions of the region in the first half of the sixth century (*cf.* Bartlett 1989: 161) must then be revised, given these signs of continuity into the late Persian period.

2. The Ptolemaic and Phoenician Coinage: Of primary importance also are the early Hellenistic coins from Trench 2, even if they were not found in any stratigraphical context. Our catalogue no. 8 is badly worn, but has all of the signs – size, weight, shape, and discernible marks – of early Ptolemaic bronze coinage from the Phoenician mints. The closest parallels appear to be issues of Ptolemy II Philadelphus from either Tyre (Svoronos 1904: 60, no. 384, pl. xi, 27: obv. Ptolemy II, rev. eagle with open wings; before 266BC) or Sidon (p. 112, no. 761, pl. xxvii, 15-17: obv. Head of Zeus, rev. eagle with closed wings; after 271BC). A similar trident countermark as that which appears on our coin was used by the Seleucids, but the middle prong on the trident of our coin is distinctively different in shape, and may be of Levantine origin as well: such trident countermarks appear on coins of Ptolemy II Philadelphus (285-246BC)dating from 285, 282, 278, and 276BC (Svoronos 1904: 59, no. 81 note), so our coin may equally date to the early reign of Ptolemy II Philadelphus [my appreciation to Christian Augé for these suggestions and the references]. The trident was particularly associated with Poseidon and maritime commerce, so common in Phoenicia; Svoronos associated it with Berytus (1904: no. 381 β), but it is also found on early Ptolemaic issues from Cyprus (Davesne 1987: 147-148). However, since our coin is so badly worn, it must have been deposited at Petra at a much later time, probably sometime in the second century BC.

In contrast, the two Aradus coins found in unstratified topsoil and fill in Trench 2 are in excellent condition and must have been in circulation only for a short period. Nor are these the first Aradus coins found at Petra. During the British Excavations in the 1955/56, an "autonomous" Aradus coin of the "second century BC" from a room (R.N. 2) was found at the eastern end of the street (Kirkbride 1960: 119). From Parr's excavations in 1958-64, another 15 Aradus coins (ca. 240-187BC) were found, five from Trench III (Bowsher 1990: 223), and another nine from elsewhere along the Colonnaded Street (Parr 2005: 5). In addition, one Carthaginian issue (ca. 310-280BC) and seven of the twelve Ptolemaic coins (ca. 300-221BC) found were also from the Street. According to J.M.C.

Bowsher (personal communication), seven of the Aradus issues are from 240-37BC and four others from 226-187BC. If one adds to this number another possible Aradus issue found in Trench I near Katute, the Aradus issues comprise almost half of the Hellenistic coins found in the British excavations that range in date from the early third to the first centuries BC. Most of these coins were single finds, and not all from stratified deposits, but the fact that three coins of Ptolemy III (246-221) also came from Trench III (Bowsher 1990: 223) is interesting, given the clear Hellenistic stratigraphy of both Parr's Trench III and our adjacent Trench 3. (Our appreciation is expressed to both Peter Parr and J. M.C. Bowsher for graciously allowing us to cite this important information here, and we look forward to their forthcoming full publication of the earlier excavations).

This unusual concentration of third century BC Aradus coins at Petra deserves some explanation, especially since such finds are virtually absent elsewhere in Transjordan. But there is a similar contribution of third century BC Aradus issues at 'Nabataean' sites along the caravan route between Petra and Avdat. Of the dozen Aradus coins found in Israel, all six of the issues of 240-237BC (Hill 1910: 13, nos. 88-92) are found concentrated in the area between Avdat and the Wādī 'Araba. Two (and possibly three) were found in the environs of the recent excavations of the military camp at Avdat (IAA nos. 79906 and 80134; *cf.* 80134 'possible'), another two at Mezad Mishor or Khirbat al-Biyar (IAA nos. 92549 and 92550), and one from Mo'a = Moje 'Awad (IAA no. 95069), both of which lie some 45-50km e/se of Avdat on the road to Petra. There also is a Hellenistic context for these finds. The ruins at Mezad Mishor, just east of Mezad Rahel, are part of a complex of Nabataean Hellenistic ruins of the third century BC — including the Nabataean forts at nearby 'Ayn Eraga and 'Ayn Rahel (Korjenkov and Erickson-Ginni 2003: 40-44) — located on the early branch of the Incense Road between Petra and Gaza that bypassed the Ramon Crater (Erickson-Ginni 2002: 113 n. 4). At Mo'a, 10km to the south, an important road station on an alternative route of the Incense Road between Petra and Gaza via Avdat (Meshel and Tsafrir 1974 and 1975), the earliest finds included coins of Ptolemy III (246-221BC), Hellenistic oil lamps and juglets of the third and second centuries BC, plus some Rhodian stamped handles (Cohen 1982: 243; 1993: 1139). At Avdat, the Hellenistic finds included some Rhodian stamped jar handles (ca. 220-180BC) from crevices in the acropolis (Negev 1986: 8-9) and some coins dating from the late forth century to the second century BC (mostly unpublished: *cf.* Negev 1974: 23; 1977: 546-547; A. Kindler in Negev 1997: 192). The rest of the known Aradus issues from Israel are all from the second or first centuries BC, with the exception of one from Galilee of the late third century BC (information supplied courtesy of the Israel Antiquities Authority).

Our appreciation to Peter Fabien (Avdat), Yigal Yisraeli (Mezad Mishor), and Rudolph Cohen and Yizhar Hirschfeld (Mo'a) for permission to publish this information from these sites, and the Israel Antiquities Authority for granting my request for this information. A special word of thanks should be expressed also to Donald T. Ariel (Head, Coin Department, Israel Antiquity Authority) and Haim Gitler (Curator of Numismatics, Israel Museum) in Jerusalem for facilitating my inquiries.

Such apparent patterns can be deceptive, and are vulnerable to subsequent discoveries, which force revision of any hypothesis, but the overwhelming impression of the available evidence is that there must be some explanation for this convergence of the coins geographically and chronologically. What is striking about the Aradus issues is that they come from the north Phoenician island, presumably allied with the Seleucid kingdom, some distance north of the Eleutheros River, which is normally associated as the northernmost boundary of Ptolemaic territory (Seyrig 1951: 215; Rey-Coqais 1974: 157; Bagnall 1976: 11-13, 183; Will 1979: 259). During the "Second Syrian War" (260-253BC), Aradus' purportedly remained firmly aligned with the Seleucid regime, and its loyalty was rewarded in 259BC by permission to issue autonomous coinage, marking its 'liberation' from Ptolemaic rule, as essentially a "Seleucid mint" (Hill 1910: xv; *cf.* Seyrig 1964: 34-43; Rey-Coquais 1974: 153-154; Davesne 1999: 128; Duyrat 2005: 226-229). During the "Third Syrian War" (246-241BC), it began issuing its first dated bronze coinage in 243, allegedly again for its loyalty to the Seleucid regime (Strabo 16.2.14 [154] with Hill 1910: xv; *cf.* Grainger 1990: 146-147). It is assumed that the undated "autonomous issues were issued either just prior (Duyrat 2004: 227-232) or just after this date, between 240 and 237 BC (Hill 1910: 13). Nevertheless, during Ptolemy III's campaign into northern Syria during the conflict, Seleucia in Pieria, the major port of Antioch, was captured and held till 219BC, and Antioch and much of the Seleucid heartland was under Ptolemaic control (Burstein 1985: nos. 98-99; with Bagnall 1976: 13; Jähne 1974: 513-515; Grainger 1991: 84; Hölbl 2001: 48). This Ptolemaic occupation of Syr-

ia is supported by epigraphic and numismatic evidence. At Ras Ibn Hani, on the cape of the North Syrian coast about 10km north of Latakia, an inscription suggests the presence of a garrison of Ptolemaic mercenaries (Rey-Coquais 1978: 324-325), and coins from the area include issues of Ptolemy II and III with coins of Aradus beginning in year 22, i.e. 238/7BC (Augé 2000: 67-68). This is the same date for the Aradus coins at Petra from our excavations and the date of the Aradus coins in the Negev, suggesting commercial exchanges between the Ptolemies and the Phoenician island after the end of the conflict in 241BC. It can be suspected that much of the northern Phoenician coast, including Aradus, came temporarily under Ptolemaic suzerainty/sway at the time (Davesne 1999: 127). Aradus was far too important strategically and commercially to be ignored by Ptolemy III. Whatever the case, the finds of Aradus coins at Petra and the Negev suggest the flourishing of the trade route between the Nabataean capital and the Mediterranean port at Gaza in the late third century BC (see Graf 2006), presumably in transporting the "frankincense and myrrh and other spices" as Hieronymus of Cardia already reported almost a century earlier (in Diodorus 19.94.5).

These results from the HPP in 2004 suggest that further exploration of the Petra civic center should be productive in exposing even further evidence of the early Hellenistic settlement. The rather shabby and modest domestic buildings exposed in our trench 3 confirm the existence of a settlement in the early Hellenistic era, just as Parr's earlier discoveries along the Colonnaded Street had already suggested. The possibility of more important and larger structures of the period can be assumed. The unsophisticated dwellings we discovered in trench 3 are built directly on the wadi bed and were probably only peripheral to a larger settlement. The coinage evidence from our trench 2 and elsewhere in the civic center suggests the vitality of the commercial relations the settlement was engaged in during the third century BC. More substantial buildings surely must have existed on the hills above to the south of the wadi where major constructions later took place, and scattered early Hellenistic finds have been made. It may be assumed these structures were largely destroyed, their remains scraped and cleared away into dumps, where most of the Hellenistic period finds have occurred. In their place, the impressive later Nabataean and Roman city was erected. What has largely prohibited the discovery of this pre-existing Hellenistic settlement has been the widely held view that the Nabataeans were essentially nomadic before 100BC. As a consequence, the fascination for scholars has been the standing ruins and monuments at Petra ignoring any possibility of a prior occupational history of the settlement. The traces we have discovered of this earlier culture suggest a re-evaluation of this prevalent thesis is needed. Based on the results of our first season, we plan to continue our pursuit of "Hellenistic Petra".

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Bibliography

Augé, C.
2000 Les monnaies de Ras Ibn Hani, près de Lattaquié, et les guerres de Syrie. *Revue numismatique:* 59-69.

Augé, C. *et al.*
2002 New Excavations in the Qasr al-Bint Area at Petra. *ADAJ* 46: 309-313.

Bartlett, J.R.
1989 *Edom and the Edomites.* Sheffield: JSOT supplementary Series 77.

Bedal, L.A.
2002 The Petra Garden Feasibility Study. *ADAJ* 46: 381-390.

Bellwald, U. *et al.*
2003 *The Petra Siq. Nabataean Hydrology Uncovered.* Amman: Petra National Trust.

Bennett, C.-M. and Bienkowski, P.
1995 *Excavations at Tawilan in Southern Jordan.* Oxford.

Boaretto, E. *et al.*
2003 How reliable are radiocarbon laboratories? A report on the Fourth International Radiocarbon Inter-

comparison (FIRI), 1998-2001. *Antiquity* 77/295: 146-54.

Bosworth, A.B.
2002 *Alexander's Legacy: Warfare & Propaganda under the Successors.* Oxford.

Bowsher, J.M.C.
1990 Early Nabataean Coinage. *Aram* 2: 221-228.

Burstein, S.M. (ed.)
1985 *The Hellenistic Age from the Battle of Ipsos to the death of Kleopatra* VII. Cambridge: Cambridge University Press.

Cohen, R.
1982 New Light on the Date of the Petra-Gaza Road. *BA* 45/4: 240-247.
1993 Negev: The Persian to Byzantine Periods Pp. 1133-1145 in E. Stern *et al.* (eds.), *The New Encyclopedia of Archaeological Excavations in the Holy Land, vol. 3.* Jerusalem: Israel Exploration Society.

Dalley, S.
1984 The Cuneiform Text from Tell Tawilan. *Levant* 21: 19-22.

Davesne, A.
1987 Une contremarque au trident sur vertaines monnaies de Ptolémée II Philadelphe. *Bulletin de la Société française de numismatique 42:* 145-149.
1999 La deuxième guerre de Syrie (ca. 261-255 avant J.-C.) et les témoignages numismatiques. Pp.123-134 in M. Amandry and S. Hurter (eds.), *Travaux de numismatique grecque offerts à Georges le Rider. London:* Spink.

Duyrat, F.
2002 Le ateliers monétaires de Phénicie du Nord à l'époque hellénistique. Pp. 21-69 in C. Augé and F. Duyrat (eds.), *Les monnayages Syriens: que apport por l'histoire au Proche-Orient hellénistique et romain. BAH* 162. Beyrouth: Institut Francaise d'Archéologie du Proche-Orient.
2005 *Arados hellénistique: Étude historique et monétaire.* Bibliothèque Archéologique et Historique, Tome 173. Beyrouth: Institut Français du Proche-Orient.

Erickson-Ginni, T.
2002 Nabataean or Roman? Reconsidering the Date of the Camp at Avdat in Light of Recent Excavations. Pp. 113-130 in P. Freeman et al. (eds.), *Limes XVIII. Proceedings of the XVIIIth International Congress of Roman Frontier Studies held in Amman,* Jordan (September 2000). Oxford: BAR International Series 1084.

Fiema, Z.T.
1998 The Roman Street of the Petra Project, 1997: A Preliminary Report. *ADAJ* 42: 399-424.

Graf, D.F.
1990 Origin of the Nabataeans. *ARAM* 2: 45-95.
1996 The Roman East from the Chinese Perspective. (with the assistance of Edward L. Dreyer). *Palmyra and the Silk Road = Les Annales Archéologiques Arabes Syriennes* 42: 199-216 [English] 169-180 [Arabic].
2003 North Arabian Epigraphy and Demography. Pp. 319-340 in M. Sartre (ed.), *La Syrie hellénistique. Lyon: Topoi: Orient-Occident, Supplement 4.*
2005 The Nabataeans in the Early Hellenistic Period: The Testimony of Posidippus of Pella. *Topoi* (forthcoming).
2006 Aradus and Petra in the Third Century BC. Mélanges en l'honneur de Jean-Paul Rey-Coqais = *Mélanges de Université Saint-Joseph* (forthcoming).

Grainger, J.D.
1990 *The Cities of Seleukid Syria.* Oxford: Clarendon Press.
1991 *Hellenistic Phoenicia.* Oxford: Clarendon Press.

Grealy, M.
2004 *Report on the Ground-Penetrating Radar Data: Petra South Street.* (unpublished report in Leigh-Ann Bedal's possession).

Hackl, U., Jenni, H. and Schneider, C.
2003 *Quellen zur Geschichte der Nabatäe.* Göttingen: Universitätsverlag Freiburg Schweiz.

Heinen, H.
1984 The Syro-Egyptian Wars and the new kingdoms of Asia Minor. Pp. 412-45 in F. Walbank, A. Austin, M. Frederiksen and R. Ogilvie (eds.), *Cambridge Ancient History*^{2} *VII/1.* Cambridge University Press.

Hill, G.F.
1910 *Catalogue of the Greek Coins of Phoenici.* London: Trustees of the British Museum.

Hölbl, G.
2001 *A History of the Ptolemaic Empire.* London/New York. Routledge.

Horsfield, G. and Conway, A.
1930 Historical and Topographical Notes on Edom: With an Account of the First Excavations at Petra. *Geographical Journal 86/5:* 369-390.
1938 Sela-Petra, the Rock, of Edom and Nabatene I-II. *QDAP* 7: 1-42.
1939 Sela -Petra, the Rock, of Edom and Nabatene III. The Excavations. *QDAP* 8: 87-115.
Sela -Petra, the Rock, of Edom and Nabatene IV: The Finds. *QDAP* 9: 105-104.

Houghton, A.
1999 The Early Seleucid Mint of Laodicea ad Mare (c. 300-246 BC). Pp. 169-184 in M. Amandry and S. Hunter (eds.), *Travaux de numismatique grecque offerts à Georges le Rider.* London: Spink.
2004 Seleucid Coinage and Monetary Policy of the 2nd Century B.C.: Reflections on the Monetization of the Seleucid Economy. *Topoi: Orient-Occident,* Supplement 6: 49-79.

Jähne, A.
1974 Die Syrische Frage, Seleukeia in Pierienund die Ptolemäer. *Klio* 56: 501-19.

Japp, S.
2000 *Die Baupolitik Herodes' des Grossen. Die Bedeutung der Architektur für die Herrschaftslegitimation eines römischen Klientelkönigs.* Rahden: Leidorf.

Joukowsky, M.
1998 *Petra Great Temple Volume I: Brown University Excavations 1993-1997.* East Providence, Rhode Island: E. A. Johnson.

Kader, I.
1996 *Propylon und Bogentor. Untersuchungen zum Tetrapylon von Latakia und anderen frühkaiserzeitlichen Bogenmonumentten in Nahen Osten.* Damszener Forschungen, vol. 7. Main am Rhein: Philip von Zabern.

Kanellopoulos, C.
The Architecture of the Streets and Shops in Petra. *BASOR* 324: 9-22.
2002 The Monumental Entrance to the Upper Market and the Trajanic Inscription at Petra, The Architectural Context. *ADAJ* 46: 295-308.

Khairy, N.I.
1990 *The 1981 Petra Excavations, Vol. 1.* Wiesbaden: Harrassowitz.

Kirkbride, D.
A Short Account of the Excavations at Petra in 1955-56. *ADAJ* 4-5: 117-122.

Kokkinos, N.
1998 *The Herodian Dynasty: Origins, Role in Society and Eclipse.* Sheffield: Sheffield Academic Press.

Korjenkov, A.M. and Erickson-Ginni, T.
2003 The Seismic Origin of the Destruction of the Nabataean Forts at Ein Erga and Ein Rahel, Arava Valley, Israel. *AA* 2. Halband: 39-50.

Kushnir-Stein, A. and Gitler, H.
1992/3 Numismatic Evidence from Tel Beer-Sheva and the Beginning of Nabataean Coinage. *Israel Numismatic Journal 12:* 13-20.

Le Rider, G.
1995 La politique monétaire des séleucides en Coelé Syrie et in Phénicie après 200: Réflextions sur les monnaies d'argent Séleucides à l'aigle. *Bulletin de correspondance hellénique 119*: 391-404.

Lichtenberger, A.
1999 *Die Baupolitik Herodes des Großen.* Wiesbaden: Harrassowitz.

Lindner, M.
1989 *Petra und das Königreich der Nabatäer.* Müchen/Bad Windsheim: Delp.

Liphschitz, N. *et al.*
1997 Comparative Dating Methods: Botanical Identification and 14C Dating of Carved Panels and Beams from the Al-Aqsa Mosque in Jerusalem. *Journal of Archaeological Science* 24: 1045-50.

Lyttleton, M.B. and Blagg, T.F.C.
1990a Sculpture in Nabataean Petra, and the Question of Roman Influence. Pp. 91-107 in M. Henig (ed.), *Architecture and Architectural Sculpture in the Roman Empire.* Oxford: University Committee for Archaeology Monograph No. 29.
1990b Sculpture from the temenos of Qasr el-Bint at Petra. *Aram* 2: 267-286.

Markoe, G. (ed.)
2003 *Petra Rediscovered: Lost City of the Nabataeans.* New York: Abrams.

McKenzie, J.S.
1988 The Development of Nabataean Sculpture at Petra and Khirbet et-Tannur. *PEQ* 120: 81-107.
1990 *The Architecture of Petra.* Oxford. British Academy Monographs in Archaeology No. 1.

McLean, B.H.
2002 *Introduction to Greek Epigraphy of the Hellenistic and Roman Periods from Alexander the Great down to the Reign of Constantine* (323 B.C.-A.D. 337). Ann Arbor: University of Michigan.

Merkelbach, R. and Stauber, J.
2002 *Steinepigramme aus dem griechischen Osten, Band 4, Die Südküste Kleinasiens, Syrien und Palaestina.* München/Leipzig: Saur.

Meshel, Z. and Tsafrir, Y.
1974 The Nabataean road from Avdat to Sha'ar Ramon. *Palestine Exploration Journal* 106: 103-118.
1975 The Nabataean road from Avdat to Sha'ar Ramon. *Palestine Exploration Journal* 107: 3-21.

Meshorer, Y.
1975 *Nabataean Coins. QEDEM 3: Monographs of the Institute of Archaeology.* Jerusalem: Hebrew University.

Milik, J.T.
2003 Inscription nabatéenne archaïque. P. 275 in J. Dentzer-Feydy et al. (eds.), *Hauran II: Les installations de Sī'* 8, vol. I. Bibliothèque Archéologique et Historique, Tome 164. Beyrouth-IFAPO.

Mørkholm, O.
1984 The Monetary System in the Seleucid Empire after 187 B.C. Pp. 93-109 in W. Heckel and R. Sullivan (eds.), *Ancient Coins of the Greco-Roman World: The Nickle Numismatic Papers.* Waterloo: Wilfred Laurier University Press.

Negev, A.
1974 *The Nabataean Potter's Workshop at Oboda.* Rei Cretariae Romanae Favtorum, Acta Supplementa Vol. 1. Bonn: Habelt.
1977 The Nabataeans and Provincia Arabia. Pp. 520-686 in H. Temporini and W. Haase (eds.), *Aufstieg und Niedergang der römischen Welt II/8.* Berlin/New York: De Gruyter.
1986 The Late Hellenistic and Early Roman Pottery of Nabataean Oboda: Final Report. *Qedem* 22. Jerusalem: Hebrew University.
1997 *The Architecture of Oboda: Final Report. Qedem* 36. Jerusalem: Hebrew University.

Netzer, E.
1996 The Palaces Built by Herod. A Research Update. Pp. 27-54 in K. Fittschen and G. Foerster (eds.), *Judaea and the Greco-Roman World in the Time of Herod in the Light of Archaeological Evidence.* Abhandlungen der Akademie der Wissenschaften in Göttingen. Philologisch-Historische Klasse. Dritte Folge 215. Göttingen: Vandenhoeck & Ruprecht.
1999 *Die Paläste der Hasmonäer und Herodes des Grossen.* Antike Welt, special issue. Mainz: von Zabern.

Parr, P.J.
1960 Excavations at Petra,1958-59. *PEQ* 92: 124-135.
1963 The Capital of the Nabataeans. *Scientific American* 209/4: 94-102.
1965/6 The Date of Qasr Bint Far'un at Petra. *Jaarbericht Ex Oriente* Lux 19: 550-557.
1967/8 Recent Discoveries in the Sanctuary of the Qasr Bint

Faru'n at Petra: I. Account of the Recent Excavations. *ADAJ* 12-13: 5-19.

1970 A Sequence of Pottery from Petra. Pp. 348-361 in *Near Eastern Archaeology in the Twentieth Century: Essays in Honor of Nelson Glueck.* Garden City, New York: Doubleday.

1989 Vierzig Jahre Ausgrabungen in Petra (1929 bis 1969). Pp. 183-196 in Lindner 1989.

1990 Sixty Years of Excavation in Petra: A Critical Assessment, *Aram* 2 (1990): 7-23.
The Architecture of Petra: A Review Article. *PEQ* 128: 63-70.

2003 The Origins and Emergence of the Nabataeans. Pp. 27-35 in G. Markoe (ed.), Petra *Rediscovered: Lost City of the Nabataeans.*

2005 The Urban Development of Petra. *The World of the Herods and the Nabataeans.* Stuttgart: Franz Steiner.

Rey-Coquais, J.-P.
Arados et sa pérée aux époques grecque romaine et Byzantine. BAH 97. Paris: Geuthner.

1978 Inscription grecque découverte à Ras Ibn Hani: stele de mercenaries Lagides sur la cote Syrienne. *Syria* 55: 313-325.

Roller, D.W.
1998 *The Building Program of Herod the Great.* Berkeley: University of California Press.

Sartre, M.
1993 *Inscriptions Grecques et Latines de la Syrie,* Tome XXI = Inscriptions de la Jordanie Tome IV. Paris: Geuthner.

Schmid, S.G.
Nabataean Fine Ware from Petra. *SHAJ 5*: 63-47.

2000 The Feinkeramik der Nabatäer. Typologie, Chronologie und kulturhistorische Hintergründe. Pp. 1-198 in *Petra ez Zantur II/1. Ergebnisse der Schweizerisch-Liechtensteinischen Ausgrabungen* (= Terra archaeological IV). Mainz: von Zabern.

2001a The "Hellenisation" of the Nabataeans: A New Approach. *SHAJ* 7: 407-19.

2001b The Impact of Pottery Production on the Sedentarization of the Nabataeans. Pp. 427-436 in J.R. Brandt and L. Karlsson (ed.), *From Huts to Houses: Transformations of Ancient Societies.* Stockholm: Acta Instituti Romani Regni Sueciae Series 4, LVI. (= ActaAArtHist 13).

2001c The Nabataeans: Travellers between Lifestyles. Pp. 367-427 in B. Macdonald, R. Adams and P. Bienkowski (eds.), *The Archaeology of Jordan.* Sheffield.

2003 Nabataean Pottery. Pp. 75-81 in G. Markoe (ed.), *Petra Rediscovered: Lost City of the Nabataeans.*

Schmitt-Korte, K.
1990 Nabataean Coins-Part II. New Coin Types and Variants. *Numismatic Chronicle* 150:105-33.

Scott, E.M. *et al.*
2004 Precision and accuracy in applied 14C dating: some findings from the Fourth International Radiocarbon Inter-comparison. *Journal of Archaeological Science 31:* 1209-1213.

Seyrig, H.
1951 Aradus et sa pérée sous les rois Séleucides. *Syria* 38: 206-220.

1964 Monnaies hellénistiques 12. Questions aradiennes. *Revue numismatique*: 7-67.

Starcky, J.
1966 Pétra et la Nabatène. *Supplément au Dictionnaire de la Bible* 7: 886-1017.

Starcky, J. and Bennett, C.-M.
1967/8 Recent Discoveries in the Sanctuary of the Qasr Bint Faru'n at Petra, III: Temenos Inscriptions. *ADAJ* 12-13: 30-50.

Starcky, J. and Strugnell, J.
Pétra: Deux nouvelles inscriptions nabatéennes. *RB* 73: 236-247.

Stucky, R.
1992 *Zantur I: Ergebisse der Schweizerisch-Liechtensteinischen Ausgrabubgen,* 1988-92. Mainz.

Stuiver, N. *et al.*
1998 INTCAL 98 *Radiocarbon* Age Calibration, 24,000-0 cal BP. Radiocarbon 40(3): 1041-1083.

Svoronos, J.N.
1904 *Ta nomismata tou Kratous* t¨n *Ptolemaion,* 4 vols. Athens: 1904-1908.

Talma, A.S. *et al.*
1993 A Simplified Approach to Calibrating C14 Dates. *Radicarbon* 35/2: 317-322.

Welles, C.B.
1938 The Inscriptions. Pp. 555-569 in C. H. Kraeling (ed.), *Gerasa: City of the Decapolis.* New Haven, CT: American Schools of Oriental Research.

Wenning, R.
2004 Nabatäische Büstenreliefs aus Petra –zwei Neufunde. *ZDPV* 120: 157-181.

Will, E.
1979 Histoire politique du hellénistique monde, Tome. I. Nancy.

1982 Histoire politique du hellénistique monde, Tome. II. Nancy.

Wright, G.H.R.
1961 Petra - The Arched Gate, 1959-60. *PEQI* 93: 124-135.

1967/8 Recent Discoveries in the Sanctuary of the Qasr Bint Faru'n at Petra: II. Some Aspects Concerning the Architecture and Sculpture. *ADAJ* 12-13: 20-29.

Zayadine, F.
1985 Recent Excavation and Restoration at Qasr el-Bint of Petra. *ADAJ* 29: 239-249.

Zayadine, F. and Farajat, S.
1991 The Petra National Trust Site Projects: Excavation and Clearance at Petra and Baidha. *ADAJ* 35: 275-311.

Zayadine, F., Larche, F. and Dentzer-Feydy, J.
2002 *Le Qasr al-Bint de Pétra: L'architecture, de decor, la chronologie et des dieux.* Paris: editions recherche sur les civilisations.

IRON AGE BURIAL IN THE LOWLANDS OF EDOM: THE 2004 EXCAVATIONS AT WĀDĪ FĪDĀN 40, JORDAN

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Abstract

New excavations in the Iron Age cemetery at Wādī Fīdān 40, located in the Faynān district in southern Jordan, provide important evidence concerning the tenth-ninth centuries BC occupation of the region. The excavations, carried out as part of an emergency project along the Wādī Fīdān, boost the sample size of tombs, human remains, and other mortuary data from the site that help elucidate the nature of the Iron Age nomadic community who inhabited this part of the ancient Edom. The importance of the lowland region of Edom, home to the copper ore rich Faynān district, for understanding the early Iron Age history of this part of the southern Levant is highlighted by the 2004 expedition results. Some of the historical and anthropological implications of the cemetery are also discussed.

Research Problem

The site was first probed in 1989 (Adams 1991) and incorrectly dated to the Chalcolithic period. The importance of the cemetery for the Iron Age archaeology of Jordan was brought to light during the 1997 excavations (Levy, Adams and Shafiq 1999) when iron jewelry and one radiocarbon determination helped date the site to the Iron Age. The site was named Wādī Fīdān 40 cemetery site after the first systematic archaeological survey was carried out along the Wādī Fīdān in 1998 (Levy *et al.* 2001). As this is the only cemetery excavated to date in the region identified as Biblical Edom it has become an important source of data for investigating the nature of Iron Age societies who dwelt in the lowlands of Edom. It is also of key importance for studying Late Bronze Age and Iron Age historical documents from Egypt that refer to the local population of Edom as Shasu nomads (Levy, Adams and Muniz 2004; Levy and Najjar 2005; Levy *et al.* in press). The archaeological, biological and chronological data from the 2004 excavation season (June 28-August 6, 2004) provides a much expanded database for understanding the significance of the Wādī Fīdān 40 cemetery for the Iron Age occupation of this part of Jordan.

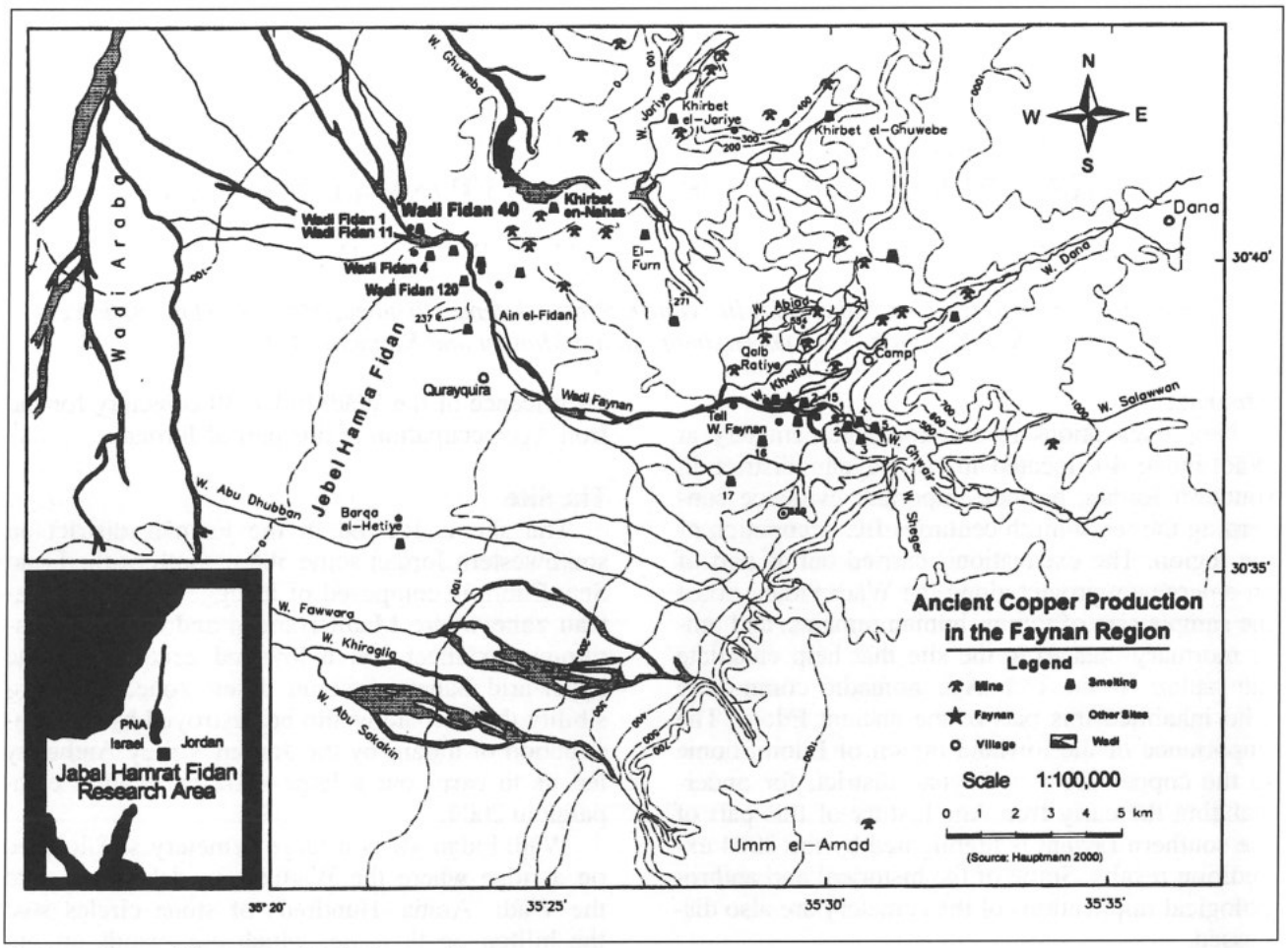
The Site

The site is located in the Faynān district in southwestern Jordan some 50km south of the Dead Sea. Edom is composed of a rugged highland plateau zone where Mediterranean and semi-arid environments meet and a lowland centered on the hyper-arid Saharo-Arabian desert zone. The possibility that the site would be destroyed by the construction of a dam by the Jordan Valley Authority led us to carry out a large-scale excavation campaign in 2004.

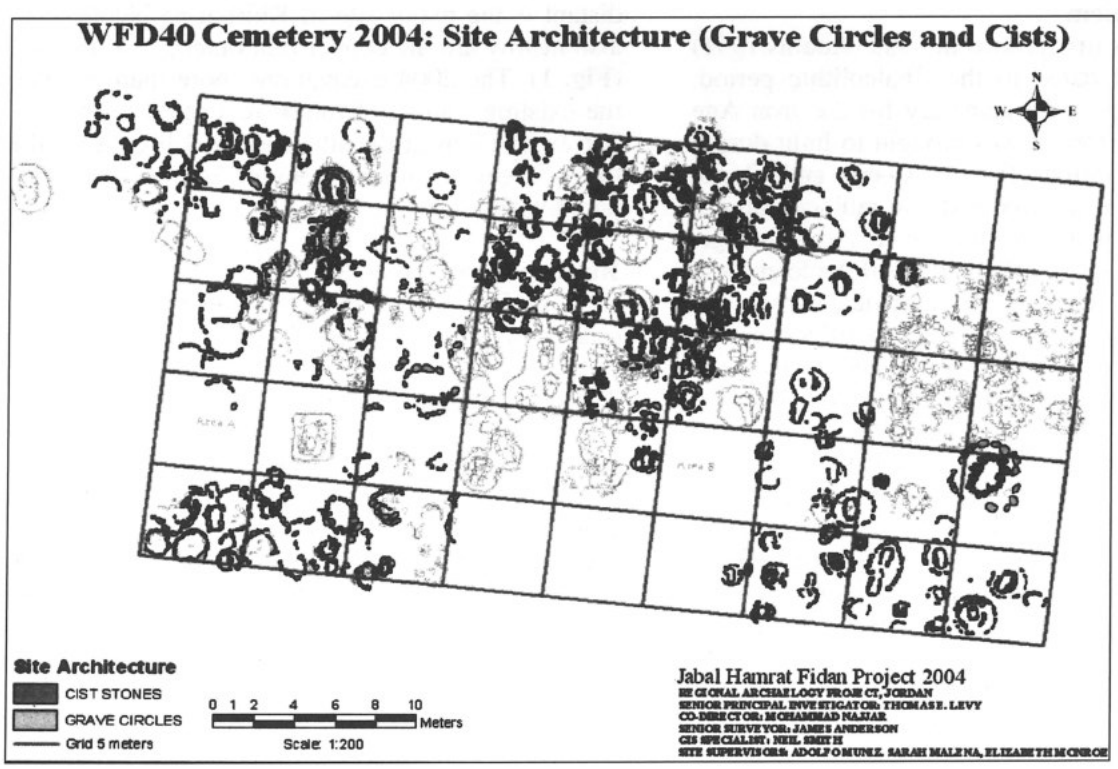
Wādī Fīdān 40 is a large cemetery site located on a ridge where the Wādī Fīdān debouches into the Wādī 'Araba. Hundreds of stone circles stud the hilltop on this site, which commands an impressive view of both wadis. About five kilometers distant is the major site of Khirbat an-Nuḥās, and also nearby are the copper rich outcrops of Faynān (**Fig. 1**). The 2004 excavations more than doubled the existing sample of tombs recovered in the earlier excavations at the site. **Figure 2** highlights the newly excavated tombs from the 2004 season compared with the earlier work.

Research Goals and Methods

Wādī Fīdān 40 (WFD40), which consists primarily of surface stone circles and subterranean cist graves, was first excavated on a large scale Thomas Levy and Russell Adams during the first Jabal Ḥumrit Fīdān Project excavation in 1997. During the course of the 1997 excavation the cemetery that was once believed to be Chalcolithic in date was reclassified as primarily Iron Age (Levy, Adams and Shafiq 1999b). In 2003 an area of the site east of the 1997 exposure was excavated by the team as the first season in an emergency investigation prior to the building of a dam — a construction which has since been canceled. Most of the graves excavated in that season were found to have been looted in antiquity.



1. General map of the Faynān (Jordan) research area.



2. Map of excavated tombs in the Wādī Fīdān 40 cemetery. Note: the pale shaded graves were previously excavated in 1997 and 2003.

The two previous seasons taught us what to look for in the 2004 expedition. The 1997 excavations revealed that the WFD 40 cemetery was used during the tenth century BC by a relatively large group that seems to have left no permanent habitation site that would house its numbers. It was suggested that the buried population was most likely an Iron I pastoral nomad group, but one which could mobilize a great deal of manpower to cut and move stone for the construction of these primarily cist graves. The 2003 excavations showed that these burials often did not conform to the stone circles observed at the surface. Sometimes cists extended beneath the surface stone circle, and at other times graves had no stone circles at all. However, only one radiocarbon date was processed from the 1997 and 2003 excavation seasons making an accurate chronological assessment of this Iron Age site tentative at best. In light of the discoveries of the previous two expeditions at this site, the 2004 research was aimed at expanding the sample of tombs from the cemetery to learn more about the social organization of cemetery population, to obtain short-life samples of organic material suitable for high precision radiocarbon dating, and to obtain a larger sample of material culture that could inform about the chronological and cultural connections between Wādī Fīdān 40 and other Iron Age sites in Edom and the southern Levant. This was achieved by excavating along the same grid encompassing the 1997 structures. The 2003 excavations had shown that many more tombs were packed in-between the large burial circles than had been assumed in the 1997 excavation. By re-excavating the 1997 excavation area to the maximum, we hoped to uncover un-looted graves that were not found when the most noticeable surface structures were excavated down to cist level in 1997.

Additional objectives of the 2004 season were to excavate structures that would add to the existing database that may contribute to understanding of social interactions within the copper-ore rich Faynān district. We hoped to better understand the cemetery's relationship to the full range of Iron Age sites in the region (camp sites, metal production sites, other cemeteries (recorded in surveys), especially the large copper production center and fortress site of Khirbat an-Nuḥās. In recent years, many researchers have come to see pastoral nomadic communities as having played a central role in the emergence, maintenance and collapse of Iron Age polities in Transjordan (Bienkowski and van der Steen 2001; LaBianca and Younker 1998; Levy 2004; Routledge 2004). Ultimately, we hope that the Wādī Fīdān cemetery excavations will shed light upon the increasing social complexity of this area of the southern Levant and the specific role pastoral nomads may have played in the beginnings of the Iron Age Edomite state.

Two approaches were used for excavating graves. The first consisted of topsoil and fill removal to discover new grave structures and then to excavate those tombs to the capstone level above the cist graves. The second consisted of removing topsoil and fill around the exterior of known and mapped graves to identify potential graves suitable for excavation. Once the capstones were exposed the mud plaster that usually sealed the capstones in place was removed. Following careful recording and photography, the capstones were then removed to expose the full dimensions of the cist. If the grave lacked a cist, fill removal would continue until human remains were unearthed or the basal level of the tomb could be reached. All fill below capstone level was sieved using a 1/4 screen with an 1/8 inset. Graves containing human remains were carefully assessed by the area supervisor and excavated by students, with the assistance of the project biological archaeologists. Where human remains were encountered, the bones were exposed and carefully recovered using wooden skewers, small soft brushes, and air puffers. All recovered materials were carefully recorded in the field, photographed, sorted and collected and carefully transported to the lab for analysis. All data from the 2004 excavations was digitally recorded and linked to a GIS system.

To these ends and using these methods, three areas were excavated in the 2004 season, designated A, B, and C, following the field layout established for the 1997 excavations. In Area A seventy-four graves were excavated. Forty burials were excavated in Area B, and forty-one burials were excavated in Area C. With ca. 155 graves, the 2004 season proved to be rich in data that will undoubtedly contribute to preserving Jordanian cultural heritage.

2004 Excavations at WFD40-Area A

Area A was the most extensively excavated and least disturbed of the three areas excavated in 2004. During the five week excavation period 16 5 x 5 square meter units were recorded and excavated in the western portion of the site, called Area A. A total of 81 graves were mapped and prepared for excavation. Due to the time constraints, only 74 graves were excavated (**Table 1**) during the 5 week excavation season. Graves in Area A are similar to the 1997 sample. The graves in Area A are distributed so closely that many of the large concentra-

Table 1: Area A graves summary (Dimensions are in centimeters).

Area A Grave	Circle Dimensions		Circle Stone Materials	Cist Dimensions		Cist Floor Paving	Cap Stones		Rock Pile on Cist
Number	Inner	Outer		Inner	Outer		#	Material	# Rocks
5	154 x 115	165 x 176	Dolomite	108 x 103	147 x 84	None	2	Sandstone	0
9	210 x 130	170 x 260	Dolomite	None	None	None	4	Sandstone	0
55	115 x 130	120 x 150	Dolomite	None	None	None	4	Sandstone	0
59	130 x 124	195 x 130	Dolomite	161 x 52	177 x 100	None	4	Granite	34
80	151 x 151	185 x 165	Dolomite, Limestone, Granite	128 x 44	148 x 82	None	13	Sandstone	0
82	148 x 147	260 x 220	Dolomite	None	None	None	4	Sandstone	16
83	112 x 89	151 X 129	Dolomite	66 x 23	83 x 46	None	2	Sandstone	0
84	122 x 122	170 x 150	Dolomite	120 x 60	129 x 74	None	4	Sandstone	0
90	135 x 110	140 x 150	Dolomite	124 x 115	146 x 135	None	4	Sandstone	0
91	170 x 140	190 x 190	Dolomite, Sandstone	125 x 35	143 x 46	None	4	Sandstone	0
300	90 x 105	120 x 130	Dolomite	None	None	None	3	Sandstone	0
301	None	102 x 108	Dolomite	91 x 79	None	None	2	Limestone	0
302	85 x 58	98 x 76	Dolomite	None	None	None	0	None	0
303	None	95 x 70	Dolomite	None	None	None	2	Sandstone	0
304	None	176 x 154	Sandstone , Dolomite	None	None	None	0	Sandstone	0
305	110 x 87	149 x 126	Dolomite, Sandstone	None	None	None	0	None	0
306	76 x 68	113 x 104	Dolomite	63 x 25	67 x 60	None	2	Sandstone	0
307	142 x 133	165 x 181	Dolomite	111 x 43	144 x 96	None	4	Sandstone	0
308	None	None	None	100 x 60	122 x 80	None	5	Sandstone	0
311	155 x 180	210 x 240	Dolomite	125 x 50	10 x 85	None	5	Sandstone	
316	None	None	None	75 x 35	97 x 46	None	0	None	0
317	110 x 65	153 x 94	Dolomite	71 x 84	None	None	2	Sandstone	0
318	117 x 34	141 x 81	Dolomite	121 x 36	142 x 75	None	4	Sandstone	0
319	118 x 100	153 x 158	Dolomite	88 x 101	None	None	3	Sandstone	0
320	None	None	None	103 x 57	153 x 116	None	4	Sandstone	0
321	None	None	None	82 x 38	100 x 61	None	4	Sandstone	0
322	None	None	None	68 x 57	123 x 80	None	4	Sandstone	0
323	None	None	None	130 x 45	180 x 90	None	4	Sandstone	0
324	None	None	None	62 x 35	86 x 57	None	2	Dolomite Sandstone	0
325	None	None	None	80 x 40	100 x 60	None	3	Sandstone	0
326	None	None	None	64 x 34	86 x 63	None	3	Sandstone	0
327	None	None	None	52 x 30	89 x 55	None	0	None	0
328	None	None	None	77 x 27	105 x 58	None	3	Sandstone	0
329	None	None	None	110 x 56	170 x 97	None	4	Sandstone	0
330	None	None	None	67 x 34	96 x 72	None	3	Sandstone	0
331	192 x 170	215 x 220	Dolomite	115 x 50	135 x 80	None	4	Sandstone	0
334	210 x 185	240 x 270	Dolomite	105 x 30	120 x 60	None	4	Sandstone	0
335	None	None	Dolomite	86 x 47	109 x 56	None	4	Sandstone	0
336	None	None	None	65 x 26	88 x 45	None	3	Sandstone	0
337	None	None	None	130 x 56	160 x 90	None	3	Sandstone	0

cont. table 1: Area A graves summary (Dimensions are in centimeters).

Area A Grave	Circle Dimensions		Circle Stone Materials	Cist Dimensions		Cist Floor Paving	Cap Stones		Rock Pile on Cist
Number	Inner	Outer		Inner	Outer		#	Material	# Rocks
338	151 x 160	199 x 152	Sandstone , Dolomite	119 x 46	131 x 68	None	3	Sandstone	0
339	127 x 194	168 x 210	Dolomite	127 x 37	170 x 92	None	3	Sandstone	12
340	None	None	None	115 x 42	140 x 85	None	3	Sandstone	0
341	None	None	None	41 x 63	46 x 70	None	1	Sandstone	0
342	170 x 170	190 x 200	Dolomite, Sandstone	110 x 65	130 x 75	None	2	Sandstone	0
343	None	None	None	139 x 65	165 x 108	None	2	Sandstone	0
344	None	None	None	65 x 23	91 x 52	None	4	Dolomite, Limestone	0
345	None	None	None	100 x 35	110 x 80	None	3	Sandstone	0
346	None	None	None	139 x 50	168 x 93	None	3	Sandstone	0
347	None	None	None	None	None	None	0	None	0
348	None	None	None	123 x 40	160 x 72	None	4	Sandstone	0
349	None	None	None	None	None	None	0	None	0
350	None	None	None	78 x 39	101 x 65	None	2	Sandstone	0
351	None	None	None	115 x 50	165 x 90	None	3	Sandstone	0
352	None	None	None	81 x 54	102 x 77	None	1	Sandstone	0
353	None	None	None	76 x 36	87 x 58	None	3	Sandstone	0
354	None	None	None	71 x 33	68 x 56	None	0	None	
355	None	None	None	68 x 44	None	None	3	Sandstone	0
356	125 x 115	143 x 147	Dolomite	103 x 39	115 x 71	None	3	Sandstone, Granite	0
357	137 x 102	148 x 132	Dolomite	88 x 35	105 x 58	None	3	Sandstone	0
358	133 x 119	164 x 158	Dolomite	91 x 43	102 x 75	None	4	Sandstone	4
359	79 x 60	100 x 74	Dolomite	79 x 52	90 x 73	None	2	Sandstone	0
360	None	None	None	107 x 48	140 x 85	None	3	Sandstone	0
361	100 x 80	135 x 123	Dolomite	73 x 28	98 x 45	None	4	Sandstone, Granite	0
362	112 x 119	143 x 152	Dolomite	120 x 39	137 x 57	None	4	Sandstone	
363	124 x 129	144 x 153	Dolomite, Sandstone	None	None	None	4	Sandstone	0
364	None	None	None	None	None	None	2	Sandstone	0
365	68 x 63	70 x 76	Dolomite	None	None	None	0	None	0
366	None	None	None	130 x 50	150 x 65	None	4	Sandstone, Granite	0
367	None	None	None	95 x 55	115 x 85	None	4	Dolomite, Sandstone	0
368	None	None	None	119 x 51	166 x 83	None	3	Sandstone	0
370	None	None	None	130 x 52	170 x 95	None	4	Dolomite, Sandstone	0
371	108 x 122	140 x 141	Dolomite	119 x 43	NA x 62	None	4	Sandstone	0

tions of rock circles are shared or touch their neighbors. In the areas where space is an issue, semi-circular structures buttress against each other to better utilize space. There are five areas in the current excavations where this type of distribution is most evident-even more so than in the 1997 excavations as can be seen in Squares H-12, I-12, J-11, I-8, and J-8 (**Fig. 2**).

The graves in these squares share the same basic construction with little variance. The grave structures are either complete or partial rock circles constructed with dolomite stones. On occasion metamorphic or sandstone rocks would be incorporated into the grave structures. Except for two

graves, 319 and 359, paving stones or other eccentric architecture was lacking in the entire area. Grave 319 was a secondary burial that contained a complete level of paving stones that formed a tidy depressed dolomite circle. Similarly, Grave 359, also a secondary burial containing the remains of an adult, was marked by a very small and apparently un-worked standing stone in the middle of a dolomite pavement. Strangely enough, both burials lacked cists but were instead pit burials.

Other traces of dolomite could also be found within the fill removal. It is likely these were part of the backfill or even structure collapse. The grave capstones were typically made of sandstone or limestone, but may on occasion incorporate metamorphic and granite slabs. Where the grave had not be disturbed, large amounts of mud plaster could be seen surrounding the capstones. Beneath the capstones level, the cist was usually constructed with sandstone or limestone slabs forming the walls of the cist with dolomite stones forming the capstone support stones. Variations in cist construction vary from the cist wall stones to bottom paving to pit burials, although by far the most evident trait is the size and whether it is constructed for an adult or a child-although there is no guarantee between the relationship of size and structure on the type of grave good that may be associated with the burial.

The impetus for selecting the samples in Area A was the work previously conducted during the 1997 season. Three factors were taken into consideration for selecting the excavation areas. First, given that no graves had been excavated in the area to the south-southwest (Squares I-8, J-8, K-8), the squares in this sector of the cemetery were chosen. This section of the cemetery sits on a low inclining slope and contains shallow sediment deposits above the Pleistocene conglomerate that makes up the foundation of cemetery soils. While less energy and resources were spent on excavating the graves, rainfall has caused the sediments in the cist to become hard and compact encasing the human remains. A total of 25 graves were excavated in this area. 13 of the graves were primary burials, 3 were categorized as secondary burials, 4 of the graves were empty, and 5 were unknown because they were not opened or too disturbed to categorize.

Construction in the style of rock circle varied in the southern area. For example in the northern section of the site, the grave circles tend to be small in diameter as opposed to the southern section where they tend to increase in size. This style of a larger stone circle appears to be the intrusive or secondary burials as can be seen in Square J-8 with graves 317, 341, and 316, 90 and 91. The graves associated with the larger circles appear to have been constructed later than the smaller ones. This may be partially accountable for the many small fragments that were recovered during fill removal from the adjacent graves. The variation seen in the construction of the surface structures posits the question of the ethnic or possibly group identity of the individuals interred in this area of the cemetery.

The limited amount of grave goods recovered from this area fail to disclose much information. Of the 25 sampled graves in this area, apart from the occasional bead, only two graves contained special artifacts. The first was Grave 91. Grave 91 was marked by a large circle structure. Excavations to capstone level indicated the grave might have been looted in antiquity as one of the capstones was missing. At first we were inclined not to excavate this grave, but following the decision to open the grave, a cist filled with compact sediment was observed. Careful excavations revealed a mature adult male in an extended position, head oriented towards the south, with arms folded over his chest (**Fig. 8**). *In situ*, next to his shoulder and cranium, a seal was discovered which is now known to date from the tenth century (**Fig. 37**; see grave and artifact discussions below).

A short distance from this grave, Grave 345 was excavated from capstone level. It too was a small grave, probably of a child, covered with compact fill. Excavation of the fill in the northern sector revealed a cranium, oriented to the north, with a small bowl (**Figs. 10, 33**). Further removal of the compact sediments revealed the interred individual was in fact a small child buried in a semi-flexed position (**Fig. 9**). After the clearing the basal fill, two copper earrings were recovered *in situ* (**Fig. 30**; see grave and artifact descriptions below). To claim these two graves are a representative sample of the prestige and ethnicity affiliated with the population buried in this part of the cemetery would be purely speculative. First of all, the graves do not appear to be contemporary in their surface structures-one is marked, the other not. Second, there appears to be some variance in the construction of the grave cists. The cist in Grave 91 has a rectangular shape while Grave 345 is more ovular in shape.

As if things were not confusing enough, adding to this puzzle is Grave 9. This grave is located about 1 meter just to the north between Graves 91 and 345. The grave is the primary burial of an adult male. While there is a circle marking the grave, there is no cist. A hole was dug into the conglomerate and the body laid to rest in an extended position with his head oriented south (**Fig. 3**). There are two



3. Area A, Grave 9 burial.

unusual items entombed with this burial. First, a partial skeleton, perhaps a gazelle, was uncovered from atop his pelvic region. Second, irons fragments — probably from a blade — were recovered close to his cranium (**Fig. 36**; see also artifact and grave descriptions below). The argument that these are the remains of a great hunter would be purely speculative.

A second factor that went into account for selecting the excavation squares in Area A revolved around Grave 92 excavated during the 1997 season. Grave 92 is found in square J-12 in the northern section of the area. This grave contained the remains of an adult female buried along with a garland of pomegranates, an Egyptian style scarab, and iron anklets and bracelets. The area to the southwest had previously been sampled. In the last couple of years the immediate area to the south of the grave (L.2121) had been looted. A large trench about 4 meters had been dug by looters seeking buried treasures. Similarly, another grave to the southwest had suffered the same fate. In both areas, remains observed on the surface revealed fragments of human bones and the occasional discarded capstone. Fortunately, the looters avoided going beyond this area and into the adjacent areas to the south, where a small mound of paving stones had been laid in a cairn-like structure (Grave 59). Only another small complete structure was identified — Grave 319. Therefore, the decision to excavate square J-11 in its entirety was made. Graves were clustered in this area, but were unmarked. To find as many structures as possible, the entire square was excavated past topsoil to fill. The overall count of graves, reflecting burial of adults and children, uncovered in this square totaled 9. All graves, with the exception of one, were primary individual burials. Perhaps the most interesting of these is Grave 59. Grave 59 contained several grave goods of a similar nature to those of Grave 92. Recovered from within the cist were 7 pomegranates — 4 in a wooden bowl (**Figs. 5, 35**; see also artifact and grave descriptions below) — and fragments of leather and textile burial shrouds (**Fig. 6**). In the immediate vicinity of this grave, several graves belonging to adults, infants and juveniles were also uncovered. None of the other graves contained any type of grave good or grave construction to rival this grave. However, it must be noted no other grave excavated this sector during the 1997 season yielded the quality of grave goods recovered form Grave 92. Within these parameters, two areas in the north sector of the cemetery were probed — the area to the west of Grave 59 (H-12, I-12) and one grave to the east (K-12). The summary grave Figures for this section include 12 primary burials, 3 secondary, 1 empty grave, and 2 unknown due to poor preservation. There are two significant points that need to be addressed that are pertinent to this area. The first regards looting in I-11 and I-12. It serves as a reminder that looting does not only occur among modern groups of the area. As a matter of fact, 19 graves appear to have been looted in antiquity (**Table 2**). In the northwestern section, there are two areas along the southern baulk of I-12 where contemporary looters had dug small trenches and destroyed two graves — 360 and 325. These actions resulted in human bone scatter and fragmented sandstone capstones in the tailings. Unfortunately, these actions have directly affected this area of the cemetery as excavations suggest preservation here is excellent as seen in Graves 363, 356, 357, 338, and 358.

Second, it could be argued the graves in this section of the cemetery may belong to related individuals. For example there are 5 graves in Square J-11 (339, 338, 342, 355, and 350) that are laid out in an east-west axis. Not only are the graves identical in construction of cists, but the positioning of the individuals is similar. These graves, along with the adjacent graves in H-12 can be found clustering together identified by small rock circles on the surface. Excavation of these small groups revealed complete skeletal remains and yielded few graves goods such as leather and textile shrouds. All of these graves, with the exception of 356, were oriented south, although the burial position ranged from extended to semi-flexed.

Unfortunately, due to time constraints and logistics, only one grave to the east of Grave 59 was opened (Grave 371 in square K-12. This area served as the main exit area for fill removal from the northern section of the cemetery thus preventing fill removal till the very end. There was

Table 2: Area A graves looted in antiquity.

361	H-12	Circle with cist	Yes	Primary
362	H-12	Circle with cist	Yes	Unknown
339	H-12/I-12	Circle with cist	Yes	Primary
331	I-10	Circle with cist	Yes	Primary
364	I-12	Cist	Yes	Secondary
316	I-8	Cist	Yes	Primary
317	I-8	Circle without cist	Yes	Secondary
305	I-8/J-8	Circle with cist	Yes	Secondary
351	J-12	Cist	Yes	Secondary
302	J-8	Circle with cist	Yes	Empty
323	J-8	Circle with cist	Yes	Primary
5	J-8	Circle with cist	Yes	Unknown
304	J-8/K-8	Circle/Unknown	Yes	Unknown
318	J-9	Circle with cist	Yes	Primary
366	J-9/J-8	Cist	Yes	Unknown
311	K-10/K-9	Circle with cist	Yes	Secondary
354	K-11	Cist	Yes	Empty
352	K-11	Cist	Yes	Unknown
82	K-8	Circle/Unknown	Yes	Unknown

one small grave identified by a partial rock circle at the surface. However, removal of topsoil revealed a full rock circle. When capstone level was reached, a thick layer of mudplaster was uncovered, indicating the grave could possibly be one of a small child. The latter was confirmed by the removal of the capstones. The cist contained the remains of a small child (**Fig. 11**). Immediately, a copper bracelet could be seen close the cranium (**Fig. 12**). Careful removal of fill revealed a complete and well preserved skeleton interred with three copper earrings, a leather shroud, and a textile burial shroud. Furthermore, secondary remains begin to surface below the small skeleton. Careful retrieval of the skeleton and fill yielded a small pendant with round wing-like projections (**Fig. 29**). This pendant is very similar to the coiled wings on the small gold figurine found during the 2002 excavations at Khirbat an-Nuḥās, the large copper mining site located approximately 10 kilometers to the north.

Grave Typologies: Area A

The 102 graves identified in Area A were divided into eight overlapping categories — pit burials associated with capstones, pit burials, circles with cists, circles without cists, cists, secondary burials, rock circles with unknown burial types, and capstones with unknown burial types — as described below.

Capstones with Pit Burials

In one grave uncovered in Area A, grave 355, a set of capstones was laid over a simple pit excavated into the underlying Pleistocene gravels. No other surviving mortuary architecture was observed.

Pit burials

A single burial, numbered 349, was found without any associated surviving mortuary architecture. This burial consisted of an adult and a child buried together, apparently in a simple shaft. No grave goods survived in this burial.

Cists

With thirty-one identified examples, cist graves are the most common kind of burial in Area A besides secondary burials. They generally consist of a shaft excavated into the Pleistocene gravels, which is then lined with large sandstone and dolerite cobbles and small boulders set on edge. A series of large cobbles is placed atop these stones in order to support a series of capstones, which seal the grave,

and the entirety is often covered with a thick layer of mud plaster. These cists occur in both rectilinear and L-shaped varieties. Sometimes these capstones and their supports were not uncovered, but this seems to have been due to preservation bias rather than the original grave construction. Cist graves found in Area A include 308, 316, 320, 321, 322, 324, 325, 326, 327, 328, 329, 330, 335, 337, 340, 343, 344, 345, 346, 347, 438, 350, 351, 352, 353, 354, 360, 366, 368, 370.

Circles with Cists

Cist graves in Area A were often marked on the surface by a circle of cobbles and small boulders. (See for example **Fig. 7**) Sometimes these circles enclosed the entirety of the excavation originally made to house the dead, but often there was no clear direct relationship between the circle and the specific position of the underlying cist. Twenty-three cist graves with surviving surface grave circles were identified this season, including 5, 59, 80, 84, 90, 91, 305, 306, 307, 318, 323, 336, 342, 356, 361, 362, 363, and 371.

Circles without Cists

Eight circular stone structures resembling those associated with cists, as described above, were discovered to lack subsurface cists. No true burials were found in association. These included 300, 301, and 302.

Secondary Burials

Thirty-four secondary burials were uncovered during excavations in Area A. These were generally a tightly packed group of bones and were often quite fragmentary. Often these secondary burials were excavated in the fill of graves, just above the capstones. In some occasions, a disarticulated secondary burial was placed within a cist. In the case of grave 319, the bones were so tightly packed and clearly organized into a rectangular prism, which may have once been in a perishable container.

Rock Circles/Unknown

Three apparent grave circles were identified in Area A but were not excavated to a level at which it could be determined if they were associated with any existing subsurface mortuary architecture with which they are associated.

Capstones/Unknown

A single grave was identified but not excavated below capstone level in this season. As a result, it is unknown at this time what mortuary architecture may exist below capstone level.

Some Notable Graves in Area A

Grave 9

Grave 9 is located in the eastern half of the unit, roughly halfway between the northern and southern limits of the unit, partially overlapping unit J-8. It consists of four stones which appear to be part of what was once a grave circle and which extended to the surface of the present ground surface, as well as several more irregularly placed stones which seem to be related to this feature. Excavation of topsoil and fill yielded 4 large capstones made of sandstone. Although removal of the capstones failed to reveal a burial cist, further excavation of the compact sediments identified a primary burial containing an individual (possibly male) in an extended burial position (**Fig. 3**). A striking feature of this burial consists of ungulate remains-possibly gazelle-located on the pelvic region of the individual. The remarkable bone preservation allowed for removal of the entire skeleton with few mishaps. Following the removal of the burial, the cist fill yielded 3 small pieces of iron that may be blade fragments (**Fig. 36**; see also artifact description below).

Grave 59

Grave 59 is located in square J-11 in the center-upper left of square. This grave had a complete stone circle of 18 dolomite stones surrounding a cairn-like rock pile of 34 stones. Excavation of top soil and fill revealed 4 granite capstones. Beneath the capstone locus was a rectangular cist, consisting of 15 support stones. The burial consisted of a single individual — a primary adult inhumation of estimated age 24-34. The skeleton was oriented towards the north and lay on its back (**Fig. 4**). Good bone preservation allowed for recovery of the entombed remains. Associated with the skeleton in this grave were a wooden bowl containing four pomegranates (**Figs. 5, 35**; see also artifact description below), leather and textile shrouds (**Fig. 6**), and a collection of four pomegranates placed next to the skeleton.

Grave 91

Grave 91 is located in the middle South end of square I-8. The grave had a complete rock circle of 20 dolomite stones. Top soil and fill was excavated to reveal 4 sandstone capstones (**Fig. 7**) covering a cist with 10 support stones. This was a primary burial of an individual extended and lying on its back with the head at the south facing up. Arms were crossed over the chest (**Fig. 8**). Bones were in good



4. Area A, Grave 59 burial. Note wooden bowl and pomegranates.



6. Area A, Grave 59 burial close-up. Note shroud entwining legs.



5. Area A, Grave 59 burial close-up. Note wooden bowl and pomegranates.



7. Area A, Grave 91 grave circle and capstones.



8. Area A, Grave 91 burial.

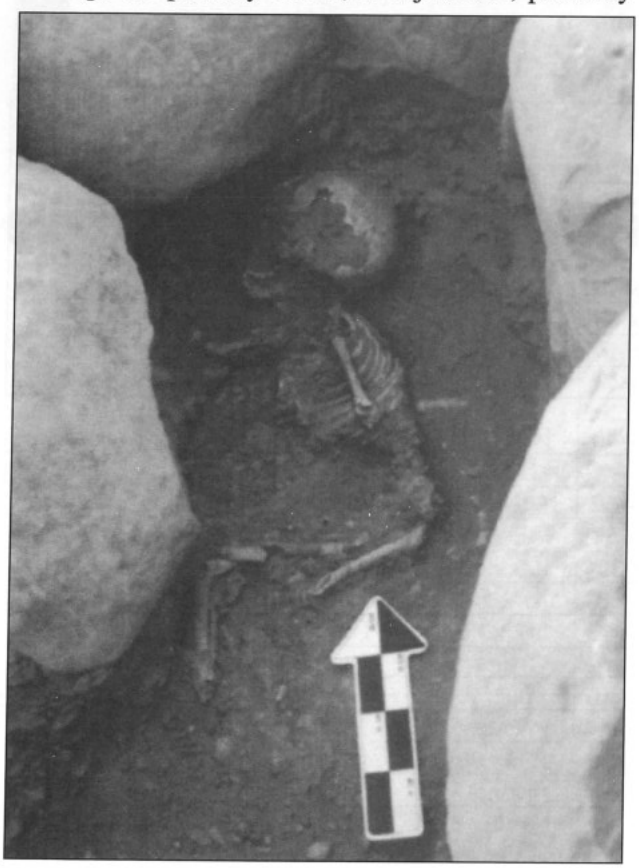
condition with 90% preservation. The individual was an adult, 40-50 years in age and was buried with one bead and a seal (**Fig. 37**; see artifact description below).

Grave 345

Grave 345 is located in the South end of square J-8. No surface features were observed, but after the top soil and fill were excavated, three capstones were revealed. Beneath capstone level, there are six cap support stones. The cist is trapezoidal. There is an individual primary burial of an infant 1-3 years old. The burial position is semi-flexed, lying on the right side facing west with the head at the north end (**Fig. 9**). Cultural objects include a complete ceramic bowl (**Figs. 10, 33**) and earrings (**Fig. 30**; see also artifact descriptions below).

Grave 371

Grave 371 is located in the South side of square K-12. A partial grave circle is present consisting of 7 dolomite stones. Fill beneath the top soil was excavated to reveal 4 sandstone capstones. Beneath capstone level is a rectangular cist containing two individuals. One is a primary burial, while the other is too fragmentary to determine. The individual on top, the primary burial, is a juvenile, probably



9. Area A, Grave 345 burial.

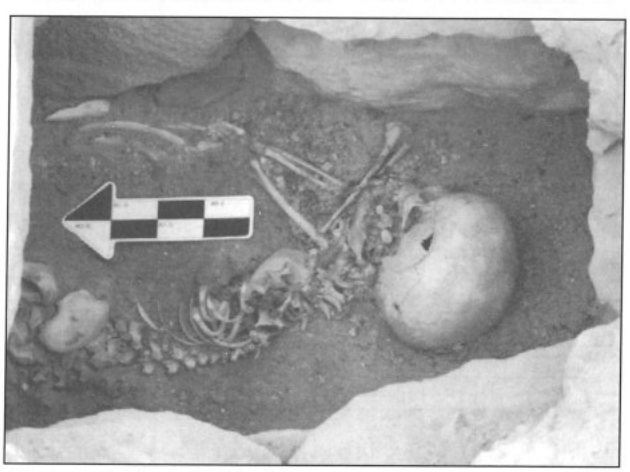


10. Area A, Grave 345 burial close-up. Note ceramic bowl.

female, 6-8 years of age. The juvenile is semi-flexed, lying on the right side, facing east, with the head to the south. The arms were crossed across the chest with the hands on the opposite shoulders (**Fig. 11**). The bones are in excellent condition and preservation is 100%. Several objects are associated with the juvenile including copper earrings (**Fig. 31**), a shell pendant, textile, leather death shroud, a copper bracelet on the right forearm (**Figs. 12, 32**), and a copper pendant with a double spiral design (**Fig. 29**; see also descriptions of pictured artifacts below). Beneath the juvenile are the fragmented remains of an adult, 20-50+ years. The adult bones are in poor condition with 15% preservation. The burial position is undetermined, but one foot was to the north.

Excavations in Area B

Area B was located in the center of the overall excavation area for the 2004 season. Area A was located to the west, and area C to the east. Area B consisted of 15 squares (5 x 5 meters) with the des-



11. Area A, Grave 371 burial.



12. Area A, Grave 371 burial close-up. Note copper bracelet.

ignations of L, M, N from west to east, and the numbers 12 through 8 describing the squares from north to south. Excavation in area B concentrated on the northern squares (L12, M12, N12, L11, M11, N11), extending south only in the M10, M9, N10 and N9 squares. The 1997 excavations focused on the larger, most visible grave circles in the area; and the squares M11, N11, L10, M10, N10 were mostly excavated. The largest excavation area from 1997 occupied most of squares L10 and M10. The 2004 excavations concentrated on fuller exposure of the area, excavating grave structures and the areas in between them. The majority of grave structures excavated in the 2004 season were not discernable from the topsoil levels.

Recent looting was evident in Area B in squares M13, M12, N12, N11. These areas appear to have been looted since the 1997 excavation. Scattered human remains littered the surface of these areas. The most obvious example is the looting of a cist between graves 28 and 29, graves, which were excavated in the 1997 season. The cist was entered through the baulks of the excavated grave pits. The cist structure has been dismantled on the north and south limits, but in the center of the cist the capstone(s) remain. This structure was not excavated in 2004. Graves 10, 11, and 47 were identified and numbered in 1997 but do not appear to have been excavated. Grave 11 was the most damaged with exposed cist. Graves 10 and 47 appeared to be disturbed at the upper levels by recent looting, but seem to have been abandoned before reaching lower levels of the grave structures. These two graves were excavated in the 2004 season.

In the 2004 excavation, 58 graves (total includes cist structures and pit burials) were excavated (**Table 3**). Nine were secondary burials in pits or in cists containing only secondary remains (**Table 4**). The remaining 49 were cist structures.

Table 3: Area B graves summary (Dimensions are in centimeters).

Area B Grave	Circle Dimensions		Circle Stone Materials	Cist Dimensions		Cist Floor Paving		Cap Stones
Number	Inner	Outer		Inner	Outer		#	Material
10	140 x 140	170 x 150	Dolomite	150 x 40	130 x 75	None	4	Dolomite, Limestone
47	200 x 125	209 x 146	None	130 x 45	150 x 80	None	1	Sandstone
500	124 x 88	150 x 100	None	None	None	None	0	None
501	95 x 83	145 x 116	None	113 x 44	133 x 90	None	3	Sandstone
502	145 x 145	176 x 176	None	110 x 40	115 x 80	None	2	Limestone, Sandstone
503	None	None	None	None	None	None	0	None
504	141 x 194	161 x 209	None	140 x 50	180 x 100	None	4	Sandstone
505	166 x 130	219 x 160	None	110 x 55	145 x 90	None	4	Sandstone
506	106 x 99	136 x 129	None	55 x 35	100 x 60	None	1	Sandstone
507	140 x 140	160 x 160	None	89 x 56	147 x 130	None	4	Sandstone
508	164 x 135	206 x 174	None	125 x 42	142 x 75	None	4	Sandstone
509	None	None	None	None	None	None	0	None
510	55 x 35	75 x 55	None	78 x 35	96 x 53	None	4	Sandstone
511	None	None	None	None	None	None	0	None
512	None	None	None	120 x 55	155 x 90	None	3	Sandstone
513	None	None	None	None	None	None	0	None
514	123 x 115	180 x 184	Dolomite	115 x 60	135 x 100	None	2	Limestone, Sandstone
515	110 x 110	170 x 150	None	75 x 20	125 x 110	None	0	None

Area B Grave	Circle Dimensions		Circle Stone Materials	Cist Dimensions		Cist Floor Paving	Cap Stones	
Number	Inner	Outer		Inner	Outer		#	Material
516	70 x 63	103 x 105	None	90 x 40	120 x 80	Present	3	Sandstone
517	None	None	None	120 x 55	165 x 105	None	5	Sandstone
518	None	None	None	109 x 50	135 x 90	None	2	Sandstone
519	None	None	None	110 x 50	140 x 90	Present	1	Limestone
520	None	None	None	130 x 60	155 x 110	None	2	Sandstone
521	62 x 45	94 x 75	None	65 x 25	85 x 55	None	1	Sandstone
522	95 x 40	160 x 120	None	95 x 40	160 x 120	None	4	Sandstone
523	79 x 73	134 x 103	None	110 x 50	130 x 100	None	4	Dolomite, Sandstone
524	None	None	None	120 x 55	145 x 85	Present	4	Dolomite, Sandstone
525	None	None	None	65 x 25	85 x 55	None	3	Limestone, Sandstone
526	None	None	None	90 x 55	145 x 130	None	2	Sandstone
527	None	None	None	50 x 30	95 x 75	None	3	Dolomite, Limestone, Sandstone
528	None	None	None	125 x 60	160 x 95	None	3	Dolomite, Sandstone
529	None	None	None	35 x 25	45 x 45	None	0	None
530	None	None	Dolomite	150 x 60	180 x 95	None	3	Sandstone
531	None	None	None	120 x 50	155 x 110	None	3	Limestone, Sandstone
532	None	None	None	115 x 55	145 x 95	None	4	Limestone, Sandstone
533	None	None	None	95 x 45	130 x 105	None	1	Sandstone
534	None	None	None	85 x 45	90 x 50	None	4	Dolomite, Sandstone
535	None	None	None	80 x 40	140 x 80	None	3	Limestone, Sandstone
536	None	None	None	75 x 35	125 x 90	None	5	Dolomite, Sandstone
537	None	None	None	60 x 45	145 x 105	None	3	Limestone, Sandstone
538	None	None	None	None	None	None	0	None
539	None	None	None	75 x 35	120 x 70	None	1	Sandstone
540	None	None	None	125 x 50	140 x 90	None	4	Sandstone
541	None	None	None	65 x 20	85 x 60	None	2	Dolomite, Limestone
542	None	None	None	125 x 60	155 x 100	None	2	Sandstone, Limestone
543	None	None	None	135 x 40	150 x 85	None	3	Sandstone
544	None	None	None	120 x 50	150 x 100	None	4	Limestone, Sandstone
545	None	None	None	85 x 30	120 x 85	None	1	Sandstone
546	None	None	Dolomite	120 x 45	140 x 90	None	1	Sandstone
547	None	None	None	135 x 38	160 x 60	None	4	Sandstone
548	None	None	None	None	None	None	0	None
549	None	None	None	125 x 50	150 x 85	None	3	Sandstone
550	None	None	None	95 x 65	145 x 125	None	3	Sandstone
551	None	None	None	120 x 45	145 x 85	None	3	Limestone, Sandstone
552	None	None	None	60 x 30	80 x 50	None	1	Sandstone
553	None	None	None	74 x 28	85 x 60	None	1	Dolomite
554	None	None	None	45 x 35	60 x 55	None	0	None
555	None	None	None	30 x 50	35 x 50	Present	2	Sandstone

Table 4: Area B secondary burials.

Secondary pit burial(s)	Above	Capstones of grave #
503		512 (disturbed)
509, 511, 513		537 (disturbed)
555 (associated with 527 in cist and 541 primary child)		unexcavated capstones
538		530 (disturbed)
548		549 (primary and secondary in cist, undisturbed)

Nineteen of these cists contained primary burials, and many contained additional individual(s) in secondary interment. The majority of cists contained highly disturbed human remains, consisting of up to 5 individuals. Analysis of the human remains associated with these 58 graves determined the remains were of 93 individuals, male and female, age ranging from neonate to older adult. These Figures include primarily the remains found in pit burials and cist structures, but due to the extent of looting, they also include remains found directly associated with the grave structures (including fill above disturbed capstones and cist structures). This number of individuals is larger than what would be expected for the number of graves excavated. The high amount of looting (in antiquity) in the area contributes to such a high number of individuals. One individual's remains may have been separated throughout the area, or be partially present in a cist structure as well as outside of it, leading to an inflated Figure for minimum number of individuals.

Looting and disturbance were very common in the area and appear to have taken place in antiquity (see above for recent looting activity). Forty of the 58 graves were clearly looted or disturbed, at times systematically. In many cases, 3 of 4 capstones appeared undisturbed, but in the place of the missing capstone were the debris of grave circles, paving stones, and often the displaced capstone. In other cases, the cists were opened at one end (often the north), where much of the remains, mudplaster debris, and beads were concentrated, as if the looter had pulled the contents of the grave to the open end.

Reuse was also evident in the area. Grave 544 contained a primary burial in a disturbed cist (southern stones missing), but the burial was oriented contrary to the cist orientation (body was head north, though cist was constructed with narrow south end). In six cases (Graves 507, 517, 522, 523, 539, 549), cists contained primary burials with secondary interments. In grave 549, the secondary remains were still partially articulated in the legs and feet, showing that the individual had originally been in primary interment in that cist but was displaced to the north end of the cist to make room for a new primary burial. In other cases, the secondary remains were placed on top of the primary (for example, Grave 517) or were clearly below (Grave 523).

Grave Typologies: Area B

Area B is characterized by three main grave types: circles with cists, cists (lacking structures above or with remains of disturbed structures), and secondary burials without cists. Other features in the excavated area were empty, presumably looted, cists (2 examples) and rock features, such as stone platforms.

Circles with Cists

The most obvious/standard type of grave structure for WF 40 is marked by a stone circle (vertical dolomite) at the surface level with a stone lined cist at a lower level.

Circles did not always reflect the exact location of the cist below, and some needed to be completely removed in order to locate and excavate the cist. Most often, the circle was partially disturbed in order to excavate below. In some cases, imprecise markers may have been a result of later remarking (after disturbance, presumably from looting), perhaps with incomplete knowledge of the precise location of the cist.

Grave circles were of two types in Area B:

a) The most obvious grave circle was made up of vertical dolomite stones partially buried in the soil that marked the grave from the surface. Complete examples of this type were not present in area B, though a few were nearly complete (for example: 10, 510). In many cases, however, the grave locations appeared to be remarked with flat stones, often incorporating the partial dolomite circle.
b) An additional type of grave circle was found constructed of mixed stones lying flat around the grave location and were often discovered at lower levels of the excavation. These circles were found both at graves that did (examples: 504, 505, 508, 527) and did not have a surface,

dolomite circle (examples: 47, 517, 526). It is unclear at this time if those without the upper circle did originally have circles of both types or if the two types of circles represent different periods of grave construction. There were no examples of circles that were not marking a cist below.

Grave Cists

Cists were of a fairly uniform type and construction within area B, with variation coming primarily in the size of cist, and occasional slight variation in orientation.

The general shape of the cists was rectilinear, tapered at the southern end where the head was usually located in the undisturbed primary burials. Most cists were aligned south-north, narrowing to the south. A number of cists were aligned along a more southeast (at the narrower end) to northwest orientation. The general orientation (south-north) held true for secondary cist burials as well, though the shape in the smaller cists (child's primary and adult secondary) was a truer rectangle.

Cists followed a standard pattern of construction in area B. The highest level of the cist was constructed of large, often sandstone but occasionally dolomite and rarely limestone, capstones that closed the cist structure. A typical cist had 4 to 5 capstones lying perpendicular to the cist structure. The capstones rested most often on smaller cap support stones (made up of dolomite, sandstone, and sometimes limestone) that ran along (sometimes also just outside) the top of the stone slabs that made up the lining of the cist. Cap support stones were often laid in one course, but in a number of cases were two courses in depth. Between the capstones were cobbles to fill in the margin and level the surface, which was then covered in a mud plaster/*pisé* substance. Most examples in area B were lacking the mud plaster covering or remnants of the covering were detected just outside the limits of the capstones due to disturbance of the cist.

The cist structure was lined with large sandstone and/or dolomite side slabs (there were a few examples of occasional limestone slabs making up part of a cist lining). Most often the southern limit was the most narrow, consisting of one slab; in the north, cists had one slab or two dolomite or smaller sandstone slabs, and along the east and west sides, cists were made up of approx. 3 slabs, 2 if the slabs were especially large.

At the lowest level, the cist bottom was a coarse, sandy soil often dense with small rocks/large pebbles. There was only one case, grave 524, of a paved cist floor; other examples of paved cists have been found in WF 40. In grave 524, the paving consisted of ca. 13 stones lying flat and making up a level surface in the bottom of the cist.

Cists contained both primary and secondary burials. In the case of primary burials, typically the individual was oriented with head to the south facing west, lying on left side, legs flexed. In these cases, cists varied according to whether the burial was an adult or a child. It was also evident that in a number of cases, the primary burial in the cist was not the original burial (for examples, Figure Grave 544 — **Fig. 14** — in which the burial is oriented with its head to the north in a standard cist, or 549, in which a previous burial was still partially articulated in the northern portion of cist). This type of reuse was common in area B, and many primary burials shared a cist with secondary remains of other individual(s). There were also cases of small cists (what would appear to be child burials based on cist size) containing adult remains in secondary interment. It is not clear if these cists were originally constructed for this purpose.

Most typical for area B were disturbed cists. Often the disturbance was apparent from the condition or absence of capstones above the cists. In many cases, one capstone (often of 4) was out of place with dolomite paving and circle stones in place of the missing capstone. In other cases, the capstones were removed from one end of the cist (2 of 4 capstones missing), and the contents of the cist were concentrated in the region of the disturbance, as if the contents had been pulled to the open end for looting. In all of these cases there were also displaced dolomite stones and/or capstones inside the cist fill mixed with the human remains. The fill inside the cist was often solidified around the human remains, presumably from the consolidation of the mud plaster capstone covering that had been introduced into the cist through disturbance of the capstones.

Empty Cists

In two cases, cists were found to be empty. Grave 553, a small, partially preserved dolomite cist, was close to the surface and partially exposed. It was cleaned for recording, yielding no finds. In the case of Grave 516, the capstones appeared to be in place, though an "extra" capstone was situated directly above the northernmost capstone; however upon excavation of the cist fill, there were virtually no finds (human remains or artifacts). This grave was also unique in that it was paved (approx. 3/4 of the cist) with a large rectangular shale paving stone. The paving stone was removed

to continue excavation, but a probe below also resulted in no finds. Some wood/organic samples were collected during the removal of the cist side slabs.

Secondary Pit Burials (above capstones)

The excavated squares in area B were dense with human remains outside of cist structures. These remains were recorded and collected as separate burials when a concentration was encountered that did not appear to be the result of looting activity or other disturbance to the cemetery, though this distinction was difficult to make with precision/certainty, due to the poor preservation and condition of much of the remains.

Seven secondary pit burials were recorded and collected. In each case, the remains were placed on top of the capstones to a cist structure and did not appear to have any other mortuary structure. In the case of associated burials 509, 511, and 513, there were dolomite stones at the edge of the remains but without a clear function, and in the case of 555, the pit bordered the cist structure of Grave 541 and appeared to use 555 as a limit.

These burials sat above five larger cist structures. One was not excavated (see **Table 4**). Of the four that were, three were clearly disturbed. Only Grave 549 (below pit burial 548) contained an articulated primary burial, though even in this case, the cist had been reused containing multiple individuals in secondary interment with the primary burial.

Platforms

Two large rock features were recorded for area B.

Locus 2251 appeared to be a platform. It was located in the center of square M10 and was constructed primarily of dolomite stones (approximately 30-35 stones), extending approx. 2m (east-west) by 1.5m (north-south) (see site photo 25). The precise function of the platform is not presently clear; however, cists surround the platform's location, and it is likely that an additional grave is located below. The feature was removed and adjacent graves were excavated (510, 515, 517).

Locus 2252 was recorded as a rock feature. It was ran north-south, with a slight orientation to the northeast-southwest. It was made up of approx. 30 stones, mostly dolomite (photo 26). The feature ran about 3 to 3.5m in length with a width of 1 to 0.5m. Portions of the rock line ran adjacent to grave circles, but other than this association, the purpose of the feature is unclear. The feature was removed to excavate the graves below (510, 514, 515).

Rock Piles above Capstones

The majority of graves in area B were disturbed, presumably through looting. Forty of the 58 excavated graves (total includes secondary pit burials) were clearly disturbed. More than a dozen of the disturbed graves were found with rocks piled on top of the cist structures (**Table 5**), which usually had at least one capstone still in place. The piles above the capstones/cists appeared to be the debris or collapse of dolomite circle stones and paving stones. On occasion there were also displaced capstones in the rock piles. These piles appeared to be the debris of each grave's upper structures, though

Table 5: Area B rock piles.

Grave number	Rock pile description
518	approx. 5 dolomite
520	approx. 6 dolomite and disturbed capstone
526	approx. 4 dolomite
530	many dolomite in north
531	approx. 10 dolomite
533	approx. 10 dolomite
534	mixed dolomite and disturbed capstones
535	many dolomite
543	approx. 5 dolomite and disturbed capstone(s)
544	approx. 10 dolomite plus others
545	approx. 8 dolomite
550	many dolomite and sandstone
551	approx. 8 dolomite

they may have also contained debris from other structures.

Some Notable Graves in Area B

Grave 517

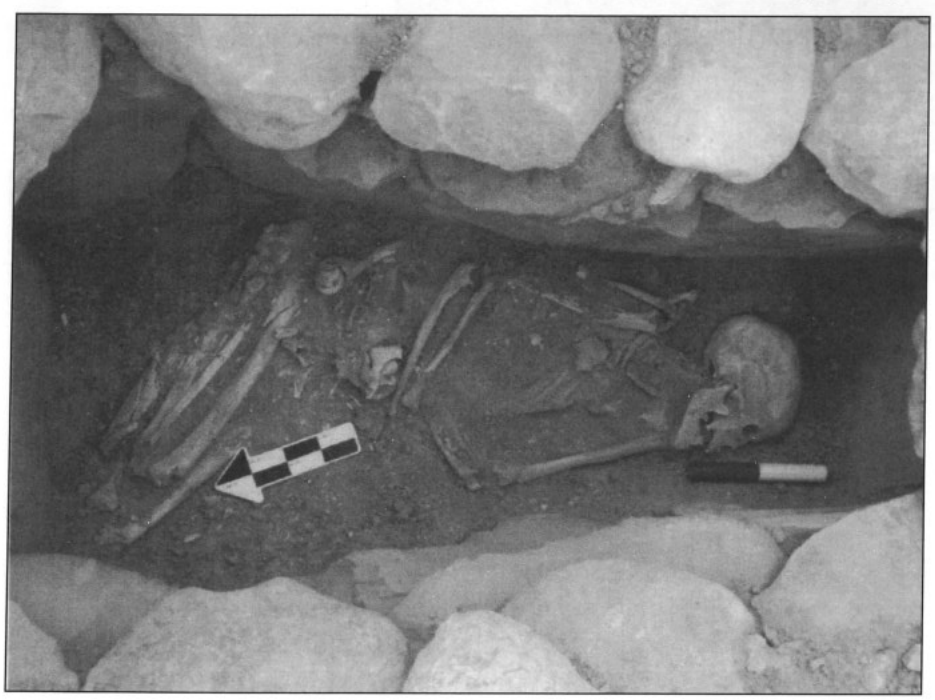
Grave 517 did not have surface monuments but had a lower ring around the cist and capstones. The ring is made up of medium sized dolomite and sandstones lying flat. The first element of 517 was the capstone locus made up of five sandstone capstones with cobbles in the seams and sealed over with mudplaster. The cist contained primary and secondary burials. The primary burial (517A) was fully articulated, flexed young to middle adult male, head oriented south, facing west with arms crossed over body (**Fig. 13**). The cist also contained the remains from a secondary burial (517B) of a young adult female. One bead was collected from the burial. Cist structure was constructed of dolomite and sandstone side slabs with sandstone and dolomite cap support stones in approximately 2 courses.

Grave 544

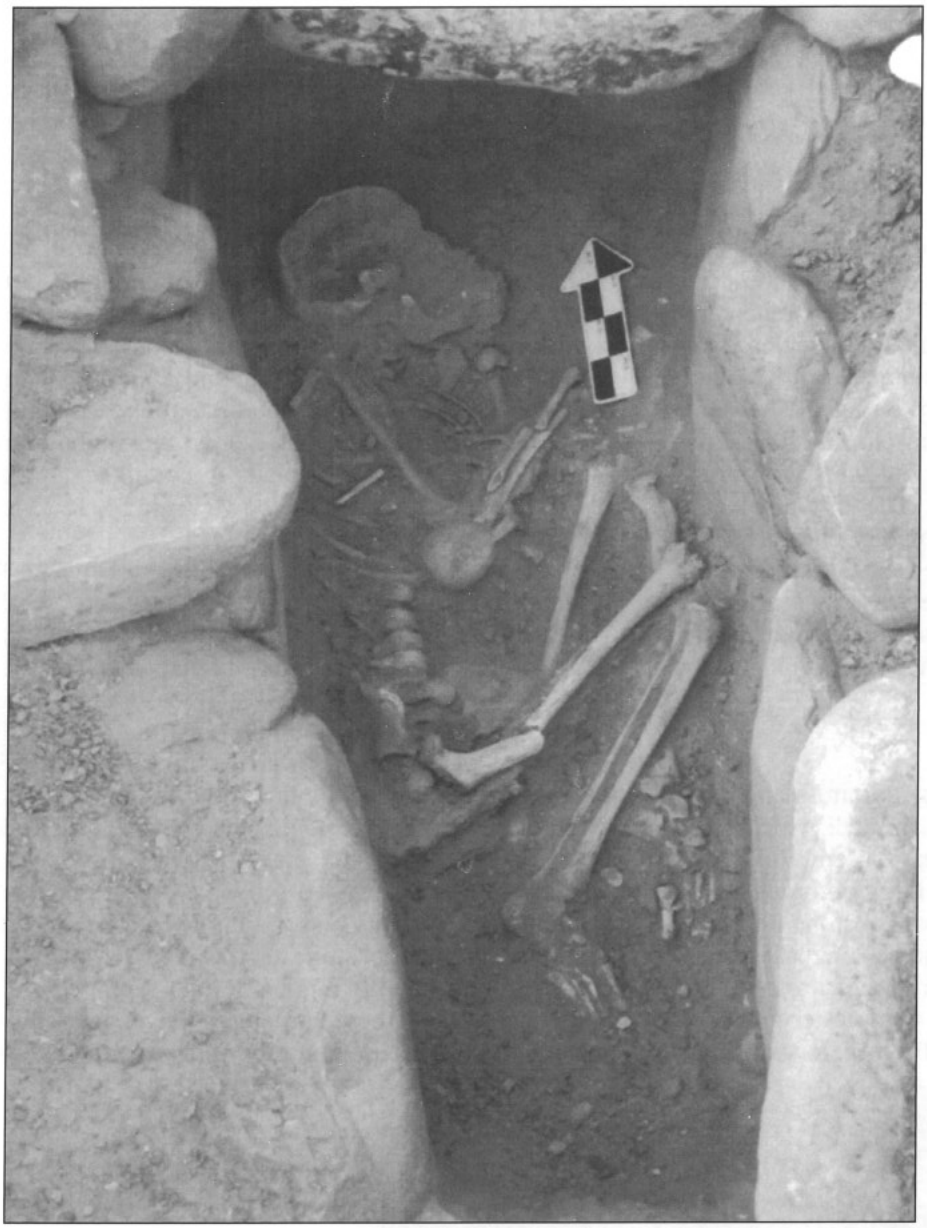
Grave 544 was made up of dolomite and capstone debris/rock pile on the surface, which with its location in line with graves 504 and 707, suggested a grave site. One very large dolomite stone is in line with the northernmost capstone and may be a marker or a standing stone no longer in place. The rock pile continued down to the capstone level. Capstones were lined with mudplaster and cobbles. The cist fill began ca. 10cm below the bottom of the capstones. Cist structure is missing its southernmost stone, but otherwise resembles those throughout the site, tapering towards the southern end. Cist constructed of sandstone and dolomite side slabs and cap supports. The primary burial was detected first in the north with the exposure of a cranium, which would be expected in the south. The individual was flexed, oriented head north facing east (**Fig. 14**). The burial contained ca. 50 beads and shells found around the neck/base of the skull, along with organic materials from the same area, including wood, charcoal, and material taken from sediment around the mandible after extracting the skull. Darker sediment below the individual may be evidence of a shroud. A complete juglet rested just below the right elbow (**Figs. 14, 15, 34**; see also artifact description below).

Excavations in Area C

The wide variety of grave types in Area C is quite similar in most respects to Areas B and A, with their secondary pit burials, stone circle structures without cists, stone circle structures with cists, but it also contains a variety of more complex architectural features including double stone circles (see for example **Fig. 17**), a rectilinear structure (**Fig. 16**; see Grave 703 grave description below), and a tumulus. Forty-two graves were defined in total in Area C in this season (**Table 6**). The area is dominated by large stone circles and large mortuary structures with more complex architecture. The majority of these structures have been disturbed, probably in antiquity, but it appears in



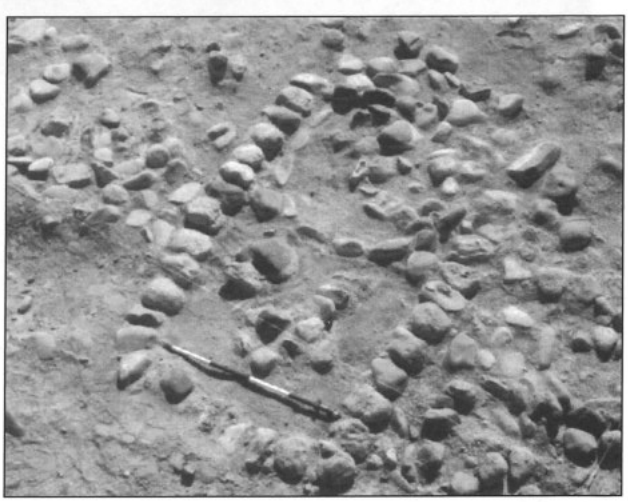
13. Area B, Grave 517 burial.



14. Area B, Grave 544 burial. Note juglet.



15. Area B, Grave 544 burial close-up. Note juglet.



16. Area C, Grave 703, rectangular burial structure.

Table 6: Area C graves summary (Dimensions are in centimeters).

Area C Grave	Circle Diameter		Circle Stone Materials	Cist Dimensions		Cist Floor Paving	Cap Stones	
Number	Inner	Outer		Inner	Outer		#	Material
700	None	None	None	None	None	None	0	N/A
701	None	351 x 267	Dolomite	109 x 47	125 x 84	Present	4	Dolomite, Limestone, Sandstone
702	44 x 36	57 x 46	Dolomite	None	None	None	2	Limestone
703	133 x 129	153 x 161	Dolomite	None	None	None	3	Limestone
704	80 x 53	92 x 79	Dolomite	105 x 61	113 x 84	None	3	Limestone
705	140 x 127	169 x 150	Dolomite	85 x 48	120 x 92	None	2	Limestone
706	195 x 180	173 x 135	Dolomite	132 x 52	156 x 88	None	4	Limestone, Sandstone
707	123 x 123	77 x 83	Dolomite	90 x 62	150 x 135	None	5	Limestone
708	39 x 43	32 x 35	Dolomite	111 x 37	143 x 74	None	3	Limestone
709	54 x 52	34 x 38	None	None	None	None	-	None
710	277 x 201	206 x 101	Assorted boulders	206 x 101	277 x 201	None	0	None
711	None	None	None	67 x 33	87 x 50	Present	2	Limestone
712	226 x 237	204 x 200	Dolomite	105 x 46	132 x 100	None	0	None
713	187 x 184	176 x 146	Dolomite	140 x 43	142 x 123	None	4	Limestone
714	230 x 225	210 x 198	Dolomite	125 x 56	154 x 85	None	5	Limestone
715	172 x 181	158 x 167	Dolomite	121 x 41	153 x 102	None	2	Limestone, Sandstone
716	85 x 89	75 x 69	Dolomite	None	None	None	2	Limestone
717	106 x 107	90 x 90	Dolomite	None	None	None	2	Limestone
718	122 x 126	108 x 111	Dolomite	97 x 66	107 x 80	None	4	Limestone
719	None	None	None	132 x 48	158 x 80	None	3	Limestone
720	135 x 160	125 x 160	Dolomite	97 x 38	134 x 95	None	3	Dolomite Limestone
721	119 x 114	101 x 102	Dolomite	None	None	Present	3	Limestone
722	147 x 106	125 x 87	Dolomite	112 x 44	112 x 82	None	3	Limestone
723	None	None	None	59 x 26	74 x 44	None	0	None
724	171 x 159	155 x 138	Dolomite	130 x 35	145 x 74	None	3	Limestone, Sandstone
725	None	None	None	75 x 28	80 x 53	None	2	Limestone
726	130 x 92	96 x 71	Dolomite	95 x 50	123 x 87	None	3	Dolomite, Limestone
727	None	None	None	None	None	None	0	None
728	None	None	None	115 x 31	124 x 74	None	3	Limestone
729	None	None	None	None	None	None	0	None
730	128 x 102	108 x 67	Dolomite	96 x 48	108 x 105	None	3	Limestone
731	None	None	None	68 x 38	107 x 68	None	3	Limestone
732	120 x 100	110 x 95	Dolomite	95 x 46	119 x 86	None	3	Limestone
733	111 x 113	103 x 102	Dolomite	None	None	None	2	Limestone
734	112 x 97	100 x 91	Dolomite	126 x 60	150 x 103	None	2	Limestone
735	115 x 100	95 x 84	Dolomite	None	None	None	2	Limestone
736	203 x 208	159 x 171	Dolomite	124 x 51	130 x 92	None	3	Limestone
737	110 x 110	100 x 97	Dolomite	74 x 38	84 x 74	Present	2	Sandstone
738	83 x ?	69 x ?	Dolomite	None	None	None	1	Limestone
739	122 x 112	95 x 77	Dolomite	None	None	None	4	Limestone
740	51 x ?	43 x ?	Dolomite	69 x 35	78 x 51	None	2	Limestone
741	None	None	None	None	None	None	2	Limestone



17. Area C, Grave 703, double burial circle.

many cases as if they were re-sanctified. For example, Grave 712 was marked on the surface by a large double grave circle (**Fig. 23**; see also grave description below). The inner circle, which was almost directly over the cist, had fully intact upper pavement within it. The fill underneath the pavement was void of artifacts and rubble save for a single standing stone with anthropomorphic features that was lying with its face up (**Fig. 38**; see artifact description below). The cist was found underneath this and was not covered with capstones. There was almost no skeletal material within the cist. It seems as if the grave was probably disturbed at one point and then re-sanctified in some manner reflected in the archaeological record by reconstructing violated architecture or constructing new burial architecture. Most of the larger and more complex mortuary features appear to have been disturbed and then put back together in some way. Given the absence of significant finds in all but two graves, it is possible that even some of the large graves that still have intact skeletons were robbed in antiquity and re-sanctified later. There are smaller graves throughout the area, too, but these seem to be mostly of juveniles and are less likely to be disturbed. Given the pattern of large and complex mortuary monuments as well as the propensity for disturbance of these large graves, it can be suggested that this was an elite area of the cemetery. Although the graves in question are from the Iron Age, the importance of this area of the cemetery may be older than that. An incredibly large stone circle and associated cist, constructed of very large boulders, was found in the area. A tabular scraper found in the cist dates the grave to the Early Bronze Age. The monumental nature of the grave helps to support the idea that this area of the cemetery may be where the elite were interred, surrounding this focal point of unknown meaning.

Grave Typologies: Area C

Pit Burial

Pit burials are burials with no associated mortuary architecture. In Area C only secondary burials were found in this sort of burial and they tended to be a tightly bunched collection of bones, primarily long bones, and are no more than 30 x 15cm in size. One such burial, Grave 700, was found lying on four paving stones. Other burials that represent this type are Graves 727 and 729.

Grave Circle with Cist

These are the most prevalent type of mortuary structure in Area C. (See for example **Fig. 19**) A circle of stones, usually of dolomite, mark the graves on the surface. The grave circles range in diameter from 50cm to 230cm The larger ones completely encircle the area of the grave cist below while the smaller ones only mark the location of the cist, with the cist itself extending beyond the area of the grave circle. An upper pavement of small stones, usually limestone and dolomite, is often found at least partially preserved within the grave circles. These layers of pavement are very close to the top of the grave circle stones and were most likely at the surface when the graves were constructed. Under the pavement is a layer of fill ranging in depth from 20cm to 90cm In undisturbed graves this fill is relatively loose and although containing a moderate amount of gravel, does not in most cases contain rubble. In disturbed graves a very high amount of rubble is found in the fill above the capstones. The capstones are generally about 40 x 20 x 10cm in size and are usually made of limestone although sandstone and dolomite were used as well. There are generally three to four stones that are laid with their length running from east to west. Intact graves have a thick mud plaster and small chinking stones over the capstones that sealed them. Disturbed graves usually have only one or two capstones removed with the rest remaining *in situ*. The capstones are resting on cap support stones, which are small stones (ca. 10cm in diameter), generally dolomite, but also limestone and sandstone that are resting on top of the cist side slabs. In some cases (Grave 715 as an example) two or three layers of cap support stones are present. The cist is usually trapezoidal in shape with the narrower end at the south. In one example, Grave 718, the cist was L-shaped with the cist bending at a 90 degree angle to the west to accommodate the legs of the individual. Three graves had ovular cists: Graves 715, 732, and 736. The av-

erage size of a cist is 130 x 50 x 50cm. Most often the side slabs are made of large limestone and dolomite stones although sandstone and granite were sometimes used as well. The orientation of the remains within undisturbed cists tends to be a flexed burial with the skull in the southern end and facing west. In two cases (Graves 706, 714) secondary burials that may have originally been interred in the cist were found pushed to the northern end to make room for the primary burial. There is one example of a secondary burial interred by itself in one of these types of cists, Grave 732). In this case the long bones are stacked in the southern end and the skull is located in the northern end. The graves that have been disturbed are usually a jumble of bone that is mixed within a hard-packed fill. The bottom of most of the graves is virgin soil underneath the level of the side slabs and the burial, but one exception was Grave 720 in which there was a pavement in the cist similar to the pavement found at the top of the mortuary structures. One notable and somewhat different example of this type of mortuary structure is Grave 710, which is most likely an Early Bronze Age grave. In this case there was a very large (277cm in diameter) stone circle made of very large boulders and a cist in the middle, again made of very large boulders, with no capstones. Pavement was found under the burials within the structure. Examples of this type of mortuary structure are Graves 720 and 736.

Grave Circles without Cists

Five examples of grave circles without cists were excavated in Area C. These grave circles tended to be small ranging in size from 85cm to 110cm in diameter. Three of the examples, Graves 716, 717, and 733 had intact pavement with non-anthropomorphic standing stones in the middle of them. Capstones much like those seen in grave circles with cists are present under similar fill, but there is no cist. Rather the capstones are resting on sediment and the bodies are buried directly under them. There appears to be no distinction between the fill of the area excavated for the body and the surrounding fill. Examples of this type of mortuary structure are Graves 713, 716, 717, 721, and 733.

Cists only

Six examples of graves that consisted only of cists were found in Area C. Graves 719 725, 728, and 731 were all discovered as capstones over grave cists. The capstones and cists are similar to those found in grave circles with cists and were probably originally associated with grave circles. Two very similar small (70 x 30 x 40cm) cists, Graves 711 and 723, were found. These cists were made of small limestone side slabs. Grave 711 had small capstones, but Grave 723 was found without capstones. Very little human remains were found in either cist. Examples of this type of mortuary structure are Graves 711, 719, 725, 723, 728, and 731.

Double Grave Circles

Four examples of mortuary structures with double rock circles were found in Area C. These consist of an inner circle — like those described above under the category of "grave circles with cist" — which is surrounded by an outer circle (see for example **Fig. 17**). The inner cist is over the cist. In Grave 708 there was pavement between the inner and outer circles. In Graves 708 and 736 the stones of the outer circle are at a lower level than those of the inner circle. Also in Grave 703 there is a rectilinear stone structure built on top of the outer circle that extends to the east of the grave. Examples of this type of mortuary structure are Graves 703, 708, 712, and 736.

Some Notable Graves in Area C

Grave 703

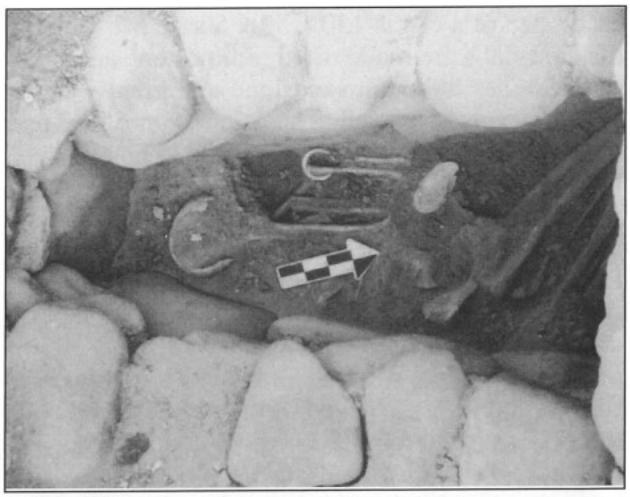
Grave 703 is a rectilinear structure (**Fig. 16**) with an associated grave circle (**Fig. 17**) in its eastern half. The structure is approximately 4 x 2 meters and is made of a single layer of assorted cobbles. The grave in the eastern half of the structure has a complete grave circle made of dolomite cobbles. Another stone circle circumscribes the smaller one. This stone circle is made of large dolomite cobbles and is at a slightly lower level, running under the walls of the installation. There is evidence of possible pavement between the two stone circles in the western part. Within the smaller stone circle there was intact pavement across approximately 1/3 of the area. Underneath the level of the pavement, there was a large amount of rubble underneath where the pavement was missing. This includes a dolomite standing stone with anthropomorphic features (**Figs. 18, 40**; see artifact description below). There were two limestone capstones, present in the north and south balks respectively. The middle capstone was missing. The grave cist was rectilinear with limestone cist support slabs and dolomite and limestone cap support stones. Human remains were scattered throughout the fill of the grave. Those that were collected were aged as a juvenile/adolescent. Pottery, one bead, and marine shell were found associated with the grave.

Grave 706

Grave 706 was marked by a partial grave circle



18. Area C, Grave 703, anthropomorphic standing stone (with nose) in the rubble fill (near scale).

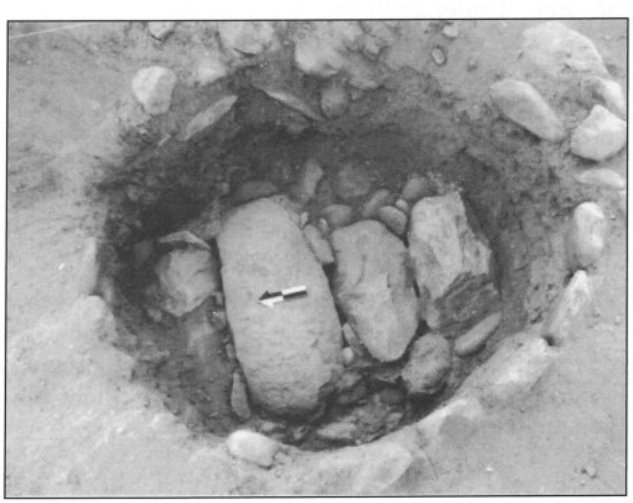


20. Area C, Grave 706 burial. Note lambis shell and bracelet of the same material.

of dolomite cobbles. No pavement was visible in the upper layer. The fill was a uniform sandy silt with gravel and no cobbles. Four capstones (three limestone, one sandstone; **Fig. 19**) were found *in situ* with a thick layer of mud plaster covering them. The grave cist is trapezoidal with the narrowest part in the south. The cist side slabs are all dolomite, although in the east they are smaller and there is mud plaster between the stones. Resting on the cist side slabs are two layers of dolomite cap stones. The cist was undisturbed with two burials, a primary and a secondary. The primary burial (**Fig. 20**) was in a flexed position, lying on its left side with its head oriented to the north. Human remains from the primary burial were sexed as female and aged at 18. A lambis shell bracelet was found around the wrist of the individual. There was also a mother-of-pearl shell found to the west of the body. A bone pendant and several beads, possibly of malachite, were found in the region of the neck, and a large number of small beads were found around the pelvic region. The secondary burial was placed at the north of the cist at the feet of the primary burial. It was sexed as female and aged at 36. Several beads were found in the northern part of the grave and are probably associated with this burial rather than with the primary one. There was no pavement underneath the burials.

Grave 710

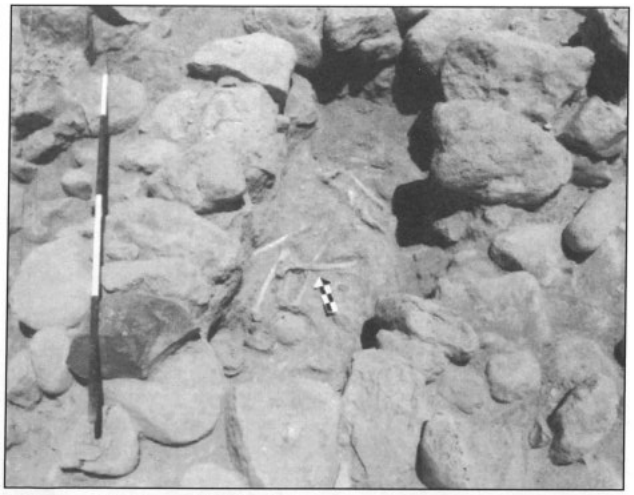
This grave was marked by a very large (277 centimeters in maximum extent) stone circle made of boulders. A rectilinear cist is inside the circle and is also made of large boulders. The entire architectural feature was covered with a rubble pile made up of a variety of different cobble stones (**Fig. 21**). The cist was at the same level as the stone circle. Within the cist was a large amount of human remains (**Fig. 22**). Four skulls were located at the south end of the cist. One of the skulls was



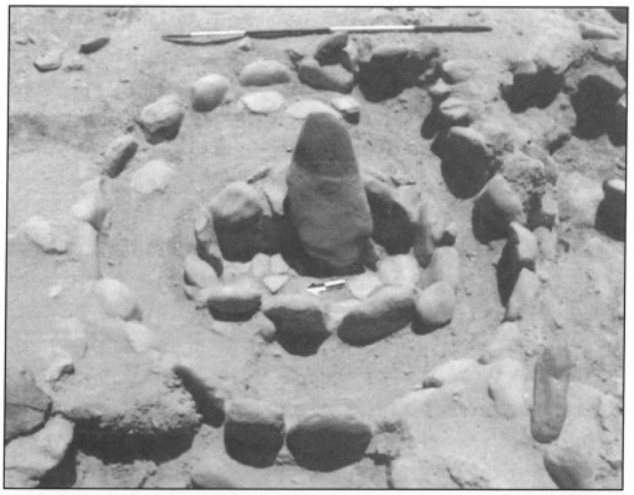
19. Area C, Grave 706 capstones.



21. Area C, Grave 710 rubble pile. Note the very large stones which make up part of the cist.



22. Area C, Grave 710 burial.

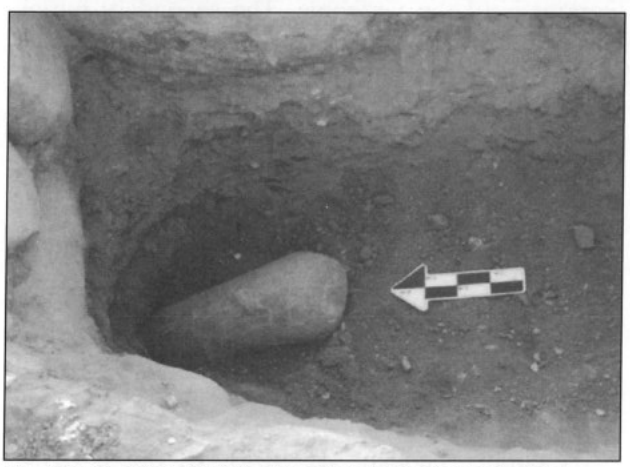


23. Area C, Grave 712 stone circles, pavement, and standing stone.

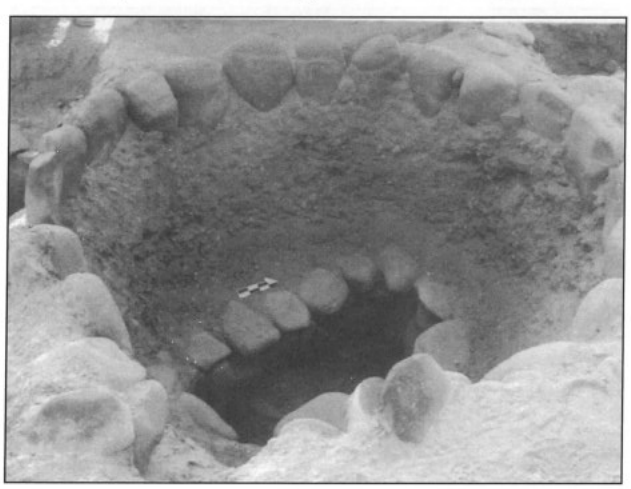
associated with vertebrae and an os coxae. Most of the long bones were located in the middle and northern parts of the cist, although they were generally not articulated. This suggests a secondary burial for all individuals. The four individuals in the cist were an adult male, an adult female, an adult of undetermined sex, and a sub-adult of undetermined sex. A large number of beads as well as an Early Bronze Age tabular scraper were found within the cist. The tabular scraper was found near one of the skulls. The human remains were placed directly onto pavement made of relatively large stones. This pavement was sectioned and removed in the south. Approximately 20cm of sterile soil was under the pavement before a large boulder, similar to the ones used in the construction of the grave circle and cist, was found. Beads and pottery were associated with the grave along with the tabular scraper.

Grave 712

Grave 712 was marked by two concentric stone circles made of dolomite cobbles. A shallow robber's trench was in the middle of the grave feature, but it did not reach the pavement of the inner circle. The outer circle is quite large (294 centimeters in maximum extent). The inner circle is more ovular in shape and lies directly over the cist. In the east of the circle is a large standing stone with shoulders but with no other anthropomorphic features, placed upside down (**Fig. 23**). One of the rock circle stones in the west has a number of straight lines incised onto it. The inner circle was covered with paving stones. There was a small amount of pavement between in the big stone circle and the little stone circle preserved in the northeastern part. In the fill underneath the small stone circle was a small standing stone with anthropomorphic features placed lying face up with the head oriented to the north (**Figs. 24, 38**; see also artifact description below). There were no capstones over the cist. The cist was made of dolomite cist side slabs with two layers of dolomite cap support stones (**Fig. 25**). There was very little skeletal



24. Area C, Grave 712 standing stone beneath inner circle.



25. Area C, Grave 712 outer circle and cist.

material in the cist. What was there was identified as a young/middle adult, age 30-40. It appears as if the grave was probably disturbed and then later re-sanctified. Pottery was the only special find associated with the grave.

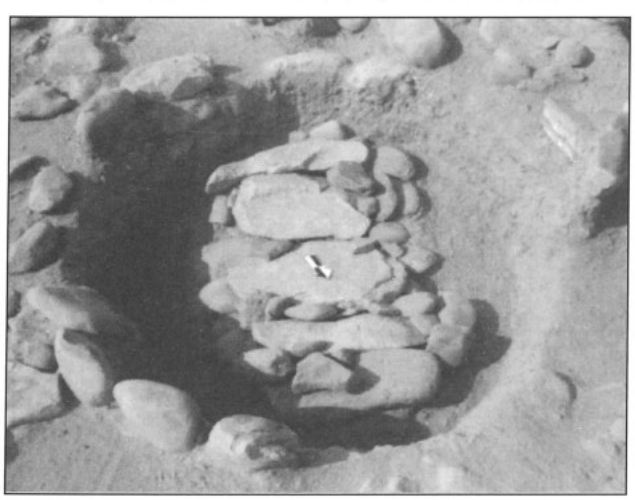
Grave 714

Grave 714 was marked by a small number of dolomite cobbles forming the northeast part of a large grave circle. No rubble was found in the fill above the capstones. Five limestone capstones (**Fig. 26**) were found *in situ* with chinking stones and a large mound of mud plaster sealing them. The grave cist was trapezoidal with the narrowest part in the southern end. The cist side slabs were made of dolomite, and there are two layers of dolomite cap support stones. A primary and a secondary burial were found within the cist (**Fig. 27**). The primary burial was an adult male, age estimated at 42. He was placed in a flexed position on his left side with his head oriented to the south. A number of pathologies were found on the bone including trauma to the ribs and vertebrae as well as severe osteoporosis of the vertebrae. The secondary burial was placed in the northern part of the cist at the feet of the primary burial. One of the feet of the secondary burial was underneath the feet of the primary burial in the same position. It is likely that the secondary burial was initially interred in the cist as a primary burial and then pushed to the north in order to make room for a new burial. Two beads, a pendant, and wood were found associated with the burial. The pendant was found near the neck of the primary burial (**Fig. 28**).

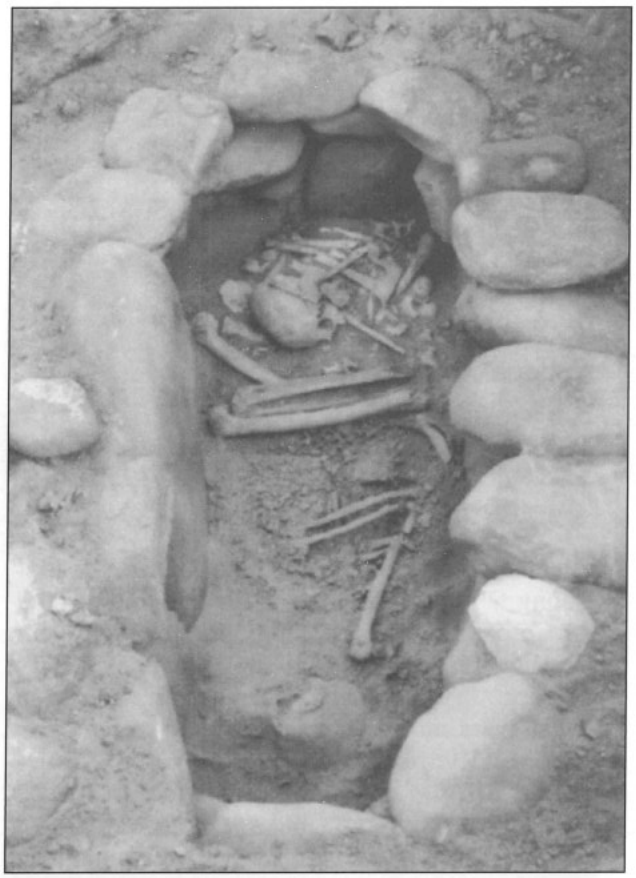
Special Finds from the 2004 Season

A Double Spiral Copper Pendant

A copper pendant (L. 9243, B. 8660, EDM 89220; **Fig. 29**) made of a simple copper wire twisted into double-spiral was discovered in Grave 371 of Area A (**Fig. 29A**; see grave discussion above). The pendant consists of two tightly coiled flat spirals of round-section copper continuously joined by a central loop. This pendant is similar to the gold double spiral pendant found at Ṭuwaylān (Ogden 1995: 73-74, 287), but with that example the spiral served as the base for a more elaborate



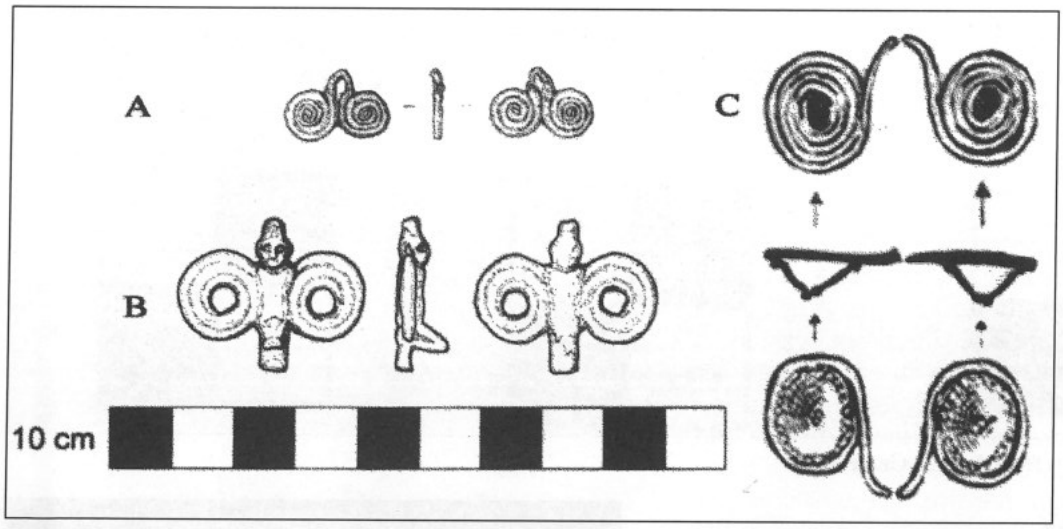
26. Area C, Grave 714 capstones.



27. Area C, Grave 714 burials.



28. Area C, Grave 714 burial close-up. Note triangular pendant with small hole.



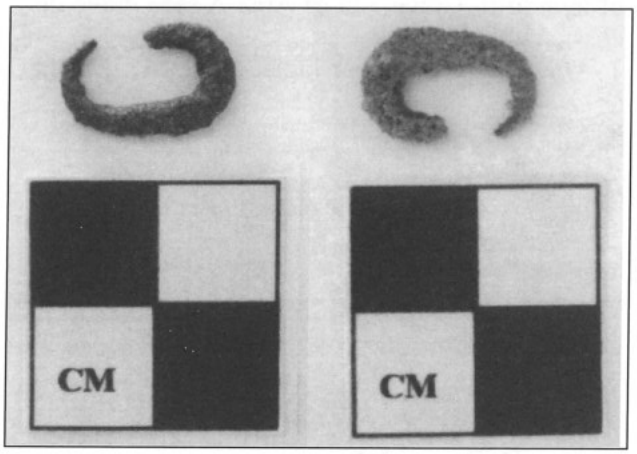
29. A) The double spiral copper pendant from Area A, Grave 371; B) double spiral figurine from Khirbat an-Nuḥās, C) gold double spiral pendant from Ṭuwaylān (Bennett and Bienkowski 1995: 277).

granulated domed covering. If any covering existed on the WFD 40 pendant, it perished or its remains passed through the 1/8 screen. Ogden has set this spiral form firmly in the tradition of the Late Bronze — Iron Age Near East, and in a Palestinian context at Tall al-'Ujūl in so-called Governor's Tomb dating to the Late Bronze Age with internments up to the time of Ramesses II (ibid. 74). The parallel comes from a simple copper alloy wire double-spiral pendant which is quite similar to the Wādī Fīdān 40 sample (Petrie 1933: pl. IX no. 28 — **Fig. 29B**). Significantly for the Iron Age settlement of the lowlands of Edom, a bronze pendant consisting of a figurine with double spiral wings was found at Khirbat an-Nuḥās (**Fig. 29C**) in the Iron Age II fill of stratum A1 in one of the fortress guard rooms of the four chamber gate. The double spiral pendant from the WFD 40 cemetery is nothing as spectacular as the Ṭuwaylān gold pendant and associated assemblage. However, in terms of dating the gold hoard, Ogden says "There seems little doubt that the hoard of gold jewellery from Ṭuwaylān pre-dates the majority of the other finds from the site and either presents evidence for earlier settlement or is a hoard, or separte finds, discovered in antiquity and then reburied for safety" (Ogden 1995: 74). The similarity between the WFD 40, Khirbat an-Nuḥās and Ṭuwaylān double spiral pendants suggests that they are all at home in the early part of the Iron II period. The discussion below of the radiocarbon dates from WFD 40 help clarify this chronological issue.

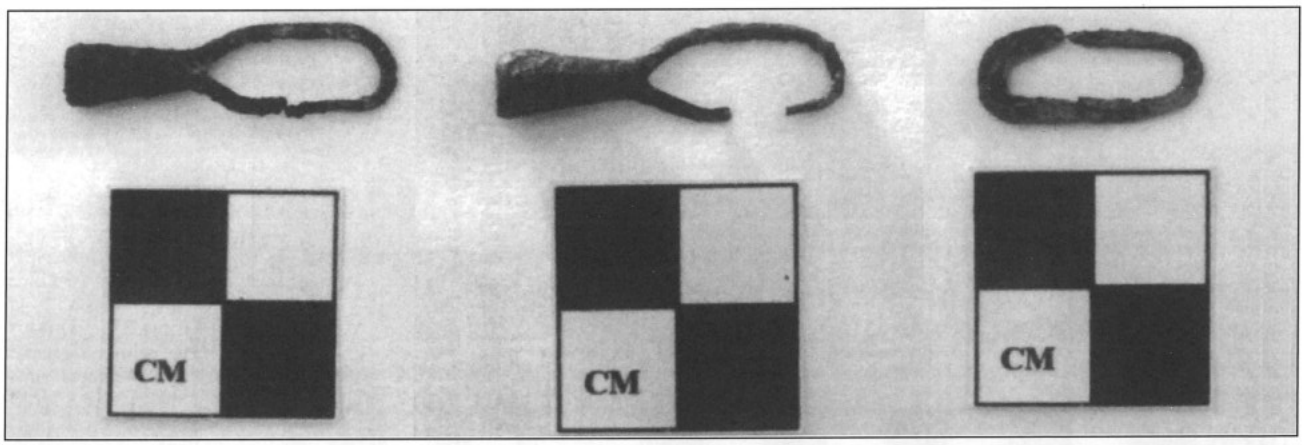
The Copper Hoop Earrings

Several copper hoop earrings were found at the cemetery, primarily associated with children's graves. These earrings consist of two types and both types have been found in the same grave. The first is the simple hoop earring. Ogden (1995) refers to these as the 'leech form'. These are similar to earrings found widely and over long periods of time in the Near East, including the gold earrings and the gold-covered copper alloy earring found at Ṭuwaylān (Ogden 1995) and the bronze earrings of the transitional Late Bronze/Iron Age burial cave at Saḥm (Fischer 1997: 133). Two of these hoop/leech earrings (L. 3119, B. 3060 and 3606, EDM 86994 and 70004; **Fig. 30**) were found in Area A, Grave 345 (see grave discussion above) and a third was found in Area A, Grave 371 (L. 9243, B. 3246, EDM 70391; **Fig. 31**; see grave discussion above).

The other type of bronze earring found here is a hoop with a projecting cylinder or stump. It is possible that the stumps were designed to hold additional decorative pieces to the earring. Two of these were found in Area A, Grave 371 (L. 9243, B. 3244 and 3245, EDM 70387 and 70390; **Fig. 31**), both in the same grave and in association with a simple hoop earring.



30. Two copper hoop (leech form) earrings from Area A, Grave 345.



31. Three copper earrings from Area A, Grave 371.

The Copper Bracelet

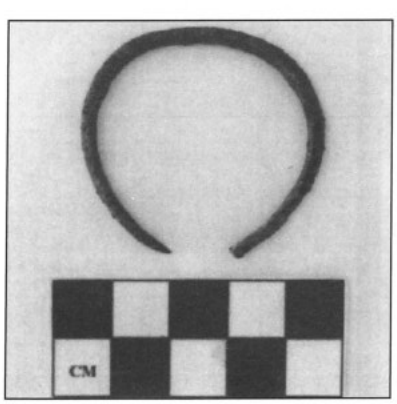
Adding to the assemblage of copper objects found at the cemetery is a copper bracelet (Grave 371, L. 9243, B. 3240, EDM 70369; **Fig. 32**) which was found in the same grave as the simple copper hoop earrings and the hoop earrings with projecting cylinders described above, in Area A, Grave 371 (see grave discussion above). It consists of a thin, simple ring of copper that tapers to a point at one end. It was found on the right arm of a deceased child. A similar copper bracelet was found on the arm of another child discovered in the Wādī Fīdān 40 cemetery (Grave 97; B. 3620) (Levy *et al.* 1999: 301).

The Complete Pots

Pottery was very rare in this cemetery. Potsherds were very rare, usually occurring in the fill above graves if at all. Nevertheless, two complete ceramic vessels were found within cists at the cemetery.

A bowl (L. 3063, B. 3094, EDM 86998; **Fig. 33**) was discovered in association with the remains of a child in Grave 345 of Area A (see grave discussion above).

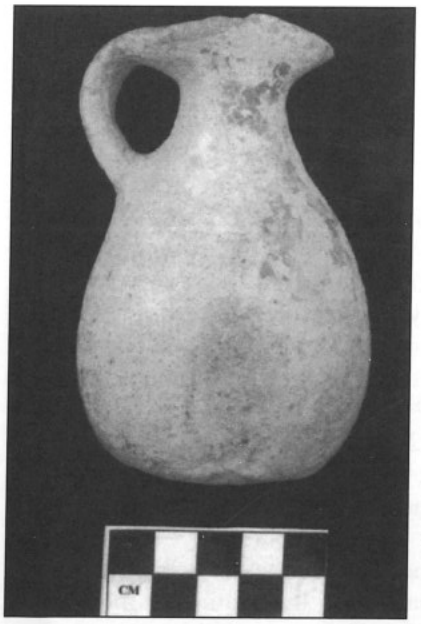
One complete dipper juglet (L. 9381, B. 5308, EDM 72399; **Fig. 34**) was found in Area B. This was found in the cist of Grave 544, next to the right elbow of the entombed (see grave description above). Like the bowl, it is difficult to firmly place it in local typologies. This dipper juglet has an elongated ovoid shape with a flat base. The handle attaches from rim to shoulder. The rim has been pinched creating a pronounced spout. The exterior color ranges from pink to pinkish-white; there are also grey patches from firing. There is no decoration, slip, or burnish visible on the surface. Despite the flat base and plain exterior, parallels are attested at Lachish III (pl. 88:300-302), TBM III (pl. 18:20), TBM I (pl. 51:12), Beersheva I (pl. 55:14 str IV), and Ein Gedi (fig. 30:18). Traditional dating would place this juglet within the tenth-ninth century BC, however, this style continues into the seventh century BC, as witnessed at Ein Gedi (fig. 30:18) (*cf.* Lachish III: p. 295). There are no clear parallels from other sites excavated in Edom, but there is evidence of perhaps later forms without the



32. The copper bracelet from Area A, Grave 371.



33. The ceramic bowl from Area A, Grave 345.



34. The ceramic juglet from Area B, Grave 544.

pinched rim: *cf.* Ghurāra (Hart 1989: pl. 20:1-2), Umm al-Biyāra (Bennett 1966: pl. 2:14), and Tall al-Khalifa (Practico 1993: pl. 30:9).

The Wooden Bowl

Among the most impressive finds of the season was a wooden bowl (L. 2172; B. 2785; EDM 86460; **Fig. 35**) found in Area A, Grave 59 (see grave discussion above). Unfortunately, although well preserved, this bowl began to disintegrate after the cap stones of the cist had been removed. Nevertheless, the bowl was photographed, studied *in situ* and now conserved. The wooden bowl from Grave 59 is very similar to ones found in the earlier excavations at Wādī Fīdān 40 (*cf.* Levy *et al.* 1999: 300). These bowls are approximately 15cm in diameter and ca. 6.5cm deep. The ones found earlier in Area A (Graves 92 and 97; other graves with wooden bowls include Nos. 12 and 22) have a single rectilinear lug protruding along the rim of the bowl. The example from Grave 59 has twin lugs located at opposite sides of the bowl rim and are more pronounced protrusions than those found in Graves 92 and 97. At the time of the Grave 59 burial ritual, the bowl was filled with pomegranates and place on the chest of the deceased. Four pomegranates were found inside the bowl and another four inside the cist grave but in close proximity to the bowl. It is highly possible that at the time of burial all of the fruit were in the same wooden bowl. Wooden bowls and bowl fragments are common in the Wādī Fīdān cemetery. In 1997 four graves (Numbers 22, 92, 97, and 12) were found with pomegranates. The 2004 excavations revealed an additional 5 graves with pomegranates. The absence of extensive evidence of ceramic vessels in the tombs at Wādī Fīdān 40 (*cf.* Levy *et al.* 1999), the importance of wooden bowls and other wooden implements in traditional Bedouin society (Musil 1927), and other attributes has led us to interpret WFD 40 as a cemetery that belonged to a nomadic community.



35. The wooden bowl from Area A, Grave 59. The pomagrantes found in association with this bowl were dated using high precision radiocarbon dating methods at the Oxford Radiocarbon Accelerator Unit (see below).

The Iron Blade Fragments

Iron fragments (L. 2147, B. 2917, EDM 86776; **Fig. 36**), possibly from a blade, were discovered in Area A, Grave 9, near the head of the entombed (see grave discussion above). What appears to be



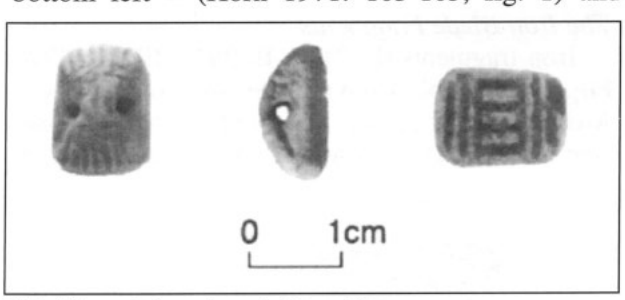
36. Iron fragments from Area A, Grave 9.

bitumen remaining on the fragments is probably the remains of hafting. Unfortunately, the pieces are extremely fragmentary and consist mostly of corroded metal to say anything conclusive about the artifact's nature.

The Stamp Seal from Grave 91 (Area A)

As indicated above, Grave 91 (**Figs. 7, 8**) was disturbed in antiquity. Although a number of the cap stones were removed, one of the most important small artifact finds was discovered in this tomb. The artifact is an Egyptian stamp seal (**Fig. 37A**). The context of the find is summarized as: Area A, Grave 91, Locus 3050, Basket 2983, EDM Registration-no. 86873. Before describing the stamp seal, a number of points need clarification: a) in the discussion below the symbol * indicates that the given parallel has no stratigraphic attribution; b) the measurements described here were taken from digitial photographs made in the field; c) the report on the stamp follow the conventional Iron Age chronology according to *The New Encyclopedia of Archaeological Excavations in the Holy Land*, and d) the dates are according to Keel (1995: 660-666).

The object is almost a rectangular 'piece with sheaf shaped handles' (Keel 1995, see 210, 212-213 [type II]. Keel catalogued well over 20 items from Israel/Palestine) in (Keel, Shuval and Uehlinger 1990: 355-660), updated in (Keel 1995: 212); further see (Keel 1997: 'Ashkelon' no. 108) to which the following from Transjordan should be added: *Saḥāb, tomb C: (Dajani 1970: 34, pl. 23 bottom left = (Horn 1971: 103-105, fig. 1) and



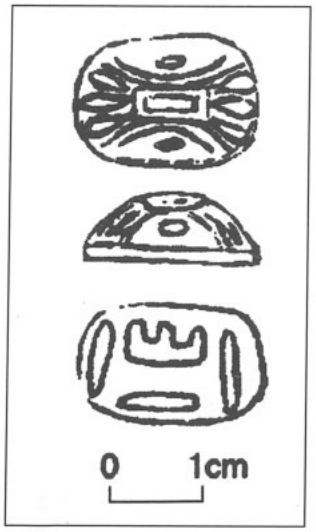
37A. The seal from Area A, Grave 91.

*Tall as-Sa'īdiyya, tomb 354 (Tubb 1990: 40 (not illustrated).

Contrary to other seals of this type, which normally tend to be more oval, the plinth of the item from the Wādī Fīdān 40 cemetery is almost rectangular; similar in shape are examples from *Tall Abū Ḥawwām, Str. IIIB[1] : (Hamilton 1935: 28 no. 151 = (Keel 1997: 'Tall Abū Ḥawwām' no. 7), *Tall al-Fār'a South, tomb 524[2] : (Petrie 1930: pl. 31: 301 (listed by Petrie as coming from tomb 504; for a correction of this attribution, see (Braunstein 1998: 506), *Tall al-Fār'a South, tomb 133[3] (Petrie 1930: pl. 29: 273) and *Gezer, tomb 96[4] (Macalister 1912: III: pl. 90: 30[5]. The seal is somewhat worn; its plinth is slightly damaged (the upper part of the fourth vertical stroke is apparently broken out along the outer edge). The base is engraved in a bold, linear style. Preliminary observations indicate that the stamp is made of a composite material. This is probably correct since 'oval/rectangular pieces with sheaf shaped handles' are almost exclusively made of composition (Keel 1995: 394-395) with a greenish or bluish glaze[6]. With its measurements of 14.5 x 10.5 x 8.0mm the seal is among the smallest of its type[7].

BASE: The base should most probably be viewed horizontally. It shows four vertical strokes flanking — two on each side — an endwise-vertical rectangle which is horizontally divided by two additional lines into three segments. The decoration on the seal's base is uncommon and no exact parallel could be found. However, on the basis of comparative material it might be suggested that this geometric pattern imitates or alludes to the divine name of *Jmn* 'Amun', similar to seals of the same type bearing — equally, though to a lesser extent — debased renderings of the name of this Egyptian deity. Closest to the base engraving of the seal discussed here comes an unstratified item from Gezer (**Fig. 37B**); (Macalister 1912: II: 322 no. 217 and III: pl. 207:30; *cf.* also *infra* note 7 regarding its dimensions). Other 'pieces with sheaf shaped handles' bearing the defectively (vertically

1. For the dating of this stratum to the Iron Age IIB, *cf.* Balensi *et al.* 1993: 9-10.
2. The ceramic grave good fits a Iron Age IB horizon best (*cf.* type 16S2 [bell-shaped bowl], type 23B4 [bell-shaped bowl], type 55T2 [tall piriform pyxis]; see Petrie 1930: pl. 69 and Duncan 1930).
3. According to Petrie the two-phased tomb 133 contained no pottery (1930: pl. 68; Braunstein 1998: 488; the finds are not associated with a specific phase). However, among the grave-good a so-called post-Ramesside mass-production seal was found (Petrie 1930: 10, pl. 29:272 = Munger in press Fig. 1:3) indicating that the grave was in use in the terminal stages of the Iron Age IB (Munger 2003).
4. The tomb is contemporary to Str. VIII; *cf.* Dever *et al.* 1974 1974: 4 fig. 1.
5. An equally 'rectangular piece with a sheaf shaped handle' bearing a somewhat similar base engraving is Basle: von Bissing collection: Hornung and Staehelin 1976: no. 588.
6. But *cf.*, e.g., Basel: Museum für Völkerkunde: Hornung and Staehelin 1976: nos. 17-18 where the material Steatite is indicated – though with a question mark.
7. A seal with similar dimensions is, e.g., the seal from tomb 133 at Tall al- Far'a South mentioned above. The measurements indicated by Keel (in Keel *et al.* 1990: 356 no. 13 and 1995: §212) for the below cited item from Gezer should be doubled.



37B. The seal from Area A, Grave 91.

arranged) written names of Amun are, e.g., *Tall Abū Ḥawwām , Str. IIIB[8] : Hamilton 1935: 28 no. 151 = (Keel 1997): Tall Abū Ḥawwām no. 7, Tall al-Fār'a South, tomb 643. Petrie 1930: pl. 35: 401, (*)Tall al-Fār'a South, "*Stratum*" Y: (Macdonald, Starkey, and Lankester-Harding 1932: pl. 62: 20 and *Timna South, site 200 (*Hathor sanctuary*), locus 107: (Schulman 1988: 138, Eg.Cat, fig. 46,9 and pl. 123,6).

DATE: In so far as none of the comparative seals in question bear a datable inscription, i.e. a pharaonic name that is likely to be contemporaneous with the seals' production (Jaeger 1982),[9] it is appropriate to give a relative date. Among the earliest find spots is the one from Saḥāb (see above) where a rectangular/oval piece with sheaf shaped handle' was found in a tomb-chamber that mainly contained LBII-I material (Dajani 1970: 30). However, it cannot be ruled out that this seal was deposited at a later time, since tomb C at Saḥāb was in use until the Iron Age IIB[10]. Another case is the seal found in the Hathor sanctuary at Timna South (see above; (Rothenberg 1993) that is dated to the 19th-20th dynasties (1292-1075)[11]. Nevertheless, all other stratified items from Cis- and Transjordan were found in find context's dating to the Iron Age IB or later. In view of the debased base engraving and the unusual material used (which might point to a local production) a date for the seal from the Wādī Fīdān 40 cemetery at the end of the 20th dynasty until the 21st dynasty (ca. 1100-950 BC) is suggested (see also Keel 1995: 213 with earlier literature). As will be discussed below, this reading of the stamp seal from the Grave 91 is remarkably close to the average of 7 radiocarbon dates from Grave 59 at the 2 sigma range (95.4% probability) and places Grave 91 in the 10th century BC.

Anthropomorphic Standing Stones or Massebot

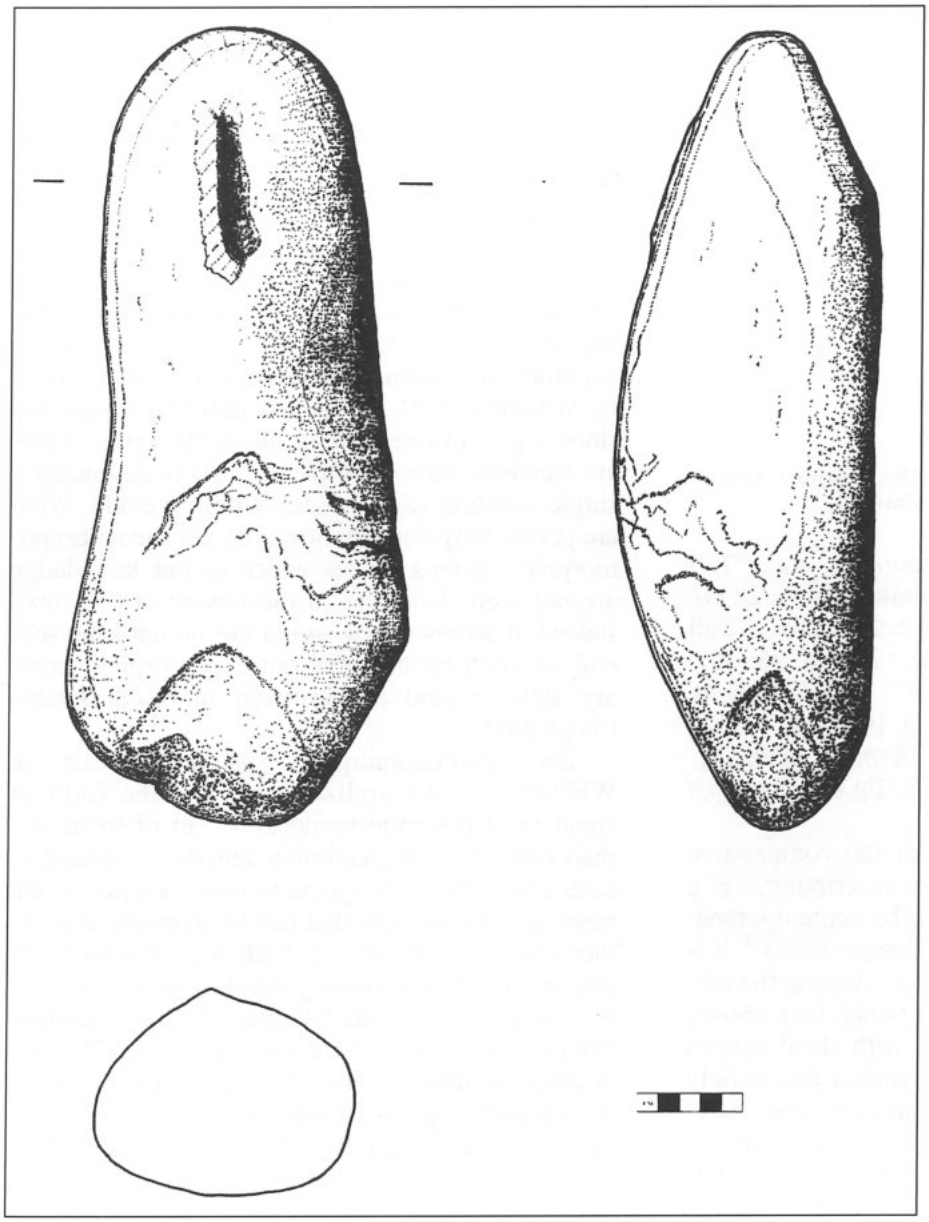
A common feature of religious life in the Levant from the Bronze Age on, including the Iron Age and even the Early Arab Period, is the standing stone or standing stone complex (Avner 1984). At Wādī Fīdān 40, we have a number of standing stone types. In one respect, all of the grave circles are standing stones complexes, and occasionally a single standing stone is seen within a circle. What are particularly notable, however, are the anthropomorphic standing stones which to our knowledge are not seen elsewhere in the Levant at this time. Indeed, it seems that it would not be until the seventh or sixth century that anthropomorphic funerary stelae would appear even in South Arabia (Vogt 2002).

The anthropomorphic standing stones at WFD40 are very stylized and take the form of small local dolomite boulders — all of them less than one meter in maximum length — shaped in such a way that they appear to possess a prominent nose, side projections that can be interpreted as either shoulders or ears, or both the nose and side projections. These have generally been found on the surface of the site, though on rare occasions (most impressively in the case of Grave 712; see description above), particularly in graves disturbed in antiquity, they are found in the grave fill. Presumably at one time they stood over and marked the graves, possibly representing either the deceased or deities.

One massebah associated with a grave was found lying flat and buried in Grave 712 (see grave discussion above). It has the prominent nose common to these anthropomorphic stones but not the ears or shoulders (L. 249, B. 6875, EDM 88517; **Fig. 38**).

An unusual anthropomorphic standing stone with a nose and very prominent ears (L. 2457, B. 6573, EDM 88366; **Fig. 39**) is a surface find, also from Area C. Unlike most of the anthropomorphic

8. For the dating of this stratum to the Iron Age IIB, *cf.* Balensi *et al.* 1993: 9-10.
9. For a dismissal of hitherto proposed readings of Pharaonic names on such seals' bases *cf.* Jager 1982: §1048 and KEEL 1995: §212).
10. For a critique of the early dating of the Early Iron Age cemeteries and the corresponding Str. XII at Tall as-Sa'idiyya, *cf.* Münger 2003: 75 with further references). An item from Megiddo (LOUD 1948: 146 with pl. 162:9) was associated by its excavators with Str. VII. Yet, they did not rule out a somewhat later date of the find spot. For another outlier from Tall Jemmeh, *cf.* Keel 1995: §213).
11. *Cf.* also the summary in Rothenberg 1993:pp. 1482-1485.



38. The anthropomorphic standing stone from Area C, Grave 712.

standing stones at WFD 40, this stone was rectangular rather than rounded.

A more common intermediate type which displays side projections but without particular prominent side projections (L. 2431, B. 6626, EDM 88194; **Fig. 40**) was found in Area C, Grave 703 (see grave description above).

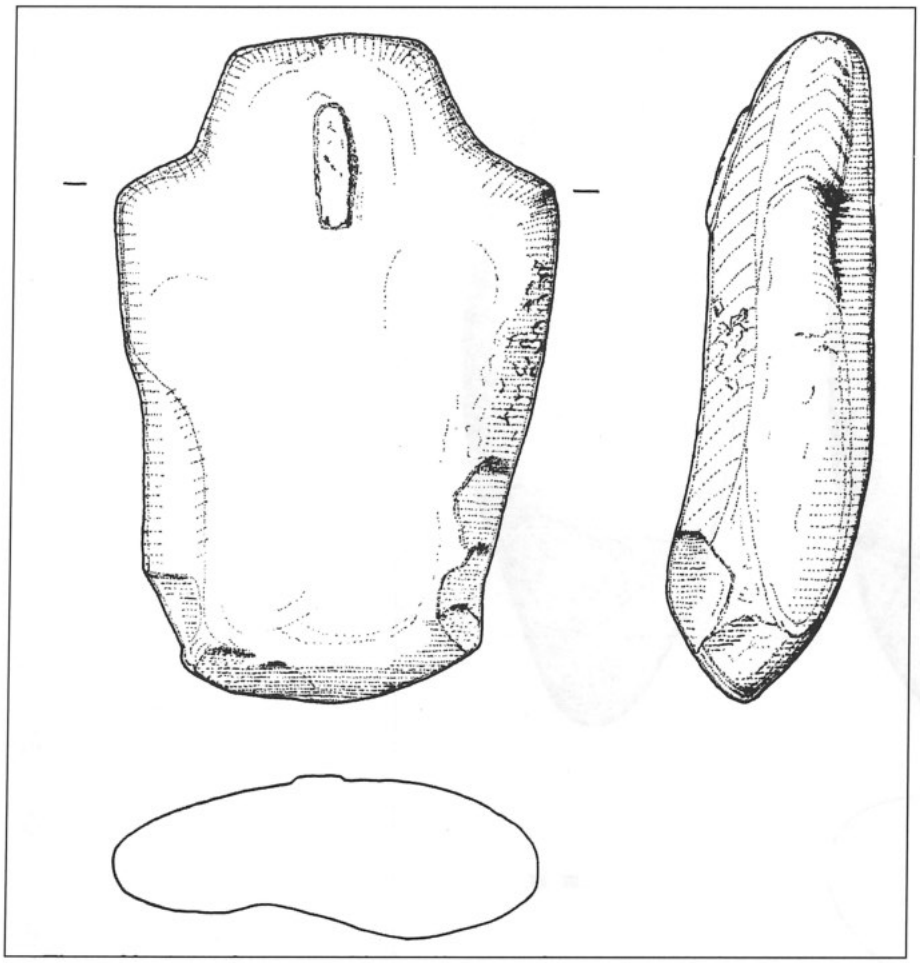
PRELIMINARY STUDY OF HUMAN REMAINS FROM WĀDĪ FĪDĀN 40 CEMETERY EXCAVATIONS, 2004

Overview of the 2004 Cemetery Population

During the 2004 season, a total of 172 graves were excavated from the Wādī Fīdān 40 Cemetery. The total number of individual burials excavated and analyzed is 235. The number of burials is significantly higher than the number of graves due to the frequency of graves containing more than one individual. Multiple individuals from single graves were found in a variety of contexts:

- Some grave cists contained a primary interment with secondary remains either scattered throughout the cist fill or neatly placed at the foot of the primary burial.
- Many disturbed grave cists contained no clear primary interment, but instead contained remains of multiple individuals.
- Many other grave cists contained one individual, with secondary and/or scattered remains located in the grave pit outside the cist structure.

Mortuary analysis is critical for understanding

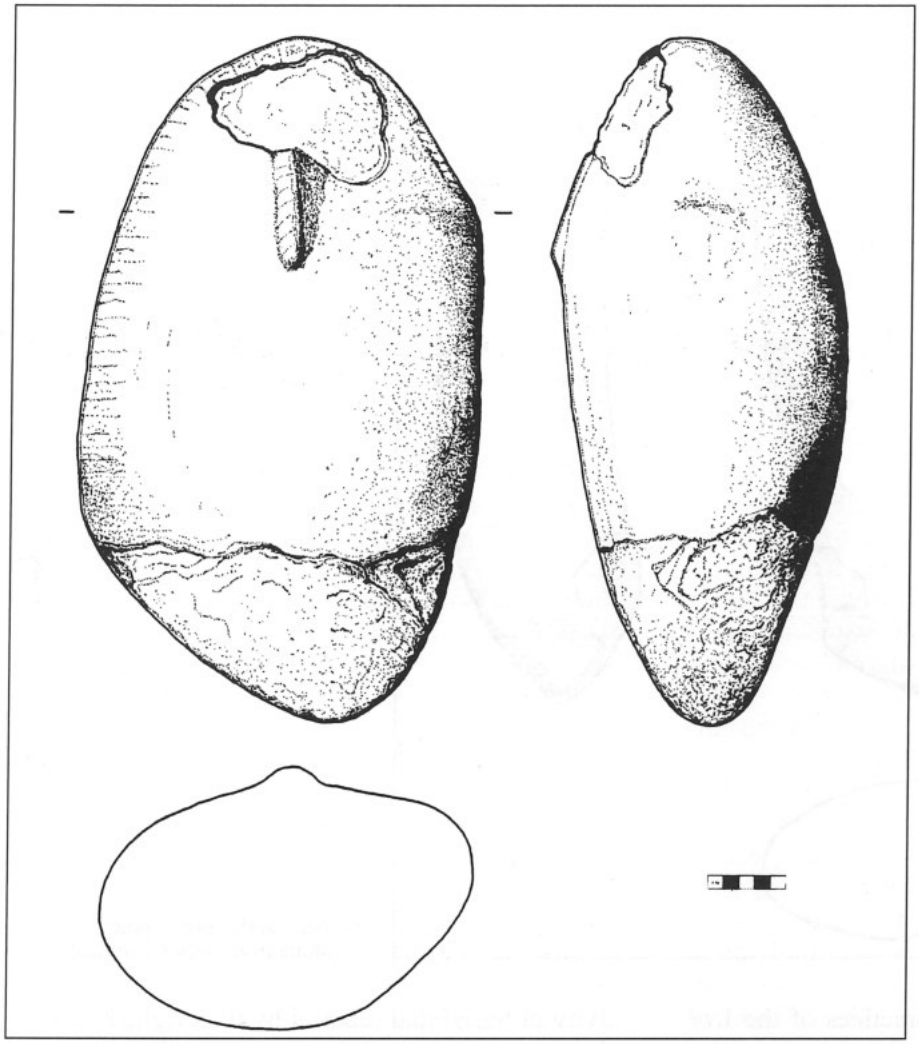


39. An anthropomorphic standing stone from Area C, surface.

the behavior and ceremonial practices of the Iron Age Wādī Fīdān inhabitants (and later groups that used the cemetery). For each grave, an assessment was made of burial type (single, double, multiple, or indeterminate); burial disposal (primary, secondary, or indeterminate); position (flexed, semi-flexed, hyper-flexed, extended); disposition (on back, left side, right side, prone, etc.); orientation (direction of head), and facing direction. The last four descriptions are possible for primary burials only. At time of this preliminary report, analysis is forthcoming.

Materials

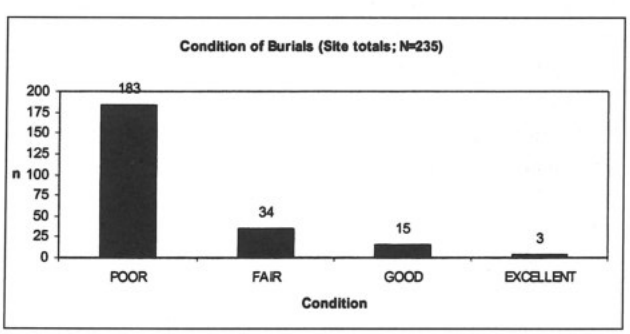
A total of 235 individuals were excavated from 172 distinct grave contexts. This very high MNI is misleading without qualification. A large number of "individuals" are represented by very small amounts of skeletal material, often less than an estimated 5% of a complete skeleton. This is due primarily to the extreme density of the Wādī Fīdān 40 Cemetery. The number of graves packed into the spatial limits of the site is astounding. Disturbance to graves since antiquity, and even the activity of burial and reburial by the original users of the cemetery, have left human remain scatters of varying quantity throughout grave pit and cist fills, in addition to (and in close proximity to) the large number of clear primary and secondary interments. For instance, Area B of the cemetery revealed an especially marked degree of disturbance, and multiple individuals within grave contexts were very common, often with only a very small amount of remains representing an individual. In dealing with such a dense cemetery with substantial disturbance, unless a burial is clearly primary or secondary and located in an undisturbed grave, it is impossible to tell whether the remains of each counted individual were originally and purposefully located in their respective grave context. In other words, processes of legitimate use/reuse and disturbance could have resulted in scatter of the remains of single individuals among separate contexts (e.g., adjacent grave pit fill soils), leading to "redundant" observation and MNI counts in the lab. However, we feel it is important to report the total MNI as determined through careful laboratory analysis, with the caveat that each area, especially Area B, may



40. The anthropomorphic standing stone from Area C, Grave 703.

yield MNI counts that are too high. We can still estimate with confidence that the true MNI excavated during the 2004 season is around 200.

Disturbance and poor preservation of many grave contexts also impeded analysis of interment types in the field and skeletal analysis in the laboratory. **Figure 41** shows that the vast majority of burials were found in poor condition (n=183). The processes described above will primarily affect the value of this category, thus it should be noted that this value may be too large.



41. Condition of Burials.

Burial condition is a subjective index of the physical integrity of excavated human remains, taking into account the amount of cortical bone preserved, evidence of weathering and diagenesis, and other taphonomic processes. The degree of friability and resistance to damage during excavation, transportation, and analysis are the primary factors taken into account when assigning burials to one of the following categories: Poor, Fair, Good, and Excellent. Burials in poor condition were fragmentary and weak, with a high degree of exfoliation of the outer bone surface. In contrast, burials in excellent condition were sturdy, lacking post-mortem breaks and other damage. Unfortunately, poor burial condition severely limits the amount of skeletal data (metric, morphological, pathological, etc.) that can be collected during preliminary analysis. Conversely, burials in good and excellent condition represent a wealth of skeletal data, and the Wādī Fīdān 40 Cemetery provided a sample of skeletons conducive to an in-depth bioarchaeological analysis.

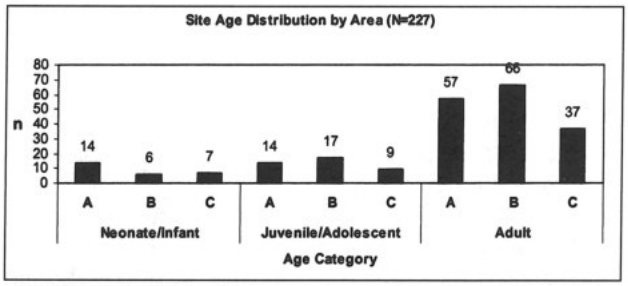
Methods

A crew of three specialists trained in bio-archaeological excavation and laboratory methods were on-hand for the analysis of excavated human remains throughout the 2004 season. Analysis of human remains followed data collection standards outlined in (Buikstra and Ubelaker 1994). Data collection began with a complete inventory of the human remains. At this stage, duplicate skeletal elements were often identified, which usually led to the creation of a separate burial alphanumeric (e.g., 371 A, 371 B) representing the extra elements. Due to increasing time constraints as the season progressed, complete inventory was not made for many poorly preserved burials.

The main goals of the 2004 Wādī Fīdān 40 Cemetery preliminary skeletal analysis were to compile demographic (age and sex) data for the minimum number of individuals excavated. In addition, a preliminary documentation of pathological conditions was begun for the entire site and completed for all burials in Area A of the cemetery. Further description of methods is included within the following sections.

Age at Death Distribution

Precise age at death estimates were assigned to adult skeletons containing diagnostic elements such as the pubic symphysis and auricular surface of the os coxae, as well as to sub-adult individuals with preserved dentitions showing clear stages of dental development and eruption. Assessment of dental attrition, patterns of epiphyseal fusion, general size and development of skeletal material, and cranial suture closure also helped to generate age at death estimates of varying precision. For this preliminary report, skeletons were assigned to one of three age categories: Neonate/Infant, Juvenile/Adolescent, and Adult. Future analysis will aim to assign adult individuals to four sub-categories with more precise age ranges. A small number of individuals could not be assigned to any age category, invariably due to poor preservation. A total of 227 individuals were assigned to an age at death category.



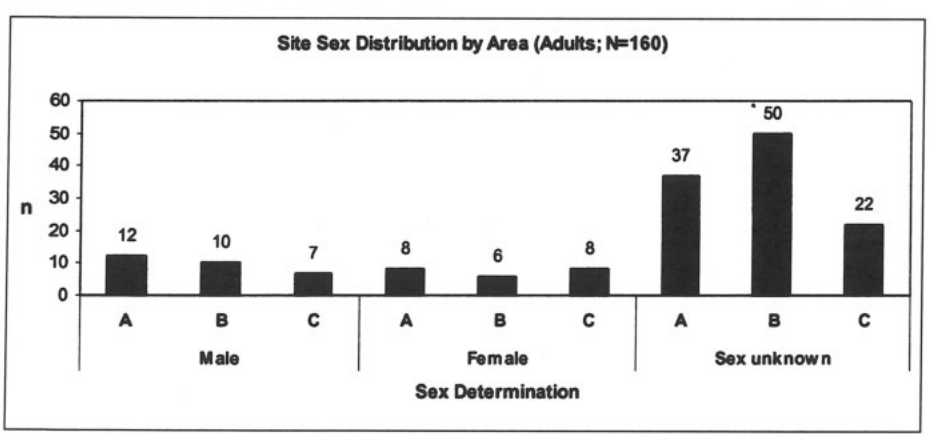
42. Age at death distribution.

Figure 42 shows the distribution of individuals assigned to each age at death category. The majority of individuals (n=160) recovered from the 2004 excavations of the Wādī Fīdān 40 Cemetery are adults with age at death estimates between 18 and 50 years. Individuals in the Neonate/Infant category are assigned age at death estimates between birth and 3 years, while those in the Juvenile/Adolescent category receive age at death estimates between 4 and 17 years. Burials assigned to the Neonate/Infant category (n=27) and the Juvenile/Adolescent category (n=40) make up substantial proportions of the excavated burials.

Sex Distribution

Assigning sex was only performed for adult individuals, since sub-adult individuals are skeletally immature, lacking the necessary sexually dimorphic characteristics. 29 skeletons were assigned a sex of male, while 22 were assigned a sex of female. This gives a male to female sex ratio of 1.32 for the population excavated in 2004. Of the 160 adult burials, 109 cannot be distinguished as male or female (**Fig. 43**). This is due to the large number of burials in poor condition, which lack the diagnostic elements with which sex is determined.

The most important skeletal elements for de-



43. Sex distribution.

termining the sex of an individual are the os coxae. These bones possess seven sexually dimorphic structures: the subpubic concavity, subpubic angle, ischiopubic ramus ridge, ventral arc, greater sciatic notch, and preauricular sulcus. The most heavily weighted characteristics were those comprising the Phenice Method: ventral arc, subpubic concavity, and ischiopubic ramus ridge (Phenice 1969). Unfortunately, the os coxae are also very fragile and often do not preserve well. In addition to os coxae morphology, cranial and mandibular morphological characteristics aided sex determination. The nuchal crest, mastoid process, supraorbital margin, prominence of glabella, and mental eminence of the mandible were all examined, where available.

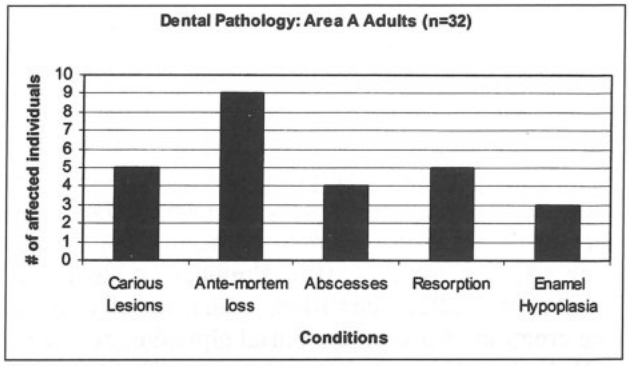
Dental and Skeletal Pathology

A preliminary documentation of dental and skeletal pathological conditions was compiled for burials in Area A. Documentation of pathological conditions of burials from Areas B and C was begun in the field, but could not be completed due to time constraints. Therefore, we wish to report frequencies of conditions for Area A burials only.

Dental Pathology

Area A burials exhibited a number of dental pathological conditions. Observed conditions include carious lesions, ante-mortem tooth loss, alveolar abscesses, alveolar resorption, enamel hypoplasias, and dental calculus, though frequencies were not recorded for the last condition. Area A burials that did not have any preserved teeth were not included in the documentation of dental pathology. Also, neonates were not included because their teeth are not fully developed. Thirty-two adults and twenty-one subadults were available for the documentation of dental pathology. It should be noted that several of these individuals did not possess complete dentitions due to post-mortem damage and loss. This factor can affect the true frequencies of pathological conditions, since some will be rendered unobservable.

In the adult sample (**Fig. 44; Tables 7, 8**), ante-mortem tooth loss was the most common condition, with nine individuals affected. Notable frequencies of carious lesions, abscesses, alveolar resorption, and enamel hypoplasia were also observed. Carious lesions can either be associated with advanced dental attrition and periodontal disease or strictly with the amount of cariogenic material (i.e., carbohydrates) in the diet. The two different etiologies are manifested in the location of the lesions. Occlusal lesions are linked to high-carbohydrate diets. In the current sample, occlusal



44. Adult dental pathology.

caries were very rare. In addition, dental attrition was often quite severe. This pattern suggests that observed cases of ante-mortem tooth loss, abscess, and alveolar resorption are associated primarily with advanced dental attrition leading to periodontal disease. As a health problem, attrition and subsequent periodontal disease probably outweighed dental caries associated with a carbohydrate-rich diet.

Enamel hypoplasias are lesions on the tooth crown indicative of defective enamel formation during development. This condition has a number of etiologies, but in general it is caused by systemic metabolic stress to the individual due to nutritional deficiencies, infection, or both. Enamel hypoplasias of the permanent dentition are formed in infancy and childhood, but are retained into adulthood.

In the sub-adult sample (**Fig. 45; Tables 8, 11**), carious lesions and enamel hypoplasias were observed on two individuals each. There were no instances of ante-mortem loss or abscesses in the sub-adult sample, which is consistent with the degenerative nature of these conditions, which usually occur at higher frequencies among older adult individuals. However, one sub-adult individual did exhibit alveolar resorption indicative of periodontal disease.

Skeletal Pathology

Area A skeletons also exhibited a number of skeletal pathological conditions, including *cribra orbitalia*, porotic hyperostosis, degenerative joint disease (DJD) of the temporal-mandibular joint (TMJ), cranial and post-cranial trauma, osteoperiostitis, DJD of the appendicular skeleton (limb joints), vertebral DJD, and a possible case of tuberculosis. Burials that were too poorly preserved were not included in the documentation of skeletal pathological conditions, since there is a much greater chance of failing to document a condition for these burials.

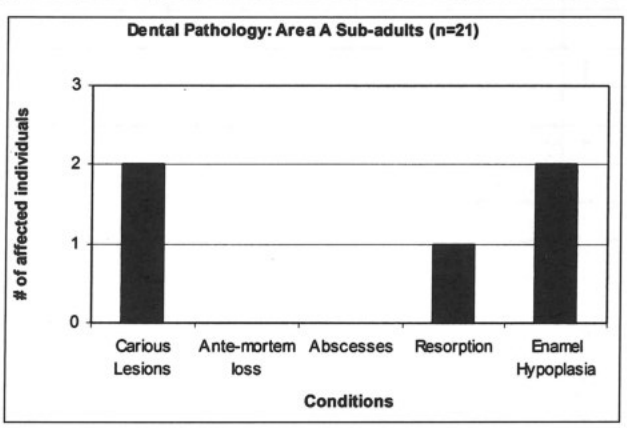
Table 7: Area A dental pathologies, adults.

Grave number	Carious Lesions	Ante-mortem loss	Abscesses	Resorption	Hypoplasi
5					
9		1			
55			1		
59	1			1	
80					
84		1			
90					
91a	1	1	1		
300					
304					
307					
311a					
311b					
318a	1				
323					
329a					
331			1	1	
334					
335a	1	1		1	
337		1			
338a		1	1		
339					
340a					
346					
348					
356a		1		1	
357					
358	1	1		1	
362a					
363a		1			
364					
370					
Affected	**5**	**9**	**4**	**5**	
N	**32**	**32**	**32**	**32**	
Frequency	**15.63**	**28.13**	**12.50**	**15.63**	**9.**

Thirty-two adults and eighteen sub-adults were available for the documentation of skeletal pathology frequencies. As with the sample of individuals included in the dental pathology survey, several of these individuals did not comprise complete skeletons due to post-mortem damage. This may artificially depress the frequencies of pathological conditions, since some will be rendered unobservable. In the adult sample (**Fig. 46; Tables 9, 11**), vertebral DJD was the most common condition, with lumbar vertebrae primarily affected. DJD of TMJ and DJD of the appendicular skeleton were also common. DJD of the appendicular skeleton and vertebrae is generally associated with repetitive work-related activities. DJD of TMJ is often associated with advanced periodontal disease and ante-mortem tooth loss, as the individual strains his or her chewing movements in order to

Table 8: Area A dental pathologies, sub-adults.

Grave number	Carious Lesions	Ante-mortem loss	Abscesses	Resorption	Hypoplasia
308					
319c					1
321					
322					
324					
327					
328					
330					1
336a					
336b					
341					
344					
345					
349a					
349b					
353					
355					
359					
361					
367	1				
371a	1			1	
affected	2	0	0	1	2
N	21	21	21	21	21
Frequency	9.52	0.00	0.00	4.76	9.52



45. Sub-adult dental pathology.

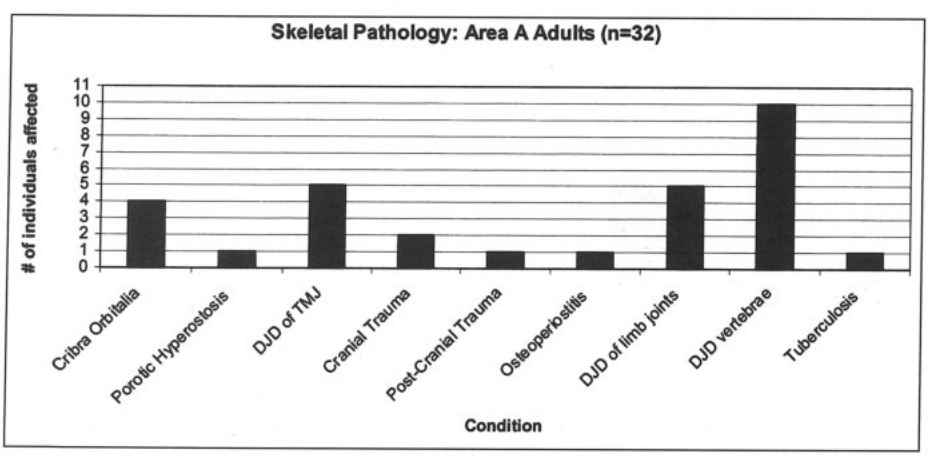
compensate for the loss of some chewing surfaces. Abnormal chewing motions lead to arthritic pitting, porosity, and osteophyte growth on the articular surfaces of the TMJ.

Two individuals exhibit cranial trauma in the form of well-healed depressed cranial fractures. Burial 59 possesses one healed depressed cranial fracture on the left side of the frontal bone above the eye orbit. The location of this fracture is consistent with an etiology involving interpersonal violence. Face-to-face conflict between usually right-handed assailants often leads to depressed cranial fractures on the left side of the forehead. Burial 363 A possesses three healed depressed cranial fractures located posteriorly on the left and right parietal bones. Usually a depressed fracture located towards the back of the head is caused by accidental trauma (e.g., a fall). However, the presence of three well-healed fractures, located towards the back of the head, may involve other, as yet undetermined, factors.

Only one individual (Burial 335 A) possessed signs of osteoperiostitis. Osteoperiostitis is indicative of systemic or localized non-specific bacterial infection affecting the outer bone layer (periosteum). The low frequency observed in the present sample suggests that infectious disease was not a major cause of morbidity in the Wādī Fīdān 40 cemetery population. Conversely, poor preservation may have destroyed evidence of periostitis

Table 9: Area A skeletal pathologies, adults.

Grave Number	Cribra Orbitalia	Porotic Hyperostosis	of TMJ	Cranial Trauma	Cranial Trauma	Osteo-periostitis	Appendicular DJD	DJD vertebrae	Tuberculosis
9			1						
55									
59			1	1	1			1	
80									
82									
83a								1	
83b									
84			1					1	
90									
91a			1				1	1	
311a									
311b									
318a									
319b									
323	1	1							
331									
335a						1			1
337	1								
338a								1	
339									
340a									
343a									
343b									
348								1	
356a	1								
357							1	1	
358							1	1	
362a									
363a	1		1	1			1	1	
363b							1		
364								1	
370									
Affected	**4**	**1**	**5**	**2**	**1**	**1**	**5**	**10**	**1**
N	**32**	**32**	**32**	**32**	**32**	**32**	**32**	**32**	**32**



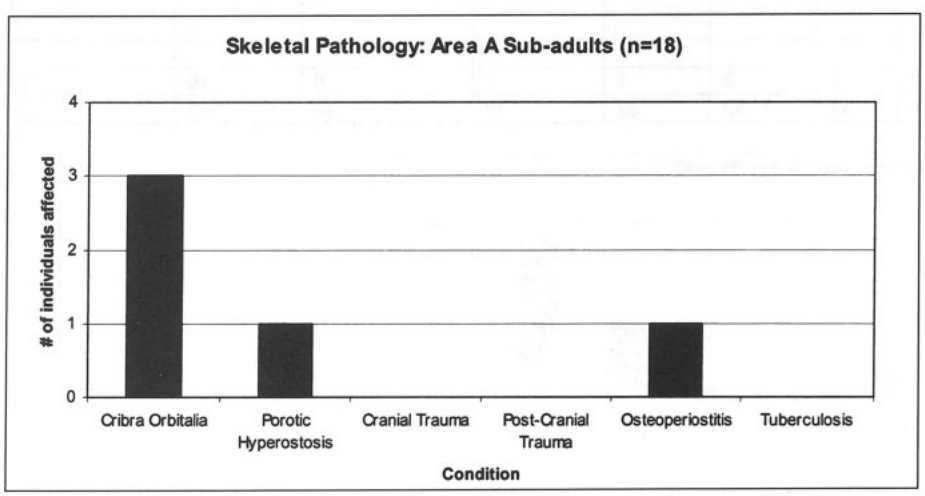
46. Adult Skeletal Pathology.

on some burials. The same individual (335 A) also possessed lytic lesions on vertebral body elements, in a pattern consistent with tuberculosis infection.

We focused on a limited number of conditions for the sub-adult sample (**Fig. 47; Tables 10, 11**), since many conditions of adults are degenerative in nature and are not expected to show up in sub-adults. Three individuals possessed lesions indicative of *cribra orbitalia*, while one exhibited a similar condition known as porotic hyperostosis. Both of these conditions are associated with iron-deficiency anemia, which in general is the result of the body's reaction to a non-specific bacterial infection. *Cribra orbitalia* is often found at higher frequencies in a population than is porotic hyperostosis, and it is therefore regarded as a more sen-

Table 10: Area A skeletal pathologies, sub-adults.

Grave number	Cribra Orbitalia	Porotic Hyperostosis	Cranial Trauma	Post-Cranial Trauma	Osteoperiostitis	Tuberculosis
316						
319c	1					
319d						
321						
322a						
324						
327						
328						
330	1					
336a						
344						
345						
355						
359						
361						
362						
367						
371a	1	1			1	
Affected	**3**	**1**	**0**	**0**	**1**	**0**
N	**18**	**18**	**18**	**18**	**18**	**18**
Frequency	**16.67**	**5.56**	**0.00**	**0.00**	**5.56**	**0.00**



47. Sub-adult Skeletal Pathology.

sitive indicator of the etiology, presumably iron-deficiency anemia (Aufderheide and Rodriguez-Martin 1998). One juvenile (Burial 371 A) exhibited clear signs of osteoperiostitis.

Future Bioanthropological Research

Bioarchaeological analysis is on-going and will take place in the near future in bioanthropology laboratories at the University of California at San Diego. The most pressing line of future research is to continue documentation of pathological conditions for burials in Areas B and C. Partial study has already identified interesting conditions not present in Area A (e.g, osteoporosis), and several examples of similar conditions as well (e.g., *cribra orbitalia*, enamel hypoplasia, and depressed cranial fractures). A more in-depth study of pathological conditions from the site in general is needed, as time constraints limited the search and description of conditions from Area A. We are interested in testing hypotheses with paleopathological data, in light of the reconstructed subsistence behavior, diet, set-

Table 11: Area A Skeletal and Dental Pathology Summary.

Adults

Condition	Cribra Orbitalia	Porotic Hyperostosis	DJD of TMJ	Cranial Trauma	Post-Cranial Trauma	Osteoperiostitis
Burial Numbers	323, 337, 356A, 363A	323	9, 59, 84, 91A, 363A	59, 363A	59	335A
Condition	**DJD of Limb Joints**	**DJD of Vertebrae**	**Tuberculosis**			
Burial Numbers	91A, 357, 358, 363A, 363B	59, 83A, 84, 91A, 338A, 348, 357, 358, 363A, 364	335A			

Sub-adults

Condition	Cribra Orbitalia	Porotic Hyperostosis	Cranial Trauma	Post-Cranial Trauma	Osteo-periostitis	Tuberculosis
Burial Numbers	319C, 330, 371A	371A	None	None	371A	None

Area A Dental Pathology

Adults

Condition	Carious Lesions	Ante-mortem Loss	Abscesses	Resorption	Hypoplasia
Burial Numbers	59, 91A, 318A, 335A, 358	9, 84, 91A, 335A, 337, 338A, 356A, 358, 363A	55, 91A, 331, 335A	59, 331, 335A, 356A, 358	9, 59, 80

Sub-adults	None	None	None	None	None
Condition	Carious Lesions	Ante-mortem Loss	Abscesses	Resorption	Hypoplasia
Burial Numbers	367, 371A	None	None	371A	319C, 330

tlement patterns, and social-demographic structure of the Wādī Fīdān 40 cemetery population.

Ancient DNA (aDNA) analysis is forthcoming. A number of tooth samples were secured in the field for future analysis, and more can still be collected. aDNA analysis will help to clarify the biological identity of the Wādī Fīdān 40 Cemetery population relative to other populations within the region and beyond. Skeletal and dental metric and non-metric data will also be collected to assist in this task.

The skeletal population excavated from the Wādī Fīdān 40 Cemetery in 2004 is conducive to in-depth bioarchaeological study. The remains will continue to be analyzed using the most current methods available to the field.

Radiocarbon Dating (T.E. Levy, Kyle Knabb and T. Higham)

One of the major aims of the 2004 season cemetery excavations was to try to increase the sample of material suitable for radiocarbon dating. Based on prior experience (Levy *et al.* 1999) in the cemetery, the best possible material for radiocarbon dating is pomegranates — a seasonal fruit that provides a secure short-life organic sample. Although more than 150 tombs were excavated in 2004, only a few were found with pomegranate offerings. The best preserved samples were retrieved from Grave 59 (n = 7) in Area A and Grave 701 in Area C (n = 1; **Table 12**). The pomegranates were placed as part offerings inside the cist graves during the internment ritual. It can be assumed that they were picked from the tree within several weeks of the burial. Thus, the inclusion of the pomegranates as part of the burial ritual offers a unique temporal "snap-shot" concerning the date of internment.

Radiocarbon Dating

One of the major aims of the 2004 season cemetery excavations was to try to increase the sample of material suitable for radiocarbon dating. Based on prior experience (Levy *et al.* 1999) in the cemetery, the best possible material for radiocarbon dating is pomegranates (*Punicaceae* — the common pomegranate) — a seasonal fruit that provides a secure short-life organic sample. Although more than 150 tombs were excavated in 2004, only a few were found with pomegranate offerings. The

Table 12: Radiocarbon dates obtained from the Wādī Fīdān 40 cemetery excavations, 2004.

Lab no.	Site	Area/Locus	Basket	EDM no.	Material	Delta value	^{14}C date	68.2% probability
OxA-14233	WFD 40	A_L2172 Grave 59	B2778	EDM86451	seeds, pomegranate	d13C=-23.4	2839±28	1050BC (51.3%) 970BC 960BC (16.9%) 930BC
OxA-14234	WFD 40	A_L2172 Grave 59	B2779	EDM86452	seeds, pomegranate	d13C=-22.9	2819±26	1005BC (68.2%) 925BC
OxA-14235	WFD 40	A_L2172 Grave 59	B2780	EDM86453	seeds, pomegranate	d13C=-23.3	2795±30	995BC (6.6%) 985BC 980BC (61.6%) 905BC
OxA-14236	WFD 40	A_L2172 Grave 59	B2782	EDM86455	seeds, pomegranate	d13C=-25.5	2859±26	1110BC (1.5%) 1100BC 1070BC (64.4%) 970BC 960BC (2.3%) 940BC
OxA-14237	WFD 40	A_L2172 Grave 59	B2783	EDM86456	seeds, pomegranate	d13C=-24.6	2863±27	1120BC (5.0%) 1100BC 1090BC (63.2%) 970BC
OxA-14431	L. 2172/ B. 2781	2758±35	970BC – 840BC	1000BC – 820BC	OxA-14431	L. 2172/B. 2781	2758±35	970BC – 840BC
OxA-14238	WFD 40	A_L2172 Grave 59	B2784	EDM86457	seeds, pomegranate	d13C=-23.7	2779±31	980BC (65.8%) 890BC 870BC (2.4%) 850BC
OxA-14239	WFD 40	C_L2492 Grave 701	B6831	EDM88464	seeds, pomegranate	d13C=-26.1	2784±28	980BC (68.2%) 895BC

best preserved samples were retrieved from Grave 59 (n = 7) in Area A and Grave 701 in Area C (n = 1; **Table 12**). The pomegranates were placed as part offerings inside the cist graves during the internment ritual. In Grave 59, 4 pomegranates were found carefully placed in a wooden bowl near the chest of the deceased. The three remaining fruits may have spilled out of the bowl during or sometime after burial (**see Fig. 4**). It can be assumed that the pomegranates were picked from the tree within several weeks of the day of burial. Thus, the inclusion of the pomegranates as part of the burial ritual offers a unique temporal "snap-shot" concerning the date of internment. The dating samples were prepared at UCSD by extracting seeds from each of the seven pomegranates found in Tomb 59. The sample from Tomb 701 consisted of the outer rind of the fruit as no seeds were found with this pomegranate. All of the samples were then processed at the Oxford Radiocarbon Accelerator Unit. One sample was contaminated by equipment in the lab so it was re-run (OxA-14431). The new result is reported here along with the six dates other dates from Tomb 59 and all the dates are presented in **Table 12** and **Figs. 48 and 49**.

The program OXCAL (v. 3.10 - (Bronk Ramsey 1995b, Bronk Ramsey 2001c) was utilized to calibrate the radiocarbon dates. Bayesian statistical analyses were applied to analyze the data more exhaustively. The result is a higher degree of exactitude when converting the radiocarbon determinations to calendar dates. The applications of Bayesian statistics are far-reaching, and can be quite complex. It is possible to bias the data unintentionally so that it is no longer useful or valid (Bronk Ramsey 2001a, Steier and Rom 2000). However, averaging, the technique used to refine the eight determinations, is on the simpler side of Bayesian applications and biased results are unlikely. Thus, averaging was carried out using the seven dates from Tomb 59 and one date from Tomb 701.

Independently calibrated samples generated date ranges of approximately 150-200 years cal BC

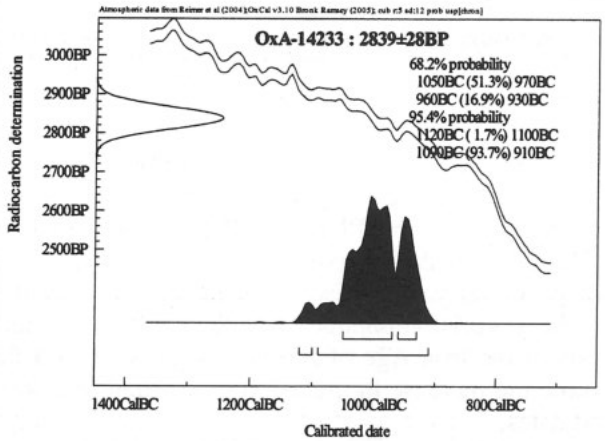


Fig. 48 a

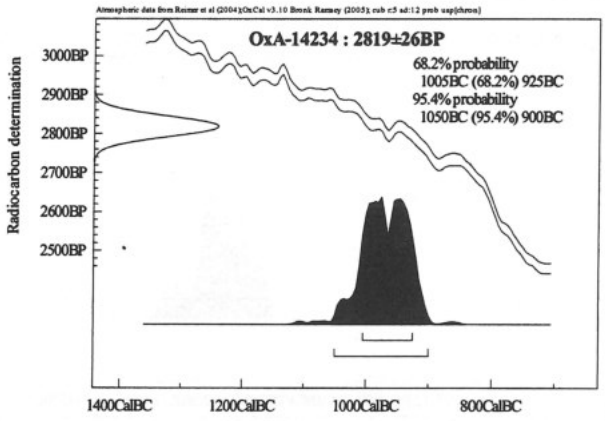


Fig. 48 b

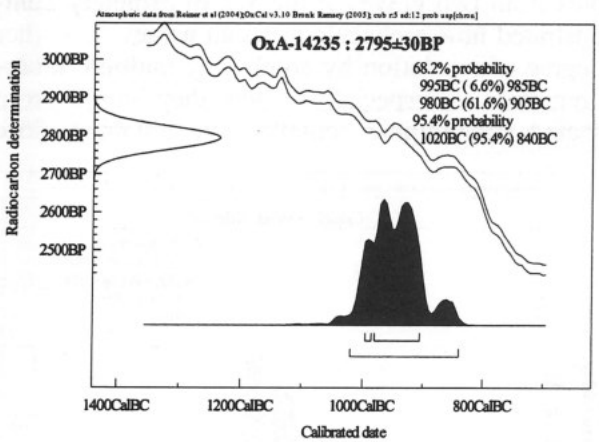


Fig. 48 c

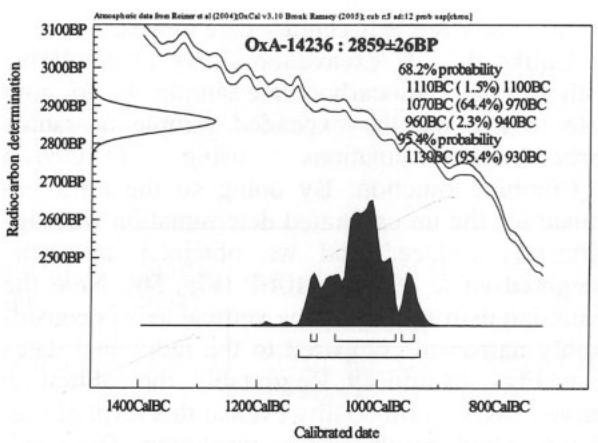


Fig. 48 d

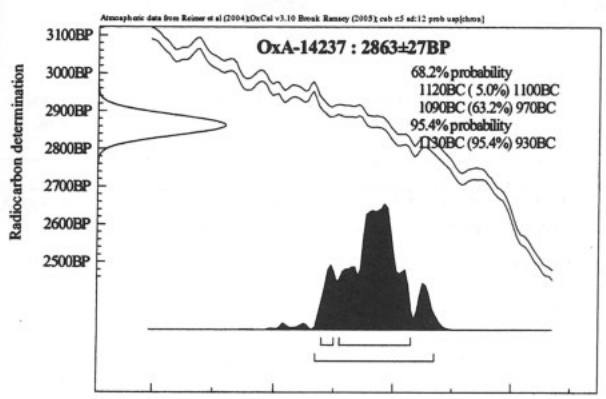


Fig. 48 e

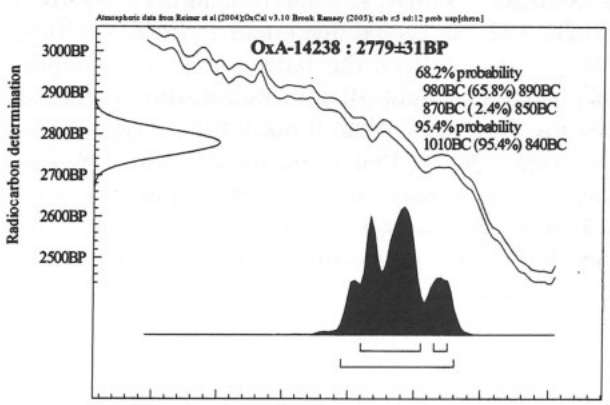
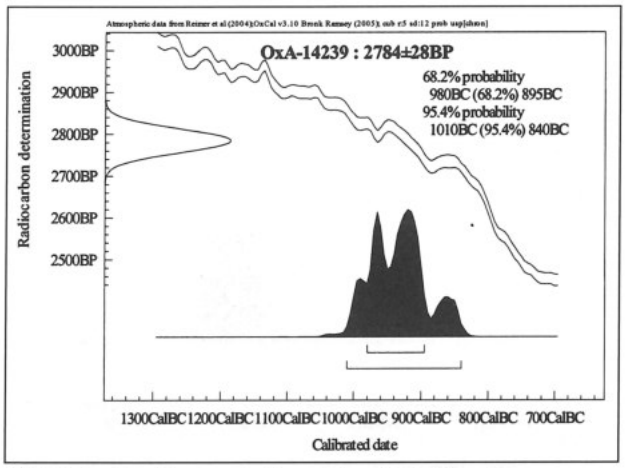


Fig. 48 f

48 a - 48 f. OxCal calibration of dates from Tomb 59.

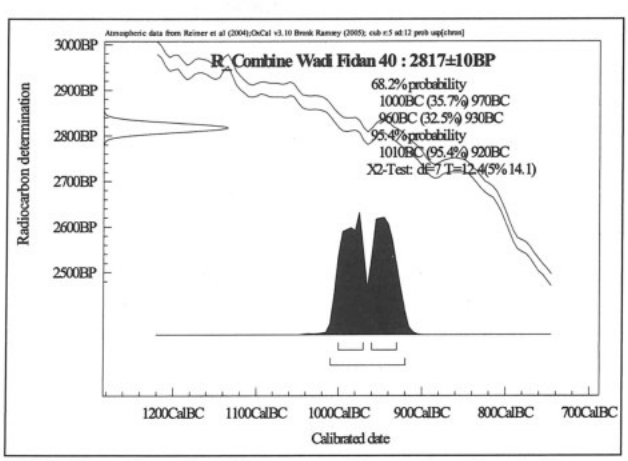
(2σ). **Figure 48 (a-f)** shows the six calibrated pomegranate samples from Tomb 59 and **Figure 49** illustrates the Tomb 701 sample. The rough parallel lines are the calibration curve for the selected time period; this is part of the prior information used when calibrating the radiocarbon sample. The Gaussian distribution on the left (y axis) is the probability density function (PDF) for the uncalibrated radiocarbon determination. Along the horizontal axis is the posterior PDF for the calibrated date. This is calculated using the Bayesian method to combine prior information with new data. **Table 12** displays the set of individual calibrated dates. Super-century ranges such as these are generally inadequate for dating archaeological sites in historical periods such as the Iron Age (ca. 1200 - 500 BC). The sort of precision needed to resolve historical chronological issues are sub-



49. Calibration for sample from Grave 701, Area C.

century and even half-century date ranges.

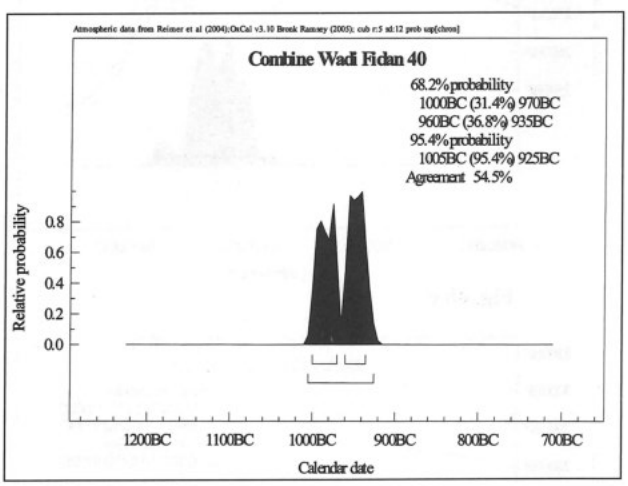
Unlike the '97 excavation (Levy *et al.* 1999) with its small radiocarbon date sample, we are now able to average the expanded sample of radiocarbon determinations using OXCAL's R_Combine function. By doing so the error estimate for the un-calibrated determination was significantly reduced and we obtained an error-weighted value of 2817±10BP (**Fig. 50**). Note the Gaussian distribution on the vertical axis is considerably narrowed compared to the individual dates from **Figs. 48 and 49**. Regrettably, the calibration curve causes a bi-modality even at this level of precision, which results in less resolution. The result is 1000BC - 970BC (35.7% probability), 960BC - 930BC (32.5% probability), and 1010BC - 920BC (95.4% probability); the latter range is the degree of precision sought after in radiocarbon dating of historical periods. Were it not for the wiggle in the calibration curve that corresponds with our data, the results would be even more precise. Nevertheless, the increase in chronological precision has important ramifications for archaeological research in Edom and the southern Levant.



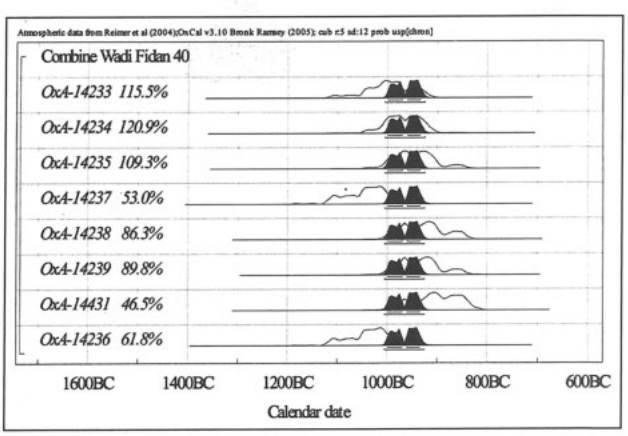
50. Radiocarbon date for averaged samples (Bronk Ramsey 1995a, 2001b).

One other method of combining data was used in the analysis - OXCAL's Combine function, which averages the probabilities of the calibrated samples. The result was even more precise than the previous method of averaging: 1005BC - 925BC. The wiggle in the calibration curve still caused a bi-modality in the PDF, but this is unavoidable. The result of the combination of probabilities is a range of 80 years (95% probability), some of the highest precision obtained from a radiocarbon analysis of the Iron Age of Jordan. **Figures 51 and 52** show the increase in precision over single calibrated dates.

The dating analysis done on the short lived samples from two graves at the WF40 cemetery demonstrated how archaeologists can achieve a higher degree of resolution by combining multiple measurements — especially when they come from sealed stratigraphic contexts. We obtained close



51. Post-calibration probability average. Note the bi-modality caused by a wiggle in the calibration curve (Bronk Ramsey 1995a, 2001b).



52. Combined probabilities — Shows the increase in precision over single radiocarbon dates. The average of the probabilities (black fill) juxtaposed with the PDF of the single radiocarbon dates (Bronk Ramsey 1995a, 2001b).

agreement between the eight short lived pomegranate samples dated by ORAU. The two methods of averaging outlined above combine the set of data to generate a single, more accurate result. Our goal of sub-century precision was achieved through the use of Bayesian statistics to increase chronological precision. A wiggle in the calibration curve corresponding to the same time period as our data significantly reduced chronological precision. Were there a distinguishable site stratigraphy that could yield ordered samples "wiggle-matching" might have been an option to get around the fluctuation in the calibration curve.

The results of the research show that the cemetery was used during the 10th century BC. Thousands of burials are estimated to exist at WF40, and the site could have been in use for centuries. Unfortunately, it is difficult to make inferences regarding the span of occupation without a larger sample of short-life organic remains. Nonetheless, the nature of the burials and the confirmation of an early Iron Age occupation lend support to Levy *et al.'s* (1999a) previous notion that the site, and probably the geographic region, was occupied by pastoral nomadic societies during the transition from the Iron I to Iron IIa periods.

Conclusion

The 2004 excavations at the Wādī Fīdān 40 cemetery have contributed a great deal to understanding and modeling the nature of Iron Age communities of the lowlands of Edom. The expanded sample of graves provides one of the largest Iron Age mortuary assemblages in Jordan and the neighboring areas. Although only a preliminary report, we have attempted to provide as comprehensive an overview of the material culture recently discovered. Some of the most significant results have to do with the absolute dating of the cemetery based on high precision radiocarbon dates of short-life samples and the discovery of a datable Egyptian stamp seal that has parallels with samples from over 20 Iron Age sites in the southern Levant. Our discoveries draw the Edomite lowlands into an as yet undefined relationship with sites in northern Jordan such as Saḥāb and Tall as-Sa'īdiyya and a wealth of Palestinian sites such as Gezer, Tall al-Fār'a (south), Timna and others. Equally important is the dating of the seal to the 19th-20th Dynasties (**Fig. 37**; ca. 1292-1075BC according to Munger above; or mainly Dynasty 21, ca. 1075 - 945BC according to B. Brendl (personal communication). The date of this Egyptian artifact is very close to the radiocarbon determinations discussed above (average date, 1005BC - 925BC, 95.4% probability, **Fig. 51**) — especially according to Brendl's assessment. The suite of radiocarbon dates come from tombs located at opposite ends of the cemetery (**Fig. 2**). While we have not yet succeeded in establishing the chronological depth of the cemetery, the similarities in mortuary rituals found across the site along with the available radiocarbon dates, indicate a significant 10th century BC occupation in the Faynān district during the transition from the Iron I to Iron IIa periods.

The 2004 excavations shed new light on some aspects of Iron Age burial practices in the Edomite lowlands. The discovery of additional graves with pomegranates is important. The pomegranate is one of the "Seven Species" mentioned in the Hebrew Bible. As Zohary (Zohary 1982) points out, there are many praises related to the pomegranate in the imagery of the 10th century BC King Solomon. For example, "Your lips are like a scarlet thread, and your mouth is lovely. Your cheeks are like halves of a pomegranate behind your veil" — *Song of Solomon 4:3.* Pomegranates are cultivated in the Faynān district today, especially in gardens situated along secondary drainages such as upper reaches of the Wādī al-Ghuwayb where the al-Managa family has a large "bustān" (Arabic: garden) with large numbers of cultivated pomegranate trees. In Jordan and the surrounding regions, as this fruit ripens relatively late in the season (around August – September) it can be assumed that the people buried in Tombs 59, 701 and others were laid to rest sometime in the fall. Leaving aside the problems of dating the Hebrew Bible (Friedman 1988), the general consensus that it was codified during the seventh – sixth centuries BC, gives import to the ancient author's view of the importance of pomegranates in late Iron Age society, making it no surprise that these fruits are associated with female burials.

The discovery of over 15 anthropomorphic standing stones with beautifully carved noses and ears both inside and outside the stone grave circles adds a new element to understanding burial rituals in the Wādī Fīdān 40 cemetery (**Figs. 38 – 40**). Whether these represent individuals or some eponymous ancestor will require significant research. However, the discovery of these standing stones enhances the assemblage of known standing stones from the deserts of the southern Levant (Avner 1984) by demonstrating their close contextual association with Iron Age mortuary ritual in lowland Edom.

It is too early to identify the intricate relationship between the Wādī Fīdān 40 cemetery population, the copper producing sites of Faynān (Levy *et al.* 2003), and the Iron Age settlement

sites located on the highland plateau (Bienkowski 2001; Bienkowski and Bennett 2003) of Edom. However, the 10th century radiocarbon dates from the cemetery associated with tombs containing earrings, bangles, a spiral pendant other jewelry similar to finds at highland sites such as Ṭuwaylān (Ogden 1995), highland the highland — lowland interaction that must have occurred during the Iron I/II transition in this part of Jordan. Future research concerning the ancient DNA of the human remains from the Wādī Fīdān 40 cemetery, more large-scale Iron Age high precision radiocarbon studies of stratified deposits from both highland and lowland sites in Edom as well as other parts of the southern Levant (Levy and Higham in press, Levy *et al.* in press), and other science-based studies will help researchers clarify the historical and cultural evolution of Edom during the Iron Age.

Acknowledgement

We would like to sincerely thank Dr. Fawwaz Al-Khraysheh, Director General of the Department of Antiquities of Jordan and the former Director General, Dr. Ghazi Bisheh for their continued help and support. Thanks also to Ahmad Sharma, our DoA Representative, Dr. Pierre Bikai, Director of the American Center of Oriental Research, Amman. Thanks also to Baruch Brendi for his comments on the Egyptian stamp seal. We would like to extend our sincere thanks to the National Geographic Society, the National Endowment for the Humanities and the UCSD Summer Session for the funding of this research. We thank Alina Levy for her administrative help, Caroline Hebron for her illustrations used here, Khristiana Smith for the small find photography (all field photos by T.E. Levy), Jim Anderson for help with surveying in the cemetery, assistant supervisors Beccah Landmann and Lynne Murone-Dunn, Aladdin Mahdi our camp manager, Shaykh Abu Shushi and the Bedouin villagers of Qurayqira for their help and hospitality. Finally, we would like to thank the students, through the UCSD Summer Session and North Island College (B.C. Canada) for all their hard work in the field.

Bibliography

Adams, R.B.
1991 The Wadi Fidan Project, Jordan, 1989. *Levant 23*: 181-186.

Avner, U.
1984 Ancient Cult Sites in the Negev and Sinai Deserts. *Tel Aviv* 11: 115-131.

Bienkowski, P.
2001 Iron Age Settlement in Edom: A Revised Framework. Pp. 257-69 in P. M. M. Daviau, J. W. Wevers, and M. Weigl (eds.), *The World of the Aramaeans II. Studies in History and Archaeology in Honour o Paul-Eugen Dion. Journal for the Study of the Old Testament Supplement Series 325.* Sheffield: Sheffield Academic Press.

Bienkowski, P. and Bennett, C.-M.
2003 *Excavations at Busayrah.* Oxford: Oxford University Press.

Bienkowski, P. and van der Stehen, E.
2001 Tribes, Trade, and Towns: A New Framework for the Late Iron Age in Southern Jordan and the Negev. *BASOR* 323: 21-47.

Braunstein, S.L.
1998 *The Dynamics of Power in an Age of Transition. An Analysis of the Mortuary Remains of Tell el-Far'ah (South) in the Late Bronze and Early Iron Ages.* Ph.D., Columbia University.

Bronk Ramsey, C.
1995a Radiocarbon Calibration and Analysis of Stratigraphy: The OxCal Program. *Radiocarbon* 37: 422-430.
1995b Radiocarbon Calibration and Analysis of Stratigraphy: The OxCal Program. *Radiocarbon* 37: 422-430.
2001a Comment on 'The Use of Bayesian Statistics for 14C dates of chronologically ordered samples: a critical analysis'. *Radiocarbon 42*: 199-202.
2001b Development of the Radiocarbon Calibration Program. *Radiocarbon 43*: 355-363.
2001c Development of the Radiocarbon Calibration Program OxCal. *Radiocarbon 43*: 355-63.

Dajani, R.W.
1970 A Late Bronze-Iron Age Tomb Excavated at Sahab, 1968. *ADAJ* 15: 29-34.

Friedman, R.E.
1988 *Who Wrote the Bible*? London: Jonathan Cape.

Hamilton, R.W.
1935 Excavations at Tell Abu Hawam. *QDAP* 4: 1-69.

Horn, S.H.
1971 Three Seals from Sahab Tomb "C". *ADAJ* 16: 103-106.

Jaeger, B
1982 Essai de Classification de Datation des Scarabees Menkheperre. *Orbis Biblicus et Orientalis.* Freiburg: Gottingen.

Keel, O.
1995 *Corpus der Stempelsiegel-Amulette aus Palästina/ Israel. Von den Anfängen bis zur Perserzeit. Einleitung* (OBO.SA 10). Freiburg: Schweiz-Göttingen.
1997 *Corpus der Stempelsiegel-Amulette aus Palästina/ Israel. Von den Anfängen bis zur Perserzeit. Katalog Band I: Von Tell Abu Farag bis 'Atlit. With Three Contributions by Baruch Brandl* (OBO.SA 13). Freiburg: Schweiz-Göttingen.

Keel, O., Shuval, M. and Uehlinger, C.
1990 *Studien zu den Stempelsiegeln aus Palästina/Israel III (OBO 100).* Freiburg: Schweiz-Göttingen.

LaBianca, O.S. and Younker, R.W.
1998 The Kingdoms of Ammon, Moab and Edom: The Archaeology of Society in Late Bronze/Iron Age

Transjordan (ca. 1400 - 500 BCE). Pp. 399-415 in T. E. Levy (ed.), *The Archaeology of Society in the Holy Land.* London: Leicester University Press.

Levy, T.E.
2004 Some Theoretical Issues Concerning the Rise of the Edomite Kingdom-Searching for Pre-Modern Identities. *SHAJ* 8: 63-89. Amman: Department of Antiquities of Jordan.

Levy, T.E., Adams, R.B., Anderson, J.D., Najjar, N., Smith, N., Arbel, Y., Soderbaum, L. and Muniz. M.
2003 An Iron Age Landscape in the Edomite Lowlands: Archaeological Surveys along the Wadi al-Guwayb and Wadi al-Jariyeh, Jabal Humrit Fidan, Jordan, 2002. *ADAJ* 47: 247-277.

Levy, T.E., Adams, R.B. and Muniz, A.
2004 Archaeology and the Shasu Nomads-Recent Excavations in the Jabal Humrit Fidan, Jordan. Pp. 63-89 in W.H.C. Propp and R.E. Friedman (eds.), *Le-David Maskil: A Birthday Tribute for David Noel Freedman.* Winona Lake, IN: Eisenbrauns Books.

Levy, T.E., Adams, R.B. and Shafiq, R. 1999a
The Jabal Hamrat Fidan Project: Excavationa at the Wadi Fidan 40 Cemetary, Jordan (1997). *Levant 31*: 293-308.
1999b The Jabal Hamrat Fidan Project: Excavations at the Wadi Fidan 40 Cemetery, Jordan (1997). *Levant 31*: 293-308.

Levy, T.E., Adams, R.B., Witten, A.J., Anderson, J., Arbel, Y., Kuah, S., Moreno, J., Lo, A. and Waggoner, M.
2001 Early Metallurgy, Interaction, and Social Change: The Jabal Hamrat Fidan (Jordan) Research Design and 1998 Archaeological Survey: Preliminary Report. *ADAJ* 45: 159-187.

Levy, T.E. and Higham, T. (eds).
in press *The Bible and Radiocarbon Dating - Archaeology, Text and Science.* London: Equinox.

Levy, T.E. and Najjar, M.
2005 Wadi Fidan, in Archaeology in Jordan, 2004 Season. In S. H. Savage, K. A. Zamora, and D. R. Keller (eds.), *AJA* 105 No. 3.

Levy, T.E., Najjar, M., van der Plicht, J., Smith, N.G., Bruins, H.J. and Higham,T.
in press Lowland Edom and the High and Low Chronologies: Edomite State Formation, the Bible and Recent Archaeological Research in Southern Jordan. In T. E. Levy and T. Higham (eds.), *The Bible and Radiocarbon Dating-Archaeology, Text and Science.* London: Equinox Publishing Ltd.

Macalister, R. A. S.
1912 *The Excavation of Gezer. 1902-1905 and 1907-1909. 3Vols.* London: Murry.

Macdonald, E., Starkey, J.L. and Lankester-Harding, G.
1932 *Beth Pelet II:Prehistoric Fava.* London: British School of Archaeology.

Musil, A.
1927 *Manners and Customs of the Rwala Bedouin.* New York: American Geographical Society.

Ogden, J.
1995 The Gold Jewellery. Pp. 69-78 in C. M. Bennett (ed.), *Excavations at Tawilan in Southern Jordan* Vol. 8. London: British Academy Monographs in Archaeology.

Petrie, W.M.F.
1930 *Beth Pelet I. Tell Fara.* London: British School of Archaeology in Egypt 48.
1933 *Ancient Gaza III.* London: British School of Archaeology in Egypt.

Rothenberg, B.
1993 Timna'. Pp. 1475-1486 in E. Stern (ed.), *The New Encyclopedia of Archaeological Excavations in the Holy Land* IV. Jerusalem: Israel Exploration Society.

Routledge, B.
2004 *Moab in the Iron Age: Hegemony, Polity, Archaeology.* Philadelphia: University of Pennsylvania.

Schulman, A.
1988 Catalogue of the Eygptian Finds. Pp. 114-147 in B. Rothenberg (ed.), *The Egyptian Mining Temple at Timna.* London: Institute for Archaeo-Metallurgical Studies, Institute of Archaeology, University College London.

Steier, P. and Rom, W.
2000 The Use of Bayesian Statistics for 14C Dates of Chronologically Ordered Samples: A Critical Analysis. *Radiocarbon 42*: 183-198.

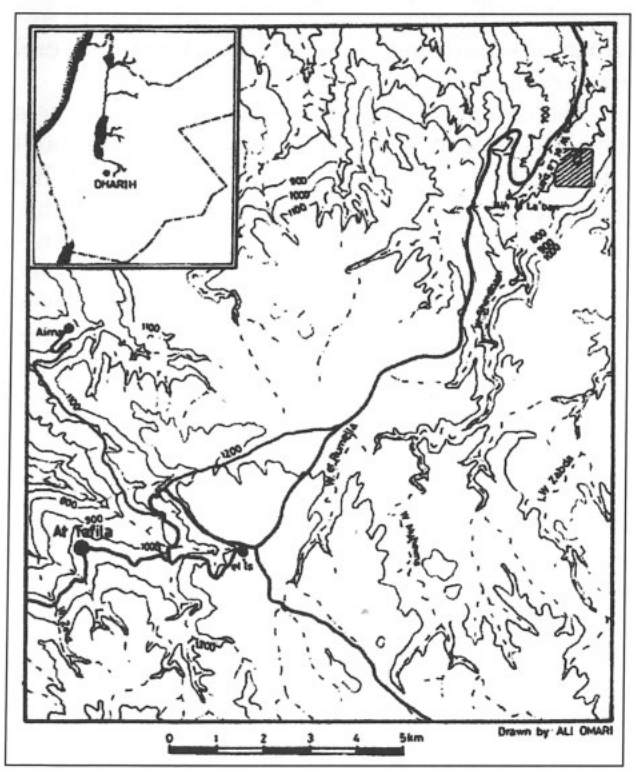
Tubb, J.N.
1990 Preliminary Report on the Fourth Season of Excavations at Tell es-Sa'idiyeh in the Jordan Valley. *Levant 22*: 21-42.

Zohary, M.
1982 *Plants of the Bible-A Complete Handbook.* Cambridge: Cambridge University Press.

ARCHAEOLOGICAL RESEARCH AT KHIRBAT ADH-DHARĪḤ

Zeidoun Al-Muheisen and François Villeneuve

Khirbat adh-Dharīḥ is situated on the King's Highway, in the Wādī al-La'bān, a southern tributary of Wādī al-Ḥasā, 12km to the north of aṭ-Ṭafīla and 7km to the south of the high-altitude sanctuary at Khirbat at-Tannūr, where adh-Dharīḥ is closely associated. Adh-Dharīḥ is a middle-size site in the countryside, 100km to the North of Petra (**Fig. 1**). It is located close to the King's Highway, the most important caravan road to link the North and the South of the Near East, and the area does not lack abundant water. With the help of the Department of Antiquities and the Governorate of aṭ-Ṭafīla, excavations at the site started in 1983 as a joint project of Yarmouk University IFAPO and Sorbonne University (AL-Muheisen and Villeneuve 1988: 458-79, 1994: 735-57, 1994: 41-45, 1999: 54-59; Lenoble *et al.* 2001: 89-151; Villeneuve and AL-Muheisen 2000: 1525-63, 2004: 83-100).



1. Map showing the site of Khirbat adh-Dharīḥ.

The archaeological project started there in 1984 and it has dealt with all aspects of the site

1. The chronology (Pottery Neolithic A; Early Bronze Age; Edomite in the Iron Age II; first century AD to middle fourth century AD; end of sixth to beginning of ninth century AD; and eventually around 15th-16th century AD)
2. The large and luxurious Nabataean sanctuary, a valley-sanctuary associated with the very close high-place sanctuary at at-Tannūr (excavated in the 1930s). At-Tannūr was probably dedicated to occasional processions (quinoxial, particularly).
3. The small village (second-fourth centuries AD), which is formed by peasant-houses, oil-presses, and by a luxurious seigniorial house as well.
4. The necropolis, which consists of two cemeteries, where a monumental tomb is noticeable, the tomb of the most influent family in the site, built around AD1100.
5. The many agricultural and hydraulic traces.
6. The hamlet (Christian then Muslim) of the Late Antiquity, limited to the northern courtyard of the Nabataean-Roman sanctuary.

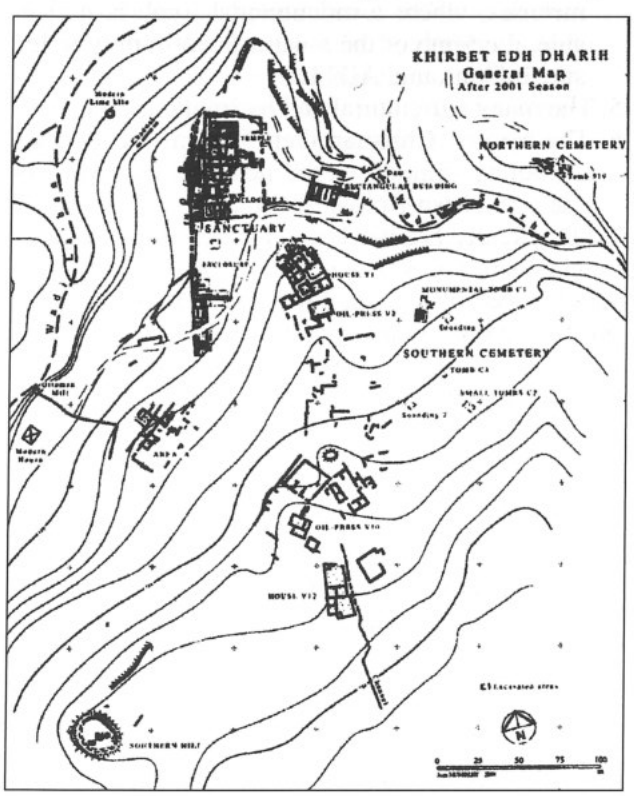
That really beautiful site, located within a large uninhabited valley, has now become an interesting spot for local visitors and foreign tourists, due to its position on the main touristic route in Jordan. On the other hand, adh-Dharīḥ is, with al-Ḥumayma (South of Petra, excavated by a North American team) the only site to be thoroughly studied in the Nabataean world east of the Jordan River, and its remains are more diversified and better preserved than in al-Ḥumayma.

Such sites may be excavated during many decades, but this is not our objective: we already step by step stopped the excavations within the cemeteries, the village, and remains around the site, areas which are by now well documented, and we plan now to finish the dig within the sanctuary area and its annexes as soon as possible and to achieve the final presentation of the site to the public.

The main goal of the current project is to ex-

cavate extensively a Nabataean medium-sized site (**Fig. 2**), which could offer dwellings, agricultural structure, water systems, cemeteries and a sanctuary. We hope that the collected data would enrich the archaeological data of Petra. The other goal of the project is to carry out consolidations of the various structures at the site so they would be better presented, which will have provided the visitors to southern Jordan an interesting idea engulfed by the Nabataean legacy and current local heritage.

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



2. General plan of the site of Khirbat adh-Dharīḥ.

As far as the Nabataean sedentary settlement is concerned, we do not have at adh-Dharīḥ any secure evidence to place it before the beginning of the first century AD. At this point, we hypothesized a progressive sedentarization during the course of the first century AD with dwellings and successive phases until the years 360AD at the sanctuary, followed by a long period of prosperity and growth of the site all within a Nabataean cultural tradition. Thus, adh-Dharīḥ neither supports the hypothesis of a violent Roman conquest of the Nabataean Kingdom nor a retreated countryside of southern Jordan during the second and third centuries AD.

One of the structures at the site (the oil press V10) is certainly destroyed by fire during the first half of the second century AD — like the house of az-Zanṭūr I in Petra and the house that is recently excavated in Wādī Mūsā — but the destruction at adh-Dharīḥ at this date is an isolated case because it is not exactly dated and seems to be incidental. On the contrary, the most important tomb in the cemeteries was built in the year 110 AD in a purely Nabataean tradition immediately after the Roman annexation.

Adh-Dharīḥ in the second and third centuries AD comprised about 20 ordinary small-sized houses, at least two oil-presses, one large luxurious residence, one enigmatic large building (residence or hostelry) with a triclinium, two cemeteries consisting of numerous ordinary pit-graves, one monumental tomb, and a pilgrimage sanctuary of regional significance, which presents several successive phases.

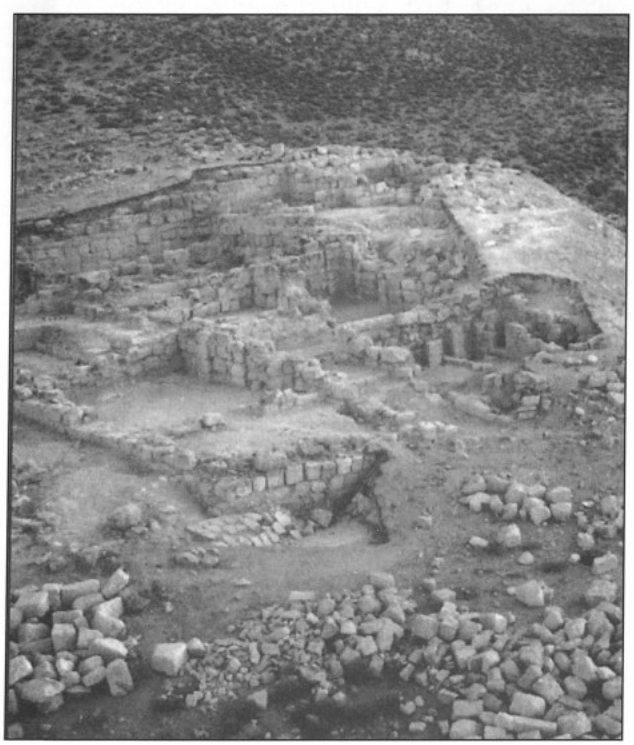
The completely excavated house (V12) gives a good example of an ordinary house, which was built progressively starting from the first century: it first consisted of one room, then two, then four eventually forming two housing units, each with a working-place courtyard, where one is in the north while the other is in the southeast. The house was destroyed and abandoned in the middle of the fifth century AD. The walls of the house were built in a rough coursed masonry, the floors were in earth, but the roofing are made of stone slabs borne by arches.

The oil-press (V2) is a grinding place in the middle of a paved room. It is probably representing two symmetrical counterweights-presses. It was destroyed in the middle of the fifth century AD.

The oil-press (V10) was built in the first century AD above the structures of the Early Bronze Age and the Iron Age II and is more complicated than the above. It was destroyed and abandoned during the first half of the second century AD. North to the oil press is a draining channel that proceeds towards a large reservoir, which is not excavated yet.

On the southern side, a passageway between V10 and a building was transformed into a rectangular enclosure. Before transformation, the oil press consisted of a unique paved room 12m by 5m with wood and clay roofing. There is a central grinder and two symmetrical counterweights presses. After transformation, a low wall divided the room into two unequal parts, and there was an attempt to install a screw press at the northern side as evidenced by the filling of the northern counterweights pit. The pottery of the destruction stratum is very abundant representing more than 300 objects (common pottery, lamps, greenish-white ware, and Nabataean painted pottery of Schmidt's phases 2B through 3C with a clear predominance of types 3B and 3C), which were later restored. All of the recovered coins were Nabataean and dated to the end of the first century AD.

The house V1, the closest to the temple, is a large and luxurious square residence, 35m by 35m (**Fig. 3**). Two independent rooms were built later to the south-west. The northern part of the house was collapsed and rebuilt with a slightly different orientation. The house was destroyed and abandoned in the middle of the fourth century AD. The house is organized around a carefully paved courtyard, with a portico on two sides. In the south, there are two reception rooms, in the north a series of private rooms, in the east a bath complex with a caldarium similar to those in the luxurious houses az-



3. The house V1 at Khirbat adh-Dharīḥ.

Zanṭūr III and Wādī Mūsā. North of the house extends a nicely paved esplanade with a system of draining and storing of water, it also has the first steps of a stairway descending towards the temple. On this esplanade, a small removable betyl was found, which suggests a cult either on the esplanade itself or on the roofs of the house.

Slightly to the east of the eastern gate of the sanctuary stands a 23m by 19m rectangular two-storey masonry building, the southern half has been excavated. On the ground level, one finds storage rooms from east to west, a central pillared hall, and a triclinium without pavement, the roofing of which was borne by arches. Among the debris of the upper floor, numerous fragments of stone and stucco decoration were found, and a small altar too. The function of the building, which has no parallels, is not elucidated yet, and we make several hypotheses: among them, a hostelry for the pilgrimages to the sanctuary, and/or an administrative building. It was not used after the middle of the fifth century AD.

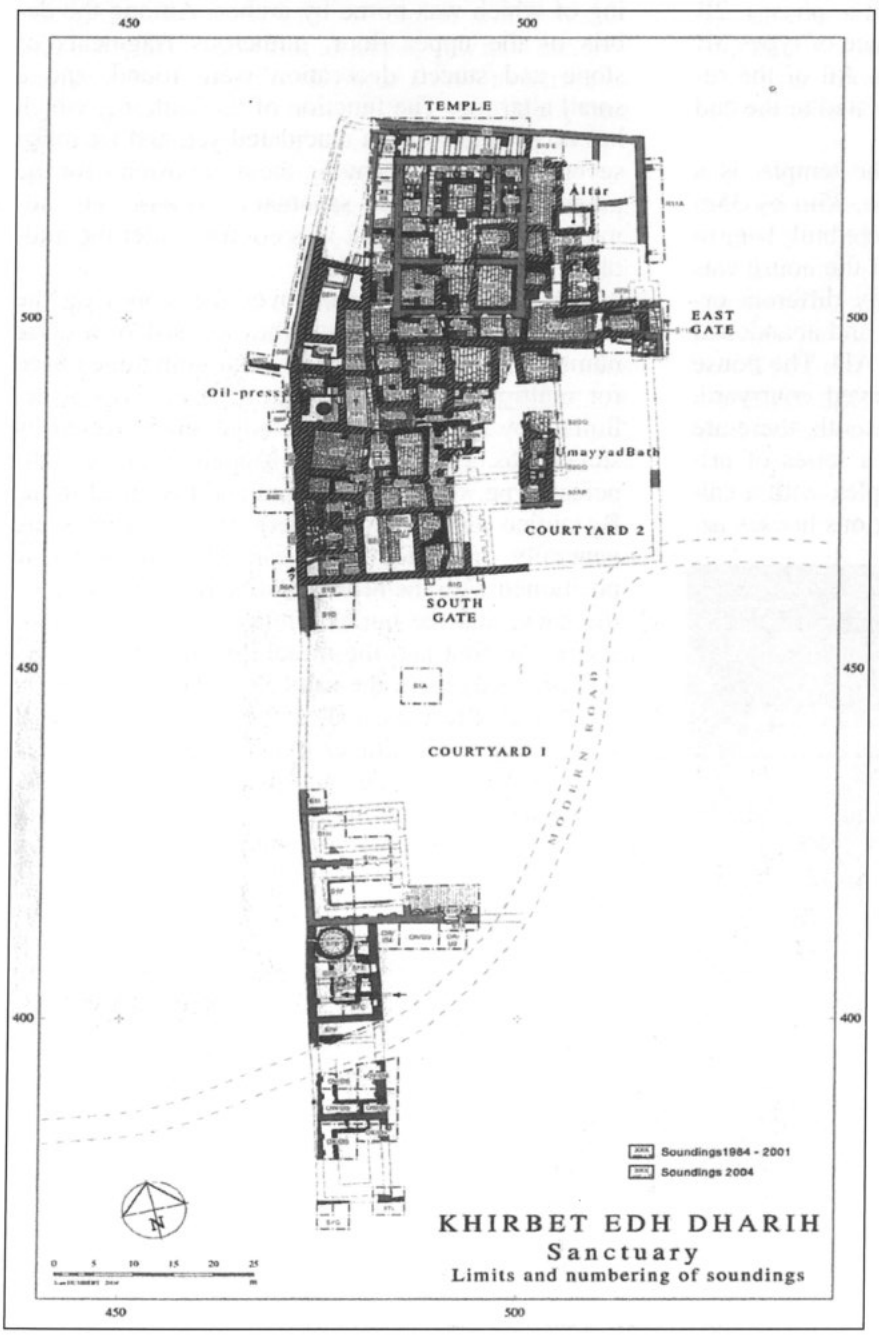
The cemeteries extend over the slopes on the east of the inhabited site. They consist of a large number of individual graves, but sometimes used for multiple burials. They are pits in the soil delimited by flat stones on the edge, and covered by stone slabs. The graves were topped by steles of the nefesh type, sometimes reused and inscribed in the Byzantine and Umayyad periods. The graves are generally orientated east-west. The skeletons are positioned with the head towards the west, lying on the back, and the burial offerings are very rare. It seems the first and the middle of the fifth century AD practices were the same, but the scantiness of the burial offerings makes the burials difficult to date. In one of the graves, a well-preserved wooden coffin was discovered. Many of the skeletons were found wrapped with luxurious goat leathers, apparently looking like *abayas*, with an abundant decoration: draughts board, and representations of camels. We find the same leather wrappings and the same funerary practices in one of the unique monumental tombs (**Fig. 4**) in the site a collective tomb, possibly a family one, with an upper part of a stepped base and an underground part consisting of six shafts of five superposed graves in each one. One of the deceased at the bottom was buried during the time the monument was being built; three undisturbed burials provided us with oboles of Charon, in the case in point drachmai of Trajanus, which give a date in the years 110AD. but the tomb remained in use till the years 360AD.

The sanctuary measures 110m x 45m. In its latest phase (**Fig. 5**), it consisted of at least two suc-



4. The monumental tombs at Khirbat adh-Dharīḥ.

cessive temenos, the gates of the two temenos and of the temple being on the same straight line. This last phase was built in the year 150AD. The southern courtyard is not paved and does not reveal any buildings. The northern temenos can be accessed through two gateways: the eastern gate has a complex architecture and decoration (monumental lintel); it is only partially excavated. The southern gate, with a simple decoration, is completely reconstructed on paper. Through this southern gate, one would enter a roofed porch, and from there one would go down into a paved courtyard (remained to be excavated), surrounded by two steps, with a



5. Plan of the temple complex. Khirbat adh-Dharīḥ.

column portico, at least on the southern side. On the south, west, and east sides of the courtyards is a series of rooms strongly reorganized in the Byzantine and Umayyad periods; amongst them at least a large triclinium (S2I-J) on the south. One large room on the west side, with a different orientation, testifies an earlier phase of this northern temenos. An important draining channels system existed beneath the pavement, with vertical manholes. Immediately to the west of the temple and under a paved corridor, there was an underground structure with arches, probably a reservoir.

Several construction phases existed in the temple. The earliest known, probably smaller than the later ones, was completely destroyed and incorporated in the second temple, with its blocks reused. The clearest evidence of the earlier temple is found in the cellar of the later one, where a sounding 70cm under the pavement revealed the pavement of the earlier monument with two associated walls on the same orientation as the later walls. The extension of this sounding would result in an accurate date of the two phases of construction. At the moment, we think that the second and main phase, with a decoration very similar to that of the one at the gate of the Qaṣr al-Bint tememos, might be dated to the end of the first century AD or the beginning of the second century.

The façade is reconstructed on paper with good probability, but its drawing will have to be re-examined after excavation is completed next summer. The most interesting point is the presence of a mythological decoration within panels consisting of stone frames, with for example thunderbolts, but this decoration was hammered during a period of iconoclasm.

This second temple (22m x 16m) consists of a row of three linked spaces, with a clear continuous slope of the floor from the front to the rear. All of these spaces are disposed widthwise. First is a vestibule, which in the first stage was unroofed, only its western half is excavated. It opens to the north through a very large doorway towards a cellar. The southern, western and eastern walls of which were decorated with stucco. Last, the northern rear part has a cultic platform in its center, which bore a culminated kiosk. The roofing of which, even if it existed, still provides problems. This platform is surrounded on three sides by a narrow U-shaped corridor, which gives access to two crypts situated under the platform. Two corner-rooms are located on the northwest corner of the temple with undecorated wall cupboards. There were two successive organizations of the platform (the stairway in the front being an Umayyad addition). In the first stage, one may access it through two narrow stairways in the front; in the large central flagstone of the pavement of the platform is a rectangular hole flanked by two small circular holes. Beneath the flagstone a stone vat was found. Thus, it would appear to be a system for sticking a betyl, making ritual aspersions on it and collect the blood in the underneath vat. Thus, the platform may be interpreted as a motab, or seat of the deity. In the second stage, the two stairways were carefully blocked, thus replaced by a movable ladder. Two new betyl-systems are installed, one at the northeastern corner of the platform and the other at the southwestern corner — the place of the earlier blocked stairway. Thus, in this phase, there is a cult of a triad of beryls strangely diagonal and not frontally placed.

The temple consists of an open-air vestibule to the south and an almost square complex to the north (**Fig. 6**). From the vestibule one faces an interior façade, which was adorned with stuccoed niches; in the middle of that façade is a very wide gate situated towards the rear square part of the temple, almost identical in dimensions to the former temple. This complex is formed by a cella, richly adorned with architectural painted stuccos, and by a square cultic platform (built over two crypts) surrounded by a narrow corridor and flanked east and west by four small angled rooms, one of them enclosing a staircase leading to the terrace-roof. The room to the south of the staircase has an additional crypt under it. One of the unresolved issues concerns which parts of that complex were roofed. The corridor and the angle rooms certainly had a roof, but the technical difficulty of roofing the platform and cella presents a problem; the close parallel of the temple or "inner enclosure" at at-Tannūr, and the general and regular slope of the pavement through the whole of the temple (for



6. Aerial view of Khirbat adh-Dharīḥ sanctuary.

draining rainwater) makes it probable that these sacred spaces were unroofed, although pillars added along the walls of the cella lead one to think that the cella at least was ultimately roofed.

The external, main façade of the temple was 15 meters high. It must be understood, like the façade of the "inner enclosure" at at-Tannūr, as the "projection" on a unique wall of the façade of a distyle *in antis* monument with Corinthian capitals, but it presents a strong architectonic originality. This consists of: two protruding pedestals at the base, right and left of the door, each bearing possibly a feline; two large windows high in the façade; and a pediment with a semicircular tympanum. The whole is exuberantly decorated by sculptures in relief: right and left of the door and above it were decorative panels consisting of frames bearing religious motifs, among which the animated figures were defaced in late antiquity (during the eighth century) by religious iconoclasm. Among them, one may distinguish shields, winged or vegetal thunderbolts, lidded metallic creates borne by winged figures; and many mythological scenes, but also a triad with standards (either Roman military *signa* with the Capitoline triad or religious *semeia* of oriental deities) and even a Roman she-wolf, treated in an extremely provincial way. Above a foliated architrave populated with animals, with Medusa heads at the angles, stands a high-relief frieze with alternating figures of the Zodiac and winged Victories (**Fig. 7**), who crown these figures. The anthropomorphic busts discovered consist, from left to right, of Taurus (**Fig. 8**), the Gemini (**Fig. 9**), Cancer (**Fig. 10**), Libra, and a fragment of a cuirassed Sagittarius; the others are terribly worn or missing. The triangular pediment (**Fig. 11**) presents, to the left and right of an arch of voussoirs with floral motifs, symmetrical sea centaurs with long twisted tails, which are crowned by flying Victories, with standing eagles, and fishes at the extremities. The figures of the main, central tympanum, certainly the most important for the significance of the whole façade, have almost completely disappeared. The only fragments which could have come from there are the head of a bearded diety very much like a head from at-Tannūr usually interpreted as a Zeus (Glueck 1965: 294; Mckenzie, Gibson and Reyes 2002: 61), and fine cornucopiae, which suggest a deity represented like a Tyche. Thus, we may imagine that the tympanum represented a couple, consisting of a male and female diety, presented as a Zeus and a Tyche, a probable translation of the chief Nabatean gods Dhusharå and al-'Uzza. But this is highly speculative, and the decoration of the façade as a whole



7. Nike panel from Zodiac limestone frieze. Khirbat adh-Dharīḥ temple façade.



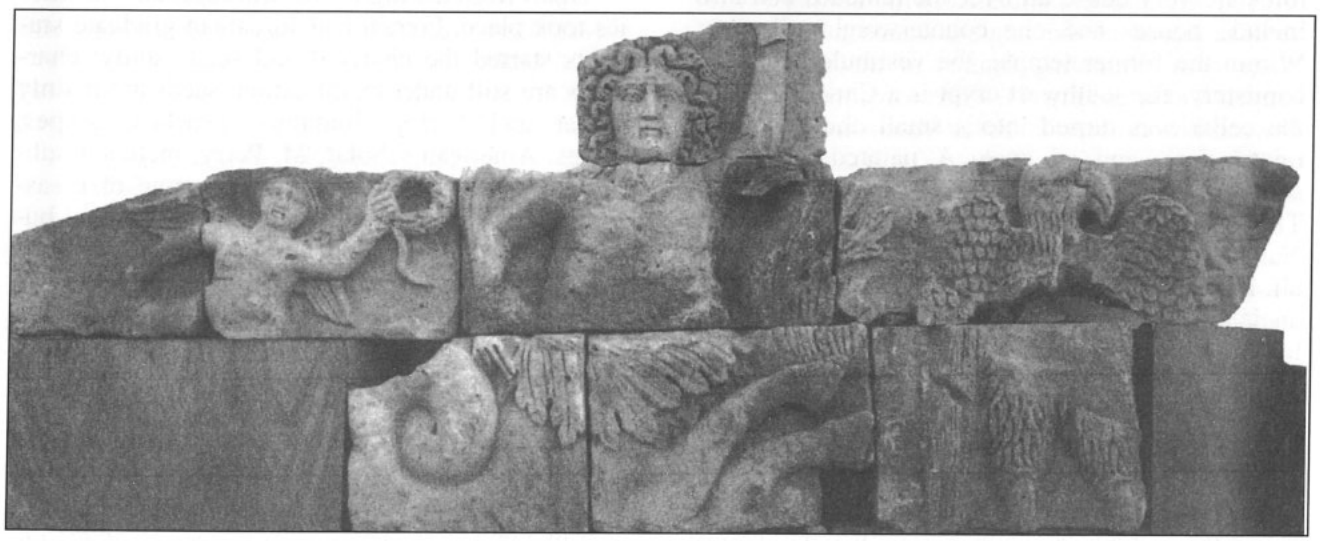
8. Taurus panel from Zodiac limestone frieze. Khirbat adh-Dharīḥ temple façade.



9. Gemini panel from Zodiac limestone frieze. Khirbat adh-Dhariḥ temple façade.



10. Cancer panel from Zodiac limestone frieze. Khirbat adh-Dhariḥ temple façade.



11. Pediment, left (west) part of temple façade.

appears like the juxtaposition of many themes. These discoveries will certainly generate passionate discussion about whether the zodiac here depicted is a sign of astral cults, as a at-Tannūr, or of the Roman cosmic order, and, more generally, if the whole is a celebration of indigenous deities with their Hellenized attributes or of the new Roman order. The question is complicated by the fact that we will probably never know if the adh-Dharīḥ temple was built before or after 106AD. We would suggest temporarily that the date is slightly later than the Roman annexation and that the iconography of adh-Dharīḥ is a clever, diplomatic, maybe ambivalent, combination of the Greek-influenced Nabataean religion and a spectacular, professed allegiance to Roman power. The Roman she-wolf has hooves, which seems to be derisive, if it is not an indication of the artist's clumsiness.

Within the temple, the essential element is the square (7m x7m) platform (height 1.40m) the access to it on its façade, in the late second century phase was through a wide, wooden stairway (earlier through small stone stairways positioned inside the platform façade itself). The platform was surmounted on three sides by a columned baldachink, itself surmounted by a richly decorated entablature, again including figures of Victories and deities. The platform is the *môtab or môtbâ,* the name given by inscriptions of Petra and Hegra (Healey 2001: 158-159) to the seat of the deities, thus the base of their sacred standing stones, or baetyls.

The whole structure was severely damaged in the year 360AD by an earthquake, which we are inclined to date, as in Petra, to the 19th of May, 363AD. Then it remained completely abandoned for about two centuries. This makes it difficult to identify with the locality of Ellebana, mentioned in the Berseba Edictum in the fifth century AD.

During the fourth century AD a new settlement was rebuilt, to the northern temenos of the former sanctuary, reusing the stones and frequently the bases of the Nabataean-Roman wall phases. It is a small fortified village or monastery, the peribole becomes a fortification, with the gates being narrowed and the thresholds heightened. The structures are very dense all over the temenos and also include houses and one counterweight oil-press. Within the former temple, the vestibule became a baptistery, the southwest crypt is a Christian tomb, the cellar was turned into a small church with a raised choir and an apse. A painted Greek inscription on the arch of the apse mentions Maria Theotokos, Mary the mother of god. The former Nabataean and Roman village is not reoccupied at all, but there were new graves of this period in the ancient cemetery, where several Christian steles have been found. This occupation continues that way until the eighth or ninth century AD. During the Umayyad period or at the beginning of the Abbasid period, the temple stopped being used as a church and the former motab was turned into a reception room with three benches. It was destroyed by a new earthquake, which before then was almost completely standing.

After that we find only a small rural settlement of the late Mamluk or early Ottoman period, still limited to the area of the northern temenos and the temple with the southern temenos used as a cemetery.

Thus adh-Dharīḥ presents a very clear evolution, which can now be considered as a model to be tested by other excavations in southern Jordan and a landmark for interpreting surveys. In the Nabataean and Roman periods, adh-Dharīḥ was the main population center of the area between aṭ-Ṭafīla and Wādī al-Ḥasā, and between Wādī ʻAraba and the desert in the middle of a cloud of hamlets and of isolated dwellings. Although adh-Dharīḥ was not large at all, its regional importance came from its sanctuary. For the late Nabataean period and its Roman continuation, the site allows underlining the role of the regional sanctuaries for the development of a rural population organized in small localities largely turned towards olive cultivation. The stratified social organization represented by prominent families and the luxurious households played the main role in the temple, owned the monumental tomb, and dominated the families of the modestly housed and modestly buried peasants. These main families probably belonged to the resh ʻAyn al-Laʻbān (the curator of the Laʻbān spring), mentioned in an inscription at Khirbat at-Tannūr in 8BC. At the moment we lack evidence at adh-Dharīḥ to assert that both epigraphic documents and stratigraphic evidence for the end of the first century BC.

The 12th season, in the summer of 2004, was conducted with that perspective: it concentrated on big-scale operations of cleaning, restoration, and soundings within the sanctuary and near it.

Apart from the dig itself, some specialized studies took place. French and Jordanian graduate students started the charcoal and seeds study; charcoals are still under examination, seeds are mainly wheat and barley, hummus, peaches, grapes, olives. American scholar, M. Perry, included adh-Dharīḥ within an important programme of measurement of strontium percentage in animal and human bones: first results for adh-Dharīḥ are simulating but perplexing, as they suggest that people buried in adh-Dharīḥ in different periods of Antiquity were not of local origin but could have come from the Petra-al-Quwayra area.

Consolidation and Restoration Activities: has been exceptionally important during that season. We removed hundred of tons of excavation debris accumulated during eleven seasons on a large area to the south-east of the temple, and we consolidated tens of meters of ancient walls. We dismantled limited parts of walls of the Late Antique hamlet within the Nabataean sanctuary and reconstructed the Nabataean-Roman aspect of the same spot. We made anastylosis work (including stone cutting and carving), especially on the northern (rear) wall of the temple, on the cultural platform of the temple and on the apse of the Byzantine church built inside the temple. Beside that, all the metallic ob-

jects and pottery were restored.

Excavation Activity: concerned mainly the Area A, on the sacred path towards the sanctuary, the southernmost area of the sanctuary S7; the external areas of the temple, to the north (S9) and East (S10); the Eastern Gateway to the sanctuary (S2B-S11B) and eastern parts of the main (northern) courtyard (S2) of the sanctuary.

Pre-Nabataean Phases

The season confirmed the presence, on many spots, of final Early Bronze Age and Edomite remains. In particular, a very thick Early Bronze IV destruction layer is present everywhere in Area A, immediately below first-third centuries AD buildings. The Edomite level, absent there, exists in Area B, some meters to the east.

First Century AD

Some additional discoveries made during that season contribute to document the first, small, sanctuary of adh-Dharīḥ, which is largely obliterated by the later sanctuary. A segment of the earlier sanctuary was discovered near the north-west angle of the later temple. The sounding there produced Nabataean painted pottery of a type dated around 20AD, which gives an approximate indication (at least a *terminus post quem*) for the building of part of the earlier sanctuary.

Area A

The season confirmed the indications obtained during the 2001 season in that interesting area, which served as a stopping place for travelers before entering the sanctuary. It was built in the late first century AD/ early century AD, and occupation there ended in the third century, so one century earlier than elsewhere on the site (363AD). The early destruction is also demonstrated in area S7, on the southern limit of the sanctuary. As a palmyrenian coin of Wahballath, Zenobia's son, dated 273AD, was discovered in area A, we suspect that the spot could have been destroyed during the campaign of the palmyrenian army in the late third century.

Area A consists of an unpaved street leading towards the sanctuary, a caravansera and annexes to the east of the street, and baths to the west. The caravansera, a poor-quality building which was many times partially destroyed and modified, includes a large rectangular courtyard and series of rooms to the east, north and south of the courtyard. It opens towards the street through a gateway (A5), the room to the south of the gateway was probably a guard-room (metallic weapon-heads were found there). In the south aisle, long and narrow rooms A4 and A10, without any fragment of objects inside them, could be stables. The bath (A2) is badly preserved, due to the reuse of its stones as pavement slabs by Byzantine rebuilders of the sanctuary area. Nevertheless, the heating system (hypocaust and ceramic pipes) of the hot room (caldarium) is quite well preserved, below floor-level.

The Sanctuary in the Second Century AD (Phase A)

The later sanctuary has a long history, where we may crudely distinguish phase A (early-middle second century), main period of building activity, and phase B (late second — mid fourth century) with a series of changes. Northern part of sounding S8, outside the north-west angle of the temple, provided a lot of potsherds at the foundation level. It can be roughly dated around 100AD, plus or less 20 years. Due to that uncertainty, we are not able yet to say if building activity started before or after the Roman annexation of the Nabataean kingdom (106AD).

North of the temple (rear part), area S9 was completely cleared to the circulation level around the temple. It was the level of a pavement, which actually has completely collapsed (earthquake of 363AD) in the underground room situated below, which is not excavated yet.

Large-scale excavation of area S10, to the east of the temple, revealed, on the contrary, a solid pavement everywhere, and no underground room below. The area was densely built later, during the Byzantine Umayyad reuse. The most interesting discovery there are the remains a small sacrificial altar, 3.64 meters square, built just 3,64 meters (7 Egyptian cubits) to the east of the temple eastern wall. A few elements of the altar decoration were discovered: a miniature Nabataean pilaster capital *in situ*, a relief depicting a *nefesh* on the front of a *pyramidion*.

The sacrificial function of that building is confirmed by its proximity to the Eastern Gate of the sanctuary, which was entirely cleared in areas S2B/ S11B (after dismantling of its later blockings). That wide gate, with very low threshold, was probably dedicated to the introduction of animals for the sacrifices.

Changes in the Sanctuary in the Late Second — Mid Fourth Centuries (Phase B)

The main change was discovered due to soundings in area S7, at the southern entrance of the

sanctuary. Soundings of this season demonstrated that a series of 3 large rectangular rooms, adjacent to each other, was added around 200AD to the sanctuary, to the south of the southern courtyard. These rooms, which served for some time as cultural triclinia (banqueting rooms with benches on three sides), were dismantled in the late third century. At that time, their area was used temporarily as a huge working-place for workers employed in a building programme of sanctuary additions, additions which actually were never finished.

The Christian Settlement (Late Sixth Century — Mid Seventh Centuries?

As during every season, a series of domestic ordinary units of that period, located within the northern courtyard of the Nabataean sanctuary, was cleared. The most interesting element for that period was, this year, a long lintel, adorned with an incised Greek cross inside a circle. Two rosettes flank the cross. The lintel was found near the southern gate of the main courtyard of the sanctuary, a gate which served in the Byzantine period as the main entrance to the hamlet: it was probably the lintel of that gate.

The Early Islamic (Umayyad and Early Abbasid) Settlement

Beside domestic units of the same kind as in the Byzantine period, the main discovery is that of a small very well preserved (2 to 3m high) *late antique bath* (**Fig. 12**). It is located near the south-eastern corner of the sanctuary main courtyard. It is built directly on the pavement of that courtyard, and has an over elevated pavement, in order to have the heating underground system (brick hypocaust) between the lower and higher pavements. Its plan is an elongated rectangle. It includes two small chambers with stone benches at the bottom of the walls and vertical ceramic heating pipes within the walls, and a couple of heated basins (actually square coated bathtubs) at the southern end. The furnace was located at the bottom of the outer southern wall. Some devices of that bath have comparisons in the (much larger) bath of the Umayyad palace in Khirbat al-Mafjar near Jericho.

A series of Arabic inscriptions and graffiti of the early Islamic period, none of them *in situ*, were also discovered on various spots of the northern courtyard of the sanctuary. One is quite interesting due to its position: a long text written on the north pilaster of the north-east angle of the temple; but it has not been deciphered yet. The most important document, found near the Eastern Gate of the sanctuary, is a short monumental inscription, a dedication by a certain Hishām ibn Shābūr, dated 79Hg (thus 698-699AD). It is one of the earliest Islamic inscriptions discovered so long. The date clearly demonstrates that adh-Dharīḥ was already an Islamic place (at least partially) in the late seventh century AD.



12. Umayyad bath.

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Bibliography

AL-Muheisen, Z. and Villeneuve, F.

1988 Fouilles à Khirbat edh-Dharih (Jordanie). Un village, son sanctuaire et sa nécropole aux époques nabatéenne et romaine (Ier-IVème siècles ap. J-C.). *Comptes rendus de l'Académie des Inscriptions et Belles Lettres:* 458-479, Paris.

1994 Khirbet edh-Dharih : Un sanctuaire nabatéen de pèlerinage et ses dépendances. *Le Monde de la Bible 89*, Paris.

1994 Nouvelles Recherches à Khirbet edh-Dharih.

Comptes-rendus de l'Académie des Inscriptions et Belles Lettres: 735-757, Paris.

1999 Khirbet Edh-Dharih, Temple et Tombeaux dans un Village Nabateén. *Dossiers d'Archéologie* 244, Paris.

Glueck, N.

1965 *Deities and Dolphins.The Story of the Nabataeans.* London and NewYork.

Healey, J.F

2001 *The Religion of the Nabataeans. A Conspectus.* Leiden.

Lenoble, P., AL-Muheisen, Z. and Villeneuve, F.

2001 Fouilles de Khirbet Edh-Dharih Le Cimetiére au Sud du Wadi Sharheh, *SYRIA* 78: 89-151. Paris. McKenzie.S.,Gibson, and Reyes

2002 Reconstruction of the Nabataean Temple Complex at Khirbet et-Tannur. *PEQ 134:* 44-83.

Villeneuve, F. and AL-Muheisen, Z.,

2000 Nouvelles Recherches à Khirbet edh-Dharih (Jordanie du Sud, 1996-1999). *Comptes-rendus de l'Académie des Inscriptions et Belles Lettres:* 1525-1563. Paris.

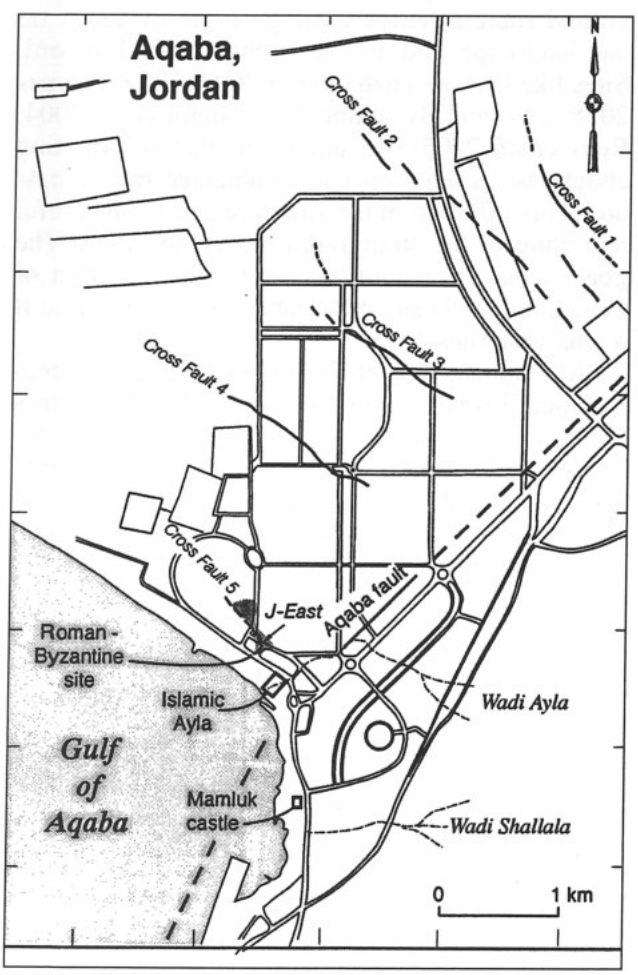
2004 Dharih and Tannur , Sanctuaries of central Nabataea. Pp. 83-100 in G. Markoe (ed.), *Redicovered Petra: The Lost City of the Nabataean* Kingdom. NewYork.

NEW EXCAVATIONS OF THE CITY WALL AT ISLAMIC AYLA IN 'AQABA, JORDAN

John D. Rucker and Tina M. Niemi

Introduction

The Early Islamic site of Ayla, extensively excavated by Donald Whitcomb of the Oriental Institute at the University of Chicago, is a walled city, ca. 250m southeast of the Byzantine city wall excavated by Parker (Parker 1996), and approximately 850m north of the Mamluk castle in modern 'Aqaba (**Fig. 1**). The city of Islamic Ayla was probably founded under the Caliph 'Uthmān bin 'Affān around 650AD (Whitcomb 1995: 277).



1. Map of Modern 'Aqaba, showing location of three occupational periods and known faulting (Slater and Niemi 2003).

The city seems to have suffered some damage as a result of the 748AD earthquake, and extensive reconstruction with the beginning of the Abbasid period (Whitcomb 1994: 9). It is described by al-Maqdisī in the late 10th century, as he described it in reference to the ruins nearby of the Roman/ Byzantine site (after Whitcomb 1997: 359). The town was severely damaged by the earthquake in 1068AD (Ambraseys 1994: 31). The destruction and loss of life (accounts claim that all but 12 residents who had been out fishing were killed) caused by this earthquake may account for the relative ease with which Baldwin I of Jerusalem took over when he arrived with a small retinue in 1116AD. Baldwin I constructed a small fortification (the origin of the current castle?), and a new settlement grew up around this (Whitcomb 1997: 359). The site of Islamic Ayla was apparently never reoccupied to any significant degree after the time of the Crusaders.

Based both on the historical accounts and the archaeological work of Whitcomb and Parker, it is clear that earthquakes have played a significant role in the history of the 'Aqaba region. It is also clear that given the location of 'Aqaba on the Dead Sea Transform, where a major NE-trending strike-slip fault (the 'Aqaba fault) that originating in the Gulf of 'Aqaba terminates under the modern city, earthquakes will continue to be a major factor in the region in the future. Geological trenches excavated across several faults in 'Aqaba document that the fault motion is transferred from the 'Aqaba fault onto five northwest — trending cross — faults that produce active tectonic subsidence at the head of the Gulf (Niemi and Smith 1999; Mansoor 2002: 258; Slater and Niemi 2003). The exact location of the 'Aqaba fault is uncertain due to urbanization of the region, although Whitcomb has hypothesized that the wadi running across the site of Ayla has its origins in erosion along the structural weakness of the fault itself. Thus, our main objective in investigating the city wall of Ayla was to test this hypothesis and attempt to locate the 'Aqaba fault.

Previous Scholarship

As mentioned above, Ayla was extensively excavated by Whitcomb between 1986 and 1995. Among his many conclusions were some relating to the earthquake history of the site. The most significant of these was his hypothesis that the wadi running roughly NE-SW through the site originated along the line of a major fault (Whitcomb 1993: 19). Our excavations in 2001 and 2003 were specifically designed to test that hypothesis. Whitcomb had previously demonstrated that architecture and other cultural remains were still present in the wadi itself during his excavations in 1993 and 1995. In 2000, Parker, as part of his Roman 'Aqaba Project, excavated a trench (R1) across the alignment of the city wall, in the wadi underneath the bridge carrying the Corniche Road (al-Istiqlāl Street) across the wadi (Parker 2002: 421). This trench was designed to reach the foundations of the wall, and lay to rest persistent questions about the possibility of the site's origin as the legionary fort of the *Legio X Fretensis*. In fact, the trench revealed a section of the wall, in good condition, and revealing no apparent earthquake damage. Parker's work has finally answered this question with pottery from the foundations and below indicating a firm seventh century date for the construction of the city wall at Ayla (Parker 2002: 421). With this history of the previous work in the wadi in mind, it was clear that it should be possible to trace the alignment of the city wall across the entire width of the wadi, thus revealing any misalignment caused by fault slip, as well as any other earthquake damage. This effort was somewhat complicated by the projected location of the corner tower, which should have been, and was, near the center of the wadi. In 2001, a brief sounding (R2) as part of the Wādī 'Araba Earthquake Project revealed the inner alignment of the wall between the R1 trench and the projection of the alignment of the wall to the NW located by Whitcomb. In 2003, we opened three trenches, one (R3) over the projected (and actual) location of the corner tower, the other two (R4 and R5) across the alignment of the wall running SE from the corner tower.

It is worth noting as well that while they never excavated at the site, Galli and Galadini (2001) also proposed an alternate map of the potential line of a fault based largely on unpublished information from Whitcomb's excavation and survey of 1996. They hypothesize a fault running NNE-SSW from the Sea Gate to the reconstructed wall NW of the Egyptian Gate with associated sinistral wrenching of exposed walls (Galli and Galadini 2001: 295). Our observations and survey suggests that there is little evidence of misalignment of the original walls that would support their proposed location of the fault.

Goals

The overall goals of the Wādī 'Araba Earthquake Project are to excavate across locations where previous investigators had documented or proposed that earthquake faults cut across ancient structures in order to understand both the chronology and magnitude of ancient earthquakes. The purposes of this project are to identify primary evidence for ground-rupturing faulting events caused by earthquakes and to document the associated collapse, damage, and repair of the architecture in antiquity. Earthquakes are one of many catalysts for social, political, and cultural change that may have affected a region in antiquity, and it is therefore important to study both the occurrence and severity of these events in history.

Because earthquakes are generated by sudden slip or motion on a fault, the ground will generally "rupture", or crack, along the fault in earthquakes greater than Richter magnitude 6.5. This type of ground rupture leaves clear geologic evidence on the landscape and in the archaeological record. Sites like Qaṣr aṭ-Ṭilāḥ (Niemi 2002, 2004; Haynes 2005: 209) and Byzantine Aila (Niemi *et al.* 2004; Ross *et al.* 2005) are unique in that information about past earthquakes can be obtained from measurements offset from the structure and from careful recording of the stratigraphy across the fault. The goal of our excavation of a very small portion of the Islamic Ayla site in 'Aqaba was to determine if a fault underlies Ayla.

Al-Hamoud and at-Tal (1998) conducted geotechnical investigations using three boreholes to a depth of 12m on the tall of Islamic Ayla. Archaeological deposits overlie sand and fluvial gravels. They noted tilting and sinking of exterior walls that they interpreted as slumping due to horizontal ground acceleration in an earthquake. The NW corner is underlain by 5m of sand below the water table, based on a borehole outside the Egyptian gate towers. According to the analyses of Mansoor and others (2004), Ayla lies in an area of high liquefaction susceptibility, due to the presence of saturated sands at shallow depth. This means that in situations of earthquake shaking, the substrate may lose its ability to bear weight, resulting in collapse of structures. Areas in the city of 'Aqaba that experienced subsidence in the Nuwaybi' earthquake of 1995 lie along the beach zone near the ancient site of Ayla (Wust 1997; Malkawi *et al.* 1999).

The specific goal of our excavations in these two seasons was to test the hypothesis proposed by

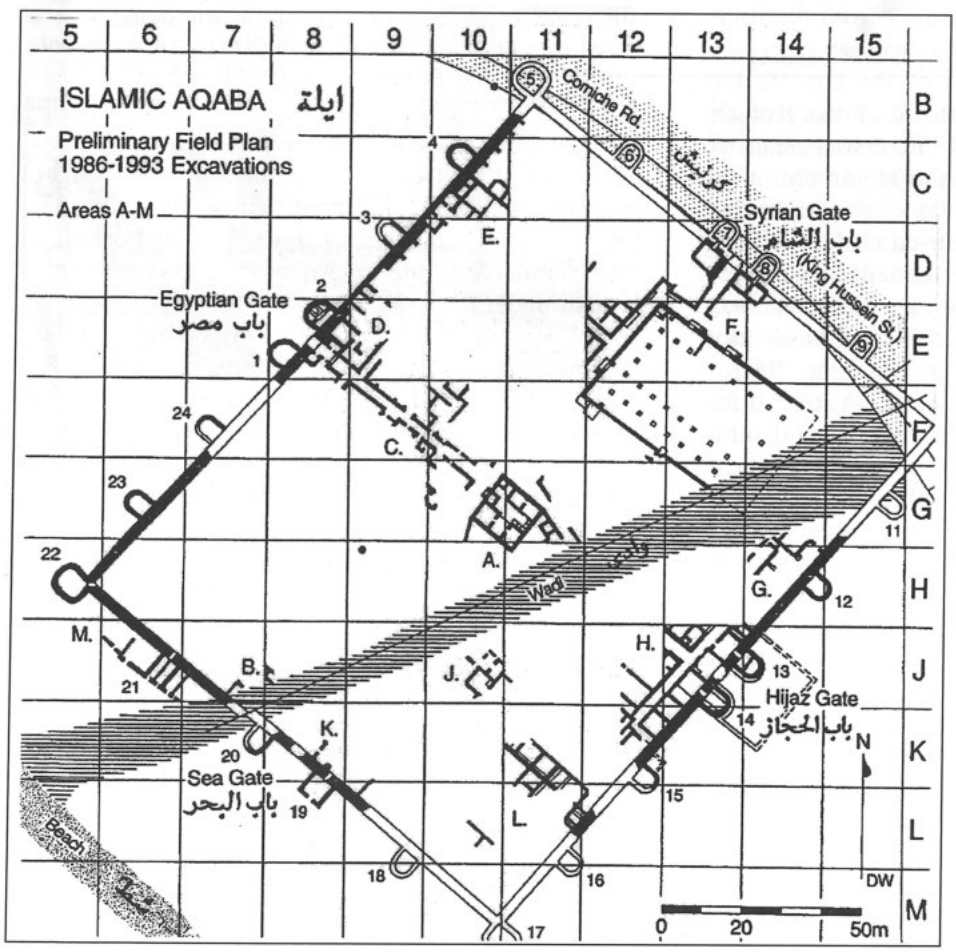
Whitcomb (1993) that the wadi, which currently cuts through the site of Islamic Ayla, was created by a seismic fault. He hypothesized this based on an approximately 2m misalignment he projected across the wadi in the Sea Wall of Islamic Ayla. Whitcomb himself never excavated in the area under the modern al-Istiqlāl Street bridge, but projected the corner of the city wall, based on its alignments leading into the corner (in which no ancient remains were visible on the surface) (**Fig. 2A**).

In 2000, as a part of his Roman 'Aqaba Project, Dr. Thomas Parker opened a trench (RAP 2000 R.1) across the projected alignment of the NE city wall under the bridge in an effort to date the foundations of the city wall. The choice of location for this trench was mandated by an effort to minimize the amount of more recent cultural overburden. Excavation to below the foundation during that season proved, based on pottery evidence, that the city wall of Islamic Ayla was founded at the very beginning of the Umayyad period, ca. 650 (Parker 2001). Serendipitously, this trench also considerably lengthened the known alignment of the city wall, and throughout this section, there is no significant offset or structural damage.

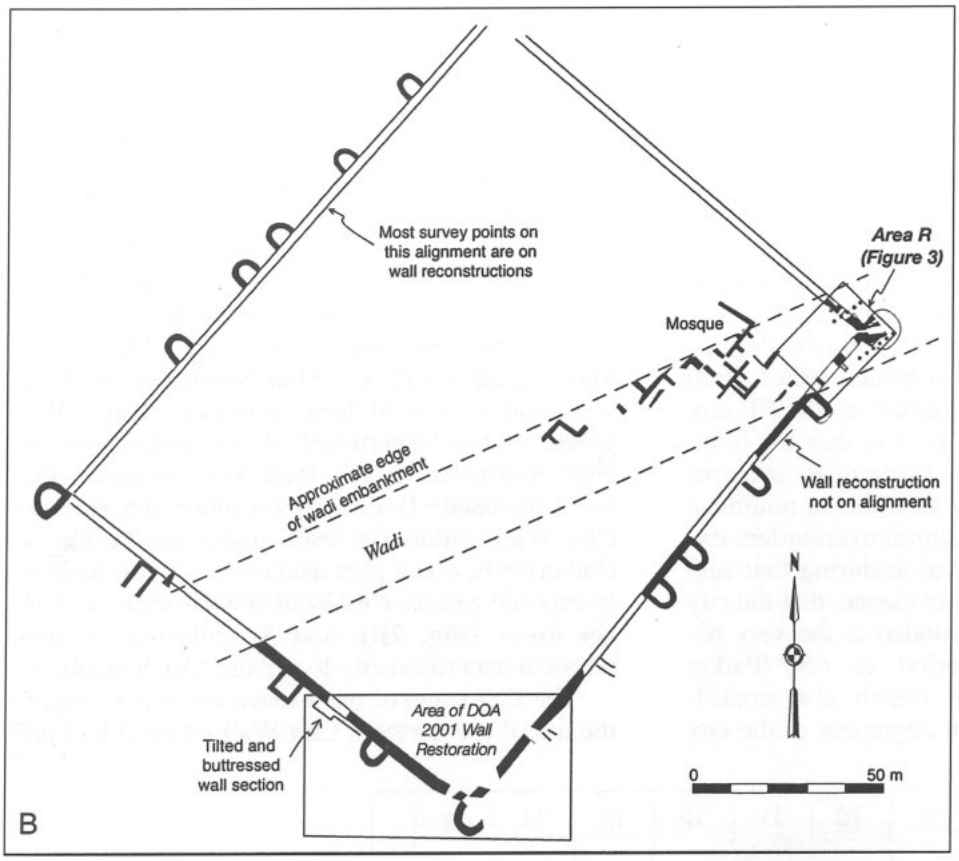
Excavation

In 2001, the main objective of our work within Islamic Ayla was to verify the location of the fault. The work at Islamic Ayla was done to assist Ms. Sawsan Fakhri, director of the 'Aqaba office of the Department of Antiquities, who was actively excavating the eastern and southern City Walls. Excavation continued for 6 days between May 14 and May 19, 2001 with Dr. Tina Niemi, Nasser Mansoor, and a team of local workmen. Manal Basyouni, of the Department of Antiquities, was of great assistance as the local representative. Our work included: 1) Excavation along the northern City Wall within the wadi under the bridge; 2) Gathering new site plan data especially of the newly exposed eastern City Wall and the southeast corner tower (**Fig. 2B**), and 3) collection of geophysical data to exactly locate the 'Aqaba fault.

The first stage of our excavation was to expose the top of the northern City Wall where it had pre-



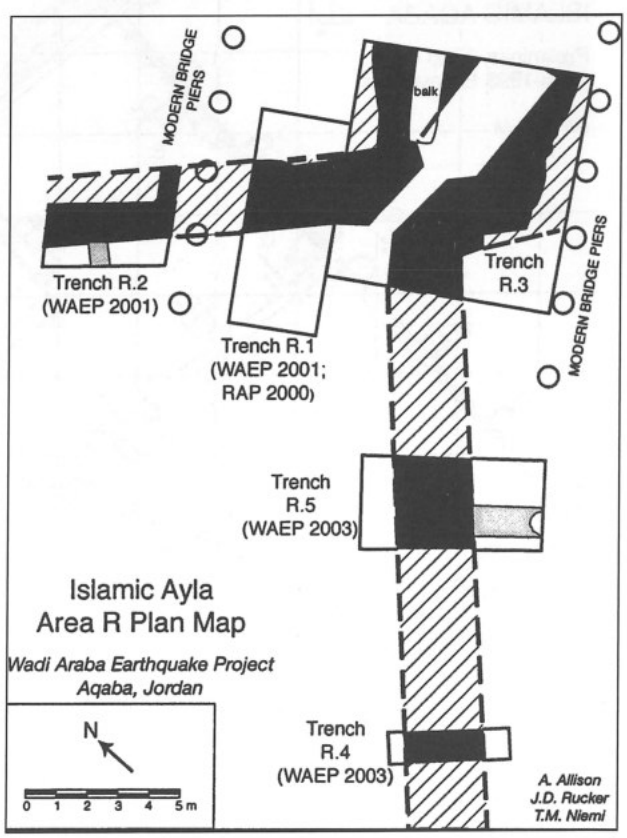
2a.Site Plan of Early Islamic Ayla, from Whitcomb 1995.



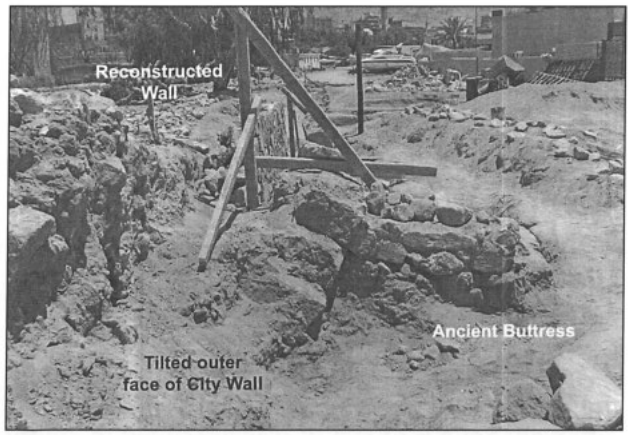
2b. Site plan of Early Islamic Ayla, incorporating our 2001 and 2003 survey data. This is not intended as a complete map plan, but only to include new data.

viously been excavated as Area R of the Roman 'Aqaba Project directed Dr. S. Thomas Parker of North Carolina State University (**Fig. 3**). Our goal was to trace the length of the wall under the bridge to see if there was any misalignment due to fault offset. We began by tracing the wall toward the west in the direction of the Syrian Gate. We exposed the entire 2.5m wide wall in a 1m wide plot west of the first row of bridge pylons. Only the interior facing stones of the City Wall was traced for a distance of approximately 6m to the west. Our excavation terminated at the bridge concrete footings. No offset in the trend of the interior of the City Wall was apparent to the west. We then traced the interior of the City Wall about 3m to the east of the Area R exposure.

During the 2001 field season, we surveyed visible architecture on the southeastern section of the site, using a total station, in order to record unpublished architecture and project alignments. The recent Department of Antiquities restoration project in the south corner of the site exposed walls that were included in our survey and the resulting site map (**Fig. 2B**). This reconstruction project also revealed a section of the Sea Wall that was tilted outward (**Fig. 4**). The outer edge of this section before excavation would have appeared on the ground surface 1.5 to 2m from the alignment of its



3. Site Plan of WAEP 2001 and 2003 excavation area, in the eastern corner of Early Islamic Ayla



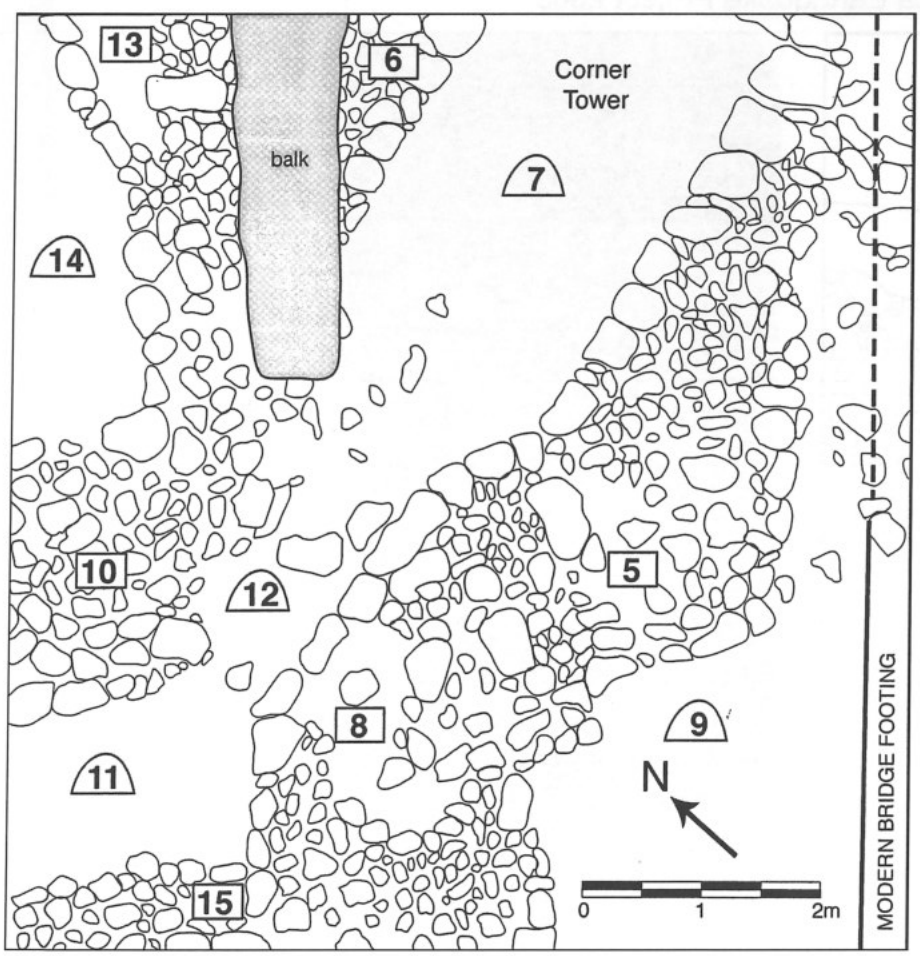
4. Section of Sea Wall, tilted outward and buttressed in antiquity, with reconstructed wall on original alignment in background, view to SE.

actual foundation. Interestingly, it appeared to have been buttressed and continued in use in antiquity. This phenomenon, (easily caused by liquefaction and subsidence, not faulting) may provide an explanation for the apparent misalignment in the Sea wall above foundation levels observed by Whitcomb and others.

Also in 2003, we also used ground penetrating radar to look for active faults within Wādī Ayla adjacent to the Ayla archaeological site and within greater 'Aqaba. No conclusive evidence for faulting in the wadi was found due to extensive cultural modification of the channel margins and fill. These results are reported in Slater and Niemi (2003).

Excavation in Area R, Islamic Ayla, was carried out for 22 days between July 6 and July 31, 2003 by Alivia Allison and John Rucker and ably assisted by Mr. 'Adnan Rafay'ah of the Department of Antiquities. In view of the goals stated above, three trenches were laid out and excavated this season: R.3 (on the projected position of the corner tower), and R.4 and R.5 (across the projected alignment of the SE city wall) (**Fig. 3**).

R.3: This trench was originally laid out as a 4m by 5m trench, but was expanded first to 5m by 8m, and then to 8m by 8m, as the location and alignment of the city walls and corner tower became apparent. The corner tower, at the level to which it is preserved, consists of an irregular curved exterior wall (cut by the footing trench for the modern bridge), and an interior diagonal rectangular room (**Fig. 5**). The trench contained 4 layers of soil and sand, consisting of modern wadi wash and con-

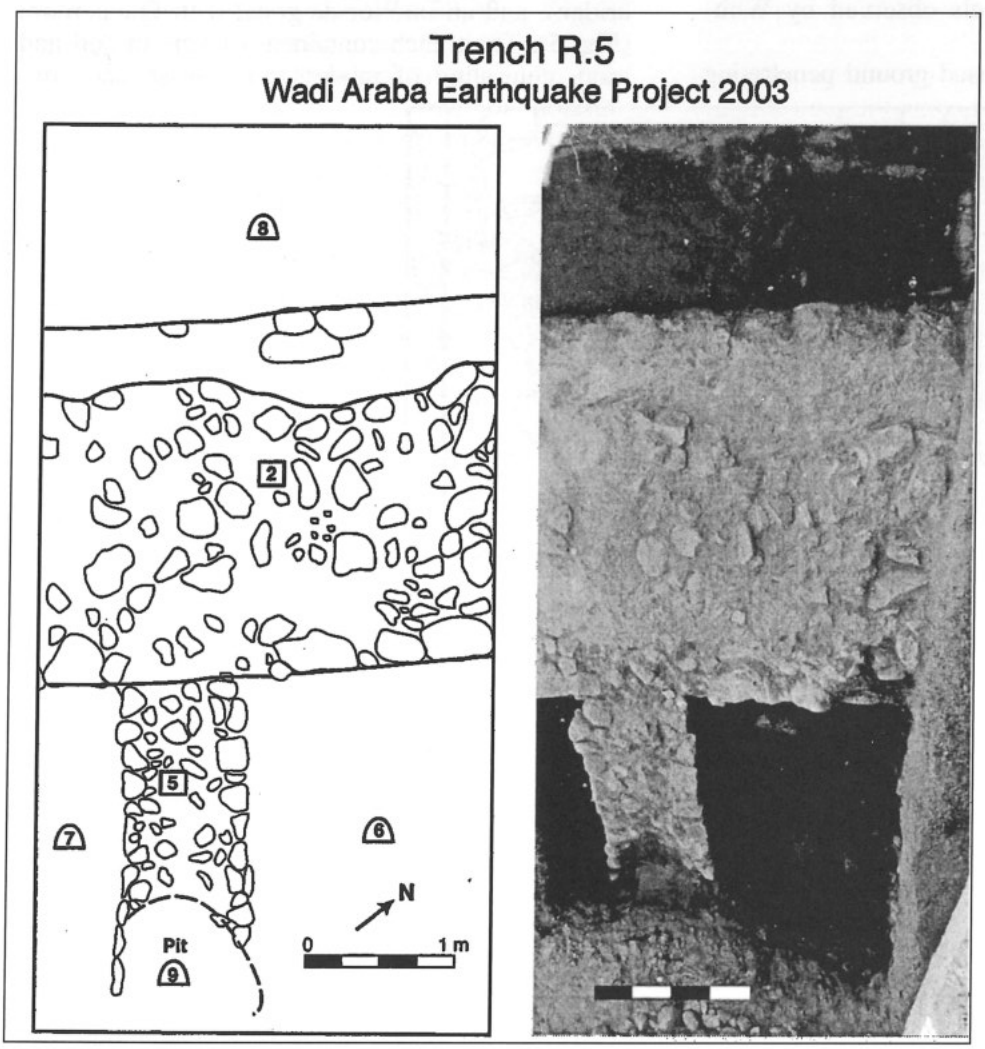


5. Top plan of Trench R.3, WAEP 2003.

taining modern material such as plastic, metal, rubber and asphalt. The city walls and tower walls are preserved to a consistent height, directly underlying the lowest of these four soil layers. Excavation continued into soil and sand loci around and between the architectural remains, as many of the faces of the walls were very unclear, due to both damage, and loose stones in the soil loci. It was at first thought that these might be ancient strata, but there is modern material present in even the deepest loci excavated. All loci in this trench contain pottery mainly from the Late Roman, Byzantine and Umayyad periods, but there are a few sherds of Early Roman/Nabataean date, and a small number of more recent sherds, including modern ceramics. Unfortunately, as the objectives of the project were met with both faces of both city walls, and the tower walls exposed, excavation was halted before stratified ancient levels were reached.

R.4: This was a 1m by 4m trench across the alignment of the SE city wall, approximately 3m NE of Whitcomb's (1995) Tower 11. The city wall was preserved to a level just below the topsoil, and the soil loci on either side of it also contained modern material. This section of the wall was in correct alignment with the remains of the city wall visible in the side of the wadi, as well as that exposed in trench R.5. Excavation halted in this trench once the objective of a clear wall alignment was met. Pottery collected from this trench was not dated, as all excavated loci clearly contained modern material.

R.5: This trench was originally laid out as a 3m by 5m trench along the projected alignment of the SE city wall, 5m NE of R.4. It was expanded to 3m by 6m when the wall alignment was seen to trend more west than originally thought. The city wall in this trench was exposed approximately 25cm below the surface, and was abutted by a smaller wall running to the SE balk of the trench. A modern pit was dug along the SE balk, cutting though this smaller wall (**Fig. 6**). The pit, and all soil layers reached in this trench, contained modern material (trash, met-



6. Top Plan and Photo, Trench R.5, WAEP 2003.

al, plastic, etc.). All pottery dates from this trench were inconclusive, as the presence of modern material noted above would suggest. All sherds, except one modern sherd, date from the Late Roman, Byzantine or Umayyad periods. Excavation also halted in this trench once the objective of a clear wall alignment was met.

Conclusions

The primary objective of these two seasons excavation was to test Whitcomb's wadi fault hypothesis. With the four trenches excavated we can see the wall alignment through the entire width of the wadi and we can conclusively state there is no fault offset present in the NE or SE city wall or through the corner tower in the wadi. The trenches excavated this season, combined with previous work, provide a complete view of the wall alignments of the NE corner of Islamic Ayla. If this does not refute it completely, it must at least throw serious doubt on the wadi fault hypothesis, and suggest a reexamination of the data for such an offset in the Sea Wall. This seasons findings do tend to provide some support (only in that they do not actively exclude this hypothesis) for the hypothesis proposed by Galli and Galadini (2001), that the fault actually runs through the NW wall to the Sea Gate. Another hypothesis that has gained some support this season is the idea that the wadi was originally dug, or at least enlarged and channelized by British military activity. All of the architectural remains in all of our trenches this season are preserved to approximately the same height, in some cases rather abruptly. This suggests the activity of a bulldozer, not seasonal wadi wash. Also, two of the walls had flat-lying pieces of modern asphalt lying on top of them, demonstrating that they were exposed at the surface at some point during the modern period. All soil/sand layers above the preserved top of the architecture in the wadi contain modern material. These factors strongly suggest a modern, man-made origin for the wadi.

This season's excavation has raised two important themes for future work in Islamic Ayla, however. First, and most important, the disproving of the wadi fault hypothesis allows a reexamination of the earthquake damage that certainly exists within the site. Galli and Galadini's (2001) faulting hypothesis must be more seriously examined, and the possibility of understanding the earthquake history of the site in terms of liquefaction and subsidence instead of faulting is an important one. Even if primary faulting is not present, this site still has great potential to yield very important earthquake chronology and intensity data that would help constrain epicentral location and magnitude of historical earthquakes. This is of great importance for both culture history and understanding probable future earthquakes. Research in this area would also allow a better understanding of the historic environment of the 'Aqaba region, particularly with regard to the level of the water table. Second, the wadi is the only area of the site where the original Umayyad phase(s) can be seen, without disturbing the later Abbasid phase structures extensively excavated in Whitcomb's multiple seasons. Continuation and expansion of the excavations in this area in future seasons offers the possibility of revealing the original phase of the Umayyad city.

Acknowledgments

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Bibliography

Ambraseys, N.N., Melville, C.P. and Adams, R.D.
1994 *The Seismicity of Egypt, Arabia, and the Red Sea.* Cambridge: Cambridge University Press.

Galli, P. and Galadini, F.
2001 Surface Faulting of Archaeological Relics. A Review of Case Histories from the Dead Sea to the

Alps. *Tectonophysics* 335: 291-312.

Haynes, J.

2005 *Historical Ground-Rupturing Earthquakes on the Dead Sea Transform Fault at the Ancient Ruins of Qasr Tilah, Jordan.* (M.S. Thesis) Geosciences Dept., UMKC.

Malkawi, A.H., Abdulla, F. and Barakat, A.B.

1999 The Earthquake of November 22, 1995. *Earthquake Spectra* 15 (3): 711-724.

Mansoor, N.M.

2002 *A GIS-Based Assessment of Active Faults and Liquefaction Potential of the City of Aqaba, Jordan.* (M.S. Thesis). Geosciences Dept., UMKC. Mansoor, N.M., Niemi, T.M. and Misra, A.

2004 A GIS-Based Assessment of Liquefaction Potential of the City of Aqaba, Jordan. *Environmental and Engineering Geoscience* 10 (4): 297-320.

Niemi, T.M.

2004 The 2003 Season of the Wadi Araba Earthquake Project. In S. Savage, K. Zamora and D.K. Keller (eds.), *Archaeology in Jordan. American Journal of Archaeology* 108, no. 3.

2002 The 2001 Field Season of the Wadi Araba earthquake project. Pp. 456-458 in S. Savage, K. Zamora and D.K. Keller (eds.), *Archaeology in Jordan. American Journal of Archaeology* 106, no. 3.

Parker, S. T.

1996 The Roman 'Aqaba Project: Preliminary Report of the 1994 Season. *ADAJ* 40: 231-257.

2002 The Roman 'Aqaba Project: Preliminary Report of the 2000 Season. *ADAJ* 46: 409-428.

Slater, L. and Niemi, T.M.

2003 Ground-Penetrating Radar Investigation of Active Faults along the Dead Sea Transform and Implications for Seismic Hazards within the City of Aqaba Jordan. *Tectonophysics* 368: 33-50.

Whitcomb, D.

1993 *Oriental Institute Annual Report 1992-1993.*

1994a Water and Recent Excavations at 'Aqaba. *The Oriental Institute News and Notes.* University of Chicago.

1994b A Street and the Beach at Ayla: The Fall Season of Excavations at 'Aqaba, 1992. *ADAJ* 39: 499-507.

1995 The Misr of Ayla: New Evidence for the Early Islamic City. *SHAJ* 5: 277-288. Amman: Department of Antiquities.

1997 The Town and Name of 'Aqaba: An Inquiry into the Settlement History from an Archaeological Perspective. *SHAJ* 6: 359-364. Amman: Department of Antiquities.

Wust, H.

1997 *The November 22, 1995, Nuweiba Earthquake, Gulf of Elat (Aqaba): Post Seismic Analysis of Failure Features and Seismic Hazard Implications:* Geological Survey of Israel. Report GSI 3-97.

A NEW DISCOVERY AT BAYT RĀS / CAPITOLIAS – IRBID*

Ahmad Jum'a al-Shami

Abstract

The Roman theater in Bayt Rās could be one of the most important discoveries because it adds a new theater to the Decapolis in northern Jordan.

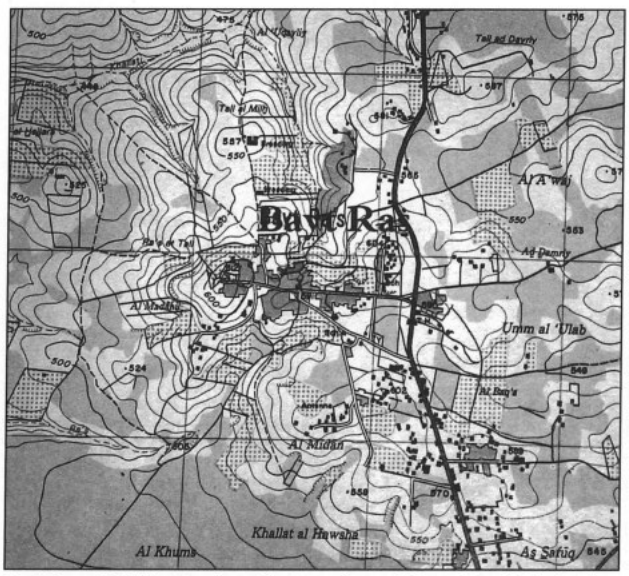
The remains of a large Roman theater of the second century AD were discovered built against a hillside commanding Wādī al-Khalla to the north. The remains of the theater include remnants of the backstage rooms (Scaena), of which the doorways were blocked in the late Roman period. Seven of the doorways are well preserved in the main façade. The backstage, measuring 57m in length and 3-5m in preserved height, was bordered at both ends by square towers as in defensive buildings, with a staircase at the side.

Introduction

The modern town of Bayt Rās, named Capitolias during the Roman domination of Jordan, is located five kilometers north of modern Irbid (ancient Arbila), and 100 kilometers from 'Ammān, at an altitude of around 600m above sea level (**Figs. 1 and 2**).

Al-Bakri mentioned in his book Mou'jam ma Istu'jam which translates as "Bayt Ras is a fortress on a hilltop in Jordan" (al-Bakri 1983: 288).

Several explorers documented the site in the 19th century, such as Seetzen (1806), Buckingham (1816), Schumacher (1878-79), who visited the site and made a plan of it (**Fig. 3**) (Schumacher 1889: 155), and Merill (1885). The site was also recorded by several archaeologists including Glueck (1951), Mittman (1970), and Lenzen and McQuitty (1983-85). Earlier treatments of the history of Bayt Rās / Capitolias were confined to the Greek and Latin sources. The Roman city was walled and flourished in the second and third centuries AD. The foundation of the city of Capitalias is not mentioned in any text, but according to the coins, the city was founded in 97-98AD. The new city was named after Jupiter Capitolinus, the deity



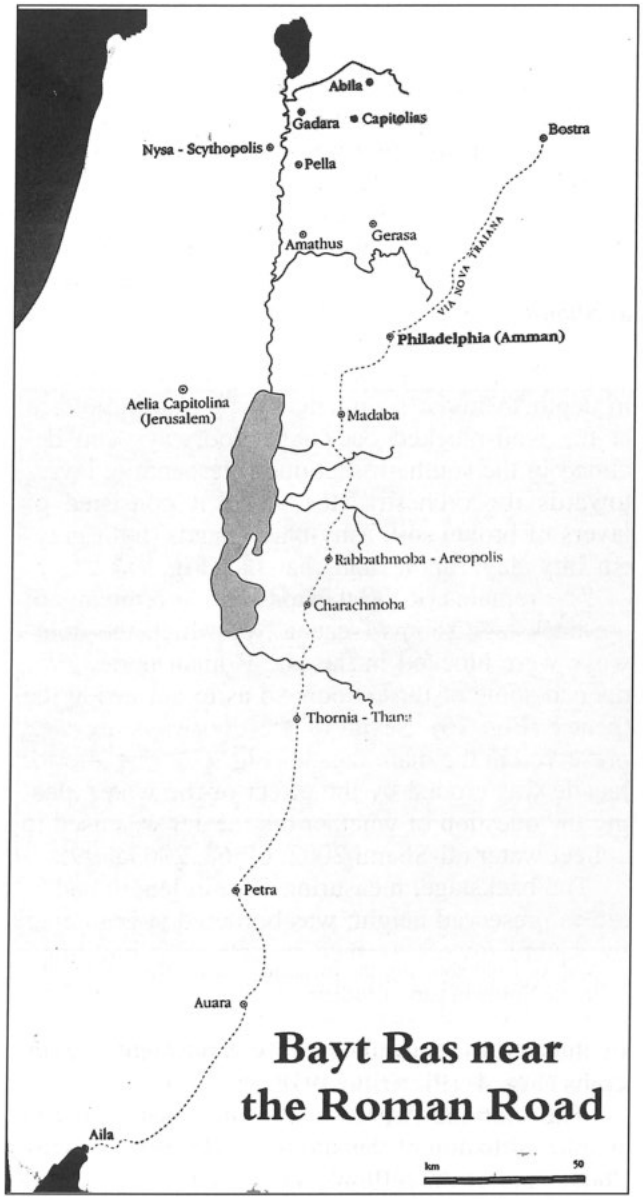
1. Map of Irbid showing the location of Bayt Rās / Capitolias in the Northern part of Jordan.

of the main temple in the city represented on the coins (**Fig. 4**) (Piccirillo 1978: 96-107).

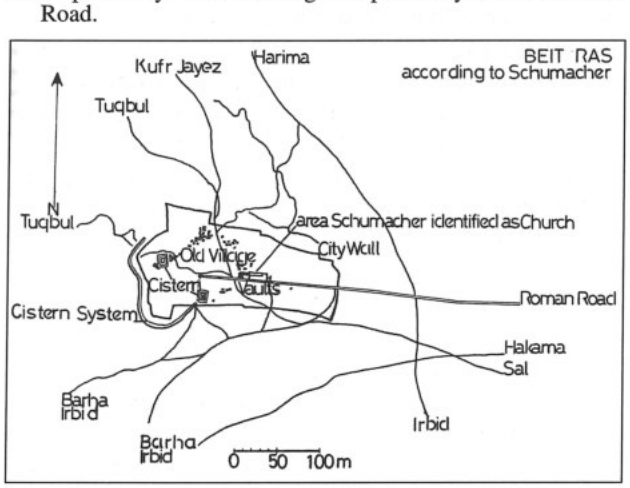
The Semitic-Arabic name matches the geographic situation of the site perfectly: Bayt Rās, the "house on/ of the hilltop". This name is not attested before the middle of the sixth century AD, but it is inconceivable that the site had no name prior to the foundation of Capitolias.

The establishment of Capitolias as a Greek/ Roman "polis" demonstrates the importance of the settlement before 97/ 98AD. Bayt Rās was part of the Decapolis region by the mid-second century AD, however, it seems that the Decapolis had ceased to be an administrative district or some sort of political organization. With the establishment of Provincia Arabia in 106AD, the most eastern cities of the Decapolis, e.g. Philadelphia, Gerasa and Bostra, were included in Arabia. The cities to the west-Pella, Gadara, Abila and Capitolias, were included in Palaestina Secunda (Lenzen and Knauf 1987: 26). The first Arabic reference to Bayt Rās

* This Project has been named: Bayt Rās – Irbid Archaeological Project (B.R.I.A.P 2002).



2. Map of Bayt Rās showing the proximity of the Roman Road.



3. Plan of Bayt Rās according to Schumacher during his visit in 1889.



4. The Temple of Bayt Rās / Capitolias represented in the Roman coins.

comes from a line by an-Nābigha adh-Dhubyānī that reads:

Namayna al-Qulālata min Bayti Ra'sin
ilā Luqmāna fī Suqin Muqāmi

It means "We lifted amphoras of it from Bayt Rās to Luqmān in an elevated market". The first Arabic references to Bayt Rās can therefore be dated before 569AD and probably between 554 and 563AD (adh-Dhubyānī 1991: 85). The special quality of the Bayt Rās wine was well-known in al-Madīna. The poet laureate, Ḥassān bin Thābit wrote:

Ka'anna Sabī'atan min Bayti Ra'sin
Yakūnu Mizājuha 'Asalun wa Mā'u

(Shariḥ Dīwān Ḥassān bin Thābit 1981: 56)

It means "As if the special reserve from Bayt Rās were a mixture of honey with water". Obviously, it was not honey with water, but rather known for its strength and probably smoothness. This attested is more clearly in another line by the same poet:

Shujjat bi Ṣahbā'a lahā Sawratun
min Bayt Ra'sin 'Uttiqat fil Khiyāmi

It means "Mixed with rose that has strength, from Bayt Rās, matured in the tents". It is known that wine merchants from the Bayt Rās region went to the northern Ḥijāz (Lenzen and Knauf 1987: 35).

During the Byzantine period, the city grew in importance and was represented at the Councils of Nicea (325) and Chalcedonia (451). Capitolias had several churches, as did most of the cities of this period.

The city flourished during the Umayyad period as attested by some Arabic literary references, and as late as 724AD, the Umayyad caliph Yazīd II lived in Bayt Rās with his favorite wife Ḥabbāba and had a palace there. It is less well-known that

Yazīd died in Irbid (Lenzen 1992: 300; Hennessy and Homés 1989: 195; Lenzen and Knauf 1987: 39-40). Bayt Rās was not suddenly deserted after 750AD. 'Abdallah Ibn Khurdadhbeh, who mentioned Bayt Rās in his book al-Masālik wal Mamālik, lists the Qura of Bayt Rās among the Qura of al-Urdunn, in the following sequence: Beisan-Fahil-Jarash-Bayt Rās-Jadar-Susiah. According to its function in the list from Ibn Khurdadhbeh, Bayt Rās was still a town, if not a city, meaning an administrative and economic center. In the 12th century, Bayt Rās was a village within a feudal system. When the Ottoman Turks took over from the Mamluks in 1516AD, they erected an efficient administration that survived in parts well into the nineteenth century. According to Ottoman tax registers from the sixteenth century, Bayt Rās was a village that belonged, together with Irbid, to the Nāḥiyat Banī Jahma within the Qadhā' Ḥawrān (Lenzen and Knauf 1987: 42-43).

Archaeological Survey and Previous Excavations

The archaeological evidence for the Roman occupation in the Rās area include a stone altar found on the western slope that suggests this may have been the area of the temple that appears on the Capitolias coins (**Fig. 4**), as well as a large cistern. As there are no natural springs in the immediate vicinity, agriculture was dependent on an irrigation system and the urban dwellers were dependent on a cistern system for their needs. The 1985 excavation at the eastern end of the village uncovered a nine-vaulted structure, located near the modern mosque and provided some data concerning the period of occupation between the mid-first and ninth centuries AD (Lenzen and Knauf 1987: 28-30).

The New Archaeological Excavations

The excavations at Bayt Rās have been carried out by the Department of Antiquities of Jordan from 1999 to the present. The excavated area covers approximately six thousand square meters of an olive grove (al-Shami 2003b: 9) (**Fig. 5**).

The site was covered with dump levels of 3-13m depth, which made excavation in squares according to the grid difficult. Initially, we did open an area of excavation within 5 x 5m "squares" without balks (**Fig. 6**), depending on the southern section for recording the stratigraphy. This method exposed architectural remains that were deeply buried and offered safer working conditions (al-Shami 2002: 62-63).

After a certain amount of architectural exposure we worked in archaeological terraces (**Fig. 7**), by excavating down to a certain depth in one square then moving on to a further depth in an adjoining square and so on. This was for safety reasons in order to avoid very deep areas, but it proved to be slow in the uncovering of architectural features at depths of over 9m at the northern edge of the site (al-Shami 2002: 62-63, 2004: 8).

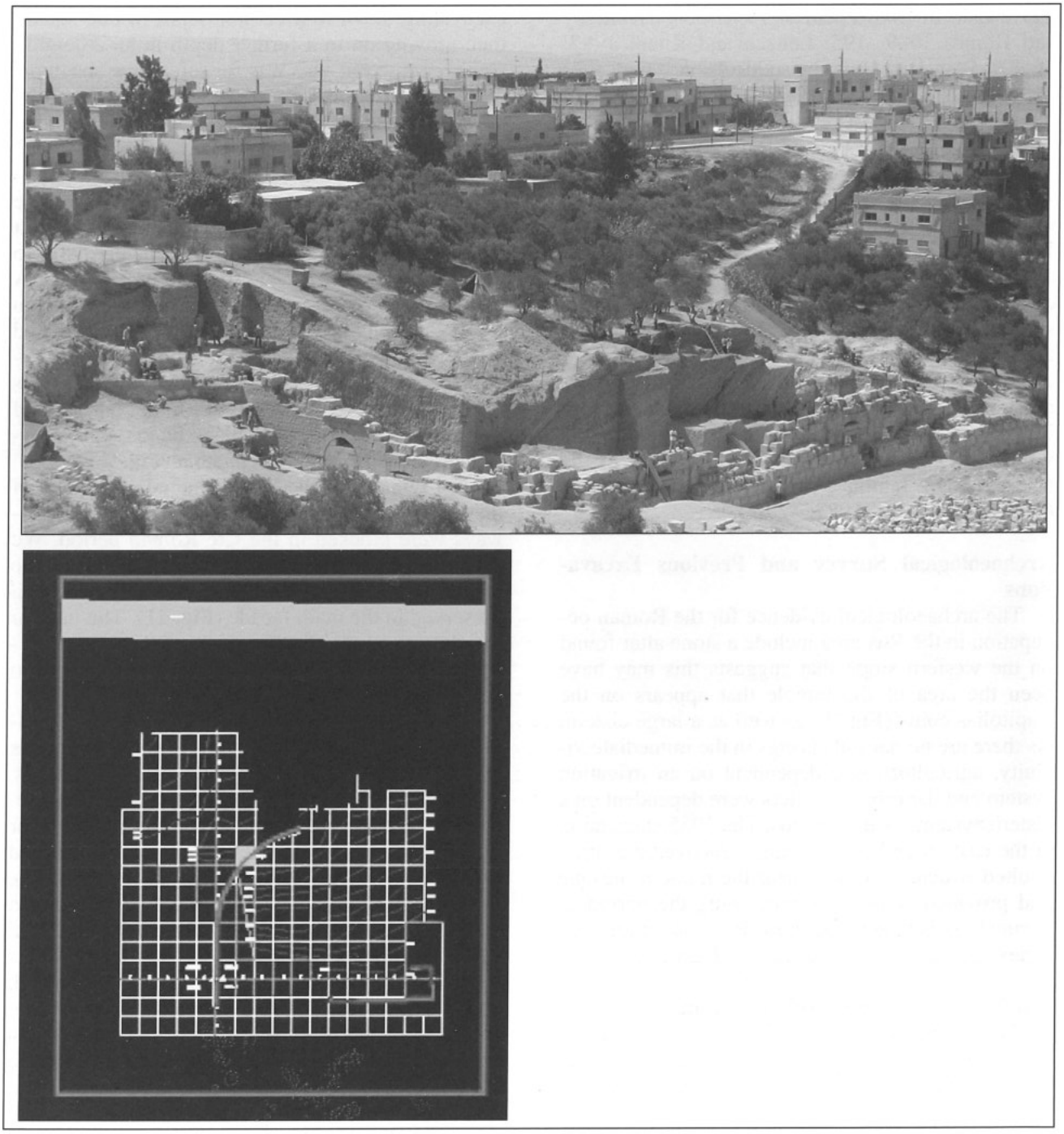
The main discovery was the remains of a large Roman theater of the second century AD built against a hillside commanding Wādī al-Khalla to the north (**Fig. 8**). During excavation in Areas A and C, the deposits inside the theater were 3-13m in depth. Alluvial sedimentation was accumulated at the well-blocked backstage doorways and declined in the southern section in descending layers towards the orchestra (the east). It consisted of layers of brown soil, ashy-black bands, light grayish silty clay, rubble, and charcoal (**Fig. 9**).

The remains of the theater include remnants of the backstage rooms (scaena), of which the doorways were blocked in the late Roman period, We opened some of these doors so as to get inside the theater (**Fig. 10**). Seven of the doorways are well preserved in the main façade (**Fig. 11**). The interior façade was eroded by the effect of the water, posing the question of whether the theater was used to collect water (al-Shami 2002: 67-68, 2003a: 99).

The backstage, measuring 57m in length and 3-5m in preserved height, was bordered at both ends by square towers as seen in defensive buildings, with a staircase at the side (**Fig. 12**). Several successive blocked vaults, separated from each other by platforms, appeared in the excavated curved eastern and western sectors of the theatre (**Fig. 13**), but some the upper part of the vaults in the western sectors were found collapsed. (**Fig. 14**) (al-Shami 2004: 8). The eastern sector still has many vaults in different levels, the second vault was blocked, and a paved room was constructed with an entrance from the other side (the western side), and these were used later during the Umayyad period for dwelling. The original Roman floor of the vault had been removed at an earlier period. The entrance of the third-level vault of the eastern wall was also blocked by well-dressed limestone; parts of these blocks were collapsed later. During the Umayyad period the vault was rebuilt, by using basalt blocks and lime mortar.

Finds and Objects

Many of pottery body sherds had been collected from the site of different layers belonging to different periods. Mainly, these were from the early and late Romans, as well as Byzantine and Umayyad (**Fig. 15**). Moreover intact objects had been found



5. General View of the Theater Area planted with olives trees.

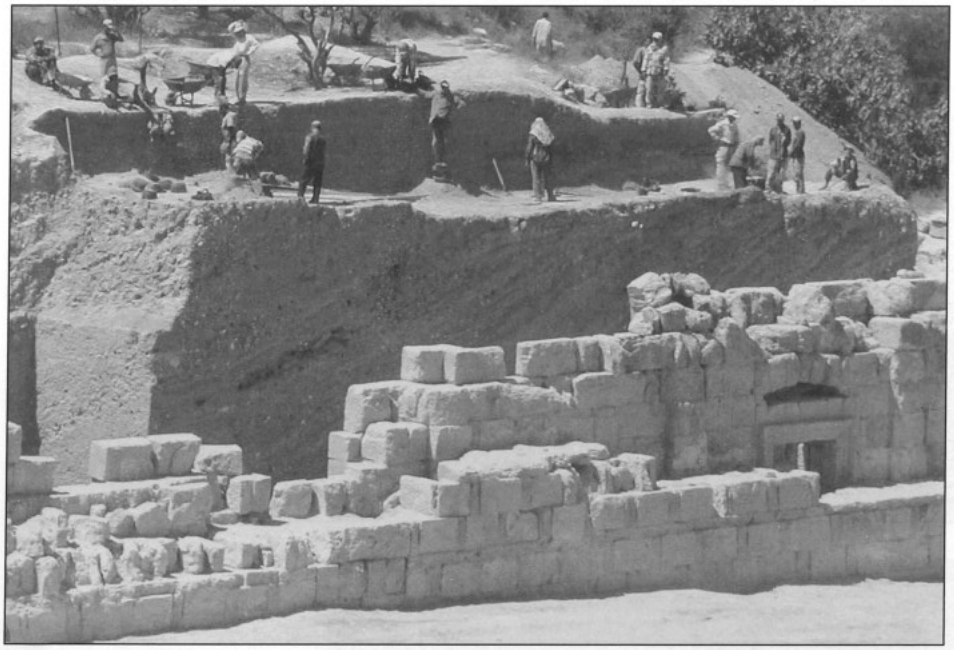
such as pottery lamps (**Fig. 16**), bronze coins (**Fig. 17**) and architectural elements such as stone and marble from animal figurines as parts of corinches (**Fig. 18**).

Conclusions

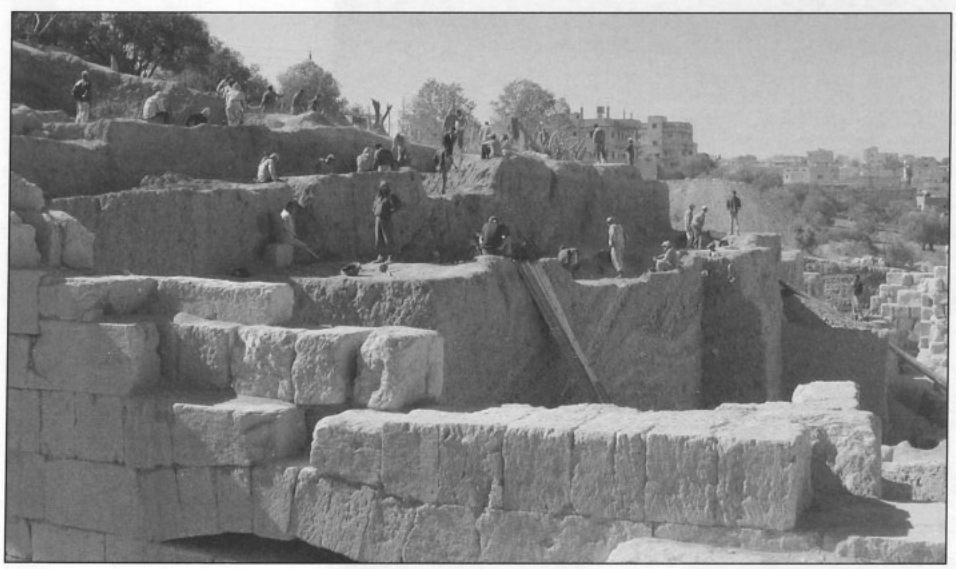
The Roman theater in Bayt Rās could be one of the most important discoveries because it adds a new theater to the Decapolis in northern Jordan.

The architecture of the back stage (Northern façade) has three main phases

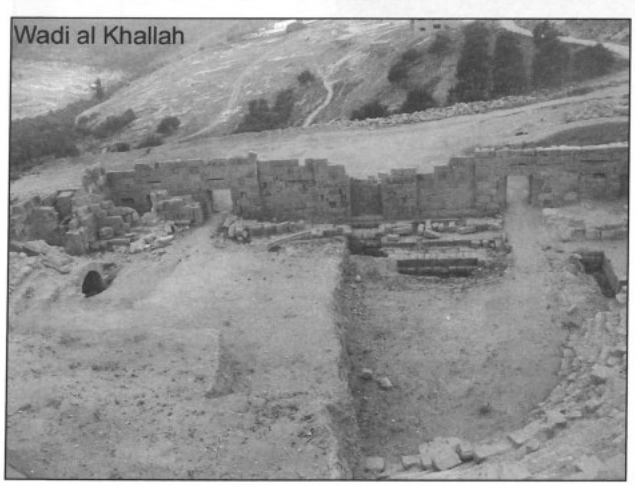
1. The main façade (the back stage) that has seven doorways dates back to the earliest Roman period phase (the second century AD).
2. During the late Roman period, a buttressing wall was constructed in front of the main façade, totally blocking its doorways while leaving an entrance at the central doorway, with the same width of 2.10m.
3. During the constructing of the buttressing wall,



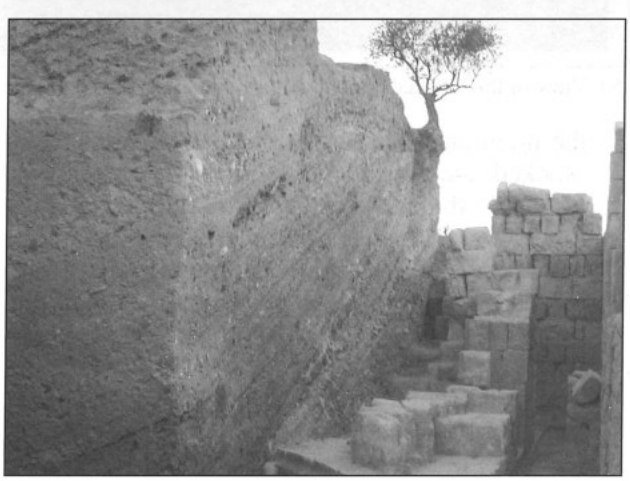
6. Open Area Excavation within 5 x 5m squares without balks.



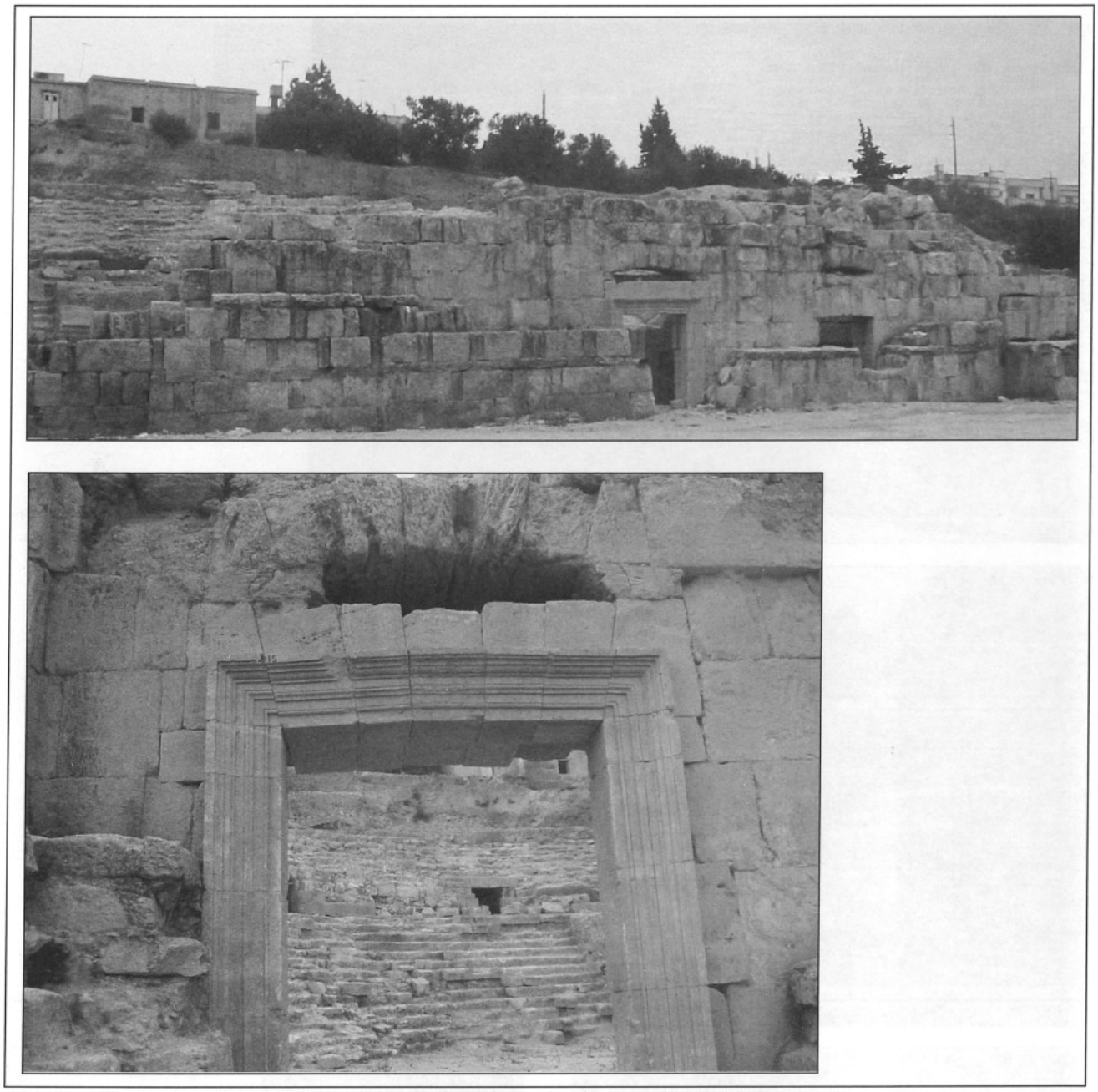
7. The Archaeological Terraces Excavations (steps).



8. The Main façade of the backstage of the theatre, showing Wādī al-Khalla to the north.



9. Stratigraphy of the southern section of the theatre (dump levels of 13m).



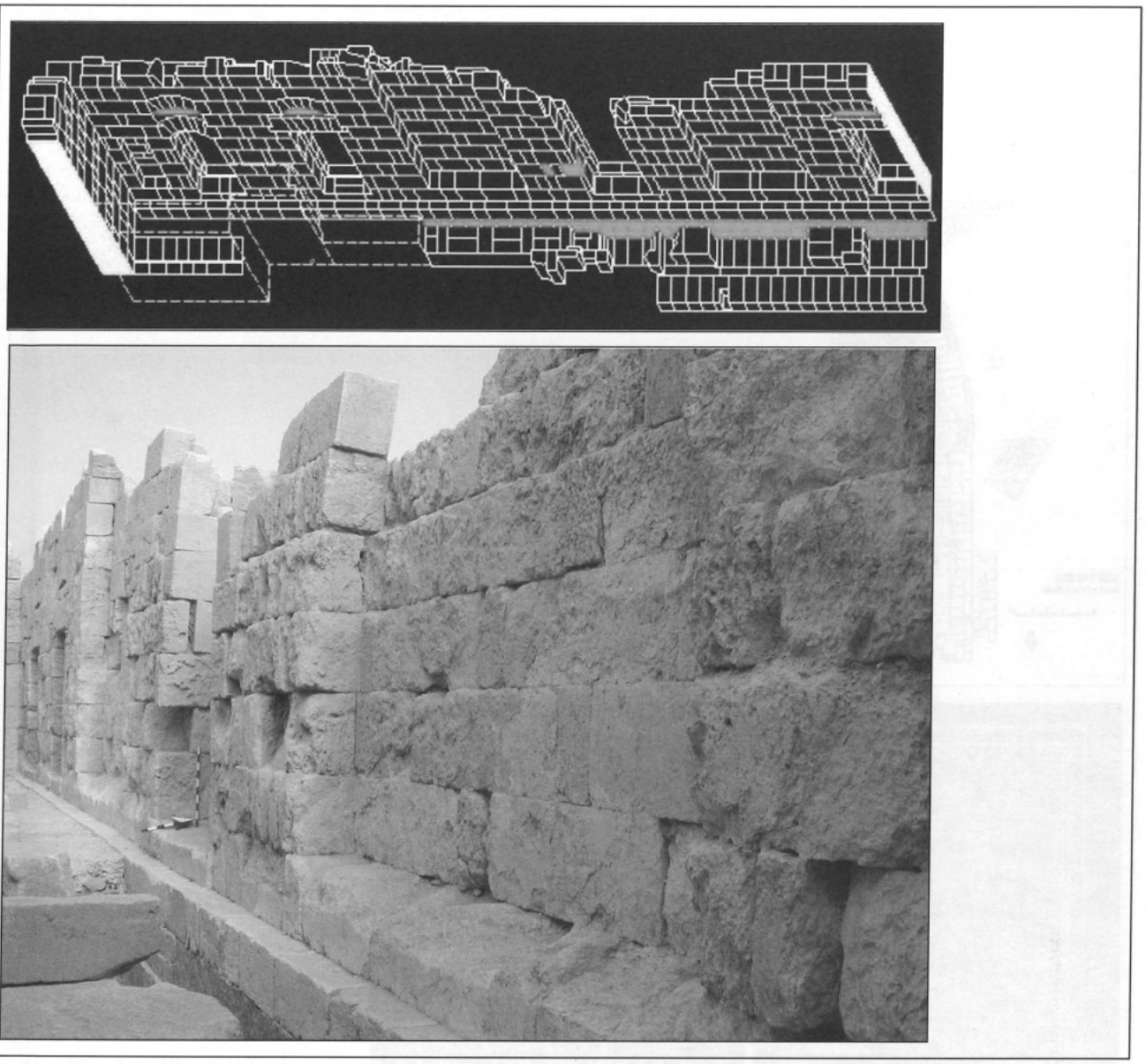
10. View of the blocked doorway in the main façade / backstage of the theatre in the late Roman period.

the main entrance to the theatre was open, then blocked later on. It may be that this access was to enable the carrying out of stone blocks from the side (changing) rooms, internal divisions and the theater seating. The stone blocks were reused in the blocking of all entrances to the theater by building the additional wall in front of the theater façade.

4. The architecture of the eastern façade, that had four doorways at four different levels (Audiences Entrances) has several changes
   a. During the late Roman period all entrances of the theater were blocked.
   b. During the Byzantine period a large wall was built in front of the doorways making access difficult and several additions were made to this wall.
   c. During the Umayyad period, parts of the eastern façade had collapsed, especially the entrance of the third-level vault.

From the pottery reading and the bronze coins studying, four different periods have been identified: early Roman, late Roman, Byzantine, and Umayyad period.

Finally, the project is still in progress under the auspice of the Department of Antiquities of Jordan



11. Elevation plan of interior façade in the backstage.

— Irbid Office.

Acknowledgements

The Department of Antiquities and Ministry of planning financially supported the Project. Special thanks to the General Director of the Department of Antiquities of Jordan, Dr. Fawwaz al-Khraysheh.

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Bibliography

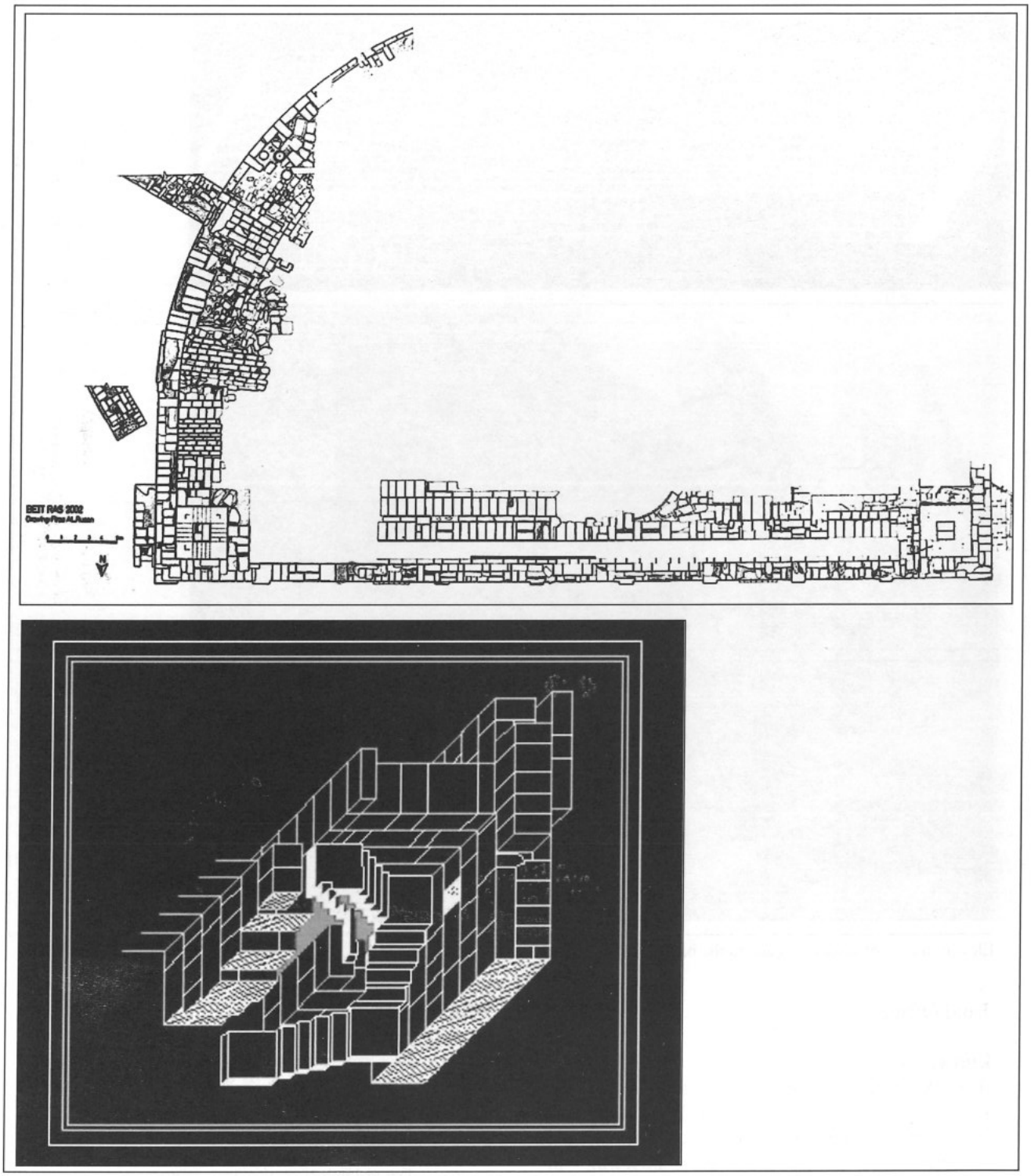
Al-Bakri
1983 *Mou'jam ma Istu'jam min asmā' al-bilād wal mawāḍi'*. Mustafa al-Saqa (ed.), Beirut. (in Arabic).

Al-Barqoni, A. (ed.)
1981 *Shariḥ Dīwān Ḥassān bin Thābit al-Anṣārī*. Beirut: Dar al-kitab al-Arabi. (in Arabic).

Homés–Fredericq, D. and Hennessy, J.B. (eds.)
1989 *Archaeology of Jordan (AKKADICA)*. Leuven: peeters.

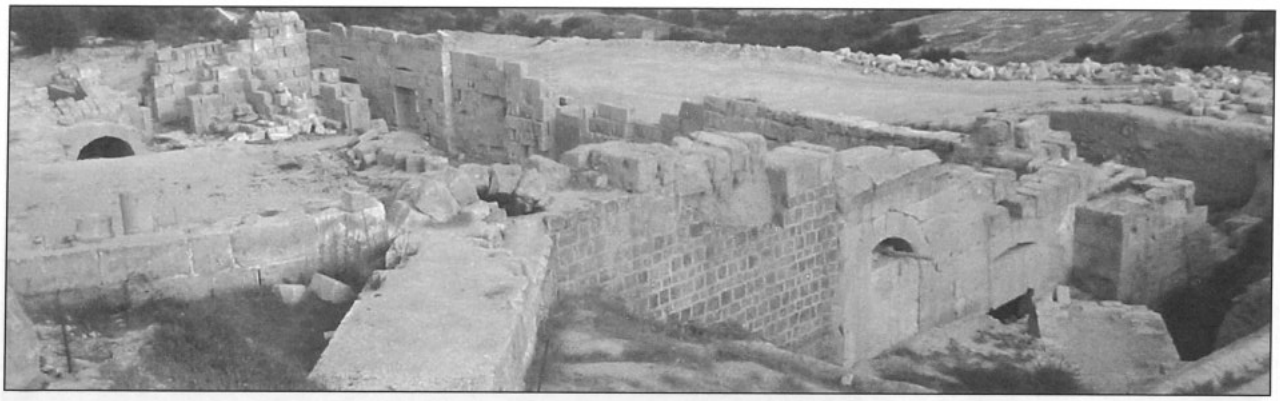
Lenzen, C.J. and Knauf, E.A.
1987 Beit Ras / Capitolias: A Prelimnary Textual Evidence. *SYRIA LXIV*: 21-46.

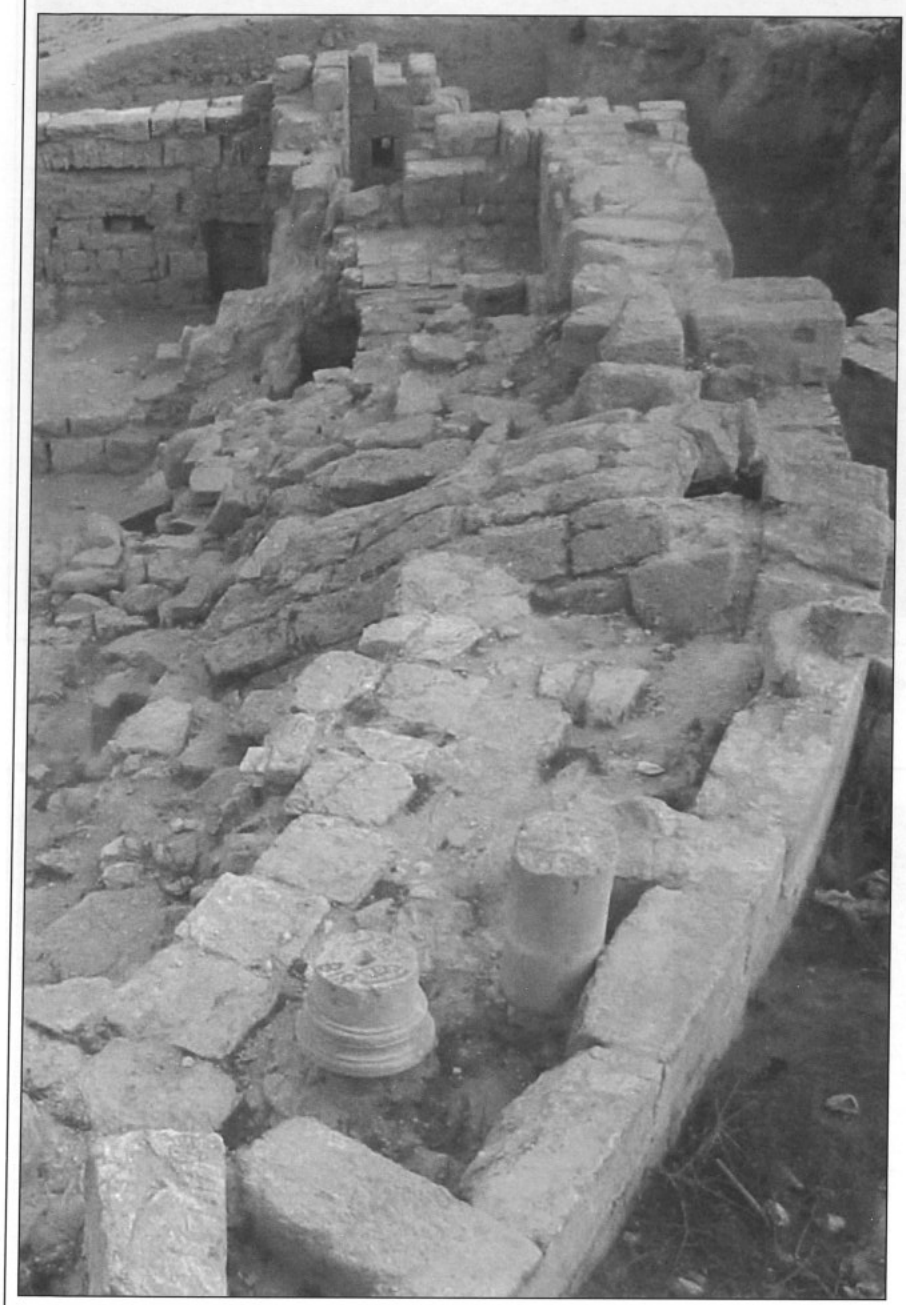
Lenzen, C.J.
1992 Irbid and Beit Ras Interconnected Settlements ca. 100-900AD. *SHAJ* 4: 299-301.



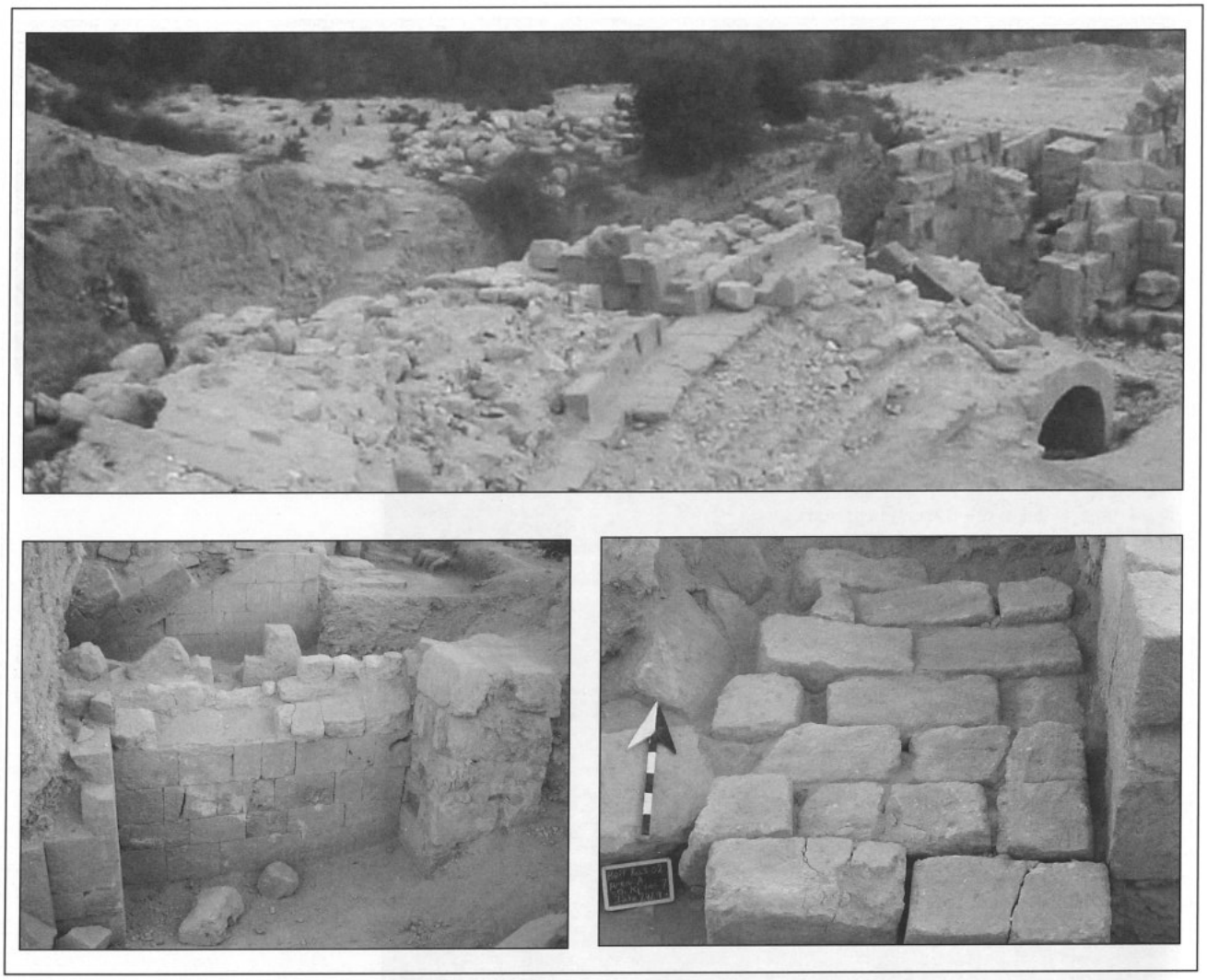
12. General plan of the Roman architectural elements dated to the second century AD.

Melhem, A. (ed.)
1991 *Shariḥ Dīwān an-Nābigha adh- Dhubyānī*. Beirut.
Piccirillo, M.
1978 *The Coins of The Decapolis and Provincia Arabia.* Jerusalem: Franciscan Printing Press.
Al-Shami, A.
2002 Bayt Ras Irbid Archaeological Project, 2002. *ADAJ* 46: 61-69 (Arabic Section).
2003a Bayt Ras Irbid Archaeological Project, 2002. *ADAJ* 47: 93-104 (Arabic Section).
2003b Bayt Ras Irbid Archaeological Project, 2002. *ATHAR* Magazine 6: 7-10 (in Arabic).
2004 Bayt Ras Irbid Archaeological Project, 2002. *ADAJ* 48: (Arabic Section).

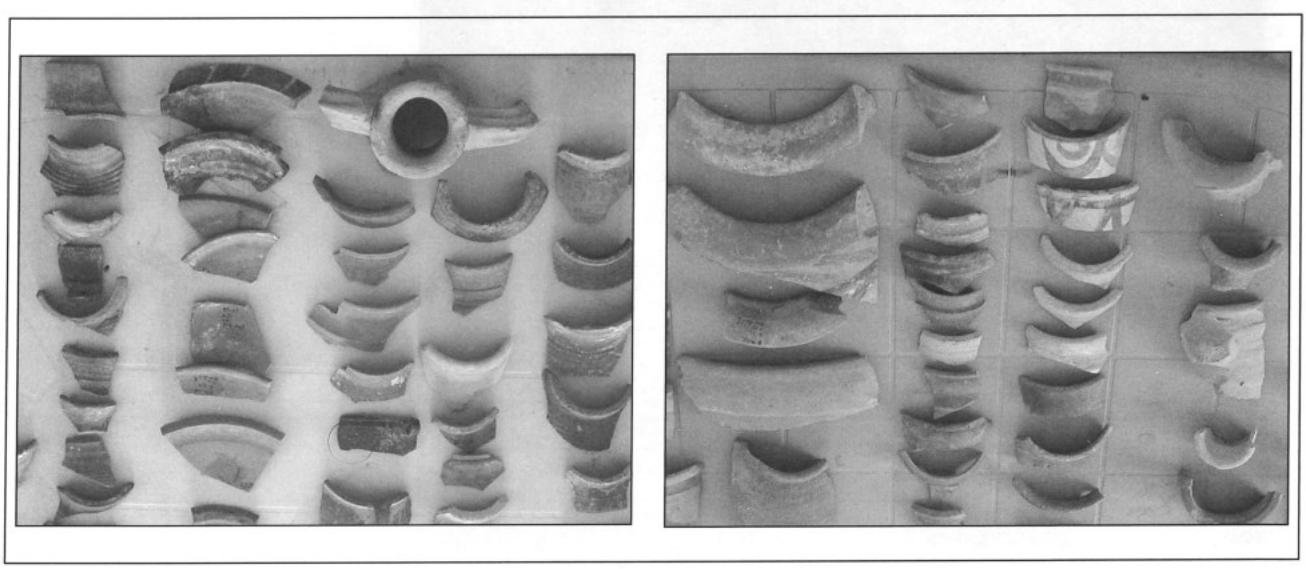




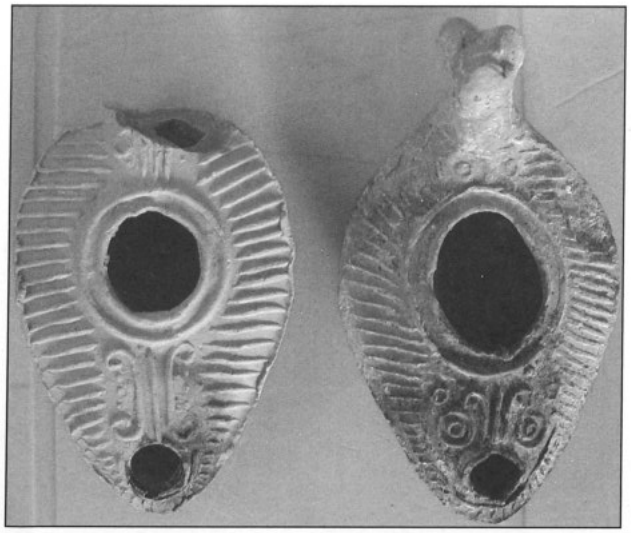
13. The eastern sector of the theatre showing the blocked façade and the basalt wall.



14. The collapsed vaults of the western sector.



15. Pottery sherds from early/late Roman, Byzantine and Umayyad period.



16. Lamps dated to the Byzantine period.



17. Bronze coins dated to late Roman and Umayyad periods.



18. Decorated architectural elements with floral and animals presentation.

ABILA
BETWEEN THE LOCAL COMMUNITY AND PUBLIC AWARENESS

Salameh Fayyad and Wajeh Karasneh

Introduction

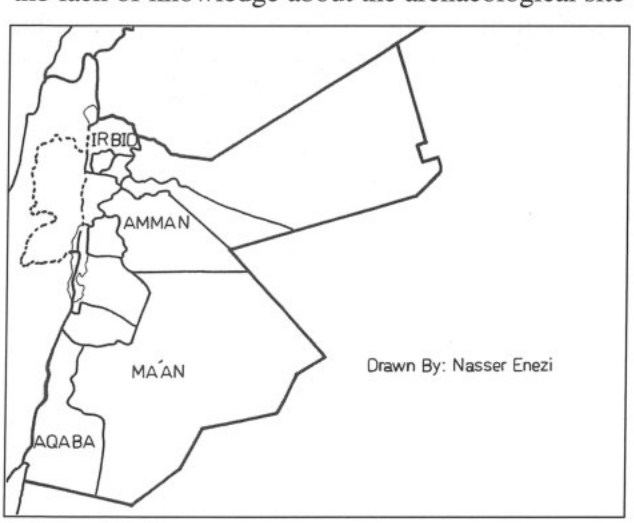
This research aims to study the relationship between the Abila society and its site through the study of historical, cultural and tourism importance for this site. In addition to the study for the local society will be comments on the illegal searching of archaeological pieces, and finally the results and recommendation.

The main reason behind choosing this subject is the absence of specialized studies in this area.

Abila lies in the north of Irbid, 15km within Ḥarthā village, which consists of three branched communities under the administration of Ḥarthā municipality. These communities are: Yarmūk (Qaraqush), Barashtā and Ḥarthā. Ḥarthā is one of Banī Kināna districts (**Fig. 1**).

In spite of the historical and cultural importance of this site, the available information about it is limited. This site has not been recognized for a long time either by the government or by the public establishments, which leads to minimal knowledge of it. Several important archaeological pieces were destroyed especially in the cemetery because of random looting.

There is an absence of general recognition and the lack of knowledge about the archaeological site and the archaeological pieces, and the ability of creating good economy. In addition to the absence of recognition about the importance of this site regarding tourism and cultural aspects.



1. Map of Jordan.

Hence, we aimed, with continuous support and correspondence between archaeological site and the local community, and people who have an interests in searching for archaeological pieces, to formulate a comprehensive and integral study. This study is of the image of the local community and ideas, in order to create suitable conditions to investigate the site in a suitable scientific manner. This approach was taken because ideas usually succeed more when not imposed, which may lead to the rejection of them because of conflicts with their thoughts and values, which may lead to failure.

The public awareness has an important rule in maintaining the archaeological sites, in addition participation in the recognition the archeological pieces and tourist values. The lack of the awareness contributes strongly in the damage of such sites, when the community does not care about the value of such sites. Hence, focusing on the creation of public awareness is very important.

The Problem of Study

In spite of the historical and cultural importance of Quwayliba site (Abila), as one of the Decapolis, and its rich archeological elements, which may complete the archaeological elements in Jarash and Umm Qays, the tourism activities are still too limited. This site also, faces considerable looting — from inside and outside the area — which has caused destruction of some archaeological areas. Finally the local community's knowledge about this site is too limited. Hence there are many questions that should be answered:

1. What means of maintenance are lacking for this site since its discovery?
2. How could we create the public awareness and push people to recognize the importance of this site and to participate in maintaining it?
3. Who is the responsible for these mistakes? Lead-

ing to increased destruction and looting.

4. How can we liaise between the local community and the archaeological site? And how could we present it to them, hence pushing them — with an integral populated base — to present it to the world for themselves?

These questions are one of many questions that need answers, which are discussed in this study.

The Importance of Study

This is a very important study because it is the first of its kind in Jordan, which is created in a comprehensive and wide ranging manner. Hence it can be considered as a first step to be expanded and applied to many other sites in order to improve and create the awareness.

The Study objects

This research aims to study Abila and its community in general. Also this study aims to study the phenomena of the repeated destruction to this site by the looters, and the ability to create the public awareness about location importance and its contents, and present it to the world for themselves.

The Study Methodology

The method of descriptive study was combined with the analytical method, which relies on studying the information that is gathered from the local community. The information was collected by using the 'open presenting' and we forced to use the 'intermediate manner'. When trying to collect sensitive information we faced trouble reaching individuals by direct manner.

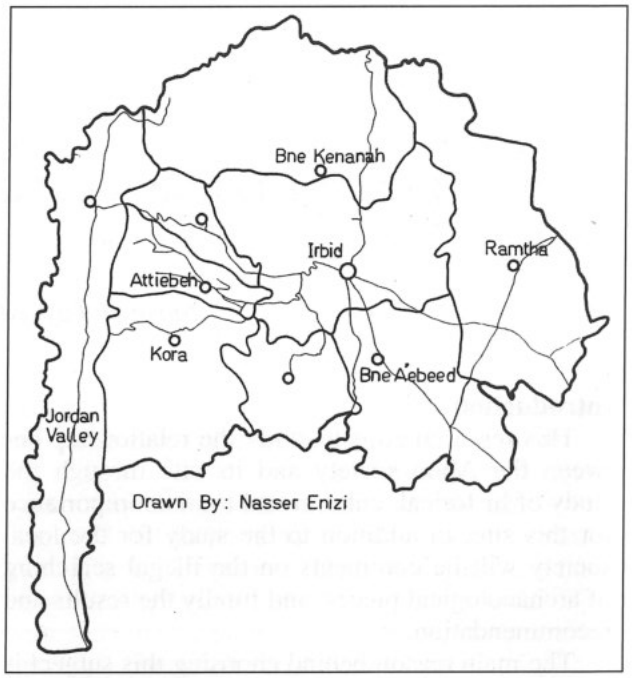
The Study Environment

This study was applied on Abila community and the local people who are living around it and living in the three congregation: Ḥarthā, Yarmūk (Qaraqush), and Barashtā which fall into the administration of Ḥarthā municipal, a village in Banī Kināna district in north Irbid (**Fig. 2**).

Abila, History and Civilization

What does Abila mean?

This word is inherently differentiated from the root Abila meaning "green" (Bin Manthour 1955: 76) or grasslands. This name is related to the presence of water. Maybe Yarmūk River and its evergreen are the main reasons of giving Abila its name. Abila kept its name until the Greek at 333BC, when it was modified by the addition of "A" at its end which was to become Abila. This name was discovered carved on a rock in Abila (Mare 1996: 30).



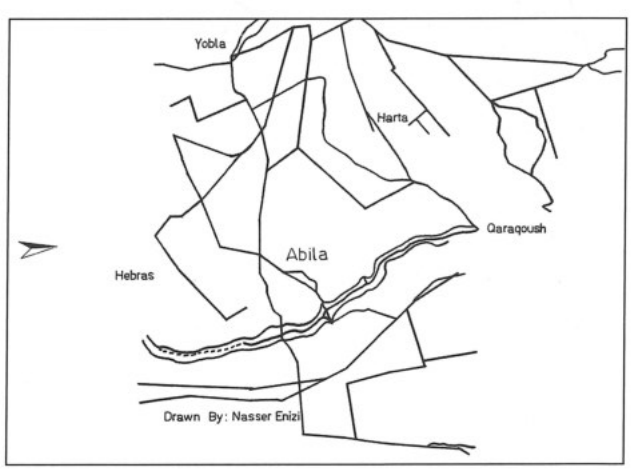
2. Map of Irbid.

Geographical Location

Abila lies 15km north of Irbid City within the Banī Kināna district, one of the northern districts. It lays 4km south of Yarmūk River. Abila area is distinguished by a wide area, where dimensions are 1.5km north, south and east west, it is about 440m above sea level. Abila consist of three regions: Tall Umm al-'Amad, Tall Abila and Abila valley, which is famous with pomegranate trees, aided by the presence of water sources to keep them green (**Fig. 3**).

History of Archaeological Searching

Many excavations and surveying were carried out by the Department of Antiquities (Jordan) and Theological Institute (U.S.A.). Before exploring



3. Map of Abila.

these excavations we should introduce the travelers who visited it and recorded some archaeological monuments. Here is the history of archaeological work in Abila:

1889: the traveler Merill visited it and recorded his visit in his book 'East of Jordan' in 1881.

1888: traveler Schamecher visited it. He drew and recorded its monuments in Palestine Exploration Society magazine under the title 'Abil of the Dapolice', in 1889 (Schumacher 1889: 170).

1959: excavation began on this site by the Department of Antiquities. A graveyard was discovered near the edge of Abila valley from the north of Tall Abila. This graveyard was discovered by Fresco drawings.

1980: the site was surveyed by the Department of Antiquities with the cooperation of the Decapolis, and was supported by University of Louis (U.S.A). The main monuments were discovered in this survey such as the general buildings, basilica, temple, and graveyards which were decorated by Fresco drawings (Mare 1981: 343).

1982: this season was the complementary part of survey works of the previous season in addition to some excavation which took the place on Tall Abil and in Abila valley (Mare 1984: 39-54).

1984: the excavations were completed for the previous season in Tall Abil and at the edges of the city wall from the northern side and in Umm al-'Amad in addition to the discovering of water system in the city (Mare 1985: 221-237).

1988: the survey work continued.

1990: completing the excavation work, which carried on to discover general building in addition to graveyards in Abila valley where a lot of them were discovered.

1992: excavation was done outside of Abila site and the whole work focused in the region of the graveyards in the addition to the general buildings.

1994: in these seasons the work focused on the region of the temple where Artemis sculpture were discovered (Mare 1996: 259-271).

1995: in this season the excavation was varied. The work was distributed over Umm al-'Amad, the discovery of the Basilica area was completed in addition to the excavation works in the region in Sbīl al-Ḥūriyyāt (Nemphaum), also some monuments like theaters where discovered (Mare 1996: 259-271).

Abila History

The survey and excavations proved that Abila was populated since the Paleolithic until the later Islamic period including the lithic periods, Bronze Age, Iron Age, Hellenistic, Roman, Byzantine, Islamic (Umayyad, Fatimid, Ayyubid and Mamluk period).

After exploring the settlement periods in Abila, it is clear that it passed through several human activities in different period, but it was established as a city in the Hellenistic period. The occupation by the Greek were at that time as such cities as Gerasa, Jadar, Capitolias, and Philadelphia, and many other cities which then formed the Decapolis confederacy.

In the Roman period Abila became one of the Decapolis in the first century AD. It is mentioned in Ptolemy, whilst Pleny did not mention it.

The Archaeological Monuments

As with the rest of Roman cities, Abila has a city plan that consists of the following elements: streets, public courtyards, theaters and temples. The Decapolis cities consider Rome as their guide; they planned and built their buildings exactly as the great city (**Fig. 4**).

The earthquake in the year 749AD destroyed the whole city, and nothing except little monuments remained, but the later excavation between the years 1980-2000 discovered many important monuments

Churches

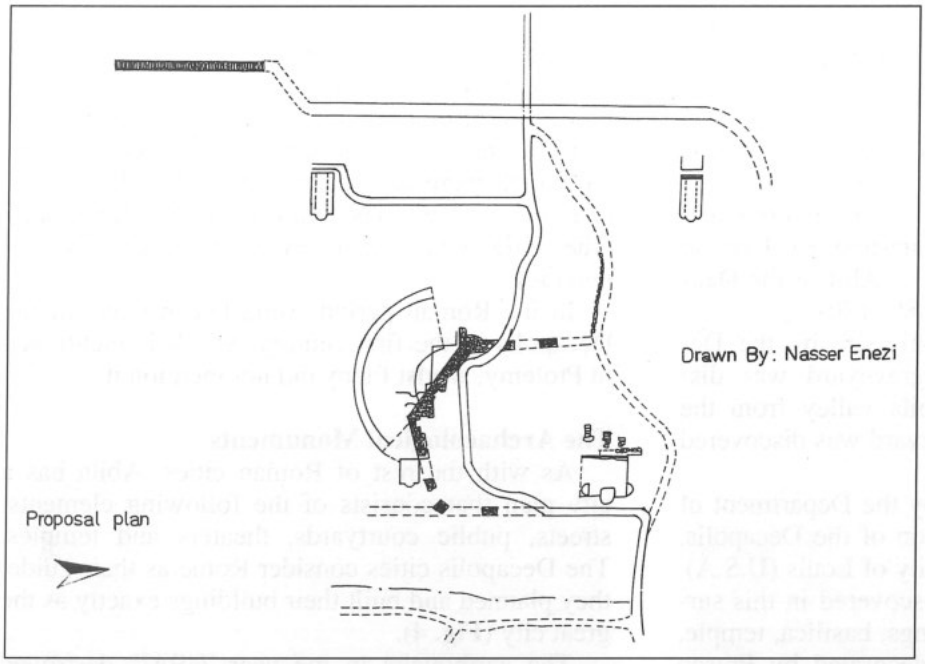
The Byzantine building pattern was predominant on most buildings, which were discovered. The American mission discovered four churches built according to basilica pattern; the first in Umm al-'Amad with dimensions of 20 x 34m and it was paved with a mosaic floor. This church contains three aisles from the east. Roman columns have been reused in the building of this church (**Fig. 5**).

The second church lies in Abila valley region in the southern region east of Tall Abila, it was built according to the basilica pattern. This church was specialized from the other churches by the presence of three apses. The major one lies in the usual place in the eastern side, and in front of the burial region, where the other two lie on the sides of the burial region, one of them towards the north, and the other one to the south. The ground is covered with a layer of mosaic, like the first church, the Roman columns were reused in the building of this church (**Fig. 6**).

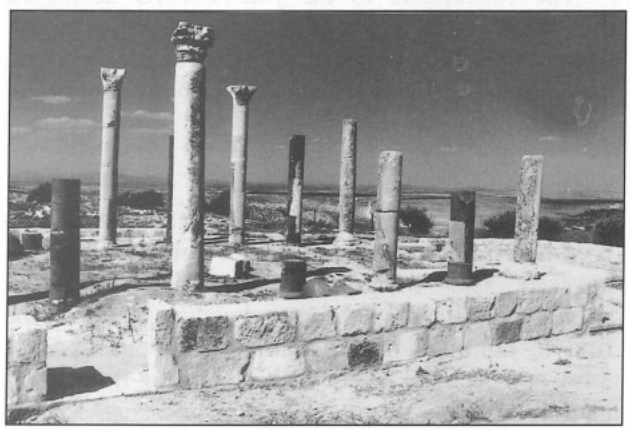
The work on the other two churches are not completed yet, and they need more seasons of investigation, the third one lies on Abila Hill (**Fig. 7**) and the fourth one lies on Abila Valley to the south of the second church.

Sabīl al-Ḥūriyyāt (Nemphaum)

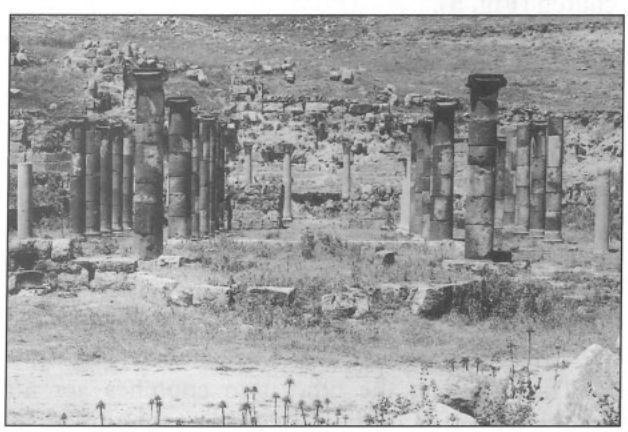
One of the building foundations discovered in-



4. The Proposal Plan of Abila.

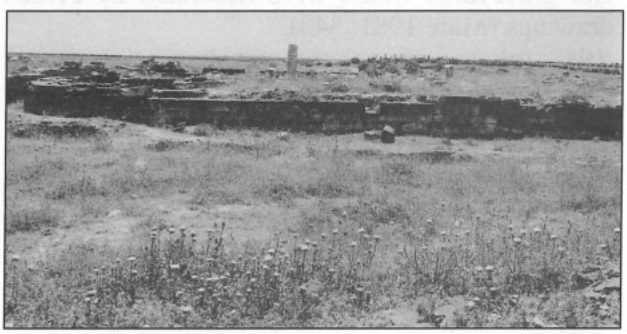


5. The Church of Umm al-'Amad.



6. The Abila Valley Church.

cluded some cellars connected with a water storage tank in the lower region of Abila, which is thought to be a part of Sabil al-Ḥūriyyāt (Nemphaum). This part is connected to a channel, it is thought that this



7. The Tall Abil Church.

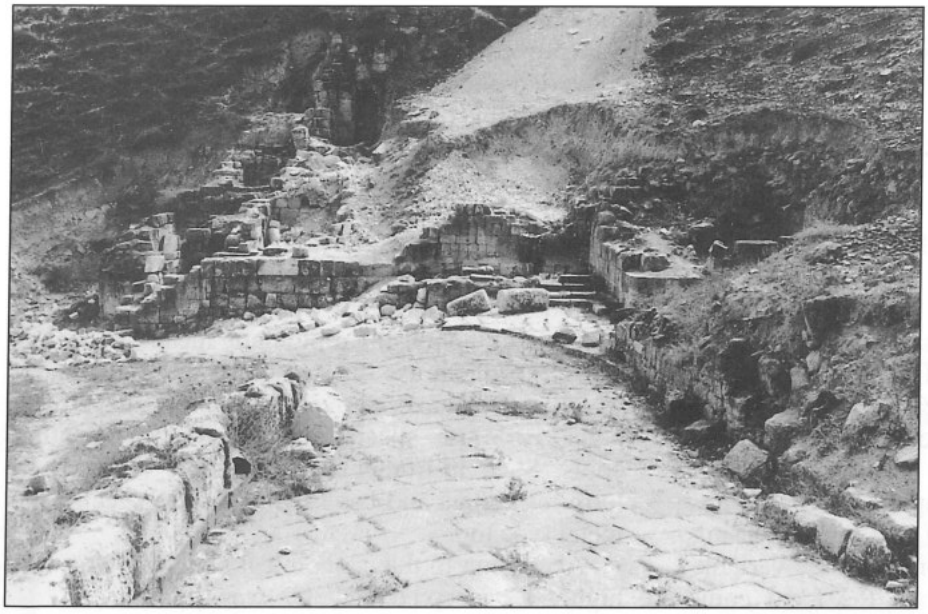
channel is connected to the main channel, which supplies water to Abila fountain (Mare 1996: 259-271).

The Umayyad Palace

This palace is on the north east side of Tall Umm al-'Amad. It is related to the Umayyad period and it was built using limestone, consists of a number of paved rooms. This palace is connected to the basalt-paved street that leads directly north to Tall Abila (**Fig. 8**).

Cemeteries

Because of the different civilizations on Abila and the different populations on it and the different population housing periods since the lithic periods till the new century, the city contains several cemeteries, which related to several periods. But the most important cemeteries are related to the Roman period, where 25 decorative burials were discovered with the water based pattern (fresco). These cemeteries lie on the Abila hills and expand



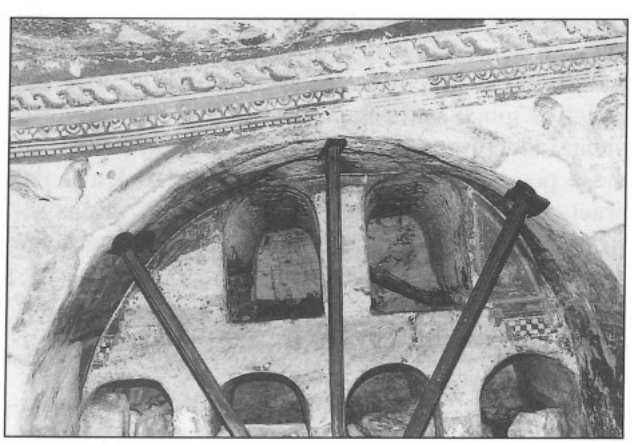
8. The Umayyad Palace.

along the valley. The paintings took the shape of geometric shapes, plants, human figures and animals (**Fig. 9**).

The City Plan

Great modifications occurred in Abila, especially in the Roman City. The plan of the city showed the presence of two main streets (Cardo) that extended from north to south, the first one from the western side along the city wall and the other one in the lower region of the city along Abila valley, and they are connected by a branched street (Decumanus) and expanded from east towards the west (**Fig. 4**).

The ideal method to visit the site could be through the branched street which connects the main street with Umm al-'Amad, where part of the city wall is clearly seen 400m to the east of the main street toward Umm al-'Amad. Some Byzantine basilica from the sixth century, where basalt stones were used in the construction in addition to the columns which are thought to be transferred from Artemos temple.



9. The Fresco inside the Cemetries.

200m further on the north east of Umm al-'Amad a part of the theater (Mare 1996: 262) can be seen, after that it is possible to go to the north west of the theater region, the visitor can notice some foundations of Artemos temple. The stones of these foundations were used in the building of the basilica in Umm al-'Amad.

200m to the north of Umm al-'Amad there is Abila Hill. The basilica foundations can be seen from the top of this hill, it was built in the sixth century by using calcic and basalt stones together with reused Roman features.

In the addition to the basilica and on the edges of Tall Abila some foundations of undiscovered buildings can be seen.

In the lower region of Abila and in the part located between Tall Umm al-'Amad and Tall Abila are some signs which related to different periods. The noticeable thing is the presence of a feature on the northeast of Umm al-'Amad. This castle was built from calcic stones, that relate to the Umayyad period, and connected to the flagged street with basalt stones extending towards the north and curved from its front towards the east, the eastern and northern sides remain undiscovered. About 25m to the north of the palace region visitors can explore some domes. The domes were built using huge calcic stones and connected to a water channel and storage tank in the north side of the building. From these signs it can be concluded that the building of Sabīl al-Ḥūriyyāt, and the dimensions of this building were estimated to be 25x25m (Mare 1996: 262).

To the north east of Sabīl al-Ḥūriyyāt, it is easy to see one of the unique planned churches with dimensions of 32x26m is built with some reused Roman basalt columns.

It must be mentioned that these do not exceed 10% of the city contents.

Abila Signs and the Illegal Searching Phenomena

Because of the historical and cultural importance of this site there are many specialized objects from different periods. Thieves corrupt the site (**Fig. 10**), without recognizing the economical and tourism importance and consequences of this activity.

In the creation of new job opportunities and supporting the Jordanian economy and the increasing of the local and individual income and the variable benefits that could be gained to the local community in that region we aimed to study this phenomena in a wide range to look for its reasons, hence, we can suggest effective solutions to get rid of it completely — if possible.

Information was collected by ten individuals who study these phenomena. Data was collected through asking some questions that relate to their previous exploits and reasons of practice, the size of benefits that they were recognizing, the importance of these pieces, and facts after the selling, in addition to suggestions to get rid of looting and many other questions relating to this subject.

The following are the details of this study: -

It was noted that 90% of looters have strong relations with the location and usually live near it. They began working on the land, and by chance, through finding some finds during their working in their lands inside the location. This behavior developed to a wide variety of jobs and in several locations. The remaining 10% represented outsiders connected by strong relations with persons inside the site.

Reasons behind practice of these phenomena include: the money representing 30%, hobby 60%, and both of habit and money representing 20%. It was proved that 100% from these practices had converted into habit and money aims over time.



10. The Vandalism and Looting.

Regarding the future of these finds and it was revealed that 40% are exported out of the country, 20% are sold to rich people in ʻAmmān to decorate their homes, and 40% are unknown.

Regarding traders, 90% of peoples who sell objects to known and limited traders or to tourists and to traders and outsiders who are living in Jordan who export them using diplomatic means.

90% of them use the same type of equipment I-which are pickaxe, shovel, and screw drive. The other 10% use special instruments for locating coins. Such instruments use variable methods to look for metals and have the ability to specify the metal type too.

According to the economical benefits, 10% was high, 60% accepted, and 30% was little.

20% of them do not care about the value of these finds and the possibility of investigating it, they only care about the profits. Where the rest, 20%, realize that it could be investigated through the national income through museums in different regions.

Regarding guards, 70% declare their carelessness of the guards and relate this behavior to the guards fearing their safety, especially during night shifts. The other 30% said that the guards hide the location from thieves, hence they began to look for specimens in new regions without guards. This sample accuses some guards of cooperation with thieves in exchange of bribery.

90% of the sample does not know about the archaeological laws where the rest 10% knows some parts of the law. 70% of the sample does not trust of the archaeology laws where the rest refused to say their opinions.

On the subject of ending looting, 70% of the sample announced that they are ready to leave these practices if they were employed in the archeological department to practice the same task with an accepted wage, 30% they did not accept leaving these practices because of its high income, which is much more than the wages of the governmental departments. On the other hand, 80% of these people said that they are ready to leave the practices if the police and security organizations restrained their restrictions, where 20% of them are going to keep at these practices.

Abila Archaeological Signs and the Local Community

This subject is considered one of the most important, it decides the relationship between the archaeological location and the local community,

where it is positive or negative, and the possibility to improve and support it in cases of positive relation and changing this relation toward the positive and combining the local community with this location and encourage them to take care of it, and protect it for future generations.

The researchers aimed, through the open meetings with the local community, to study the nature of the relation between the archaeological site, the importance of unity and the archaeological site, and the local community, and the general realization of the importance of this site and how it could be investigated, and how such level of realization could be approached, and to push local community to give more attention to this site.

The information collected through a sample consisting of fifty individuals. While choosing these a sample members, the ages, and geographical distribution, where considered where the researcher had aimed to collect the largest amount information in order to study this relation and measure the public recognition. These information were collected through asking them to answer some questions related to their knowledge about the information size, then responsibility of people about the lack of information, the poor knowledge of the local community about this site and its importance, in addition to ignoring it as a tourist site in spite of its historical and archaeological importance. Also they were asked about the phenomena of repeated aggressions and their suggestions about investigating this site and its contents in a suitable manner to bring the benefits for both of community and the homeland, in addition to their suggestions to increase the public recognition and get rid of looting, and their reliability to participate with the education program, and governmental activities which support this study by following these details: This study shows that 85% of this sample do not know the history of the archaeological site and they do not know anything about it. In addition they are not connected to the location with any type of relation and they did not visit the site for a long time. Only 15% of the sample had a good knowledge of the site history.

In response to the lack of the information, 70% relies on the Ministry of Propaganda in general and the Jordanian television, while 25% of them relies on the Ministry of Education and on the parents. This percentage of the sample declare that the educational syllabuses do not give any attention to the historical, political and cultural importance of this site and hence there is no information in the syllabuses about these sites in spite of their importance. Also they place some responsibility on the schools, students taken on schools trips to other archaeological locations but they have not been taken to this site.

In response to the site being ignored as a tourist site in spite of its importance, 90% of the sample said that this responsibility lies on the tourist and the Department of Antiquities because of the absence of the tourist programs like any other sites, and the exclusion of this site as one of the tourist destinations. The other 10% of the sample said that it is the responsibility of the local community beside the Ministry of Tourism and Archaeology, the local community has not tried any public activity to investigate it like the other sites.

100% of the sample rejected strongly the aggressive activity which occurred in the site especially by using the mischief and they described this phenomenon by the corruption process which prejudice the homeland. Also they said that such people are guilty because of their selfish acts and the predominance of self-interest rather than the public interests.

When they were asked about investigating this site from a tourism point of view, 25% of them suggested establishing a museum, inside the site itself. The rest 75% did not answer because of their little experience in such subjects.

On the point of the possibility of getting rid of aggressive phenomena, 80% of the sample suggested extensive education programs to the local community. The rest of the sample, which represents 20% of the sample, emphasize guarding of the archaeological site.

Regarding the site protection, 90% of the sample said that they are ready to inform police about any noticeable aggressions, and 10% remarked on their fear.

On the subject of education programs, 85% announced that they are ready to adopt and participate in the local community education program about the importance of the archaeological site for both cultural and tourist views. It could also be useful for the community in general, and 15% of those asked do not have the ability to do that because they do not have the scientific background.

100% of the sample are ready to participate in the public and formal activities especially if these activities aim at marketing the site locally and universally.

35% of the samples are ready to present the site to the tourists if they have the suitable language and enough information about the archaeological site. The rest apologized because of their inability in languages but they said that they are ready in case of suitable communication being available be-

tween them and the tourists.

Model to Present Abila to Tourists

Abila is considered as one of the most important archaeological sites in Jordan. The history of Abila extended from the very ancient centuries till the later Islamic centuries

First Stage: Modern Century

There is no evidence of housing in Abila the last 100 years except some bedouins in this region and surroundings.

Second Stage: Ayybid and Mamluk Period

There is some evidence about housing in Abila region in the Ayybid and Mamluk period. Some foundations survive of buildings, which are related to that period, and also some pottery fragments in Umm al-'Amad region.

Third Stage: Umayyad Period

The presence of palace foundations related to the Umayyad period is the best evidence for housing in Umm al-'Amad at that century. In addition there is the presence of some building foundations from the same period.

Fourth Stage: Byzantine Period

The archaeological remains in the Abila region, especially the churches, refer to the level of development in this period. Four churches have been discovered, relate to this period. The first is in Umm al-'Amad, the second in Abila Hill, the third west of Umm al-'Amad in Abila valley and the fourth in Wādī Abila in the south-eastern region of Tall Abila.

Fifth Stage: Roman Period

The height of Abila development was in the Roman period. It was organized comprehensively such as the Roman city planning with its streets, parks, public buildings, theaters and many other architecture elements in the Roman city.

Some Reused columns and stones of the Roman buildings were used to build new buildings in Byzantine period that lead to destruction of temples and Sabīl al-Ḥūriyyāt (Nemphaum).

Sixth Stage: Hellenistic Period

The presence of Hellenistic was noticed through some walls and buildings foundations, in addition to the pottery fragments and some coins.

Seventh Stage: Persian Period

Some parts of pottery were found in the site, from the settlement in the site during Persian colonization in the region.

Eighth Stage: Iron Age and Bronze Age

It is thought that Umm al-'Amad was established in the Iron Age. Also it was noticed that some walls and pottery fragments are related to the late and Middle Bronze Age.

Results

According to the studies and information analysis from the sample, the study can be summarized as follows: -

1- Abila is considered one of the most important archaeological sites in Jordan because of its wealth of the rare archaeological finds in addition to its special geographical location and its natural environment.
2- The absence of archaeological knowledge is one of the most important reasons for searching and selling artifacts where 60% of the sample does not know the future of sold pieces.
3- 'Sport' and money represents the most important reasons behind looting. The aim to make a quick fortune wastes the national fortune of important archeological finds.
4- A weakness lies in guarding archeological sites and there are a small number of guards in custody of the large area of the site, and the lack of means to deal with looters.
5- The Department of Antiquities is responsible for education programs, which aim to inform people about the importance on a national level, and its historical and economical importance.
6- The Department of Antiquities is responsible for the absence of spreading and explaining the Jordanian archaeological law, where 80% of the samples do not know the archaeological law, also they do not trust it.
7- In spite of the good relation between the local community in Abila region and the archaeological site, they do not know its historical and tourism importance.
8- The Ministry of Education and the schools are responsible for educating about the archaeological sites. The scholar syllabuses do not contain any information about these sites.
9- The Ministries of Tourism is the main body responsible for the education programs about Abila and inform the people about this site and its importance. Also, the absence of cooperation between the Ministry of Tourism and archeology and the Jordanian television create some of weak programs in the presentation of archaeological sites.

10- The sequential governments, especially in the 1970s and 1980s periods, the largely responsible for the lack of location protection and development of other sites such as Jarash, Umm Qays, and Petra.
11- The strong opposition from the local community to the aggressions and looting indicates that they are ready to participate in the protection scheme.
12- In spite of the community awareness in Abila, the community does not have the knowledge to investigate the site and its contents, hence the community needs extensive education programs by specialists in this domain.
13- The local community is ready, especially the young people, to present the site to the tourists, and attempt to break language and information barriers.
14- The local community is ready to participate in development programs of site and different education programs.

Recommendations

According to the conclusions and the results stated above, some recommendations to improve the local community, develop and investigate this situation, and strengthen the relation between the local community and the archaeological site. These recommendations are:

1- Creating education programs by the specialist departments especially the Ministry of Tourism and Archeology, these society programs on the importance of this site and its ability to benefit both homeland and community. Hence it should be referred to the importance of cooperation presence between these different sides to approach an integral programs.
2- The inclusion the Ministry of Education with tourist movement and the necessity of the cooperation with Department of Antiquities to create new types of syllabuses aims to define the importance of the archeological sites to the students. The Ministry of Education can cooperate with the Department of Antiquities and the Ministry of Tourism and Archeology to educate the students. Periodical lectures in the schools, especially locally, will benefit the society as a whole.
3- There is a necessity of the Department of Antiquities to correct the behavior of looters, and to create new suitable educational programs. This can be done by using the different publicity methods. It is necessary also to strengthen the protection of the archeological site, and includes the cooperation of police and security specialists.
4- Looting and the trading of archaeological finds continues because the punishment are not adequate to discourage them from repeating these processes.
5- There is a need to encourage the community to establish new societies to protect archeological finds and the public traditions. The management must be held by competent individuals.
6- The recommendation includes establishing a new archeological office in Abila site in the addition to a museum. This aims to strengthen the connection between the local community and the site by presenting suitable information and maintenance processes to the archaeological sites and by expanding investigations on a national level through excavations (other than American delegation).
7- The cooperation between the Ministry of Tourism and Archeology and the publicity bodies to produced marketing programs aimed at marketing the site nationally and internationally.
8- The necessity to encourage the local community with cooperation with specialist establishments to perform new festivals and parties in cooperation with local and international bodies.
9- Holding courses and programs for local individuals who care about Abila in foreign languages in order to present the site to the tourists.

Bibliography

Ibn Mandour
1955 *Lisan Al-Arab, II.* Beirut: Dar Sader.

Mare, W.
1982 Season of Abila of the Decapolis Survey Project. *ADAJ* 26. Amman.
1984 The 1982 season of Abila of Decapolis. *ADAJ* 28. Amman.
1985 The 1984 season at Abila of Decapolis. *ADAJ* 29. Amman.
1996 The 1994 and 1995 season of excavation of Abila of Decapolis. *ADAJ* 40. Amman.
1997 The 1996 season of excavation of Abila of decapolis. *ADAJ* 41. Amman.

Schomacher, G.
1890 *Northern Ajlun: within the Decapolis.* London: Alexandra P. Watt.

Al-MADRAS — PETRA AND THE PANEION AT BĀNYĀS: THE *OPEROSA ANTRA*

Zvi Uri Ma'oz

The High-Place dedicated to the cult of Dhū ash-Sharā at al-Madras, Petra, is one of the best known, thanks to its meticulous recording by Gustaf Dalman (1908: 117-137; Brünnow and Domaszewski 1904: 209-214, hereafter Br.; Merklein 1995: 115-120; Wenning 2004: 41). Its general location is a little south to the eastern part of the as-Sīq and it is approached, as are most of the cult-places and other monuments of Petra, by a staircase carved in the sandstone. The ascent leading to al-Madras begins at Wādī Mūsā below the 'Obelisk Tomb' (Taylor 2002: 89) and takes advantage of a side-valley going up. After about a third of the path has been climbed, next to an undefined installation (not recorded by Dalman; two stepped concentric semicircles, 3m, 0.9m attached to a one step lower 'threshing floor' 3 x 5m; Wenning forthcoming) the typical rock-cut Nabataean stepped path is picked up. The width of the staircase, measured where the steps were not weathered is exactly 2m (compared to narrower steps higher up at al-Madras, below the 'Treppenfelsen' (Rock Stairway) Wenning 2001a: 15, and narrower steps to Jabal an-Numayr: Nahmé and Villeneuve 1999: 77). In curves the steps are widened to 3m and more. At Petra the number and width of the staircases is in direct relation to the importance of the site. Therefore, for the sake of comparison we may recall the widths of the stepped rock-cut paths of al-Khubtha (at least three paths from different directions, 0.5m; the main one from near the Palace Tomb 3.0+m), an-Numayr (one path 0.9m), al-Madhbaḥ (at least three paths, down to the theatre ca. 1.2-2.8m), Jabal Hārūn (one path, from the south ca. 0.5m) and Umm al-Biyāra (one path, 0.3, 1.0, 2.2m). Returning to the path leading to al-Madras, it can be surmised that wherever the ascent is now eroded by the many side wadis, originally it was constructed with retaining walls. Reaching the cult-place itself one is surprised to acknowledge that it is arranged on a mountain, which is completely enclosed and 'protected' by higher massifs without the impressive views, which are so typical to other mountain-top sanctuaries at Petra (Augé and Dentzer 1999: 67; the hotels of Wādī Mūsā are glimpsed at from the top of the al-Madras ascent). The second unusual phenomenon of al-Madras, in comparison to other sanctuaries at Petra, is that numerous cult installations are spread along the mountain's more or less leveled crest to the length of at least a hundred meters. Therefore, Dalman divided al-Madras (from southeast to northwest) into the following cult-zones: Südterrasse (south terrace), Südhof (south courtyard), Treppenfelsen (rock stairway), Mittelfelsen, Mittelhof, Nordplateau and Nordhof (Dalman 1908: fig. 36; **Fig. 1**).

The Rock-Scarp

Our concern in the present paper is not the entire al-Madras complex, but only one architectural element [No. 71] in Dalman's 'Nordplateau' (1908: 121-124, figs. 36-42). The central and natural feature of the North Plateau is a roughly north-south, narrow, vertical, 'knife-shaped' rock-mass, about 30m long, 10-15m wide and 10-15m high (compass bearing along the east face 40°). The rock-scarp is flanked from the east and from the west by natural platforms toward which it presents its two vertical surfaces (the west platform, which will not be dealt with in this paper, shows the remains of quarrying that served as foundations for built-up structures). Thus, nature has created here the perfect setting for the carving of cult-niches, indeed the west face of the rock is punctured by fifteen votive niches of all forms and sizes which have been described in detail by Dalman. This impressive rock-wall was rightly designated by him as "der beste Beweis für den sakralen Charakter des Platzes" (1908: 121-123, figs. 36, 39; Br. Pl. IV and fig. 246; Merklein 1995: 115). The opposite eastern side of the rock-scarp, however, is much poorer in terms of the niches (**Fig. 2**). There are only a few: square or arched, flanked by pilasters and square niche within a rectangular one (Dalman 1908: 123). Roughly in the middle of the rock-scarp a square 'room' is

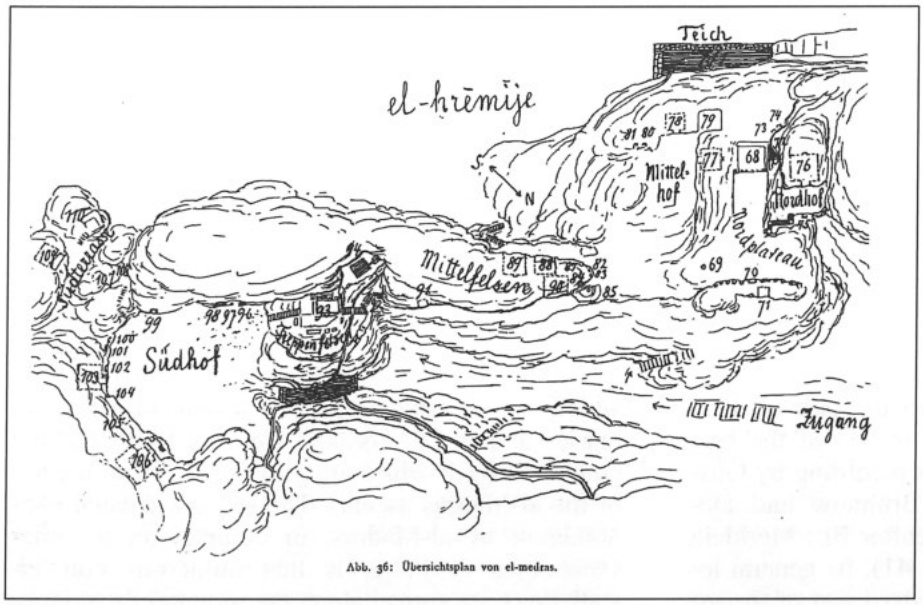
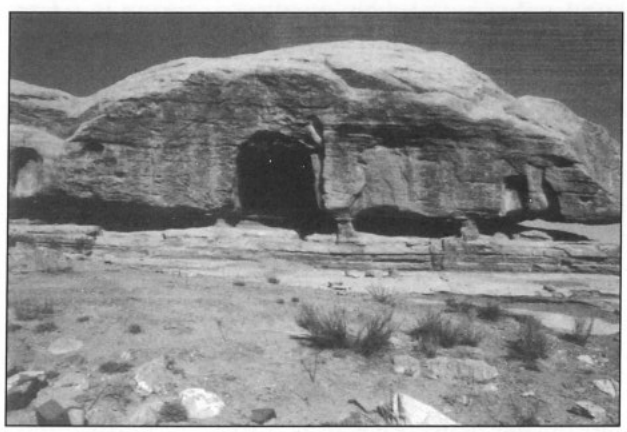
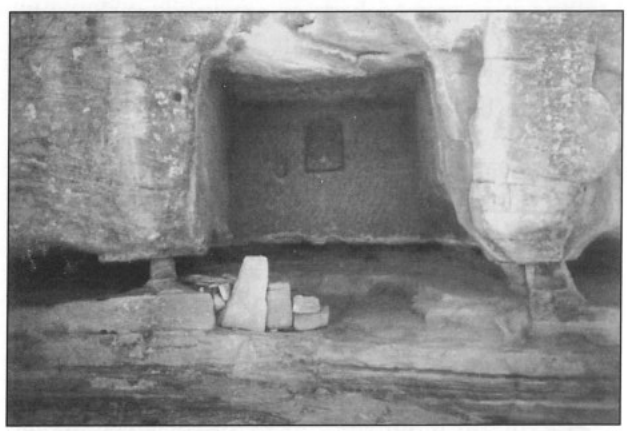


Abb. 36: Übersichtsplan von el-medras.

1. Al-Mdaras, Petra, Schematic Map of the Sanctuary (after Dalman 1908: fig. 36).



2. Al-Madras, Petra, The East Face of the Rock-Scarp (D. 71; Photo by Robert Wenning).

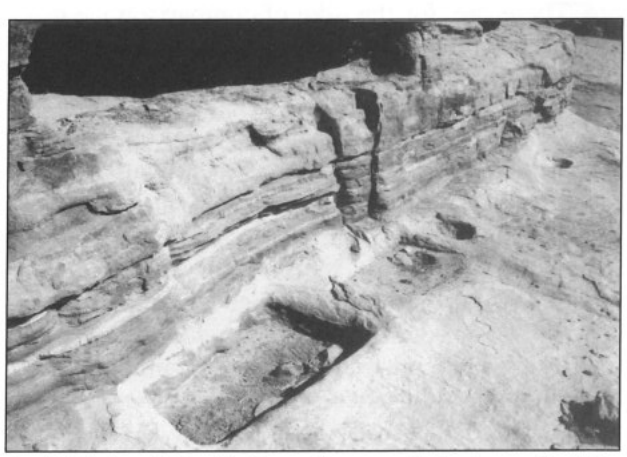


3. Al-Madras, Petra, the *operosum antrum* (Photo by R. Wenning).

hewn out of the sandstone [Dalman No. 71]. In our view it is an 'artificial cave' — *operosum antrum* (**Fig. 3**). This 'cave' is the focus of our discussion. However, before we proceed, a few words on a possible ritual-court at the front are necessary.

The Court

As stated above, fronting the east rock-face there is a natural very flat court 4m wide. The plateau itself is sloping down only 6m further east. It is, therefore, quite possible that the Nabataeans took advantage of the natural setting and created here a court measuring 9 x 12.5m. Uncertain remains of a quarried corner are to be found in the southeast. In front of the south end of the rock-scarp there are the remains of a ca. 4m long wall (one stone wide — not exactly parallel to the rock orientation, azimuth 35°). Immediately at the foot of the rock, to the north of the *operosum antrum* there is a series of shallow rectangular basins and cup-marks (**Fig. 4**, already noted by Dalman 1908: 123 d, e, f). From south to north: 1.03 x 0.6m, 0.15m deep; 0.4 x 0.75m, 0.15m deep; diameter 0.22m; after a distance of ca. 3m another cup mark



4. Al-Madras, Petra, Basins and cup-marks to the north of the *operosum antrum* (Photo by R. Wenning).

diameter 0.2m, depth ca. 0.1m. Another bigger water-pool (2.9 x 2.8m, ca. 1.0m deep) is found further north (Dalman 1908: 123, No. 72 — this installation belongs to a different later context, *cf.* Reuben 2003: 95-96). The conclusion from the element above is inevitable: in front of the *operosum antrum* there was a ritual court with presumably various services that also included libations and /or purification by water (Wenning 2004: 46).

The *Operosum Antrum*

Room No. 71 was already described in great detail and identified by Dalman (1908: 123); Brünnow and Domaszewski (1904-1909: No. 46) before him, as *Sacellum* (shrine; Merklein 1995: 115-*cella*). Our observations on this cave-room differ from those of Dalman only in minute details. The dressing of the walls and niches is rough. The room measures 1.90 x 1.90m and it has a flat roof (estimated height 2.5m — the arch-like opening on the façade is natural). In the center of the west (back) wall there is an arched niche 0.6 x 0.4m, only 0.14m deep — unfit for the insertion of a statue or even for a relief. To the left of the above niche there is a small depression (0.15m height, 0.08m deep) perhaps for the placement of a small oil-lamp. On the north wall of the room there is a flat relief of a rectangular niche flanked by rounded pilasters (0.29 x 0.53m, 0.03m deep) (Dalman 1908: fig. 41). In the space of this niche there was a relief (an 'Idol' or *Baetyl* according to Merklein 1995: 115) that was destroyed by iconoclasts.

As stated above, about four meters north of the quarried cave-room there is an arched niche inside a trapezoid quarried background (0.9 x 0.63m, overall depth 0.33m). About 5m south of the room there are the ruined remains of a niche within a niche (0.66m wide, 0.97m outside width, 1.10m high). Between the last niche and the cave-room there is a curved ledge, probably natural.

The east rock-façade in the center of the north plateau of al-Madras at Petra bears a remarkable resemblance to a rock-scarp with niches in the Sanctuary of Pan at Bānyās (hereafter: Paneon). Before this unexpected architectural parallel is taken advantage of, a short description of the remains at the Paneion is in order (Ma'oz 1994-99, 1998 forthcoming).

The Paneion at Bānyās

Bānyās is located at the southwestern foot of Mount Hermon, in the middle of the road from Damascus to Tyre and Sidon. The rare combination at one spot of a snow-capped mountain, forest, spring and cave, each a holy place in the ancient Greek religion, brought about the foundation of a rural cult-place to Pan inside the grotto at Bānyās. Since '*To Paneon*' is mentioned already in 200BC by Polybius (*Histories* XVI 18), cult presumably begun here in the days Ptolemy II Philadelphus (presumably around 260BC) The sanctuary itself is located in the shade of an elongated rock-scarp (ca. 80m long E-W 30m high) at the foot of which there is a flat natural terrace, some 15m wide, which slope on its south side toward the Jordan sources located ca. 10m further down.

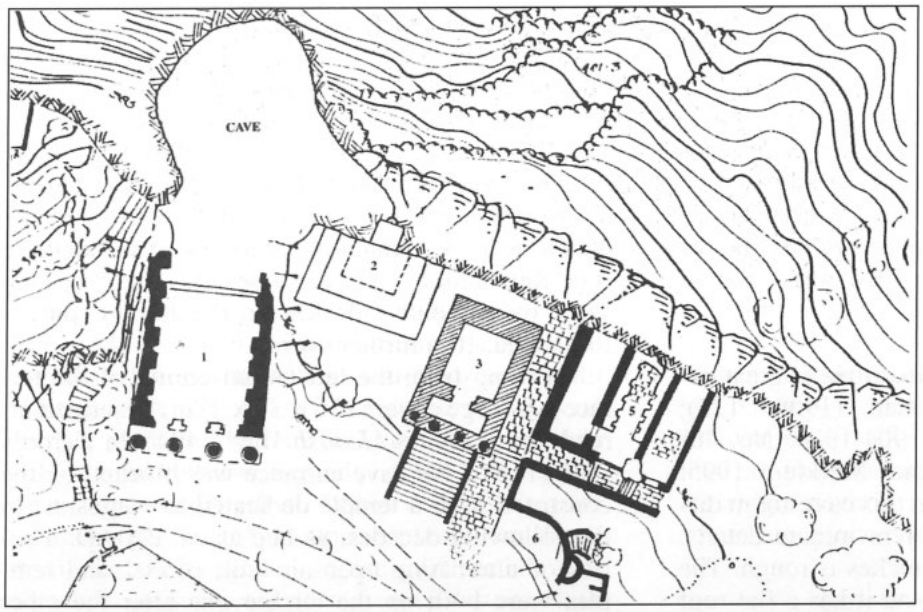
Opening from the left (west) corner of the terrace is a large cavern (26 x 30 x 17m) described already by Josephus (*Jewish War I*: 404). In Herod's time (19BC) the cave entrance was blocked by the construction of a temple dedicated to Augustus. In the following decades, as late as ca. 220AD, a series of alternating open-air 'cult-courts' and temples were built on the terrace one after the other from west to east. Our *operosum antrum* is found in the 'Court of Pan and the Nymphs' (hereafter: CPN; **Fig. 5**) which is located ca. 4m east and 5m higher than the *Augusteion.* It is followed on the east by the Temple of Zeus. CPN consists mainly of three elements: a) an *operosum antrum* hewn into the rock-scarp; b) the remains of a court fronting it c) Cult niches.

The Operosum Antrum

The center of the artificial cave is located ca. 6.5m to the east of the opening of the much larger natural grotto, in the exact center of the CPN (**Fig. 6**). It is quarried as a vault 3.1m wide and 2.8m deep **Fig. 7**). Its vertical side-walls curve to form a barrel-vault ceiling, the apex of which is 3.1m above the floor. The back wall is vertical throughout. An undecorated semi-dome niche is carved in the center of the rear wall — 1.35m high, 0.82m wide, and 0.41m deep. The niche would have, most likely, accommodated a small statue of Pan (such as Bieber 1981: 146-8, Pls. 626-635). The floor of the cave is stepped and rising toward the back. At the foot of the cliff outside the cave, two more steps were quarried in the protruding rock-ledge. Horizontal rows of mortises, cut into the vertical rock faces of the interior of the *operosum antrum* no doubt anchored marble paneling. In contrast, the concave part of the vault still carries extensive patches of thick white plaster.

The Court

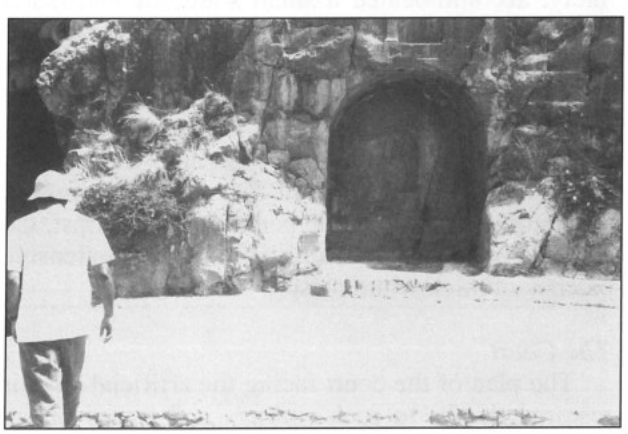
The plan of the court facing the artificial cave is restored thanks to rock-cuttings and traces of cement bedding (**Fig. 6**). The rock-scarp ledge immediately outside the artificial cave had been quar-



5. Paneon, Bānyās, Schematic plan of the excavations (Zvi Ma'oz).



6. Paneon, Bānyās, The Grotto and the Court of Pan and the Nymphs (Photo by Z. Ma'oz).



7. Paneon, Bānyās, the *operosum antrum* (Photo by Z. Ma'oz).

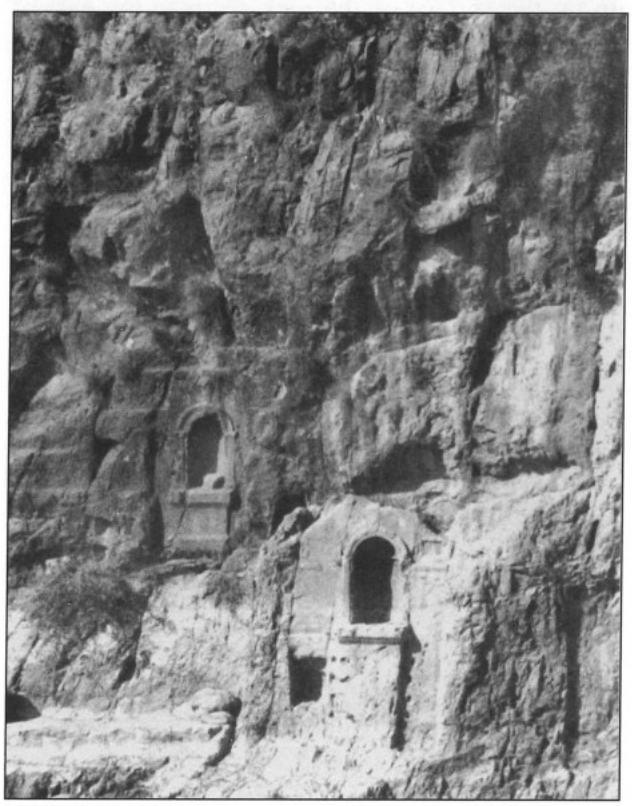
ried flat so as to form steps, as regular as they may have been, within the constraints of the preexisting rock-terrace. The court was most likely paved by flag stones. The two steps in front of the cave continue unbroken to the right (east) for a distance of about 5m, there it terminates in a curved line, no doubt the original shape of the rock-ledge. This termination marks the east end of the court. The rock steps functioned as benches or as offering shelves. In contrast, the rock-formation on the west of the artificial cave prohibited the quarrying of benches in this direction. Nevertheless, on this side the outer edge of the cement bedding of the floor is found roughly 5m to the west of the cave. Therefore the combined length of the court from the east to the

west can be restored as 13m. The original plan of CPN is further reconstructed on the basis of a rectangle of mortared floor-beddings (originally covered by pavers) which had survived in traces on the west and south sides. The location of the mortar-beds and rock-cuttings indicate that the court measured ca. 10m across — from the cave excavated in the rock-scarp to the outer edge of the mortar-bedding in the south. Inside the rectangle formed by the mortar-beds (ca. 10 x 15m), the Roman remains were almost completely destroyed or eroded by later strata of occupation. Rock bumps quarried flat and patches of mortar beddings survived here and there on different levels. These indicate the various levels of the original pavement of the court that would have ascended in converging (right-angled) wide steps toward the cave (an ascent which continued inside, above).

Rock-Carved Niches

The Court of Pan and the Nymphs included in its original stage, in addition to the artificial cave, a decorated rock-hewn niche quarried up on the face of the cliff (the additions of the second stage niches are discussed below). This niche is located 3.5m to the east of the artificial cave and its floor is 2.66m above the level of the upper bench along the cliff. The 1.07m high and 1.02m wide niche is standing on a massive molded pedestal, 0.87m high (inner measurements: width 0.56m and depth 0.35m). Rather unusually, the niche's semi-dome ceiling is not sculpted as a shell but is decorated by a pattern, which is reminiscent of *opus reticulatum* (Dodge 1990: 108-128). A small trapezoid pedestal (H. 0.22m) is quarried out from the natural rock at the bottom of the niche (wider at the back, 0.36m and narrow at the front, 0.15m). The pedestal inside the niche no doubt supported a statue, which would have been about 0.7m high.

Two identical niches were added to the CPN rock-scarp about a hundred years after its initial creation. One is found on the east edge of the court, the other right above the *operosum antrum*. The eastern niche is found 7.8m to the east of the vault and is in fact adjacent to the eastern edge of the two benches at the foot of the rock-scarp. There is a narrow vertical patch (ca. 0.66m wide) of unhewn rock that separates the benches from the carvings of the niche. Here the cemented 'frame' of the original court (above) would have been ended and the niche is therefore beyond and to the east of the original court. The addition of this niche is thus an extension of the court by ca. 3m to the east. The preparation of the niche include the smoothing of a vertical background rectangle (W. 2.35; H. 3.30m) on the face of the rock-scarp. On it there is a high pedestal (H. 1.68; W. 1.04m), supporting a carved niche (W. 0.68cm, H. 1.30m, depth 0.45m: **Fig. 8**). On either side of the niche there is a ledge for two *tabulae ansata* (0.4 x 0.28m; 0.3 x 0.2m; with outer frames 7cm and 10cm respectively). The pedestal is exceptionally high (Ma'oz 1998: 21, fig. 4). The niche itself, standing on the pedestal, is framed by two fluted *antae* on the sides (W. 0.13m), supporting a molded arch. In the half-dome ceiling of the niche a beautiful shell is carved. On the floor of this niche, there is a sunken, hexagonal attachment area for sculpture (0.01m deep). As mentioned above, on each side of the niche there is a *tabula ansata*, the one on the left was left empty. However, the *tabula ansata* on the right carries a now much-mutilated inscription. This is a dedication to Pan and the Nymphs of a statue of Hermes by the high-priest Victor, son of Lisymachos, in the year 150 to the era of Paneas — 148/9AD (Ma'oz 1994-99: 92; Isaac forthcoming; Hermes was considered the shepherd god of the Lebanon Beqa' as an inscription dedicating his statue testifies: Seyrig 1951: 114f., according to some Greek traditions Hermes brought forth Pan: Hesiod, *Homeric Hymns* XIX 1; Borgeaud 1988: 66). The second niche was carved right above the *operosum antrum*

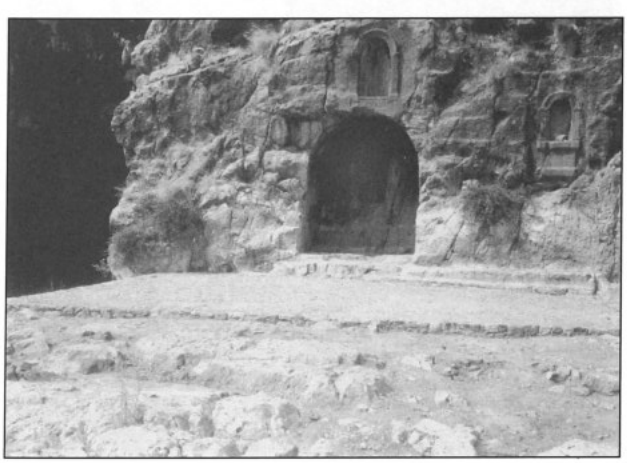


8. Paneon, Bānyās, the *tabula ansata* niche (bottom right) and the 'opus reticulatum' niche (upper left; Photo by Z. Ma'oz).

vault on the face of the natural rock-scarp (**Fig. 9**). Here there is no background carving and the area surrounding the niche was left at its natural rugged surface. The niche is standing immediately over a large *tabula ansata* (0.7 x 0.22m) with a well-preserved inscription. Otherwise, the carving and decoration of the niche (H. 1.60, W. 0.83m, 0.67m deep) is identical to the former niche. The inscription relates the dedication of a statue of the nymph Echo to Pan by the same person mentioned in the other inscription Victor, son of Lysimachos (Ma'oz 1994-99: 92; Isaac forthcoming). There is, therefore, no doubt that both niches were carved and added to this court at the same time — 148/9AD. A broken altar from the time of Elagabalos (218-222AD) was found in front of the operosum antrum in a Mamluk context (Isaac forthcoming). As well as fragments of other undated altars (one decorated by bucrania, compare: Ronzevalle 1937-38: 23-25). However, from the point of view of design and construction of the Court of Pan and the Nymphs only two stages are clear: the initial one (Paneon Phase Vb) and the addition of the niches on the rock-scarp in 148/9AD.

Baetyl

Finally, another rock-carved relief, found high up on the surface of the rock-scarp to the east of CPN, appears to have been a *baetyl.* It is virtually a flat engaged-semi-column standing on a square engaged-base. The relief is rather shallow and cannot be easily picked out from its background even in the late-afternoon light. In the one time we climbed to the carving the purpose was to clean the Latin inscription carved below the base (Z/PAN/LTA; Isaac forthcoming). Unfortunately no measurements were taken and the following are estimates taken from ground level: Height above the court ca. 15m, height of column shaft ca. 0.6m, height of base ca. 0.4m, protrusion from background ca. 0.5m. The presence of *baetylia* in the various Semitic cults in the area is not infrequent (see provisionally: Moore 1903; Ronzevalle 1930-31; Sourdel 1952: 105-106; Soyes 1972; Wenning 2001c), However, I have not been able to find, as yet, a parallel neither for the shape of this *baetyl* nor for its peculiar position.



9. Paneon, Bānyās, the niche above the *operosum antrum*, note the rock-benches at the bottom of the rock-scarp (Photo by Z. Ma'oz).

The Archaeological and Architectural Date

Stratified earth layers, which would have related to the Court of Pan and the Nymphs during its construction or occupation period, are completely gone. Nevertheless, such layers would have accumulated on the adjacent slope on the south side of the court. Thus, according to the latest group of pottery from the slope assemblage (Berlin forthcoming) our court would have been rather active during the first century AD (very few Roman sherds from this assemblage are dated later).

The only other evidence that can be brought to bear on the date of the Paneion CPN (and Petra al-Madras) is the comparison of the *operosa antra* architectural concept with its Italian precedents. Such a comparison would show that similar artificial caves were created in Italy mostly from the late first century BC. through the late first century AD (Lavagne 1988: 513-660; Helmsoll 1990:17-18; Settis 1973: 661-740; Neuerburg 1965: 31-40, figs. 15-33; Letzner 1990: 117-124, Pls. 1-12; Mielsch 1987: figs. 75, 77, 83, 86, 126-8; Rakob 1964; Meschini 1963; Jashemski 1979: 92-4, 151-3; Guiliani and Guatoli 1972; MacDougal and Jashemski 1987; Elderkin 1941; Hild 1896; Michon 1896: 1227-1237; Monceaux 1896: 129-132). That being the case, the concept of the *operosa antra* was imported to Paneion, in all likelihood, by one of the Herodian dynasts who was brought up in Italy, and who ruled Caesarea-Philippi-Paneas (Kokinos 1998: 271-303; Kindler 1983-4). Therefore, I hazard the guess that the CPN court and its artificial cave would have been donated to the Paneion either by Philip (4BC-33/4AD) or by Agrippa I (37-44AD).

The Paneion's Implications on Petra al-Madras

Vertical rock-cliffs with cult niches, such as the ones described above from Petra and Bānyās are rather rare in the Eastern Mediterranean. The only other example I found is in the sanctuary of Aphrodity at Hierados, Greece and it does not have an *operosum antrum* (Papakhaize, Vol. I, 1974, Photo 287). A Hellenistic artificial rock-carved cave dedicated to the cult of Pan was found at Thasos (Devambez 1976; compare the caves of Pan and

Nymphs: Levi 1926). The square artificial rock-cut 'cave-rooms', the *operosa antra* at al-Madras and the Paneion are therefore unique not only in the Levant but also in the eastern Mediterranean in general. According to Henri Lavagne (1988: 87-155) these artificial caves were invented or developed in third century BC. Egypt for the cult of Pan and the nymphs in view of the absolute dearth of natural caves in the topography of that country (for Greek images of the cave, see Borgeaud 1995). The heyday of their installation was the rule of Ptolemy II Philadelphus 283-246BC (Green 1990: 135-160). At that time they were furnished in the royal festivities 'Skene', according to the description of Athenaeos; excavated in the low rocky hill in the center of Alexandria (Strabo, *Geography* XVII 1, 10; Frazer 1972: 29).); and also in rocky cliffs in Egypt's Eastern Desert (caves and rustic *Panea* along roads; Bernand 1972: 16-20, Pl. 16, 1977: 59-213, 269-277, Pl. 34, 1984: 291). From Egypt the *operosa antra* were exported to Italian villa gardens where they served as shrines for Pan and the Nymphs and especially as a place of the Muses (Lavagne 1988). Thus, the Hellenistic *operosa antra* in Egypt and the first century AD examples from Italy and Bānyās bracket the possible date for this part of the sanctuary at al-Madras. In view of the above and the date of most of the early architecture in Petra (McKenzie 1990), al-Madras Nord-Plateau should be dated to the late first century BC through the first half of the first century AD. However, whereas at Bānyās inscriptions indicate that its artificial cave was dedicated to the cult of Pan, al-Madras, also by an inscription: "Dhū-ash-Sharā, the god from Madrasa" (CIS II 443; Merklein 1995: 117), is known to have been a sanctuary dedicated to the cult of Dhū-ash-Sharā — the god of the mountains/wilderness (Sharā), Dhū ash-Sharā — the one from Sharā (=the mountains of Petra/Southern Edom) (Wenning 2001b: 20-21, following Jean Starcky 1966: 981-5; Zayadine 1997) "god of our lord (the king)", an astral god also identified with Zeus, Helios and Dionysos (cf. Wellhausen 1897: 48-51; Cumont 1905: 1865-8; Sourdel 1952: 59-68; Fahd 1968: 71-5; Teixidor 1977: 76-94; Drijvers 1986: 670-672; Zayadine 1989: 109-111; Gawlikowski 1990: 2662-5; Healey 2001: 85-107; Wenning 2003: 143-160; 2004: 34-49). This poses a problem. The artificial-cave, borrowed to the bosom of the mountain, most likely indicates a cult to a chtonic god (Borgeaud 1988). Generally speaking Dhū ash-Sharā is not known to have been such a deity. Nevertheless, Helmut Merklein (1995: 111, Note 16) followed by Joseph Patrich (2005: 106-108) have already proposed the possibility of a chtonic god. Apparently, therefore Dhū ash-Sharā was not only a god of the mountains but also embodied the very mountain/rock itself — a chtonic deity. "Chez Stéphne de Byzance (*Ethniques s.v.*) Dousarès est le nom de roc" (Turcan 1989: 181). The only other option, in my view, to interpret the existence of an *operosum antrum* at al-Madras' is to postulate that Pan, the nymphs or the muses were visiting deities at Petra (*cf.* Friedland 1997: 94-96, 1999).

The above discussion serves to promote an argument that will be developed further in my forthcoming study of the 'mountain-top sanctuaries' at Petra. Namely: cult installations at Petra, as everywhere, are more complex than what meets the eye. They can tell us much more than is known today on the religion of the ancient Nabataeans.

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Bibliography

Augé, C. A. and Dentzer, J.-M.
1999 *Pétra La cite des caravans.* Paris.

Berlin, A. M.
Forthcoming The Hellenistic and Roman Pottery, in Z. U. Ma'oz (ed.), *Paneion I, Excavations at the Sanctuary of Pan at Casarea Philippi-Baniya.*

Bernand, A.
1972 *De Koptos à Kosseir.* Leiden.
1977 *Pan du Desert.* Leiden.
1984 *Les ports du desert.* Paris.

Bieber, M.
1981 *The Sculpture of the Hellenistic Age.* New York.

Borgeaud, P.
1988 *The Cult of Pan in Ancient Greece.* Translated by K. Atlass and J. Redfield. Chicago.
1995 The Rustic. Pp. 285-298 in J.P. Vernant (ed.), *The Greeks.* Chicago and London.

Brünnow, R.E. and Domaszewski, A.
1904 *Provincia Arabia.* Vol. I. Strasbourg.

Dalman, G.
1908 *Petra und seine Felsheiligtümer.* Leipzig.

Drijvers, H.J.W.
1986 *Dusares. Lexicon Iconographicum Mythologiae Classicae III.* München.

Devambez, P.
1976 La "grotte de Pan" à Thasos. *Cahiers d'Archéologie Romande* 5: 117-123.
Dodge, H.
1990 The Architectural Impact of Rome in the East. Pp. 108-128 in M. Henig (ed.), *Architecture and Architectural Sculpture in the Roman Empire* (Monograph 29). Oxford.
Elderkin, G.W.
The Natural and the Artificial Grotto. *Hesperia* 10,1: 125-37.
Frazer, P.M.
1972 *Ptolemaic Alexandria.* 2 Vols. Oxford.
Friedland, E.A.
1997 *Roman Marble Sculpture from the Levant: The Group from the Sanctuary of Pan at Caesarea Philippi (Panias).* Ph. D. Diss., University of Michigan.
1999 Greco-Roman Sculpture in the Levant: the Marbles from the Sanctuary of Pan at Caesarea Philippi (Banias). Pp. 7-22 in J. H. Humphrey (ed.), *The Roman and Byzantine Near East.* Vol. 2, (JRASupp 31). Portsmouth, RI.
Giuliani, CA.F. and Guatoli, M.
1972 Il ninfeo minore della villa di Cicerone a Formia. *MittDAI* 79: 191-219.
Green, P.
1990 *Alexander to Actium: The Hellenistic Age.* London.
Helmsoll, D.
1990 The Architecture of Nero's Golden House. Pp. 10-38 in M. Henig (ed.), Architecture and Architectural Sculpture in the Roman Empire.
Henig, M. (ed.)
1990 *Architecture and Architectural Sculpture in the Roman Empire.* (Monograph 29). Oxford.
Hesiod
(1936) To Pan, *The Homeric Hymns and Homerica*, Translated by H.G. Evelyn-White, London.
Isaac, B.
Forthcoming The Greek and Latin Inscriptions, in Z. U. Ma'oz (ed.), *Paneion I, Excavations at the Sanctuary of Pan at Casarea Philippi-Baniyas.*
Kindler, A.
1983-4 The Relationship and Status of Agrippa I and II, to the Roman Imperial Court as Reflected in their Coinage. *Israel Am veAretz, Bulletin Museum haAretz* 1(19): 67-84 (Hebrew).
Kokinnos, N.
1998 *Herodian Dynasty: Origins, Role in Society and Eclipse.* Sheffield.
Jashemski, W.M.F.
1979 *The Gardens of Pompei, Herculaneum and the Villas destroyed by the Vesuvius.* New Rochelle.
Lavagne, H.
1988 *Operosa Antra, Recherches sur la grotte à Rome de Sylla à Hadrien* (B.E.F.A.R 272), Rome.
Letzner, W.
1990 *Römische Brunnen und Nymphaea in der weslichen Reichshälfte.* (Charybidis, Vol. 2). Münster.
Levi, D.
1926 L'Antro delle Ninfe e di Pan a Farsalo in Tessaglia. *Annuario della R. Scuola Archeologica di Athene e delle Missioni Italiana in Oriente*, Vol. VI-VII (Bergamo).
MacDougal, E.B. and Jashemski, W.F. (eds.)
1987 *Ancient Roman Villa Gardens*, Washington.
Ma'oz, Z.U.
Banias. *New Encyclopedia of Archaeological Excavation in the Holy Land:* 136-143.
1994-99 Coin and Temple – The Case of Caesarea Philippi-Paneas. *Israel Numismatic Journal* 13: 90-102, Pls. 13-15.
1998 The Sanctuary of Pan at Baniyas. *Qadmoniot* 31 (115): 18-26 (Hebrew).
Forthcoming *Paneion I, Excavations at the Sanctuary of Pan at Casarea Philippi-Baniyas.*
1988-94 Israel Antiquities Authority Reports. Jerusalem.
McKenzie, J.
1990 *The Architecture of Petra.* Oxford.
Merklein, H.
1995 Dushara-Idol in den Heiligtümern von Bab es-Siq und von el-Madras. Pp. 109-120 in M. Weipert and S. Timm (eds.), *Meilstein 30 Festgabe für Herbert Donner zum 16 Februar 1995.* Wiesbaden.
Meschini, S.
1963 Ninfei e Fontane, *Enciclopedia Dell'Arta Antica, Classica e Orientale.* Vol. V. Roma: Enciclopedia Italiana: 505-512.
Meshorer, Y.
1984-5 The Coins of Caesarea Paneas. *Israel Numismatic Journal* 8: 37-58, Pls. 7-15.
Mettinger, T.N.D.
1995 *No Graven Image? Israelite Aniconism in Its Ancient Near Eastern Context.* (Coniectanea Biblica, Old Testament Series 42). Stockholm.
Michon, E.
1896 Fons. *Dictionnaire des Antiquités Grécques et Romaines*, Vol. II. Paris.
Mielsch, H.
1987 *Die Romische Villa, Architektur und Lebensform.* Münich.
Monceaux, P.
1896 Nymphaeum. *Dictionnaire des Antiquités Grécques et Romaines*, Vol. IV. Paris.
Moore, G.F.
1903 Baetylia. *AJA* 7: 198-208.
Nahmé, L. and Villeneuve, F.
1999 *Pétra: Metropole de l'Arabie antique.* Paris.
Neuerburg, N.
1965 *L'Architettura delle Fontana e dei Ninfei nell'Italia Antica.* (Memorie dell'accademia di archeologia, lettere e belle arti di Napoli V). Napoli.
Papakhaize, N.D.
1974-82 *Paysanioy Ellados Periaegaesis*, 5 Vol. Athens (Greek).
Patrich, J.
2005 Was Dionysos, the wine god, venerated by the Nabataeans? *ARAM* 17: 95-113.
Rakob, F.
1964 Ein Grottentriklinium in Pompeji. *MDAI* 71: 182-94.
Ronzevalle, P.S.
1930-31 Venus Lugens et Adonis Byblius. *MUSJ* 15: 141-204.

1937-38 Jupiter Héliopolitaine, *Nova et veteran. MUSJ* 21: 3-28.

Reuben, I. (ed.)
2003 *The Petra Siq. Nabataean Hydrology Uncovered,* Amman.

Settis, S.
1973 "Esedra" e "ninfei" nella terminologia architettonica del mondo romano. Pp. 661-740 in W. Haase and H. Temporini (eds.), *Aufsteig und Niedergang der Römischen Welt* I,4. Berlin.

Seyrig, H.
1951 Aradus et sa périée sous les rois Séleucids (Antiquités Syriennes No. 49). *Syria* 28: 206-220.

Sourdel, D.
1952 *Les cultes du Hauran à l'époque romaine.* Paris.

Soyes, B.
1972 Le Bétyle dans le culte de l'Astraté Phénicienne. *MUSJ* 47: 150-169.

Turcan, R.
1989 *Les cultes orientaux dans le monde romain.* Paris.

Weber, T. and Wenning, R. (eds).
1996 *Petra: Antike Felsstadt zwischen arabischer Tradition und griechischer Norm.* Mainz am Rhein.

Wellhausen, J.
1897 *Reste arabischen Heidentumsgesammelt und erläutert*[2]. Berlin: Reimar (Reprint 1961 W. de Gruyter).

Wenning, R.
2001a Die nabatäische Stadt. *Welt und Umwelt der Bibel* 19/6: 11-15.
2001b Die Religion der Nabatäer. *Welt und Umwelt der Bibel* 19/6: 19-26.
2001c The Betyls of Petra. *BASOR* 324: 79-95.
2003 "Das ist Dushara". Zu den Problemen der Quellen und Denkmäler nabatäischer Religion. in M. Gielen and J. Kügler (eds.), *Liebe, Macht und Religion: Gedenkschrift für H. Merklein.* Stuttgart.
2004 Der Gott des Manbatu, *Vernissage* 20/12: 34-49.

Zayadine, F.
1997 Die Götter der Nabatäer. Pp. 113-123 in M. Lindner (ed.), *Petra und das Königreich der Nabatäer*[6], Bad Windsheim.

FIGURINES AND IRON AGE OBJECTS FROM 'AMMĀN CITADEL

Sahar Mansour

This material is based upon work during 2000-2001 seasons at 'Ammān Citadel supported by the Ministry of Tourism and Antiquities with cooperation of the Department of Antiquities.

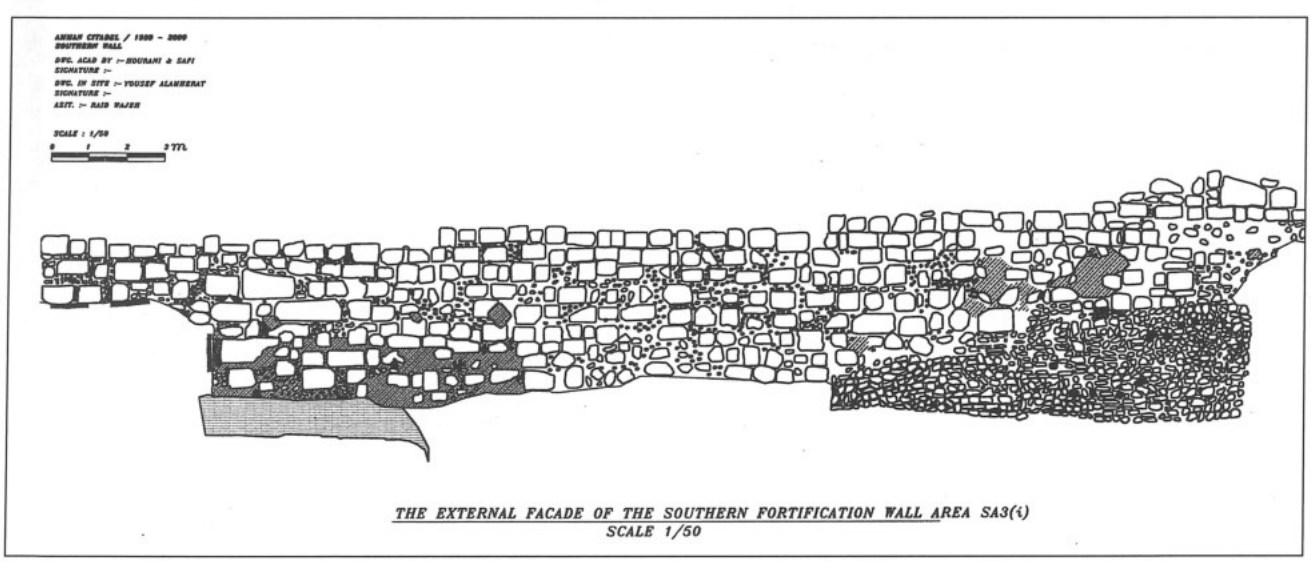
The total of 43 figurines and fragments from the Citadel makes a significant addition to the number of such object to have been found in scientifically excavated contexts. Many of the large number of Iron Age figurines known are surface finds, other excavated examples come from the great temple of 'Ammān, the excavations, American Center of Oriental Research, and from Zayadine's work at the Citadel with a small number from the other excavations.

Of the Citadel finds, 28 are from well-stratified contexts, and the other ten are from the surface.

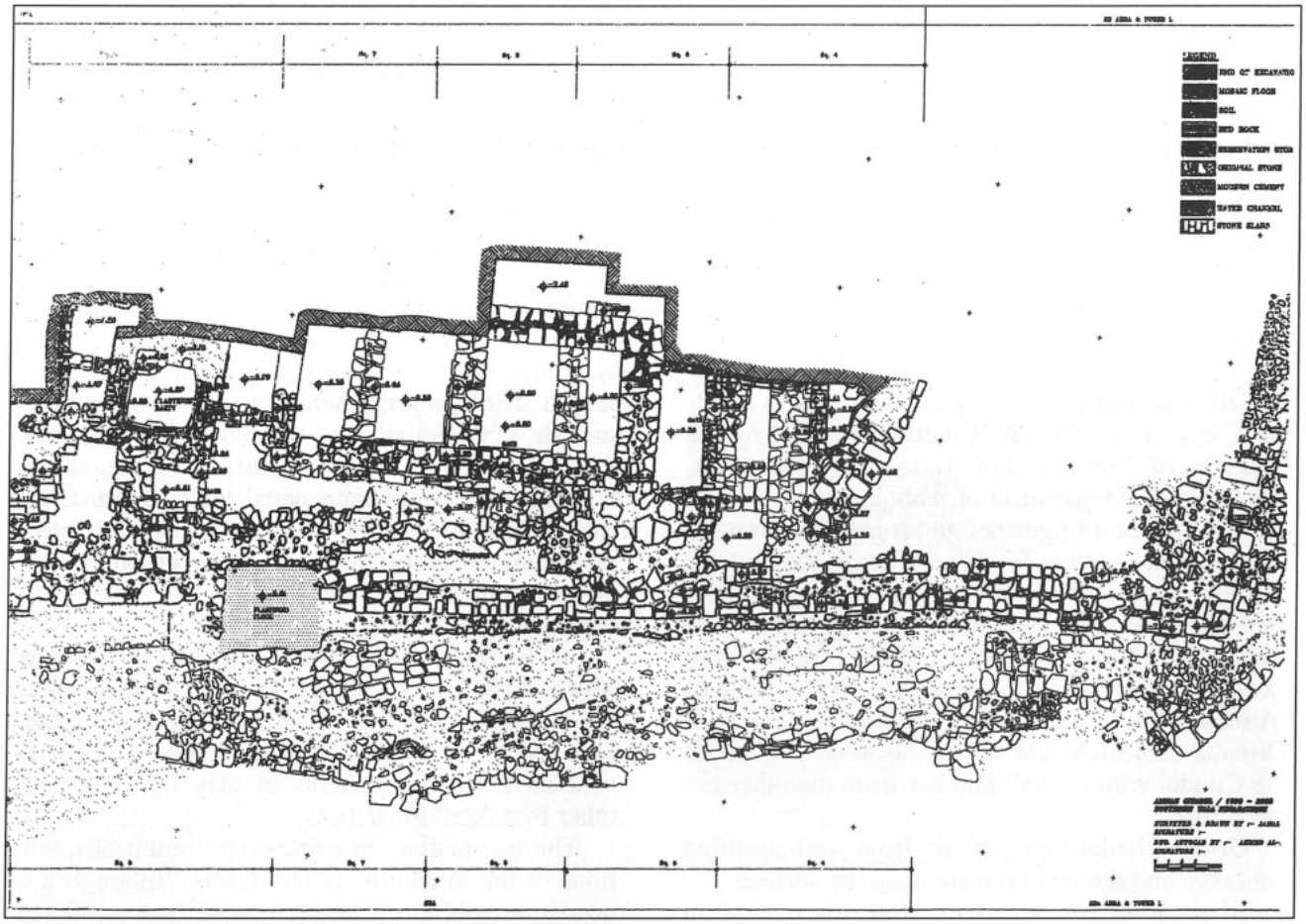
Nine stratified fragments were discovered in squares 8e and 9e in area Sa3 located outside the southern fortification wall at the lower terrace (**Fig. 1**) where two parallel walls were revealed. Between these parallel walls a floor was formed of a smooth surface of small stones over which the Iron Age deposits lay and produced fragments of clay figurines. Retrieved in an ashy soft soil layer, included sherds in good condition, clearly no conclusion about the function of the figurine can be draw from the contexts, in which they were found, except that they were not treated with particular respect when disposed of in the floor. The fact that all except ten occurred in Sa3 Area presumably indicates that the figurine were in use somewhere near this part of the site.

At the interior line of the southern fortification wall at Area SEa are squares 4, 5, 6, 7 and 8, where the casemate wall was revealed (**Fig. 2**). Over the Iron Age floor of the casemate rooms the deposit contained a few fragments of clay figurines with other Iron Age II materials.

The fragmentary examples represent heads, portions of the middle body and limbs. Although it is now impossible to determine their shapes and size when complete sizes range from 5cm to 8cm in height. Most of the figurines to be considered here fall in to three groups: female figurines, male and animal figurines, non-human figurines. The use of molds is usually restricted to the face while the body is usually shaped by hand. The only exception are female figurine no. 43, most of these fig-



1. Two Parallel walls at the outer line of the southern fortification wall area.



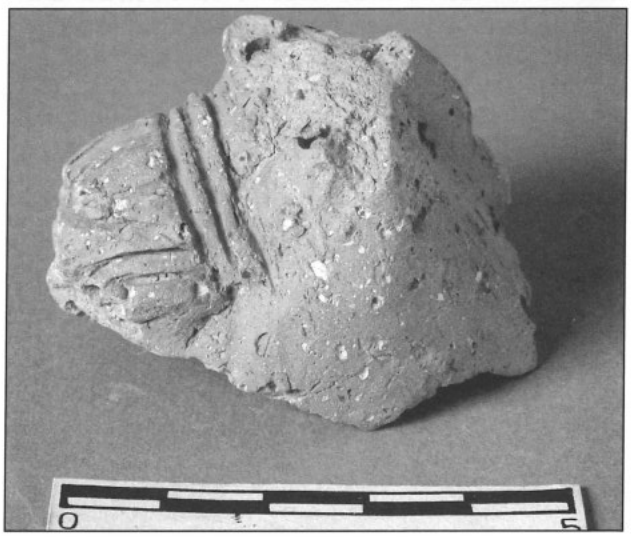
2. Plan of Area SEa (sqs. 4, 5, 6, 7 and 8) and the casemate wall.

urines must be considered as plaques and apparently were not intended to stand by themselves. Few of the figurines have painted decoration similar to the black-white, black decoration against a pink or red background. These ceramic figurines are made of a reddish or pinkish buff fabric similar to that used to manufacture vessels, usually with large amounts of dark grey and lime grits. All the figurine examples are only a small fragments survives almost certainly representations of animal figures.

Catalogue of Figurines

All dimensions are given in centimeters. Colors are described according to the Munsell soil color charts (1994 revised edition).

Figurine no. 1: An animal head, possibly of a horse hollow shape, upper and lower parts of face missing the forehead of the animal is decorated with trapping, indicated by three pendants and incised lines, the eyes are smoothly pierced, the ears are broken and the nostrils are shown partly, the mane is visible at the neck of the horse fragmentary. Ext.: 2.5YR6/8 light red, core 10YR7/3 very pale brown, slip 2.5YR6/8. Slightly coarse with sand, lime red, gray inclusions, firing medium, height: 4.2cm, width: 3.9cm.



Figurine no. 2: Horse head is the color scheme black with white dot bands on red background. It has a long neck, pointed head and slightly elongated muzzle, the ears and eyes are indicated by paint-

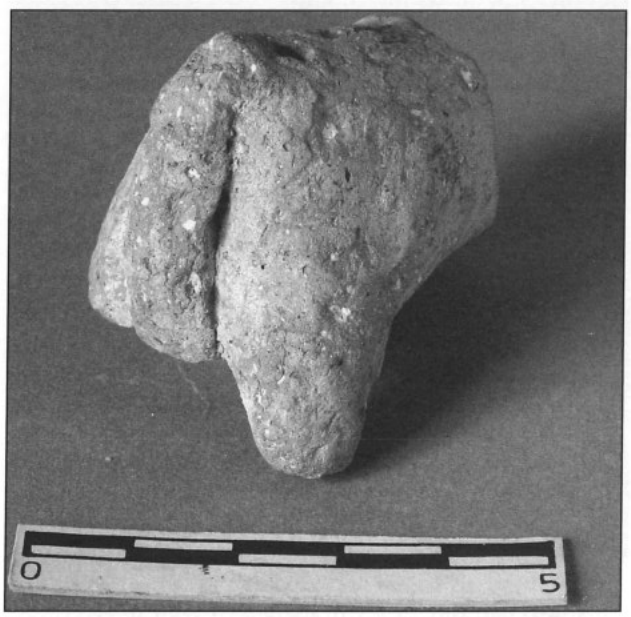
ed pieces of applied clay, trapping is indicated by painted decoration, also there is a black bands dotted with white color encircling, the neck, at the back of the head is a high piece of clay with a black band. Prominent manes, which stand out on the neck and drop steeply on the forehead and the nose is slightly pierced. Slightly coarse with sand and lime inclusions firing, core uneven. Ext.: 2.5 YR7/6 light reddish brown, int.: 7YR5/1 gray, core. Height: 6.2cm, width: 2.6cm, parallel example from 'Ammān (Dorneman 1983: 186: 9).



Figurine no. 3: A portion of the hindquarters and tail with the beginning of back legs probably horse. In the middle are remains of a saddle preserved. It has a hollow body, and the tail rises and curves down between the legs of the animal there is a deep pierced hole between the tail and the saddle, it seems to be a horse without rider the legs are broken. It is made of a slightly coarse with sand, lime, straw and red, gray stones inclusions. Firing high. Ext.: 7.5yr8/4 core 5YR8/3 pink, int.: 5YR 7/5 reddish yellow. Height: 4.1cm, width: 3.4cm, Lengith: 6cm (Harding 1945: Pl. XVIII. fig. 41, 1950a: Pl. XIII. fig. 1).



Figurine no. 4: A portion of the hindquarters and tail of an animal, short legs one of them missing hollow body, and the tail curves down between the legs of the animal there is a deep pierced hole near the tail, and it has a cylindrical body. It is made of a slightly coarse, with sand, lime, straw and red, gray stones inclusions. Firing high. Ext.: 2.5 YR7/6 light reddish brown, int.: 7YR5/1 gray, core. Height: 4.3cm, width: 3.3cm, Length: 5.2cm (Dornemann 1983: fig. 86, no. 9).



Figurine no. 5: A fragment of rare animal body with the beginning of the legs. It is characterized by a short rising tail, cylindrical hollow body, small pierced hole near the tail, and made of very coarse with sand, lime, straw and, gray stones inclusions. Firing medium, int.: 10YR 8/2. Ext.: 2.5 YR7/6 light reddish brown. Height: 3cm, width: 3.5cm.

Figurine no. 6: A horse head, hollow inside, probably belonged to a libation pot, reins indicated by incised lines. The forehead of the animal is decorated with trappings, indicated by two pendants, the eyes and mouth are deeply pierced and so the ears, the lower part of the head is missing. It is made with a very coarse with sand, lime, straw and gray stones inclusions. Firing core uneven. Int.:



10YR 8/2. Ext.: 2.5 YR7/6 light reddish brown. Height: 3.5cm, width: 3.3cm.

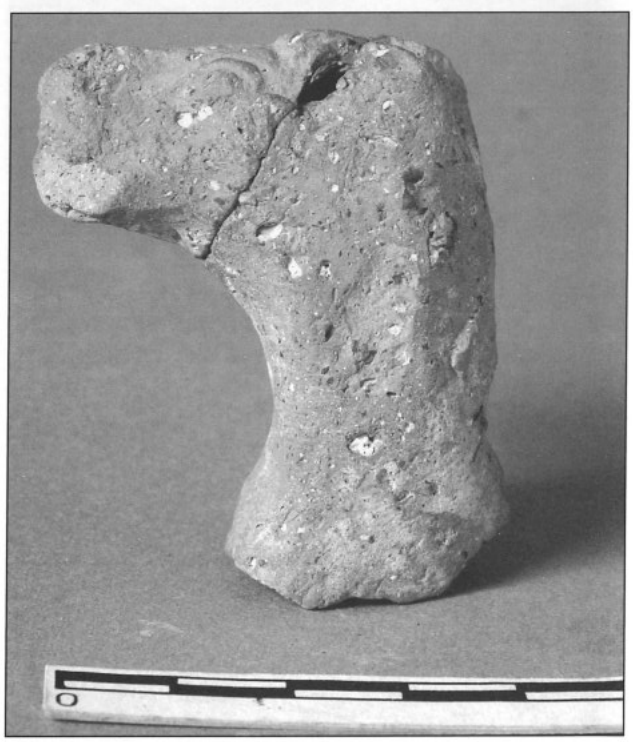


Figurine no. 7: Cow head of black pottery the nostrils and eyes are slightly pierced, parts of ears and horns missing, the mouth is indicated by an incised line. Ware: 10YR.5/2 grayish brown, slip: 7.5YR6/4 light brown. Grits lime stones, grog and flint grits. Good firing slightly coarse with sand and gray inclusions. Height: 3.5cm, width: 3.9cm (Crowfoot 1957: Pl. 76ff, fig. 1).

Figurine no. 8: A head of a horse with a long neck the shock of hair from the mane, rests on the forehead, indicated by incision the eye of the animal is disproportionately big, and the pupils indicated by pieces of applied clay. The slightly, incised lines strap around nose indicate trappings and incisions in front of eye are not complete. It is



made of a slightly coarse and lime, straw and red, gray stones inclusions. Firing high. Slip: 9YR7/6 light reddish brown. Int.: 7YR5/1 gray. Height: 5.2cm, width: 2.2cm (Dorenmann 1983: Pl. 86, fig. 7).



Figurine no. 9: A head of animal, probably camel the forehead of the animal is decorated with trap, indicated by two incised pendants the eyes and nostrils are deeply pierced, two incised bands encircle the neck, the head is a high piece of clay indicating prominent mane. It is made of slightly coarse sand, with lime, straw and gray stones inclusions. Firing: high. Ext.: 7.5YR 8/4, core 5YR8/

3 pink. Int.: 5YR 7/5 reddish yellow. Height: 4cm, width: 2.5cm (Dorenmann 1983: Pl. 89, fig. 5).



Figurine no. 10: An animal body the remains of legs are represented and a cylindrical hollow body, short rising tail, deep hole near the tail another hole but very big between the front legs probably the place of the head. It is very coarse with sand, lime, straw and gray stones inclusions. Firing: medium. Int.: 10YR 8/2. Ext.: 2.5 YR7/6 light reddish brown. Height: 3.3cm, width: 3cm, length: 8.2cm.



Figurine no. 11: The head and face seem to have been mold made. The woman wears a pointed cap band at its base decorated with eight incised vertical lines, eyes, nose and mouth molded on the face with the fingers, it has large almond-shape eyes and the cheekbones are nicely molded as is the short slightly chin, the face is beautifully formed. It is slightly coarse with sand, lime, straw and red, gray stones inclusions. Int.: 10YR 8/2. Ext.: 2.5 YR7/6 light reddish brown. Height: 2cm, width: 4.6cm.



Figurine no. 12: Female head, hair styles seem to have been parted in middle with five locks of hair (shown on the top of the head) which curve down covering the ears and along side the face; the hair is longer at the side than on the other. It molds and extends to the level of chin in fairly row tresses. A band over the forehead with attachment to the hair, which seems to be a cloth. Big almond — shape eyes, and the lids depicted as a ridge around the eye, it has a long cheekbone, the nose is missing and so is a part of lips. Height: 5cm, width: 3.6cm.



Figurine no. 13: A face of women with big features, (could be a part of vessel) big eyes, incised arced eye-brows, painted with black color, the ear is much larger than normal in proportion to the face, and has an earring with two big balls pendant, the cheek bones are high, and the head band is decorated with jewelry in the middle, the hair is at the sides of the face and is painted dark brown and indicated that, as is true which the curve down behind the ears, it extended to the shoulder, the neck is wide and was painted with black. The nose and part of lip are broken, a horizontal incised line marks the mouth. Height: 6.4cm, width: 4.5cm.

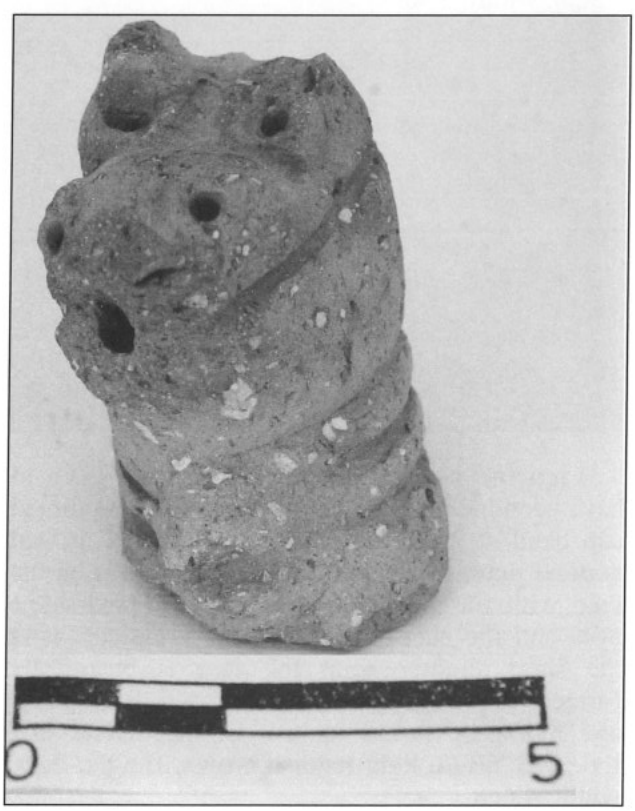


Stratified Fragment

Figurine no. 14 — incomplete (Area Sa3, Sq. 8e, loc. 14): A horse's head with part of a hollow neck, the ears were partly chipped and the eyes sockets and ears are indicated by deep holes of almost same size. There are raised horizontal lines and punctured dots across the forehead and between eyes and nose. Nostrils and muzzle are missing, but the trappings are preserved as three incised lines go around the neck of the horse and also indicated by a dotted strap and two rectangular pendants at the forehead, which relates to the harness, the eyebrow and eye are vertically incisions. It is slightly coarse with sand, lime, straw and red, gray stones inclusions. Firing core uneven. Int.: 10YR 8/2. Ext: 2.5 YR7/6 light reddish brown. Height: 5.5cm, width: 4.9cm (Koutsoukou *et al.* 1997: P1. 30, figs. 22, 23).

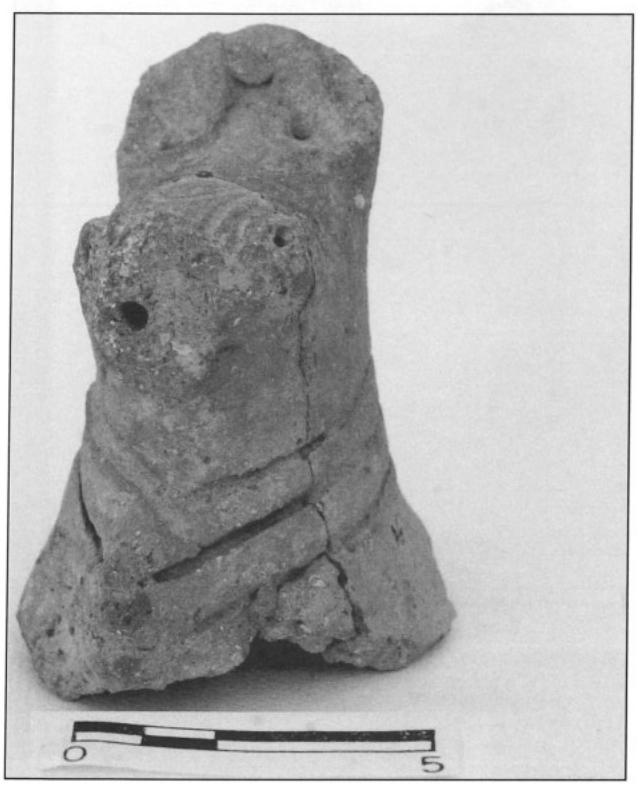


Figurine no. 15 (Area SEa, Sq. 5): Horse's head with part of hollow neck. The ears and lower part of muzzle are broken and there are holes partly pierced in the middle of the rounded eyes to represent irises,



the harness is represented by incised horizontal lines across the mouth, the nose is indicated by holes and the mouth is pierced by a big hole which goes through the neck, a piece of clay comes out to indicate a blinker. The mane is visible at the neck of the animal, incised lines go around the neck are related to the harness. Firing: uneven core. It is a slightly coarse with sand, lime, straw and red, gray stones inclusions. Int.: 10YR 8/2. Ext.: 2.5 YR7/6 light reddish brown. Height: 5cm, width: 3.1cm.

Figurine no. 16 (Area SEa, Sq. 4): A head of a large horse figurine with the remains of a wide neck. The ears are erect and indicated by a hole for each one in different size. The eyes sockets are indicated by deep holes, almost of the same sizes. Tow incised horizontal lines across the forehead indicate the harness, raised lines around the eye sockets mark the eye brow, eye-lids and the pupils in the middle are represented by small incised hole, trace of incised lines across the forehead and cheek indicated harness, a muzzle is partly missing. The figurine is pierced from its mouth to its neck; a raised mass of clay indicated the mane, and incised horizontal lines around the neck indicate the harness. Firing: uneven core, slightly coarse with sand, lime, straw and red, gray stones inclusions. Ext.: 5YR 6/6 reddish yellow. Int.: 5YR 8/3 pink, slip: 5YR 5/8 yellowish red. Height: 8.3cm, width: 3.9cm.



Figurine no. 17 (Area SB4, Sq. 3, Loc. 21): A head of a animal with remains of a hollow neck. The ears are erect and indicated by a hole on each side, almost the same sizes as the eyes holes; the forehead of the animal is decorated with trapping, indicated by rectangular pendants; pierced mouth and eyes are indicated with large depressions for pupils. The muzzle and nostril are missing, trappings are preserved at the back of the neck of the horse by incised lines. An incised raised mass of clay indicates the mane. Molded face. Firing: high, coarse with sand, lime, straw and red, gray stones inclusions. Ext.: 5YR 6/6 reddish yellow. Int.: 5YR 8/3 pink, slip: 5YR 5/8 yellowish red, height: 3.5cm, width: 4.5cm.



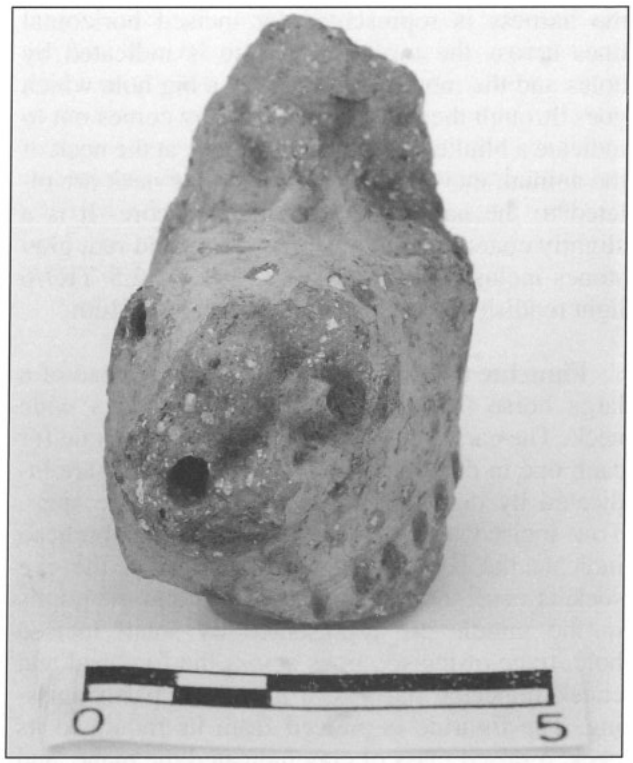
Figurine no. 18 (Area SEa, Sq. 4): Head of a horse, figurine with remains of neck, which shows that it was hollow. Eyes and eyes brow are vertically indicated, incised features include bridle without cheek-pieces, but with straps coming from the top of a noseband to the brow band. The mouth is a deeply pierced, raised horizontal lines across the forehead between the eyes and nose indicating the harness; the ears are represented and are vertically pierced. It is slightly coarse with sand, lime, straw

and, gray stones inclusions. Firing core uneven. Ext.: 7.5YR8/4, core 5YR8/3 pink, int.: 5YR 7/5 reddish. Height: 4.1cm, width: 3.1cm.

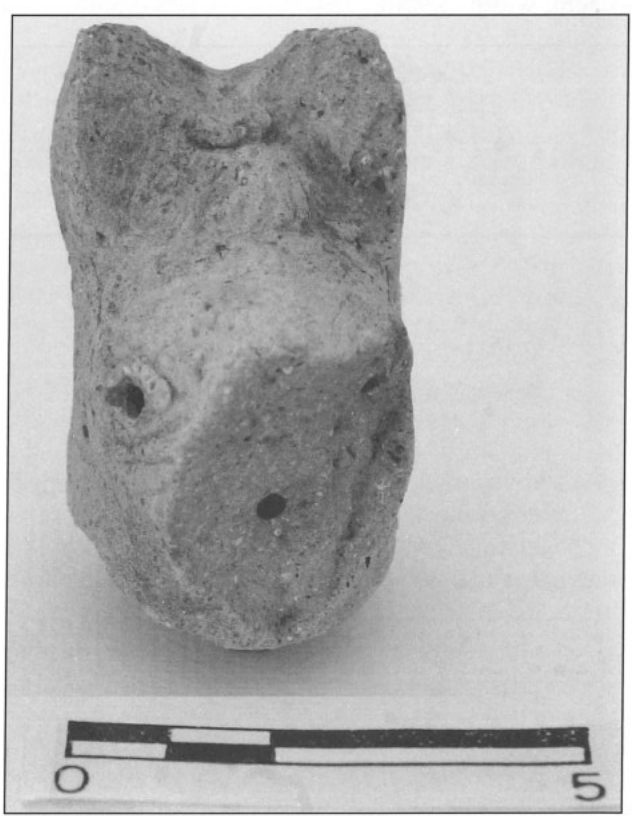


Figurine no. 19 (Area SEa, Sq. 5): Head of a horse figurine with remains of neck, which shows that it was hollow; the eye brow is represented by an elongated incised line; the mouth is pierced through to the neck but the nose, mouth and right eye were missing; trappings are preserved at the neck of the horse and are indicated by a dotted strap framed by two lines; the mane shows at the neck of the animal; the ears are partly represented. It is coarse with sand, lime, straw, and gray stones inclusions. Firing core uneven. Ext.: 7.5YR 8/4 core 5YR8/3 pink, int.: 5YR 7/5 reddish. Height: 6cm, width: 4.1cm.

Figurine no. 20 (Area SEa, Sq. 5): Part of a horse head, figurine with remains of neck, which, shows that it was hollow; the muzzle and right eye are missing, the forehead of the animal is decorated with trappings indicated by rectangular pendants; the mane is visible on the face and on the neck of the animal and indicated by incised line



around the neck; the ears are missing. It is coarse with sand, lime, straw and, gray stones inclusions. Firing core uneven. Ext.: 7.5YR8/4, core 5YR8/3 pink, Int.: 5YR 7/5 reddish. Height: 5.9cm, width: 3.3cm.

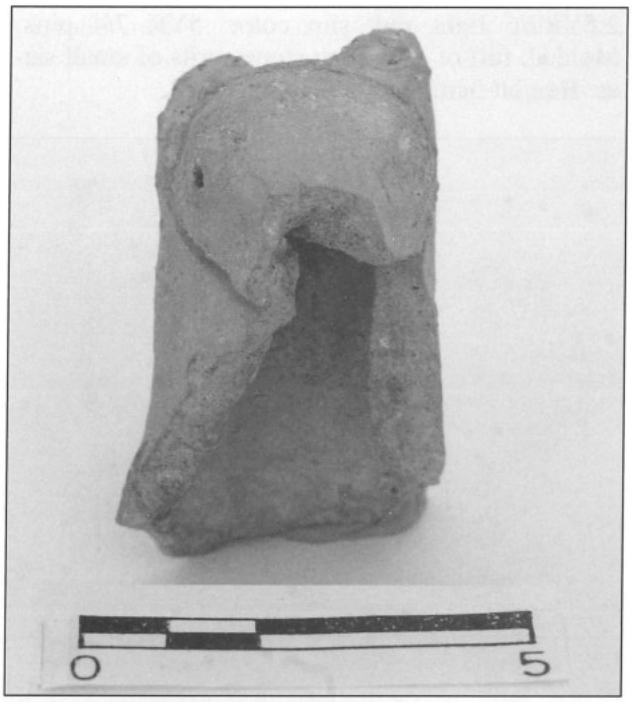


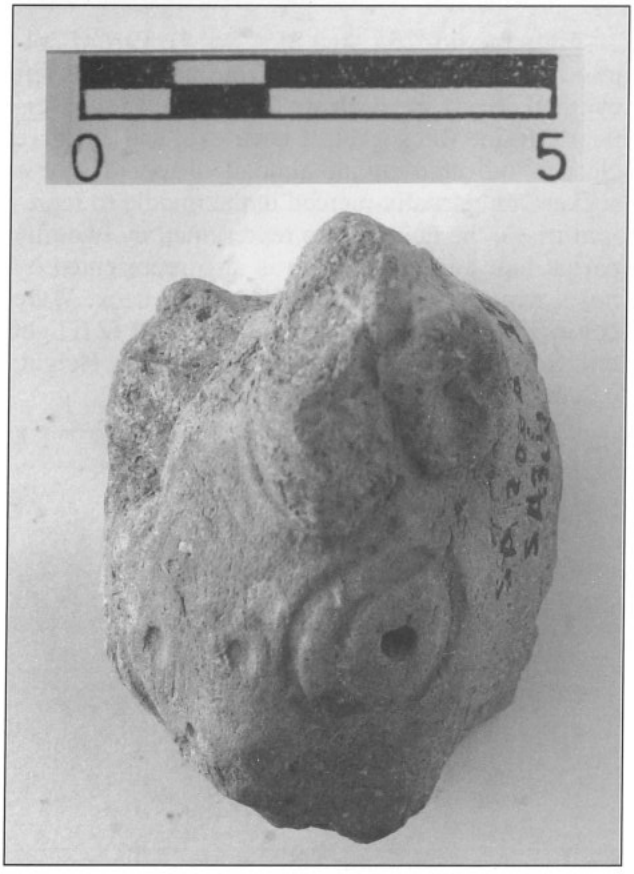
Figurine no. 21 (Area SEa, Sq. 8): Animal head figurine- the right eye, mouth, nostril and jaw were broken. Incised lines mark out the eye-lids, and the pupils in the middle are represented by small incised holes. Incised lines across the forehead and another traces of incised lines on remains of cheek and around the neck indicated a harness. Ware color: 10YR.5/2 grayish brown, slip color: 7.5YR6/4 light brown. Good firing, grits lime stones, grog and flint grits. Height: 6cm, width: 3cm.



Figurine no. 22 (Area SEa, Sq. 40: Head of a horse figurine with remains of the neck, which shows that it was hollow. The nose and mouth are missing, the eye-lids are marked out by incised lines and the pupils in the middle are represented by incised holes. Trace of an incised line across the forehead and another incised line on the horse cheek indicated a harness. The mane is visible on the neck of the horse. Ware color: 2.5YR7/6 light red, slip color: 5YR: 7/4 pink. Molded, full of grog lime stones grits of small sizes. Height: 6.5cm, width: 3.5cm.

Figurine no. 23 (Area SEa): Head of animal hollow figurine. The right side of the face is missing. The nose and ears are partly broken. The eyebrows are incised vertically and the eye are clearly indicated, with incised dots in between are visible on the forehead and the pupils in the middle are represented by deep incised hole, the mouth is pierced and face has been pressed in to a mold while the back of the head is roughly pared of. Ware color: 2.5YR7/6 light red, slip color: 5YR: 7/4 pink. Molded. Height: 5.5cm, width: 4.2cm.





Figurine no. 24 (Area SEa, Sq. 4): The upper part of large animal figurine (the ears) trapping are preserved at the back neck of the horse by an incised line and dots. The mane is visible as a raised mass of clay between the ears. Ware color:

2.5YR7/6 light red, slip color: 5YR 7/4 pink. Molded, full of grog lime stones grits of small sizes. Height: 5cm, width: 4.1cm.



Figurine no. 25 (Area SEa, Sq. 4): Part of hollow head which could be bovine part of the left eye and cheek are broken. Two incised lines vertically frame the socket of each eye, and eyes are clearly indicated in an almond shape. The eye sockets are partially pierced in the middle to represent irises, the nose is also represented by two tiny partial holes and the mouth is also represented by holes which goes through the broken neck. Ware color: 7.5YR 8/4 pink. Slip color: 2.5YR 6/ 6 light red. Good firing, molded, grits lime stones. Height: 4.2cm, width: 3.1cm.



Figurine no. 26: A portion of the hindquarters and tail with the beginning of back legs probably for horse. The tail rises, and the legs are missing. It is hand made. Ext.: 10YR6/6 light red, core 7.5YR8/2 pinkish white, int.: 5YR7/6 reddish yellow, slightly coarse with sand, lime gray inclusions. Firing: high. Height: 3.1cm, width: 2.8cm.



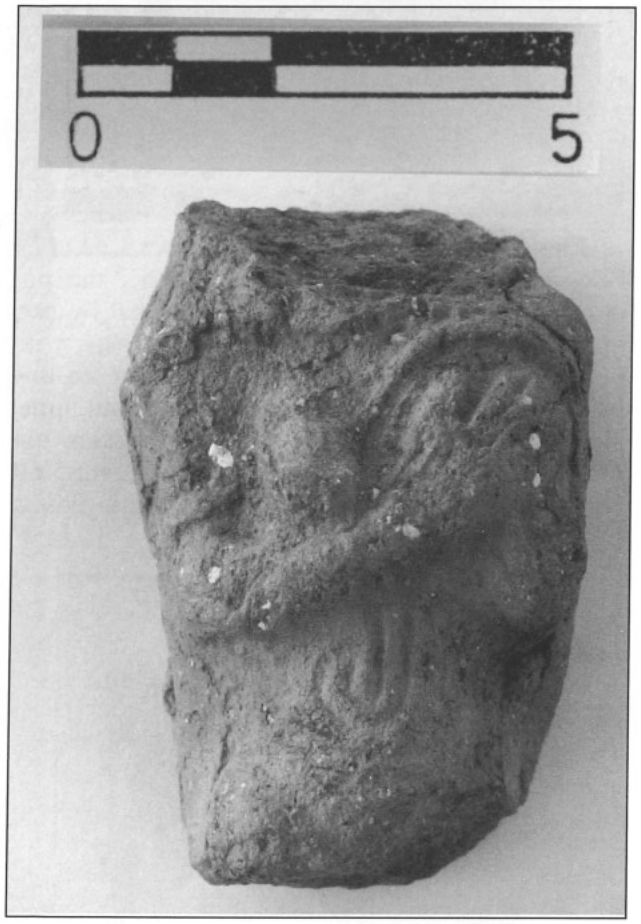
Figurine no. 27 (Area SEa): Part of hollow head could be bovine the right side, neck and upper part of the head are missing. The eyes are clearly indicated in an almond shape. Ware color: 7.5YR 8/4 pink, slip color: 2.5YR 6/ 6 light red. Good firing, molded, grits lime stones.



Human Figurines

Figurine no. 28 (Area SEa): This fragment of a female figurine includes part of a torso and lacks head and feet. One breast is visible, while the other one is covered by an unknown object, perhaps a musical instrument (tambourine) with three alternating lines indicating the strings held to the figurine chest. The hands and arms are clearly represented by the circular objects. The waist is indicated by incised lines or belt, and incised lines on body, bracelets and armlets.

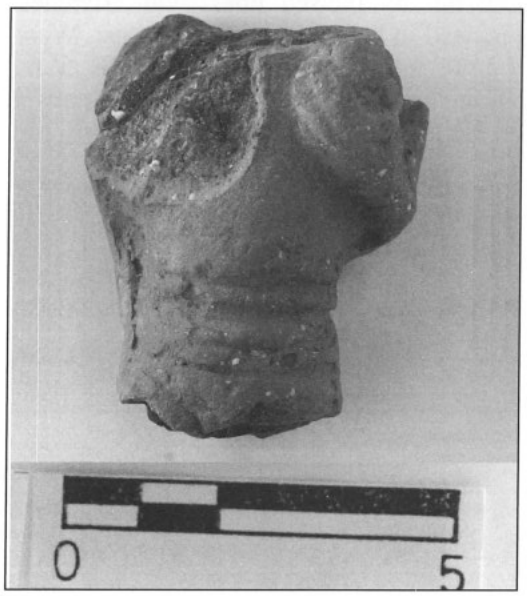
It is very roughly hand made finish on the back. Very course with sand, lime straw and red, gray inclusions. Firing core is uneven. Height: 6.8cm, length: 3.3-4.6cm, width 2.4-2.8cm. Color: 2.5YR7/6 light red, slip color: 5YR: 7/4 pink. Molded, full of grog lime stones grits of various sizes (Dornemann 1983: Pl. 89, fig. 3).



Figurine no. 29 (Area SEa): Fragment of female figurine part of a torso of a dressed woman. It lacks head and feet. It is holding in both hands an unknown object, apparently a musical instrument (tambourine). The palms of both hands are against the tambourine. The edge of the instrument is formed by three concentric raised circles with a row of dots between the inner two. One breast is visible while the object covers the other one. Two rows indicate the decorated clothes, each row is indicated by two parallel lines, the upper one is filled with a line of dots while the other is filled with a row of triangles. Ware color: 10YR.5/2 grayish brown, slip color: 7.5YR6/4 light brown. Good firing, grits lime stones, grog and flint grits. Height: 6.5cm, width: 4.4cm (Dornemann 1983: Pl. 89, fig. 3; James 1966: 112, fig. 5).



Figurine no. 30 (Area SEa): Torso of a pregnant woman, the left hand holding the breast while the right hand is missing. An incomplete pierced hole indicates the navel, the waist is also marked out by incised lines. Incised lines are seen on the belly. Height: 5.6cm, width: 3.2cm.



Figurine no. 31 (Area SEa): The bottom portion of a pregnant woman figurine, the pudenda is indicated and incised, and there is a slightly incised circular to indicate the navel. The anklets are indicated by incised lines on slightly raised bands of clay, with the legs being solid in between. The feet are missing. Ware color: 7.5YR 8/4 pink. Slip color: 2.5YR 6/ 6 light red. Good firing, molded, grits lime stones blues ochre. Height: 5.7cm, width: 3.5cm.



Figurine no. 32 (Area Sa3, Sq. 9e, Loc. 15): The lower portion of dressed human figurine, missing from the waist and up. The legs are not separated, the toes are indicated by incised lines on a stump base, and the anklets are represented by incised lines on slightly bands of clay, with legs being solid in between. The abdomen is also marked out by incised lines, with triangles and dots incised in between, mark the waist. Ware color: 7.5YR 8/4 pink. Slip color: 2.5YR 6/ 6 light red. Bad firing, molded grits lime stones blues ochre. Height: 6.4cm, width: 3.2cm.



Figurine no. 33 (Area SEa): Nude torso of a pregnant figurine, the right leg is missing and so are the feet. The waist is marked out by incised dots and the navel is also indicated. Pierced hole indicates to pudenda, the thighs are separated. Color: 2.5YR7/6 light red. Slip color: 5YR7/4 pink. Molded, full of grog lime stones grits of small sizes. Height: 5cm, width: 3cm.



Figurine no. 34 (Area Sa3, Sq. 9e, Loc. 11): Lower portion of nude human figurine, the pudenda is incised, the anklets are indicated by two incised lines on slightly raised bands of clay, with the legs, and the toes are indicated by incised line on a stump base. It is coarse ware with sand, lime, straw, and gray stones inclusions. Firing core uneven. Ext.: 7.5YR8/4, core 5YR8/3 pink, int.: 5YR 7/5 reddish yellow. Height: 7.2cm, width: 3.2cm (Zayadine 1973: 29, Pl. 20).



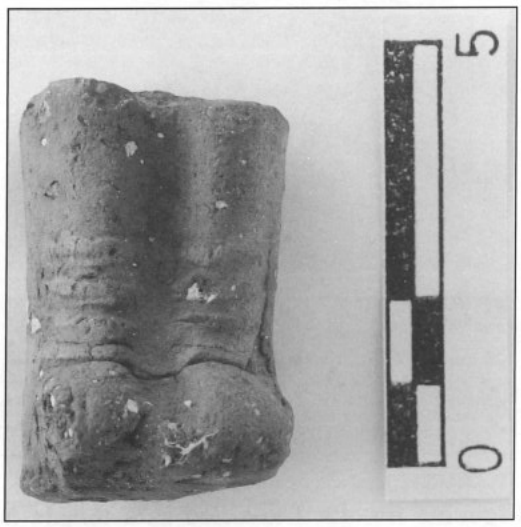
Figurine no. 35 (Area Sa3, sq 9e, loc 11): Lower portion of nude figurine-missing from the hips up. This is the plaque type, molded with one mould. The pudenda is indicated and incised, the legs are separated, the anklets and feet are missing. Very course with sand, lime, straw and red, gray inclusions. Firing; core –uneven. Height: 4.3cm, width: 4cm.



Figurine no. 36 (Area Sa3, sq 8e, loc 14): Bottom portion of human figurine-missing from the hips up. The legs are separated, feet are showing, the anklets are indicated by two incised lines on slightly raised bands of clay, and the toes are indicated by a slight line on stump base. Ware color: 10YR.5/2 grayish brown, slip color: 7.5YR6/4 light brown. Good firing, grits lime stones, grog and flint grits. Height: 5.1cm, width: 3.1cm.



Figurine no. 37 (Area Sa3, Sq. 8e, Loc. 14): Lower portion of human figurine-missing from the hips up. The legs are separated and they end in stump-like base, anklets are indicated by four incised lines on slightly raised bands of clay, and feet are showing. Ware color: 7.5YR 8/4 pink. Slip color 2.5YR 6/6 light red. Bad firing, molded, grits lime stones blues ochre. Height: 4.5cm, width: 3.1cm. Parallel example from Hazor III-IV (Yadine 1957-58: CCLIII, no. 8).



Figurine no. 38 (Area Sa3, Sq. 8e, Loc. 14): Lower portion of figurine missing from the waist up. The feet are partly broken, the legs are not separated, there are incised decoration lines up the waist, which indicated by band or belt. It is roughly hand made. It is slightly course with sand, lime straw, and red gray inclusions, firing core is uneven. Ware color: 7.5YR 8/4 pink. Slip color: 2.5YR 6/6 light red. Height: 6.5cm, width: 2.4cm.



Figurine no. 39 (Area Sa3, Sq. 8e, Loc. 14: The stamp feet of this figurine are incised lines to indicate toes, and has a trace of anklets still visible, firing core is uneven. Ext.: 2.5 YR7/6 light reddish brown, int.: 7YR5/1 gray. Height: 3cm, width: 3cm.



Figurine no. 40: Classified as a female head, the eyes, nose and mouth are crudely executed. The head is wearing a head cover. Ware colors are not clear. Slip color 2.5YR7/6 light red. Bad firing, molded, full of flint and limestone's grits of several size. Height: 3.5, width: 3.9cm. The typical example was found at Megiddo I1 (Lamon 1948: Pl. 243 no. 23).



Figurine no. 41 (Area SEa, Sq. 4): Female head, it is oval in shape, with a pointed top. Some parts are applied, as for example the ear ornament and diadem. The ears and eyes are clear while nose is scratched. The head and the face seem to have been mold made. Ware color: 2.5YR6/6 light red, slip color: 7.5YR7/4 pink, medium to good firing. Height: 4.5cm, width: 2.9cm.



Figurine no. 42 (Area SEa, Sq. 4): A part of dressed female figurine, with a head cover. The lower part is missing, there is a schematic of the right hand on the shoulder, the left hand is missing, the feature of the face are crudely executed, the eyelids are marked out by incised lines, and the pupils in the middle are represented by tiny pierced holes. The right ear is formed by an applied piece of clay. While the left one is missing, the remains of the breast are shown on the chest. Coarse with sand, lime, gray inclusions. Ext.: 5YR 7/4 pink, firing: core uneven, slip 2.5YR 6/6 light red 5/6 red. Height: 8.5cm, width: 4.8cm. Megiddo II (Lamon 1948: Pl. 205: 13).



Figurine no. 43: The preserved portion of this figurine is from the shoulders to just below the waist. The tambourine is held over, covers the left breast. The left hand supports it from underneath and the right hand, positioned against its lower left quadrant, is show as if steadying or beating it, the palms of both hands are against the tambourine. The edge of the instrument is formed by concentric raised circles. Two rows of the decorated skirt are illustrated. Each row is indicated by parallel lines, row two, row three and two triangles row, this is extended so far below the waist that the representation of a decorated skirt, filled with a row of triangles the parallel examples came from Tall al-Fār'a (Chambon 1984: 63, Pl. 84, fig. 2), Beth Shan (James 1966: 112, fig. 5), Irbid (Dajani 1966c: 80-101)



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Bibliography

Chambon, A.
1984 *Tell el-Far'ah I.* Liage du Fer. Edition Recherche Sur les civilisastion. Paris.

Crowfoot, J.W., Crowfoot, G.M. and Kenyon, K.M.
1957 The Object of Samaria, Vol. 3. Samaria-Sebaste. London.

Dajani, R.
1966a An Iron Age Tomb from Amman. *ADAJ* 11: 41-47.
1966b Jabal Nuzha Tomb at Amman. *ADAJ* 11: 48-52.
1966c Four Iron Age Tomb from Irbid. *ADAJ* 11: 88-101.

Dornemann, H.R.
1983 *The Archaeology of the Transjordan in the Bronze and Iron ages.* Wisconsin: Milwaukee Public Museum.

Koutsoukou, A., Russel, K., Najjar, M., Momani, A.
1997 *The Great Temple of Amman: The Excavation.* The American Center of Oriental Research. Amman: Nanional Press.

Hadidi, A.
1987 An Ammonite Tomb in Amman. *Levant* 19: 101-20.

Harding, G.L.
1945 Tow Iron Age Tombs, Amman. *QDAP* 11: 64-74.
1948 An Iron Age Tomb in Sahab. *QDAP* 13: 92-102.
1950 An Iron Age Tombs, at Meqabelein. *QDAP* 14: 44-48.
1951a Two Iron Age Tombs in Amman. *ADAJ* 1: 37-40.
1951c Excavations on the Citadel, Amman. *ADAJ* 1: 7-16.

James, F.
1966 *The Iron Age at Beth Shan: A Study of Levels-IV.* The University Museum, University of Pennsylvania.

Lamon, R.S. *et al.*
1948 *Megiddo II Seasons of 1935-39.* Oriental Institute publications: Chicago press.

Lliffe, J.H.
1945 Imperial Art in Trans-Jordan: Figurines and Lamps from a Potter's Store at Jerash. *QDAP* 11: 1-26.

Zayadine, F.
1973 Recent Excavations on the Citadel of Amman. *ADAJ* 18: 17-35.
1977-78 Excavations on the Upper Citadel of Amman, Area A (1975-1977). *ADAJ* 22: 20-56.
1987 Recent Excavations on the Citadel of Amman (Lower Terrace): A Preliminary Report. *ADAJ* 31: 299-311.
1988 The 1988 Excavations on the Citadel of Amman-Lower Terrace, Area A. *ADAJ* 33: 357-63.

ARABIC SECTION



المملكة الأردنية الهاشمية

حولية دائرة الآثار العامة

المجلد (٤٩)

عمّان
٢٠٠٥

رئيس التحرير
د. فواز الخريشه

هيئة التحرير
د. رافع حراحشه
قمر فاخوري
هنادي الطاهر
سامية الخوري

قام بمراجعة النصوص الانجليزية
سمانثا دنيس

الاشتراك السنوي:
١٥ دينار أردني (داخل المملكة الأردنية الهاشمية)
٥٠ دولار أمريكي (خارج المملكة شاملاً البريد)

الآراء المطروحة في المقالات لا تمثل رأي دائرة الآثار العامة بالضرورة

تقبل المقالات حتى ٣١ أيار من كل عام حسب التعليمات الواردة في هذا المجلد وتُرسل باسم سكرتير التحرير على العنوان التالي:

حولية دائرة الآثار العامة
ص.ب: ٨٨
عمان ١١١١٨ - الأردن
فاكس: ٤٦١٥٨٤٨-٦-٩٦٢+

تعليمات نشر البحوث في حولية دائرة الآثار العامة

تعني **حولية دائرة الآثار العامة** بالبحوث المختصة بالتراث الحضاري للأردن والمناطق المجاورة، بما في ذلك تقارير التنقيبات الأثرية ونتائجها.

ترسل البحوث في موعد أقصاه ٣١ أيار (مايو) من كل عام للنشر في مجلد العام نفسه إلى العنوان التالي: حولية دائرة الآثار العامة، ص.ب ٨٨، عمان ١١١١٨ - الأردن (هاتف ٤٦٤٤٣٣٦).

ويمكن الاستفسار عن طريق الفاكس رقم ٤٦٥٨٤٨-٦- (٩٦٢) أو البريد الإلكتروني
Publication.doa@nic.net.jo

- **لغة البحث:** العربية أو الإنجليزية.
- **مسودات البحوث:** يجب ألا تتجاوز مسودة البحث ١٥,٠٠٠ كلمة (٣٠ صفحة تقريباً) ولا يشمل هذا قائمة المراجع، والمواد التوضيحية (الأشكال) . ويرجى تضمين اسم الباحث (أو الباحثين) وعنوانه في نهاية المسودة، ويكون ترتيبها كالآتي:
  ١- عنوان البحث واسم الباحث (الباحثين).
  ٢- النص الكامل للبحث.
  ٣- عنوان الباحث (الباحثين).
  ٤- قائمة المراجع.
  ٥- الهوامش إن وجدت.
  ٦- قائمة شروحات الأشكال.
- **تسليم النصوص:** يُسلم النص على قرص حاسوب، إضافة إلى نسخة مطبوعة تباعد الأسطر فيها مزدوجاً، والرجاء إضافة نسخة محفوظة على شكل Rich Text Format على قرص الحاسوب. كما يجب أن تكون المسودة بشكلها النهائي دون إجراء تغييرات كبيرة لاحقاً.
- **الصور والرسومات والمخططات:** يجب أن ترفق مع النسخة الأصلية عند التقديم. ويجب الإشارة إلى جميع المواد التوضيحية سواء كانت صوراً أم رسومات أم مخططات باستخدام مصطلح (الشكل) في متن النص، وترقيمها حسب تسلسل ورودها في النص (الشكل ١، الشكل ٢، ... الخ.). ويجب ألاّ يزيد حجم الشكل عن ١٧×٢٢سم. وبالإمكان تقديم الأشكال إلكترونياً jpg (ولا تقبل الأشكال المحمولة على Word)، بحيث تكون حجومها ٢٥٠ pixels/in للصور الفوتوغرافية و ٦٠٠ pixels/in للرسومات والمخططات.
- **الهوامش:** يفضل الابتعاد عن الهوامش قدر الإمكان. وتوضع مصادر البيبلوغرافيا بين قوسين ضمن المتن، مثلاً (الفلاحات ٢٠٠١: ٦٥-٦٧) أو (Brown 1989: 32-35) للمراجع الأجنبية.
- **قائمة المراجع:** يجب أن تكون ضمن جدول في نهاية البحث وحسب التسلسل الأبجدي. واتباع النموذج الآتي :

١- في حالة المقالات المنشورة في دوريات:

النوافلة، سامي

٢٠٠٠ تقرير عن حفرية الجي (جايا) في وادي موسى / ١٩٩٩. حولية دائرة الآثار العامة ٤٤: ١٧-٢٤.

Zayadine, F. and Farés - Drappeau, S.

1998 Two North -Arabian inscriptions from the Temple of Lat at Wadi Iram. ADAJ 42: 255-258.

٢- في حالة المقالات المنشورة في مجلدات:

الدوري، عبدالعزيز

٢٠٠١ فترات التاريخ العربي، نظرة شاملة. ص ٤٣-٥٩ في **أبحاث ودراسات في التاريخ العربي، مهداة إلى ذكرى مصطفى الحياري ١٩٣٦-١٩٩٨**. تحرير صالح الحمارنه. عمان: الجامعة الأردنية.

Gabel, H.G.K. and Bienert, H.-D

1997 Ba'ja: A LPPNB Regional Center Hidden in the Mountains North of Petra, Southern Jordan. Results from the 1997 Investigations. Pp. 221-262 in H.G.K Gebel, Z. Kafafi and G.O. Rollefson (eds.), The Prehistory of Jordan II. Perspectives from 1997. Berlin: ex oriente.

٣- في حالة الكتب:

عباس، إحسان

١٩٩٠ **تاريخ بلاد الشام من ما قبل الإسلام حتى بداية العصر الأموي**، ٦٠٠-٦٦١. عمان: لجنة تاريخ بلاد الشام.

Peacock, D.P.S.

1988 Pottery in the Roman World: An Ethnoarchaeological Approach. London and New York: Longman.

- **المستلات:** يتسلم الباحثون ٢٥ مستلة (نسخة) عن كل بحث ينشر لهم، وبالإمكان طلب المزيد من النسخ بسعر التكلفة.

- **الملكية الفكرية:** من حق الباحثين.

الفهرس

متحف الآثار الأردني، النواة الأولى للمتاحف الأثرية في الجامعات الأردنية
عائدة نغوي ٧
تل الساخنة/ الأغوار الشمالية
جهاد هارون ١١
التنقيبات الأثرية في خربة شويكة/ الموسم الثامن لعام ٢٠٠٤(تقرير أولي)
مروان أبو خلف ١٥
كتابات كوفية من منطقة الديسة ورم
سليمان الفراجات وسامي النوافلة ٢٩
مسرح بيت راس الأثري
وجيه كراسنة وسلامة فياض ٣٩
تاريخ اليمن السياسي في العصر العباسي الأول
صالح خلف الحمارنة ٤٧
كنيسة البازليكا الغربية في خربة ياجوز
لطفي خليل ٥٣
تواصل حركة بناء المساجد في العصر الأيوبي في ضوء المساجد الباقية في شمال المملكة الأردنية الهاشمية
(دراسة أثرية مقارنة)
عبد العزيز صلاح سالم ٦٥

متحف الآثار الأردني
النواة الأولى للمتاحف الأثرية في الجامعات الأردنية

عائدة نغوي

يعتبر متحف الآثار الأردني المقام على جبل القلعة هو المتحف الرئيس في المملكة وهو بمثابة الأم لكافة المتاحف الأثرية في كل المحافظات. وكان له الدور الأكبر في تكوين النواة الأولى لمتاحف الجامعات الأردنية التي أنشئت مع بدايات تأسيس هذه الجامعات لتكون منارة علم لطلبة أقسام الآثار ولإجراء التطبيق العملي لمساقات علم الآثار وفن المتاحف التي تعطى لهؤلاء الطلبة.

وقد تركز دور متحف الآثار الأردني في مجالين رئيسيين الأول: رفد المتاحف الحديثة النشأة وإعارتها قطعا أثرية متنوعة من حيث المواد المصنعة منها والأشكال والاستخدامات والعصور التي تمثلها. أما مصادر هذه القطع فكانت بشكل رئيسي من التنقيبات الأثرية التي أجريت في كافة المواقع الأثرية المنتشرة في أرجاء المملكة الأردنية الهاشمية بضفتيها سابقا وضمن مواسم متعددة للموقع الواحد، تليها قطع الشراء وهي القطع التي تم شراءها من قبل دائرة الآثار العامة بعد صدور قانون منع الاتجار بالآثار عام ١٩٧٦، تليها القطع المصادرة والمعروف أماكنها الأصلية كقطع غور الصافي. وقد مثلت هذه القطع المعارة كافة العصور التاريخية التي مرت على الأردن بدءا من العصور الحجرية القديمة ومرورا بالعصور البرونزية والحديدية والكلاسيكية وحتى العصور الإسلامية ضمن قوائم ومستندات إخراجات رسمية أعيرت القطع الأثرية للمتاحف إعارة دائمة إلا أنها ما زالت من ممتلكات دائرة الآثار العامة إذ يحق لها المطالبة بها حينما تشاء.



١. طالبات قسم الآثار في الجامعة الأردنية لعام ١٩٧٢-١٩٧٣ مع الدكتور عدنان الحديدي مدرس مادة فن المتاحف وأمناء المتحف السيدان إبراهيم الحاج وزيدان كفافي أمام مبنى متحف الجامعة الأردنية.

المجال الثاني: الاستعانة بخبرات موظفي دائرة الآثار العامة ومتحف الآثار الأردني للقيام بأعمال أمين المتحف كتوثيق القطع وتسجيلها وإعطاؤها أرقاما متحفية جامعية إضافة للرقم المتحفي الأردني ولتصويرها وعرضها داخل خزائن أعدت خصيصا لها وتزويدها بالشروحات اللازمة المتضمنة التعريف بالقطع ومصادرها وتأريخها، ومثال على هذه الخبرات السيد ابراهيم الحاج حسن الذي عمل في متحف الجامعة الأردنية منذ تأسيسه ١٩٦٧-١٩٧٤ والسيد إمصيطف سليمان الذي عمل أيضا في نفس المتحف من عام ١٩٧٨-١٩٨٣ (**الشكل ١**).

يتناول البحث ثلاثة متاحف جامعية كان لمتحف الآثار الأردني الدور الرئيس في تكوين نواتها الأولى وإعارتها القطع الأثرية التي عرضت بها وهي

١. متحف الجامعة الأردنية

في عام ١٩٦٧ قرر عميد كلية الآداب في الجامعة الأردنية إنشاء متحف أثري تعليمي لطلبة قسم الآثار داخل الحرم الجامعي في غرفة صغيرة من الطابق الثاني من العمارة أ من مبنى كلية الآداب ليساعدهم في التطبيق العملي، لم يكن أمامه إلا الاستعانة بدائرة الآثار العامة التي لم تتردد في تقديم المساعدة للجامعة وذلك بتزويد متحف الجامعة بالعديد من القطع الأثرية الموجودة في متحف الآثار الأردني كالأواني الفخارية والزجاجية والمسكوكات والتماثيل والأدوات المعدنية والنقوش والحلي الذهبية وقطع عظمية وأدوات صوانية وأواني من الألباستر وغيرها من اللقى المكتشفة في الحفريات والتنقيبات الأثرية التي أجريت في المواقع الأثرية المختلفة سواء بالضفة الشرقية أو الغربية من الأردن. واستمر تزويد المتحف بالقطع الأثرية على فترات وفي الأعوام ١٩٧٢ - ١٩٧٣ نقل موقع متحف الجامعة إلى مبنى صغير على تل في الجهة الغربية من الجامعة، وفي عام ١٩٨٥ خصص مبنى القبول والتسجيل ليكون متحفا أثريا تم تزويده بالقطع الحجرية الكبيرة كالتوابيت والتماثيل والتيجان والنقوش.

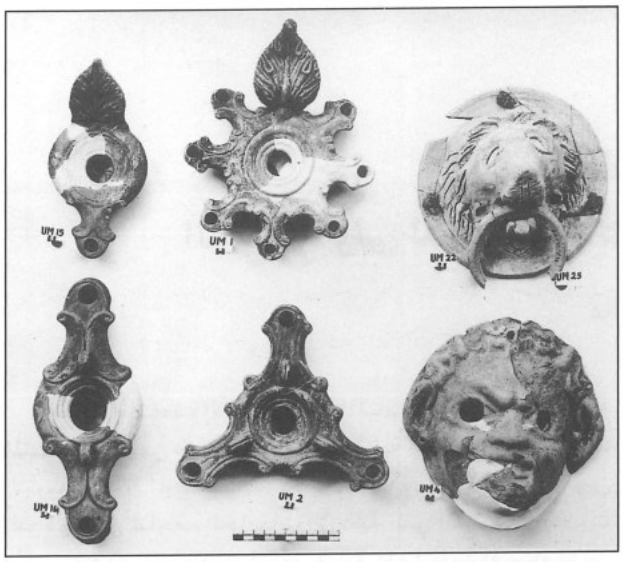
وعند مراجعة سجلات متحف الآثار الأردني لمعرفة ماهية القطع المعارة والسنوات التي تمت الإعارة فيها تبين انه تم إعارة ما يزيد على ٨٨٠ قطعة أثرية تعود لمختلف العصور والاستعمالات علما أن بعض الأرقام المتحفية الأردنية تتضمن ٥-٩ قطع أثرية إضافة لبعض القطع الحجرية الكبيرة التي

كانت موجودة في حديقة المتحف ولم يتوفر لها أرقاما أردنية، ولدى حصر كافة البيانات المتوفرة في السجلات والقوائم المحوسبة في المتحف تبين ما يلي

أ. عام ١٩٦٧ تم إعارة ما مجموعه ١٢٧ قطعة أثرية (**الشكل ٢**). اختيرت من ١٨ موقعا أثريا تم التنقيب فيها وعلى مواسم وفيما يلي أسماء المواقع وسنوات التنقيب
سحاب ١٩٤٥، مقابلين ١٩٤٦، الحصن ١٩٤٥، قلعة عمان ١٩٤٧، ١٩٥٩، الجوفة ١٩٤٨، جرش ١٩٥٩، ١٩٥٠، عمان شارع الأمير طلال ١٩٥٠، جرش (**الشكل ٣**) ١٩٣٠، ١٩٣١، ١٩٣٣، ١٩٥٣، ١٩٣٤، الغسول ١٩٢٩، ١٩٣٠، ١٩٣٢، ١٩٥٨، تل الخليفة ١٩٣٩، ١٩٤٠، البتراء ١٩٣٦، عرقوب الظهر ١٩٥٢، أريحا ١٩٥٢، ١٩٥٣، ١٩٥٤، ١٩٥٥، تل الفارعة ١٩٥٠، ١٩٥١، الجيب ١٩٥٠، سيلة الظهر ١٩٤٩، كفر قدوم ١٩٥٩، أم قيس ١٩٥٤.

ب. عام ١٩٧٢ تم إعارة ما مجموعه ٥٥٦ قطعة منتقاة من ستة مواقع أثرية أهمها قويلبة ١٩٥٩ التي أعير منها ٥١٣ قطعة من المجموع الكلي لقطع الحفرية البالغ ٧٧٠ أي بنسبة ٧٠٪، وباقي القطع تم اختيارها من مواقع أخرى هي الحصن ١٩٤٧، الجوفة الغربي ١٩٤٩، أريحا ١٩٥٢، القلعة ١٩٦٠، القدس ١٩٥٩.

ج. عام ١٩٧٣ تم إعارة ما مجموعه ٧٦ قطعة من ستة مواقع أثرية وهي جرش ١٩٣٣، ١٩٤٩، الغسول ١٩٣٢، ١٩٣٣، ١٩٣٨، أريحا ١٩٥٢ - ١٩٥٧، تل الفارعة ١٩٥٠، ١٩٥١، قمران ١٩٥٩ والكرك ١٩٦٣.

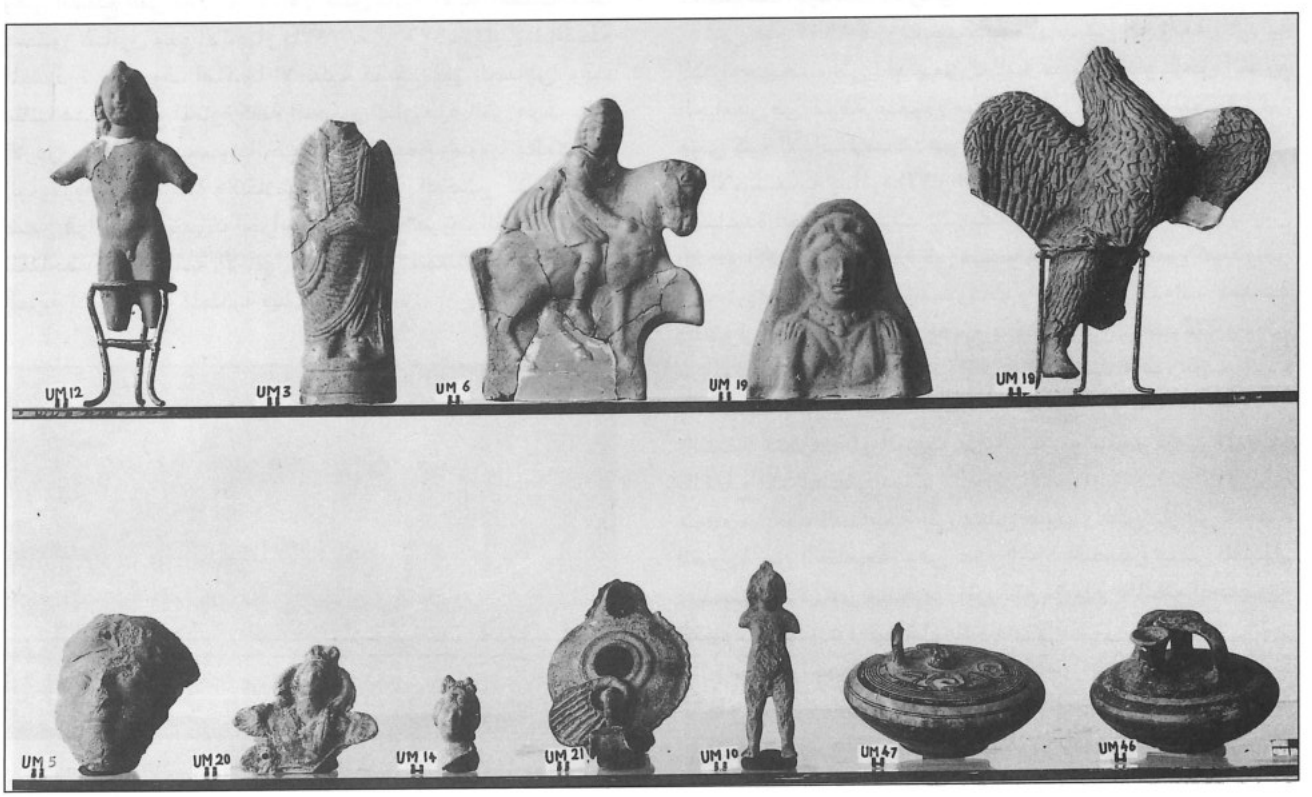


٣. قطع متحف الجامعة الأردنية.

د. عام ١٩٨٥ تم إعارة ما مجموعه ٦٥ قطعة ٣٩ من حفريات سحاب ١٩٦٨ والباقي منتقاة من حديقة المتحف (**الأشكال ٤، ٥**).

٢. متحف الآثار والأنثروبولوجيا / جامعة اليرموك

لقد كان لدائرة الآثار العامة ومتاحفها الدور الأول في تكوين نواة متحف معهد الآثار والأنثروبولوجيا عام ١٩٨٤ فقد تم إعارة العديد من القطع الأثرية العائدة لمختلف المواقع



٢. مجموعة من القطع الأثرية / متحف الجامعة الأردنية.

والعصور من مختلف المتاحف التابعة لدائرة الآثار العامة وبالنسبة لمتحف الآثار الأردني فقد رفد المتحف بما ينوف على ٤٦٠ قطعة أثرية من تنقيبات أثرية، إضافة لبعض القطع المشتراة التي تمثل عصورا محددة. ففي عام ١٩٨٧ تم اعارة ٤٣٤ قطعة أثرية كان لقطع حفريات سحاب النصيب الأكبر إذ بلغت ٢١٦ قطعة وكذلك الحال لقطع حفرية مطار الملكة علياء لعام ١٩٧٨ (**الشكل ٦**) والبالغ عدد قطعها ٩٣ قطعة أعير منها ٨٩ للجامعة بالإضافة إلى قطع أخرى من مواقع متعددة وهي الغسول ١٩٣٢، ١٩٣٣، ١٩٣٤، أريحا١٩٥٥، الجوفة الشرقي ١٩٥٩، مخيم اربد ١٩٥٨، سحاب ١٩٦٨، ١٩٧١، ١٩٨٧، ٢١٦ قطعة كامل الحفرية، جلعد/ السلط ١٩٧٣، مطار الملكة علياء ١٩٧٨ (٨٩ قطعة من أصل ٩٣)، شراء ١٩٧٨ (**الشكل ٧**) ، ١٩٧٩، ١٩٨١، أم السماق١٩٨٣، باير ١٩٨٤، الخليل ١٩٦٤، كتارة السمرا ١٩٧٦.

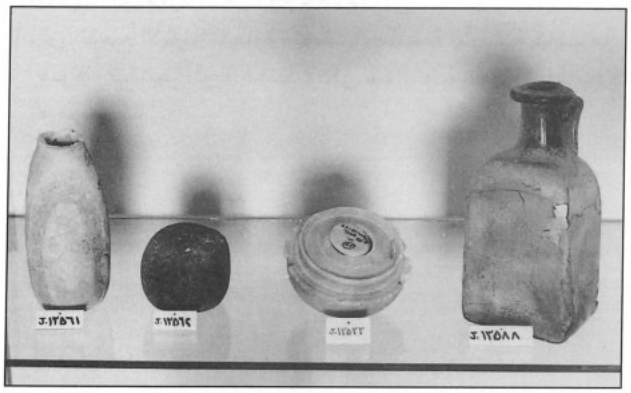
وفي عام ١٩٨٩ تم إعارة ٢٤ قطعة ضمن ١٣ رقما متحفيا من موقعي الغسول ١٩٨٧ وأريحا ١٩٥٥، وقطع شراء للأعوام ١٩٧٩ و١٩٨٠ (**الشكل ٨**).



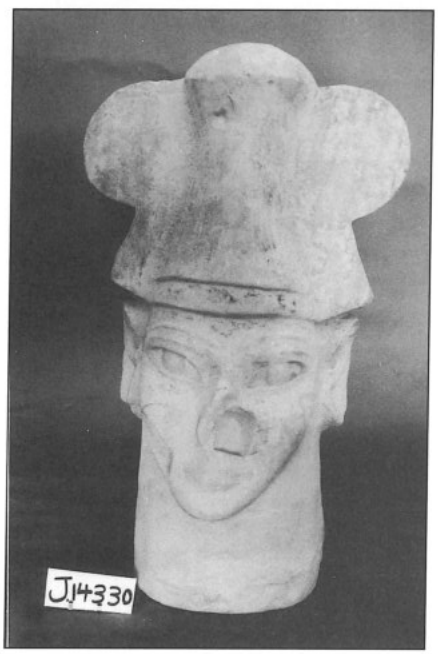
٤. زخرفة عمائرية من خربة التنور / متحف الجامعة الأردنية.



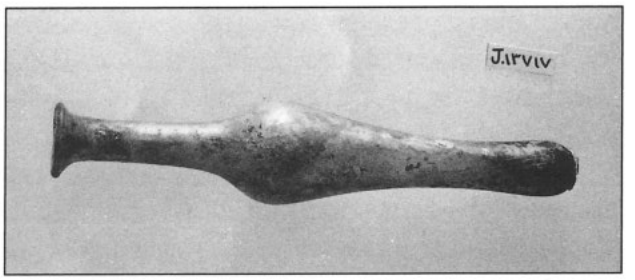
٥. تمثال حجري من خربة التنور / متحف الجامعة الأردنية.



٦. قطع أثرية من حفرية مطار الملكة علياء الدولي /جامعة اليرموك.



٧. رأس تمثال عموني / جامعة اليرموك.



٨. مدمعة زجاجية / جامعة اليرموك.

٣. متحف الآثار / جامعة مؤته

تأسيس متحف الجامعة عام ١٩٩٦ وكان الهدف من تأسيسه تشكيل نواة لمتحف يضم جميع القطع الأثرية لحضارة جنوب الأردن وقد تم رفده بعدد من القطع الأثرية بما مجموعه ٣٧ قطعة فخارية من مواقع مختلفة هي: وادي موسى ومأدبا ١٩٦٨، قلعة عمان وكهف الرجيب وأخرى مصادرة من غور الصافي.

وعند مراجعة كافة البيانات الخاصة بالقطع الأثرية المعارة للمتاحف الجامعية الثلاث يلاحظ ما يلي

١. أن القطع الأثرية المعارة لمتحف الجامعة الأردنية كانت من مواقع تنقيب أثرية فقط وعلى مواسم متعددة كأريحا وجرش مثلا.

٢. إن القطع الأثرية المعارة لمتحف جامعة اليرموك كانت من مواقع تنقيب أثرية بشكل رئيسي وبعض قطع الشراء خاصة في الأعوام ١٩٧٨ - ١٩٨١.

٣. أن القطع الأثرية من موقع سحاب لمواسم التنقيب ١٩٦٨ و١٩٧١ و١٩٨٧ قد أعيرت بشكل شبه دائم لمتحف جامعة اليرموك وكذلك الحال لقطع حفرية مطار الملكة علياء الدولي التي أعيرت بمجملها للمتحف وأبقيت أربعة قطع فقط منها في متحف الآثار الأردني.

٤. أن القطع المعارة لمتحف جامعة مؤته جمعت ما بين قطع مكتشفة في مواقع أثرية وقطع مصادرة تعود لمواقع أثرية معروفة.

٥. بعد قيام أقسام الآثار في الجامعات بإجراء تنقيبات خاصة بها توقفت اعارة القطع الأثرية من متحف الآثار الأردني.

كما كان لمتحف الآثار الأردني أيضا دور كبير في إنشاء المتاحف المحلية في المحافظات والألوية علاوة على رفد متاحف الدول العربية الشقيقة كالكويت وأبو ظبي بالعديد من القطع الأثرية والتي سأوردها في مقال لاحق.

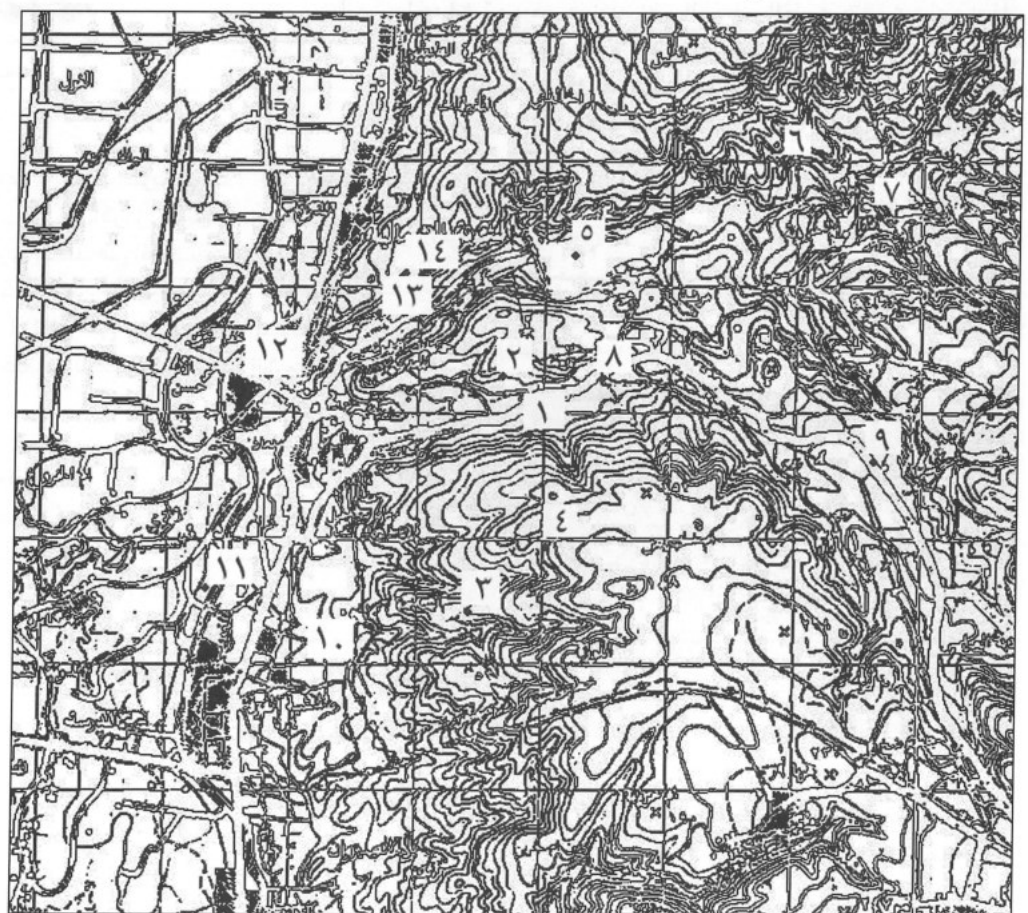
عائدة نفوي
مديرة متحف الآثار الأردني
دائرة الآثار العامة

تل الساخنة/الأغوار الشمالية
٢٠٠١/٩/٣٠ - ٩/١٢

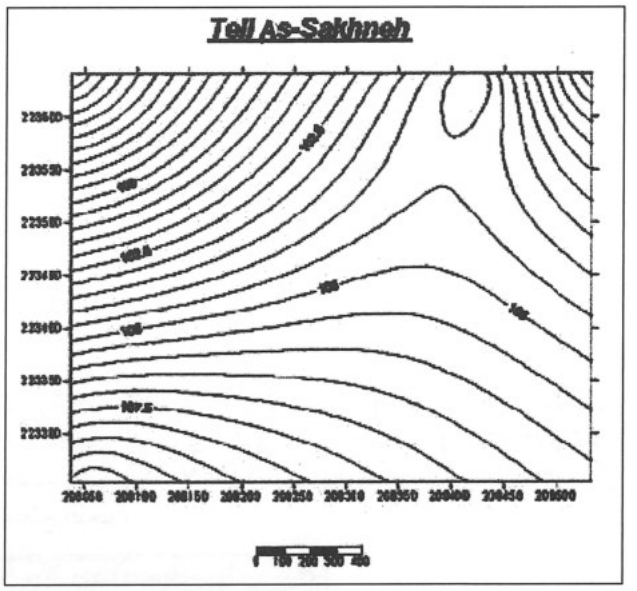
جهاد اسماعيل هارون

الموقع الجغرافي

يقع تل الساخنة في لواء الأغوار الشمالية والى الجنوب الشرقي من بلدة الشونة الشمالية، وعلى بعد ٣٠كم غرب مدينة اربد (**الشكل ١**)، في نهاية سلسلة جبلية ممتدة من ناحية الشرق تنحدر باتجاه الغرب، وهو عبارة عن تل طبيعي من الصخر الجيري الطري شديد الانحدار (**الشكل ٢**) ويقابل مقام الصحابي الجليل معاذ بن جبل وينخفض ١٣٠م عن سطح البحر.



١. خارطة كنتورية لتل الساخنة والمواقع المجاورة لها.



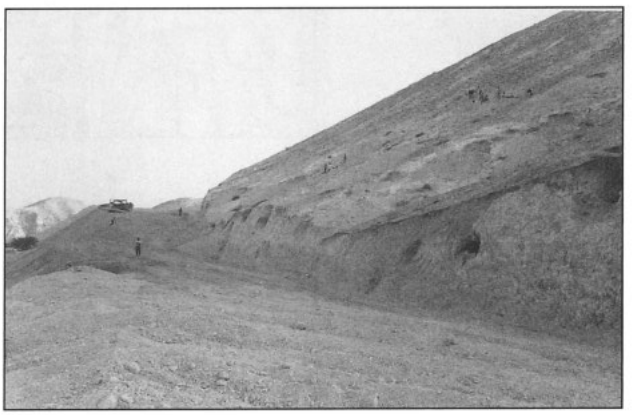
٢. مخطط طبوغرافي لتل الساخنة.

أهمية الموقع

خلال أعمال التجريف لإنشاء طريق إربد - الشونة الشمالية، كُشف عن عدد من المدافن (**الشكل٣**). حيث تم تشكيل فريق للتنقيب الأثري وذلك في الفترة من ١٢ /٩ - ٢٠٠١/٩/٣٠ وهي المرحلة الثانية من المشروع، تركز خلالها العمل على مجموعة من المدافن التي حفرت في الصخر الجيري الطري لاستخدامها كمقابر لسكان تل الشونة الشمالية خلال العصر البرونزي المبكر.

تاريخ البحث الأثري في الموقع

يُعد اكتشاف المقبرة اكتشافا هاما خاصة إذا علمنا بان نتائج المسوحات الآثارية لم تنجح باكتشاف موقع المقبرة على عكس اكتشاف تل الشونة الشمالية والذي اختفى تماما ولم يعُد موجود إلا على الخرائط الأثرية ومن خلال التنقيبات الأثرية التي اجريت في هذا التل الأثري أكدت النتائج العلمية بأن فترة ازدهار التل كانت خلال العصر البرونزي المبكر (Gaube1 986: 69).



٣. صورة للتل مع أعمال التجريف.

أعمال التنقيبات الأثرية

لم تتخذ التنقيبات الأثرية مسارا محددا ثابتا للحفر في البداية، فجاء التنقيب ليحمل صفتي الإنقاذ والاستعجال بسبب أعمال التجريف القائمة لإنجاز الطريق في الوقت المحدد. وجاء امتداد القبور بشكل واضح باتجاهات شمالية - جنوبية على عرض التل.

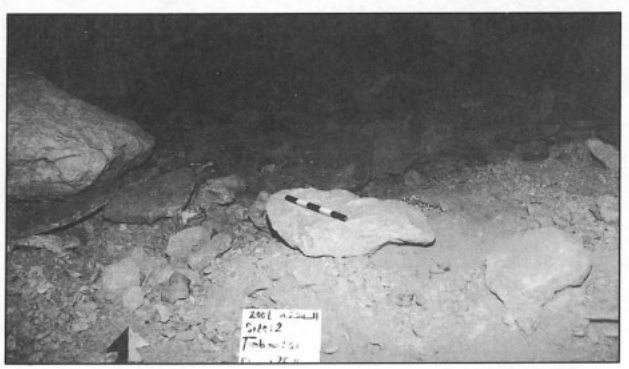
جاء اختيار تل الساخنة من قبل السكان لسهولة الحفر فيه كونه من الحجر الجيري الطري، ولقد لعب انجراف التربة دورا بارزا في ملئ المدافن بالأتربة خلال القرون الماضية وأحداث تصدعات في سقوف المدافن مما صعّب عملية التنقيب داخل بعض المدافن وأدى إلى انهيارها في الماضي (**الشكل ٤**).

وصف المدافن

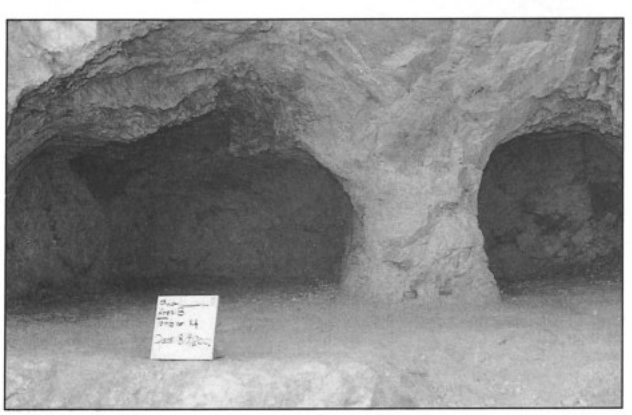
جاءت طريقة حفر المدافن في تل الساخنة على نحو تضمن إحداث تجويف عمودي في الصخر الطري يتفرع عنه مدخل بيضاوي وعتبة صغيرة يصل عرضها حوالي ٤٠سم، تؤدي إلى المدفن وهذا الشكل من المدافن عرف باسم (Shaft-Tombs)، وهو من مميزات العصر البرونزي المبكر (Prag 1974: 99)، ومن أهم أشكال هذه المدافن

١. مدافن تتألف من حجرة واحدة مع مدخل صغير وهو الأكثر شيوعا في الموقع.

٢. مدافن ذات حجرتين متجاورتين يفصل بينهما حاجز من الحجر الجيري ويقابلاهما ممرا طوليا مستقيما يؤدي إلى المدفن (**الشكل ٥**).



٤. الإنهيارات داخل المدفن.



٥. المدفن ذو الحجرتين المتجاورتين.

٣. المدافن ذات الحجرتين المتتابعتين ويتخذ المدفن الشكل الكمثري، يتم الدخول للغرفة الثانية من خلال الأولى دون وجود ممر بينهما (**الشكل ٦**).

واستنادا على اللقى الأثرية يمكن القول إن المدافن ذات الحجرتين كانت الأوفر حظا في عدد الأواني الفخارية وهذا دليل على استخدام نظام الدفن الجماعي.

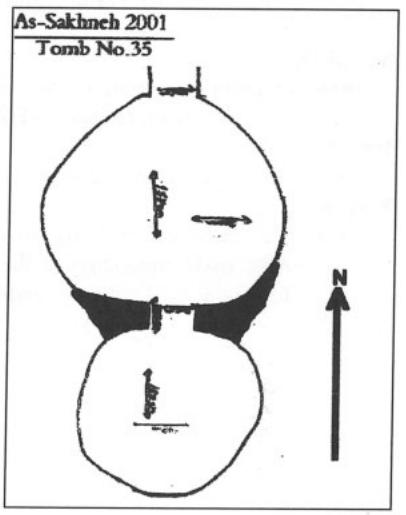
طريقة الدفن

بسبب الانهيارات في سقوف المدافن التي حدثت خلال القرون الماضية إضافة إلى دخول المياه والأتربة وأعمال التجريف الحديثة جعل من المستحيل معرفة طريقة الدفن نظرا لتحلل العظام إذ عُثر على قطع صغيرة من العظم المتحلل والتي لا تفي بالغرض لإجراء التحاليل العلمية والانثروبولوجية لاستخراج النتائج العلمية، لذا فمن الضروري إجراء موسم آخر واستخدام نظام المسح الجيوفيزيائي لكشف المدافن وامتدادها.

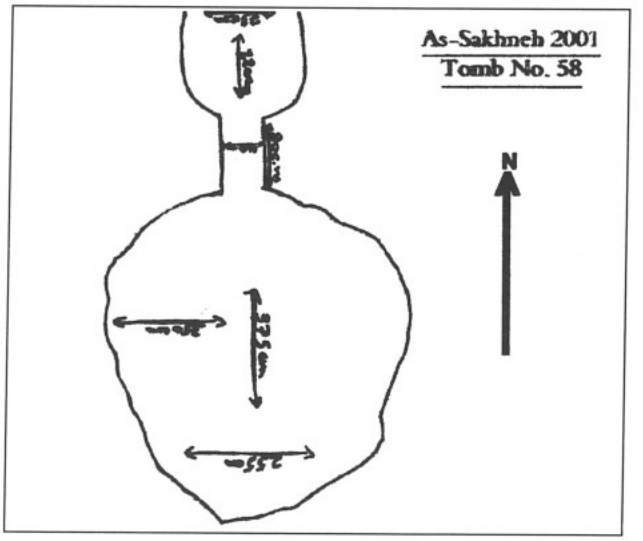
المدفن رقم ٥٨

هذا المدفن هو النموذج للمقبرة (**الشكل ٧**)، له ممر ضيق مقطوع في الصخر الطبيعي وأغلق بعد الانتهاء من مراسم الدفن بواسطة الحجارة. المدفن شبه بيضاوي، تبلغ مساحة غرفة الدفن ٣,٧٥ × ٣,٥٠م وله مدخل مقطوع (**الشكل ٨**) في الصخر الطبيعي طوله ١٢٠× ٧٣سم يؤدي إلى غرفة الدفن من خلال ممر ضيق مساحته ٨٠سم × ٤٨سم وهو مبني على نظام (Shaft-Tombs). تم تنظيف المدفن من الأتربة والصخور المتساقطة من السقف، وظهرت طبقة رمادية اللون وهي رطبة احتوت على الكسر الفخارية، ويليها طبقة كلسية بيضاء اللون صلبة وهي تشكل أرضية المدفن.

اما القطع الأثرية التي تم العثور عليها فقد كانت عبارة عن مجموعة من الأواني الفخارية والبازلتية وقطع بسيطة من العظم المتحلل.



٦. المدفن ذو الحجرتين المتداخلتين.



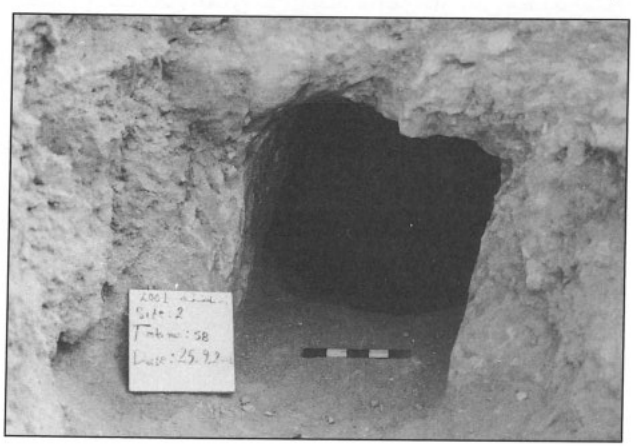
٧. مخطط للمدفن ٥٨.

التأريخ والأمثلة المقابلة

يعطي الانتشار الحضاري في العصر البرونزي المبكر دليلا على وجود حضارة لا يزال يكتنفها الكثير من الغموض على الرغم من وجود الآف القطع الفخارية التي خلفتها هذه الحضارة.

فالشكل العام للمدافن يشبه إلى حد ما المدافن التي عُثر عليها في كل من عرقوب الظهر - اربد (Parr 1956: 61)، وفي شمال الأردن (Prag 1974: 99)، وكذلك في منطقة الطوال الشرقي (Helms 1983: 72).

إن الأواني الفخارية (**الاشكال ٩ و ١٠ و ١١**) التي تم العثور عليها في المدافن تعود إلى فترة العصر البرونزي المبكر الدور الأول الفترة (ب). وهي في مجملها تشابه قطع عرقوب الظهر (Amiran 1969: 45) (Parr 1956: 61-71).



٨. صورة المدفن ٥٨.



٩. مجموعة من الزبادي الفخارية.



١٠. مجموعة من الجرار الفخارية.



١١. مجموعة من الأباريق الفخارية.

الخلاصة

إن اكتشاف مقبرة تل الساخنة يعطي إضاءات جديدة حول حضارة لا يزال يكتنفها الكثير من الغموض مع الأخذ بعين الاعتبار بأن الشكل العام للمدافن عُرف في العصر البرونزي المبكر. فالقطع الأثرية المكتشفة بحاجة لمزيد من الدراسة والتحليل العلمي وأطمح لانجاز هذه الدراسة خلال الفترة المقبلة وذلك لكي أتمكن من إيجاد فاصل تاريخي محدد لفترة العصر البرونزي المبكر الدور الأول المرحلة (ب) وتداخلها مع الدور الثاني من العصر البرونزي المبكر.

شكر وتقدير

كل الشكر للسيد وجيه كراسنه وللسيد نضال الهنداوي اللذان كانا من العوامل المهمة التي ساهمت في إنجاح المشروع فلهم كل الشكر والتقدير إضافة إلى الزميلين سامي العبادي وسالم الدعجه.

جهاد اسماعيل هارون
دائرة الآثار العامة

المراجع

Amiran, R.
1969 *Ancient Pottery of the Holy Land*. Jerusalem.

Helms, S.W
1983 The EBIV (EB-MB) Cemetery at Tiwal ash-Sharqi in The Jordan Valley. *ADAJ 27*: 55-85.

Gaube, G.
1986 Tall ash-Shuna North 1985, Preliminary Report. *ADAJ 30*: 69-114.

Schaub, R.T.
1984 Preliminary Report of the 1981 Expedition to the Dead Sea Plain, Jordan. *BASOR 254*: 35-60.

Parr, P.
1956 A Cave at Arqub el-Dhahr. *ADAJ 3*: 61-73.

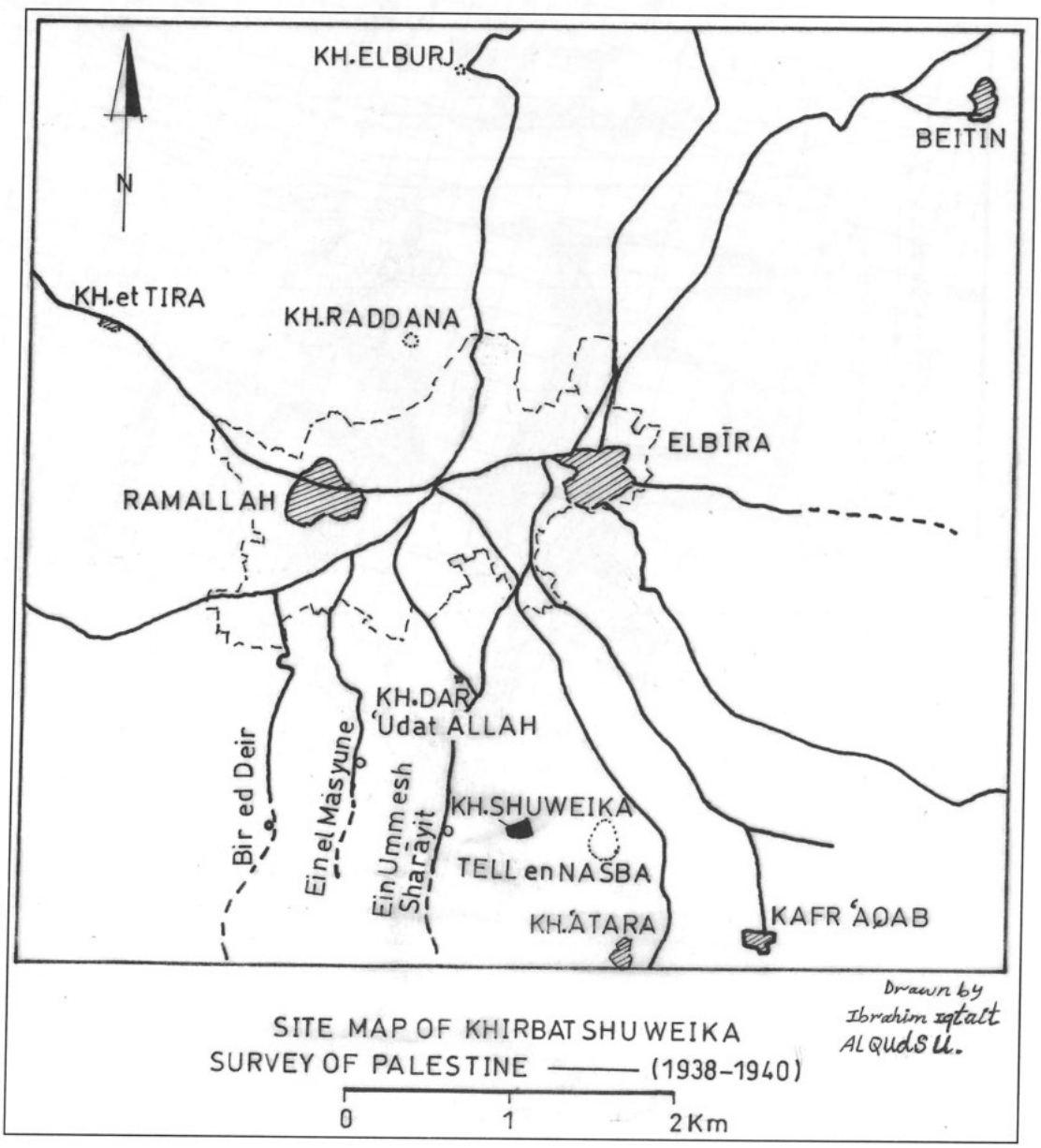
Prag, K.
1974 The Intermediate Early Bronze - Middle Bronze Age: an Interpretation of the Evidence from Trans Jordan, Syria, Lebanon. *Levant* 6: 69-107.

التنقيبات الأثرية في خربة شويكة / الموسم الثامن ٢٠٠٤
تقرير أولي

مروان أبو خلف

المقدمة

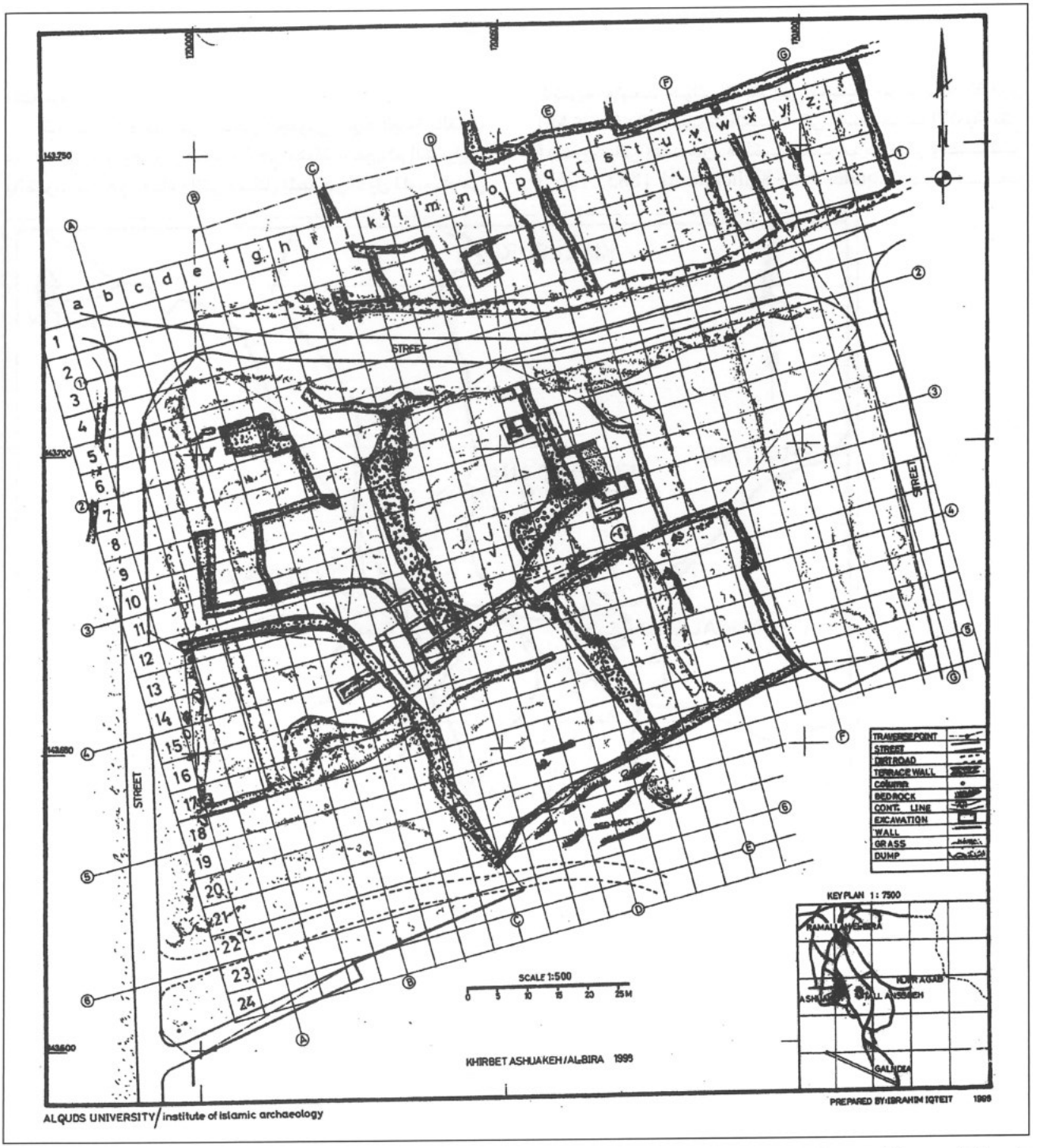
تقع خربة شويكة على المدخل الجنوبي لمدينة البيرة بالقرب من الموقع المعروف بتل النصبة في منطقة عين ام الشرايط بالقرب من عين ماء والتي تشكل المصدر الأول للمياه في الخربة، وتبعد حوالي ١٢كم إلى الشمال من مدينة القدس (**الشكل ١**) وقد ذكرت الخربة في المسوحات الأثرية التي أجريت في فلسطين، فقد ذكرها كوندر وكتشنر (Conder and Kithchnertd 1883: 126) كتاب



١. مخطط يوضح خربة شويكة والأماكن المجاورة لها.

"Survey of Western Palestine" وكذلك باجتي (Baghatti 1979: 99-101) خلال عمليات المسح التي اجراها في فلسطين. كما عرفها السكان المحليين الذين كانوا يسمونها بـ "قصر الملكة هيلانة" مما يبعث على الاعتقاد بوجود أبنية كبيرة وضخمة في هذا الموقع. وقد أجرى علماء الآثار في حفريات تل النصبة في الثلاثينات حفرية صغيرة على الموقع اكتشفوا خلالها الأرضية الفسيفسائية، وللحفاظ عليها قاموا بتغطيتها بالأتربة والحجارة التي تم رفعها خلال عملية الحفر.

وقد أجرى المعهد العالي للآثار الإسلامية - جامعة القدس عام ١٩٩٦مسحاً أثرياً للموقع قبل البدء بعمليات الحفر والتنقيب، حيث تم تقسيم منطقة الخربة البالغ مساحتها ٢٧٥٠م٢ إلى العديد من المربعات مستخدمين بذلك نظام Grid System (الشكل ٢) للكشف عن مقتنيات الخربة سواء أكانت معمارية أو مواد حضارية. ومن الشواهد البارزة التي كشف عنها



٢. مخطط يوضح نظام تقسيم الموقع إلى شبكة من المربعات.

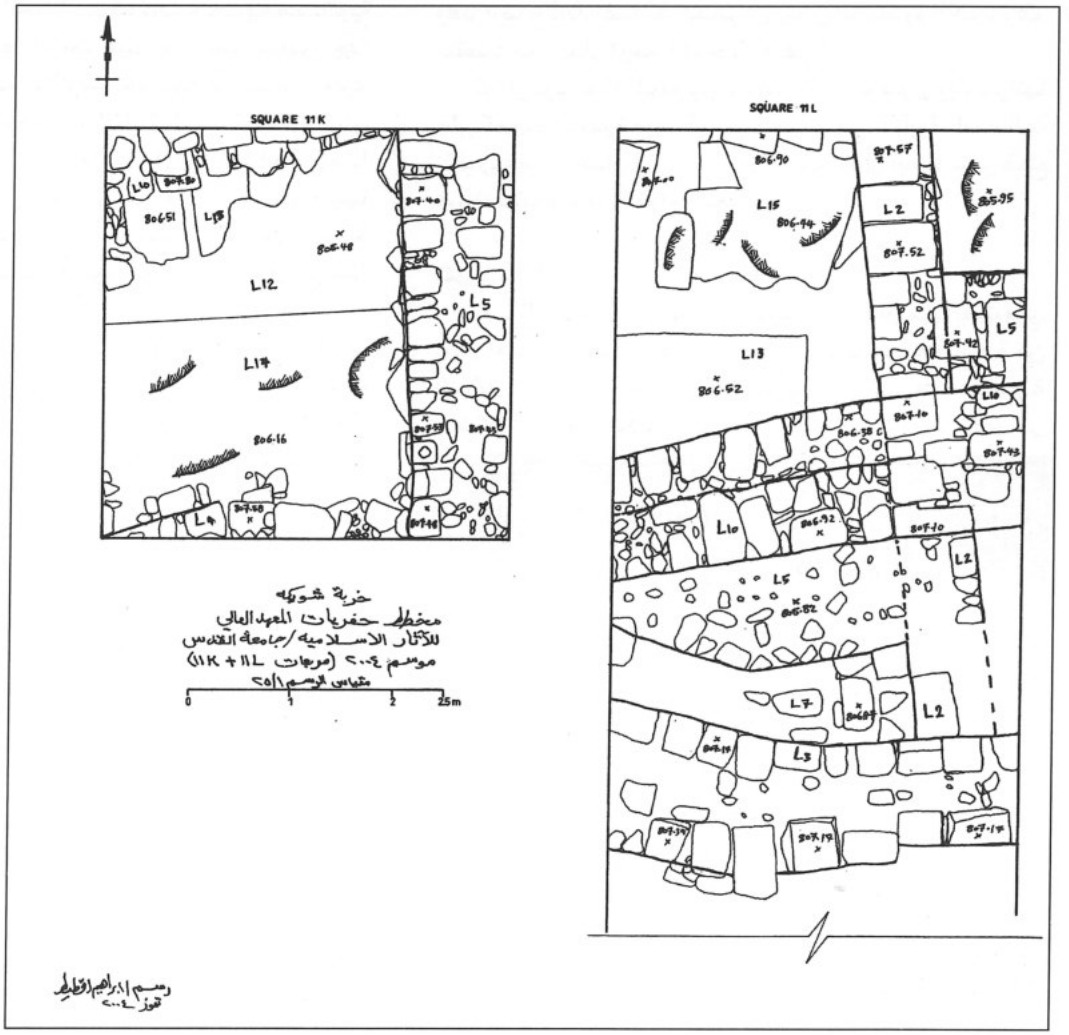
والتي اعطتنا صورة عن مدى أهمية الموقع خلال العصور التي تعاقبت عليه مبنى دير وبقايا كنيسة وقبر مبني من الحجر اسفل اساسات الجدار الجنوبي الغربي للكنيسة، وغرف سكنية تحتوي على بعض العقود وكذلك معصرة نبيذ. بالإضافة إلى بعض قطع العملة والآنية الفخارية وقطع الزجاج والحجارة المنقوشة والأرضيات الفسيفسائية وغيرها من المواد الحضارية.

سير العمل

أشارت الدراسات الأولية إلى أن بداية السكن في الموقع تعود إلى الفترة الرومانية المتأخرة، واستمرت من الفترة البيزنطية إلى الفترة الإسلامية المبكرة "الأموية والعباسية" ثم مرحلة الهجران النهائي للموقع، حيث استغل الموقع لأعمال الزراعة، مما أدى إلى تخريب أجزاء كبيرة من محتوياته، فقد تركز العمل في جميع المواسم السابقة في المنطقة الجنوبية من الموقع، وذلك لوجود شارع باتجاه شرق-غرب يقطع الخربة ويقسمها إلى نصفين شمالي وجنوبي، حيث تم التنقيب في المربعين L10 وJ10 وذلك في المواسم ٢٠٠٠، ٢٠٠٢، ٢٠٠٣. أما الموسم الثامن فقد بدأ العمل فيه من نهاية شهر حزيران ٢٠٠٤ وانتهى في الثلث الثاني من شهر تموز ٢٠٠٤، بإشراف فريق عمل يتألف من الدكتور مروان أبو خلف مدير المعهد، وعدد من طلبة المعهد المتدربين، ومساح ورسام آثاري وعدد من المساعدين والعاملين. وتركزت أعمال التنقيب وسط المنطقة الجنوبية وذلك باختيار مربعين هما K11 وL11، ومن المتوقع أن تشكل هذه المنطقة مع المربعات السابقة جزءاً من الساحة الوسطى او العامة للبناء الرئيسي في الخربة (**الشكلين ٣ و٤**) وهي كالتالي



٣. منظر عام لموقع الحفريات في خربة شويكة الموسم الثامن ٢٠٠٤.

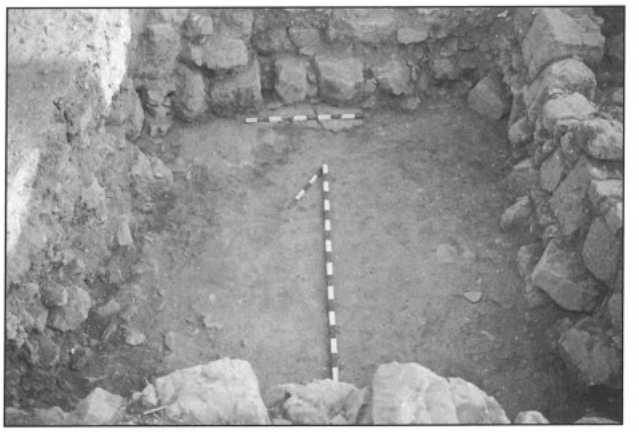


٤. مخطط يوضح المربعات K11 وL11.

المربع K11

كان الهدف من حفر هذا المربع هو تتبع استمرارية بعض الجدران التي تم الكشف عنها خلال المواسم السابقة في المربعين J10 وL10 والوصول إلى الأرضية الحجرية التي وجدت في المربعات المجاورة، فخلال عملية التنقيب تم تمييز ثلاثة عشر حيزاً، تمتد من الطبقة السطحية التي تغطي كافة أنحاء المربع إلى أرضية البناء. فقد احتوى الحيز الرابع على جدار يقع في الجهة الجنوبية للمربع، يتكون من حجارة كبيرة وصغيرة، وهو باتجاه شرق غرب يعتقد بأنه مضاف في فترة متأخرة قد يكون خلال الفترة العباسية. أما الحيز الخامس فهو عبارة عن جدار يعتقد بأنه كان مقصور بطبقة من القصارة يقع في الجهة الشرقية من المربع باتجاه شمال جنوب يتكون من حجارة كبيرة ومتوسطة الحجم غير منتظمة، بعضها مشذبة أعيد استخدامها في الفترة الإسلامية الأولى (أموي/عباسي). كما عثر في الحيز العاشر على جدار يقع في الجهة الشمالية من المربع يتشكل من حجارة كبيرة الحجم بعضها منتظم ومشذب والبعض الأخر غير منتظم يتخلله حجارة صغيرة وهو باتجاه شرق-غرب يعود للفترة العباسية أضيف لدعم جدار في الجهة المجاورة وهي منطقة غير محفورة. ويتصل هذا الجدار ببلاطات حجرية مستوية موضوعة إلى جوار بعضها البعض بينها فراغات صغيرة جداً وضعت فيها مادة شيدية، ولكونها مشابهة لأرضيات أخرى كشفت في أجزاء من الموقع وتعود للفترة البيزنطية فإنها على الأرجح تعود لنفس الفترة الزمنية (**الشكل ٥**). كما احتوى هذا المربع على كمية كبيرة من التربة الناعمة السوداء اللون فيها مجموعة من الحجارة الصغيرة والمتوسطة ترتكز على الطبقة الحجرية مباشرة، ويحتمل وجود موقد أو طابون في هذا المربع.

ومن خلال الدراسات التي أجريت واعتماداً على اللقى الاثرية التي وجدت تم تمييز ثلاث مراحل سكن وهي الفترة البيزنطية التي تمثلت بالأرضية المكونة من البلاطات الحجرية، حيث تم العثور على بعض القطع الفخارية فوق هذه البلاطات، والفترة الإسلامية الأولى التي تمثلت بالفترتين الأموية والعباسية، حيث دلت المعثورات على عدم إمكانية تحديد فترة الهجران بين الفترتين بسبب اختلاط المعثورات وإعادة استخدامها، وأما مرحلة الهجران فقد تركزت في المستويات العلوية حيث استخدم الموقع للزراعة.



٥. صورة توضح أعمال الحفر في المربع K11.

المربع L11 (الشكل ٦)

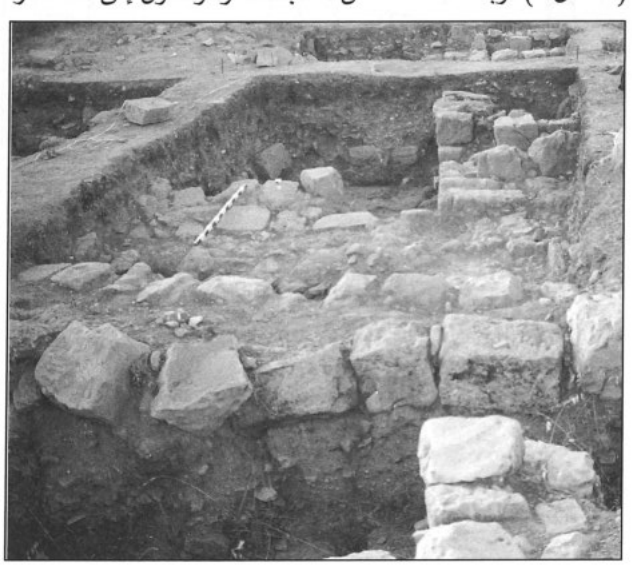
عثر في هذا المربع على جدار (رقم ١) مبني من الحجارة الكبيرة المرتبة بشكل منتظم ذات سطح ناعم نسبياً وهو باتجاه شمال جنوب وله وجه داخلي من الجهة الشرقية مكونة من صفين من الحجارة الصغيرة والوجه الغربي يوجد عليه بقايا قصارة. جميع حجارة الجدار متناسقة باستثناء بعض الحجارة في الجهة الجنوبية من الجدار، كما عثر على جدارين احدهما عريض باتجاه شرق غرب (رقم ٢)، مكون من حجارة كبيرة مرتبة بشكل منتظم ذات سطح ناعم نسبياً وله وجه شمالي داخلي مكون من صفين من الحجارة الصغيرة، والجدار الآخر سميك باتجاه شرق غرب مع انحراف بسيط نحو الجنوب (رقم ٣) مكون من حجارة كبيرة وملاصقة للجدار (رقم ١) وجزءاً آخر يمتد فوق الجدار (رقم ٢).

كما عثر أيضا على مجموعة من الكتل المتحجرة كبيرة الحجم والمتوسطة تحتوي على نسبة عالية من الفخار والعظم. وقد اتضح أثناء عملية الحفر ان بعض الحجارة الكبيرة قد سقطت من جدار (رقم ١) وجدار (رقم ٣).

تمتاز تربة هذا المربع بميلها إلى اللون الزهري وباحتوائها على كميات كبيرة من الشيد المتمركز في الزاوية الشمالية بالقرب من الجدار (١) وجدار (٣)، وتحتوي أيضا على قطع فسيفسائية وبعض القطع الفخارية.

المربع L12

بعد الانتهاء من العمل في المربع L11 كان من الضروري عمل امتداد له من الجهة الجنوبية وذلك لوجود مجموعة من الدلائل كامتداد الجدران التي تظهر في التربة السطحية (**الشكل ٧**). وبعد الكشف عن الطبقات والوصول إلى الصخر



٦. صورة توضح أعمال الحفر في المربع L11.



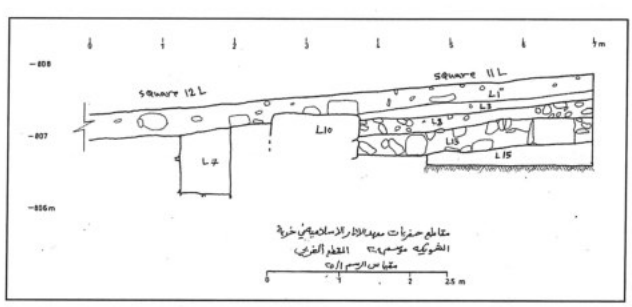
٧. صورة توضح الامتداد بين المربعين L11 وL12.

الطبيعي، تبين أن وضعية هذا الامتداد لا تختلف عن ما هو موجود في المربع L11 من حيث الفترات الزمنية الثلاث البيزنطية وهي الأقل حيث اقتصرت على القطع الفخارية التي كانت قريبة من الصخر الطبيعي، والأموية، والعباسية. ولم يتم الكشف عن أية مظاهر معمارية تعود للفترة البيزنطية باستثناء بعض الحجارة في الجدران التي أعيد استخدامها في الفترة الإسلامية المبكرة.

أما بالنسبة للجدران فأول جدار هو جدار رقم (٣) يقع في بداية الامتداد من المربع (**الشكل ٨**)، وهو باتجاه شرق غرب، يتكون من حجارة كبيرة ويعود بتاريخه إلى الفترة العباسية على وجه التحديد.

واهم ما تم الكشف عنه في هذا الامتداد هو الرصفة الحجرية المستخدمة لعمل الأرضية وهي قريبة من التربة السطحية وهذا ما يفسر خراب الارضية بسبب اعمال الحراثة والزراعة في الموقع. ومن المؤكد ان هذه الرصفة كانت ممتدة على المربع L11 والمربع K11 الا انه لم يتم الكشف عنها بشكل دقيق. حيث عثر في المربع K11 على شئ مماثل تقريباً الا ان الخراب كان قد اصابه. وهذا متمثل في المربع K11 فوجود حجارة المدخل في الجدار (رقم ٢) في المربع K11 دليل على وجود مثل هذه الرصفة في المربع K11 ومن الممكن أنها تعود بتاريخها إلى الفترة العباسية أيضاً حيث تم العثور على قطع فخارية مزججة وقابلة للترميم فوق هذه الرصفة تعود إلى الفترة العباسية.

ولفهم طبيعة باقي الطبقات تم عمل مجس بالقرب من



٨. المقطع الغربي للمربعات L11 وL12.

الجدار رقم (١) وتم الكشف عن طبقتين من الردم والهدم في الموقع. فاغلب المخلفات كانت تشير إلى أن الموقع تعرض للسكن في ثلاث مراحل: البيزنطية وهي الأقدم، كانت اقرب إلى الصخر الطبيعي وتتمثل بشكل واضح بالجدارين رقم واحد واثنين ثم الفترة الاموية وبعدها العباسية ولم يكشف عن آثار أقدم من هذه الفترات خصوصا إن البقايا الأموية ظهرت مختلطة مع العباسية.

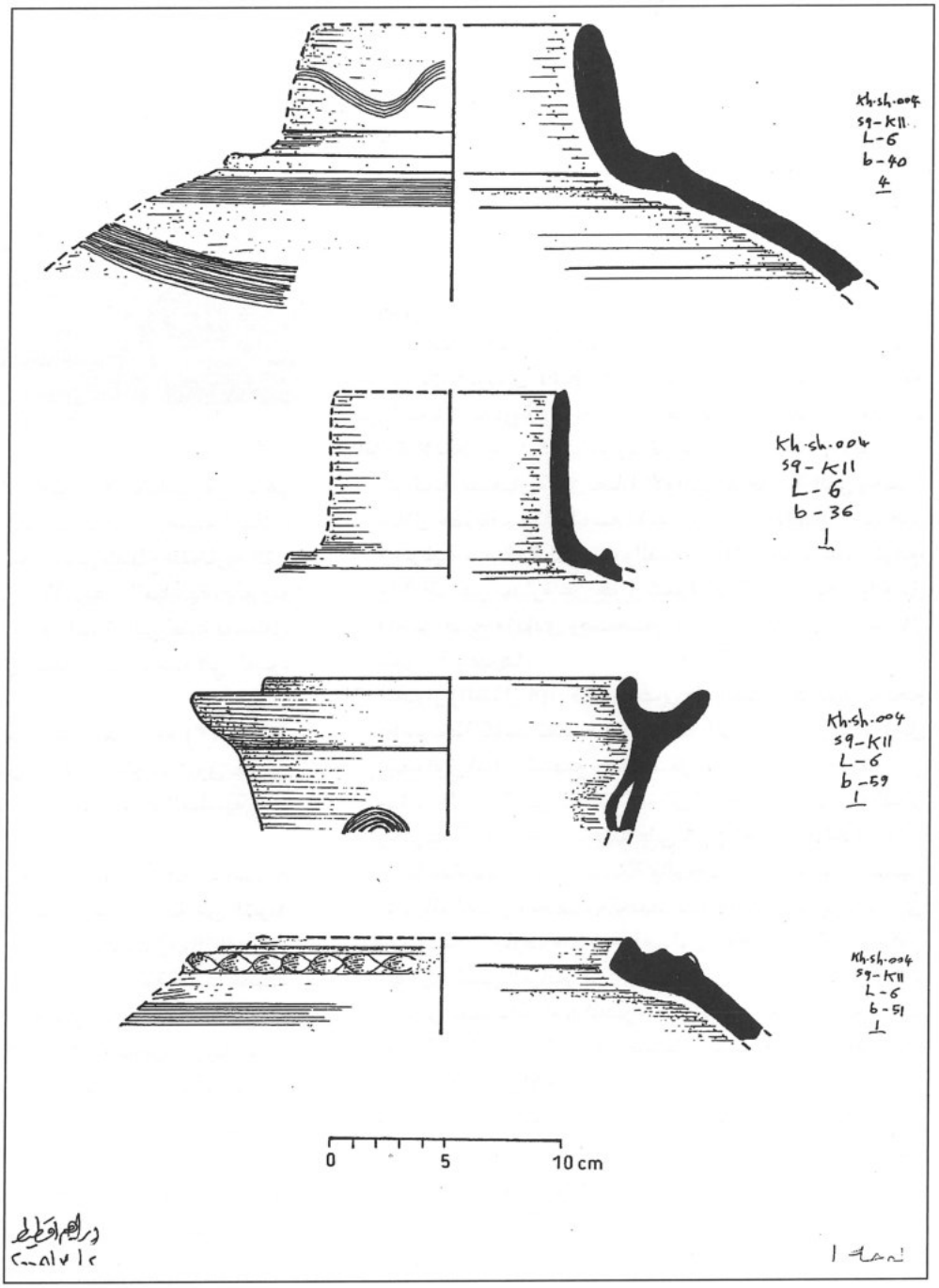
المعثورات

إلى جانب البقايا المعمارية التي تم كشفها خلال عملية الحفر على المربعين K11 وL11 فقد عثر أيضا على عدد كبير من البقايا الفخارية والزجاجية والعظمية، جزء كبير منها يعود للفترة الأسلامية المبكرة والجزء الآخر يعود للفترة البيزنطية.

١. البقايا الفخارية: إن بقايا الأواني الفخارية التي وجدت خلال حفريات هذا الموسم تمثلت بأشكال وتقنيات وعناصر زخرفية مختلفة تتناسب والفترات التي مرت على الموقع، والأواني هي عبارة عن جرار كبيرة وصغيرة الحجم وأباريق وأواني طبخ وزبادي وصحون وتماثيل فخارية بأشكال حيوانية وغيرها.

٢. الجرار (**الشكل ٩**): ظهر نوعين من الجرار كبيرة الحجم ومتوسطة كانت تستخدم لحفظ السوائل وهي ذات شكل بيضاوي لها مقبضين على شكل حلقات دائرية تمتد من حافة الرقبة إلى الكتف، وبعض المقابض عليها عناصر زخرفية وهي جميعها على شكل أختام (**الشكل ١٠**)، والقاعدة بشكل عام محدبة والرقبة مرتفعة ومستقيمة واحيانا اخرى منخفضة تحيط بها حافة ذات بروز دائري ومزخرفة بزخارف مشطية، أما لون العجينة فغالباً ما تكون ما بين البني الفاتح إلى البني المائل إلى الاصفرار وذات جدران سميكة. أما الجرار المتوسطة الحجم فهي ذات عجينة مائلة إلى الاحمرار بعضها عليه تضليعات وذات رقبة دائرية والبعض الاخر بدون تضليعات ورقبتها مستقيمة. مقابض هذا النوع أحياناً تكون دائرية وأحياناً اخرى منفرجة. بعض هذه الجرار كما عثر في حفريات هذا الموسم يتكون من حافة مجوفة من الوسط، كما عثر على بعض الكسر الفخارية الكبيرة لجرة خزين ذات عنق منخفض ومجوف ليوضع عليه الغطاء ومزخرفة بأشرطة زخرفية مشكلة من بصمات الاصابع حول العنق.

٣. أواني الطبخ (**الشكل ١١**): وهي عبارة عن قدور واغطية بعضها مزخرف بالتضليع غير الحاد وذات عجينة بنية مائلة إلى البرتقالي يظهر عليها آثار الحريق وهي ذات ملمس خشن لها حافة مقطوعة للداخل والبعض الآخر له حافة بارزة للخارج لها تجويف من الداخل لتثبيت الغطاء، سطحها العلوي مقطوع للداخل. أما المقابض فهي أفقية تبدأ عند الحافة أو أسفلها بقليل. وللأواني أغطية عليها إما مقبض دائري مرتفع وسط الغطاء ومثقوب او مقبض حلقي، وبعض هذه الأواني اكبر ولها فوهة اضيق ومقابضها موضوعة بشكل عمودي تمتد من الحافة إلى الكتف.

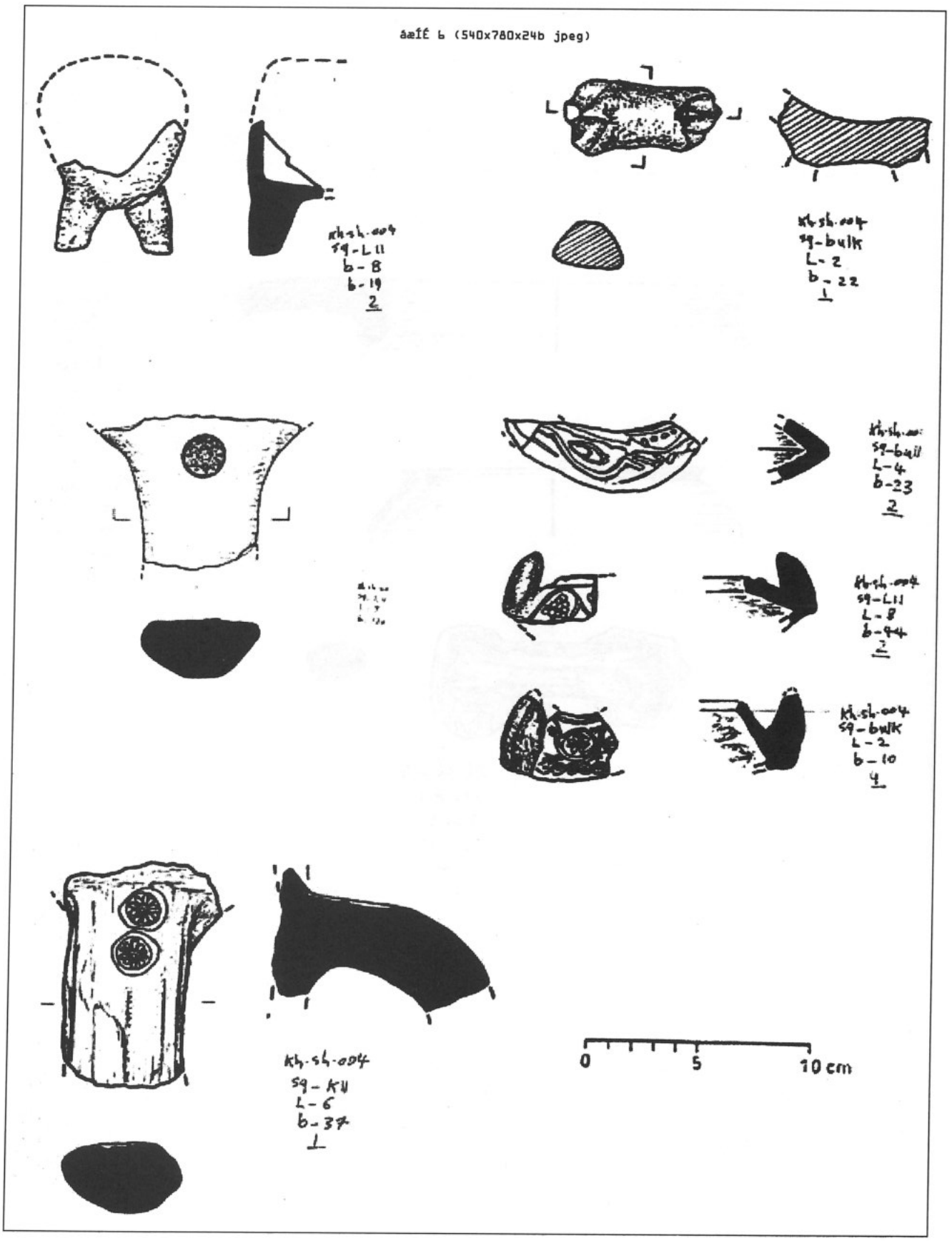


٩. رسومات توضيحية لجرار فخارية عثر عليها في خربة شويكة.

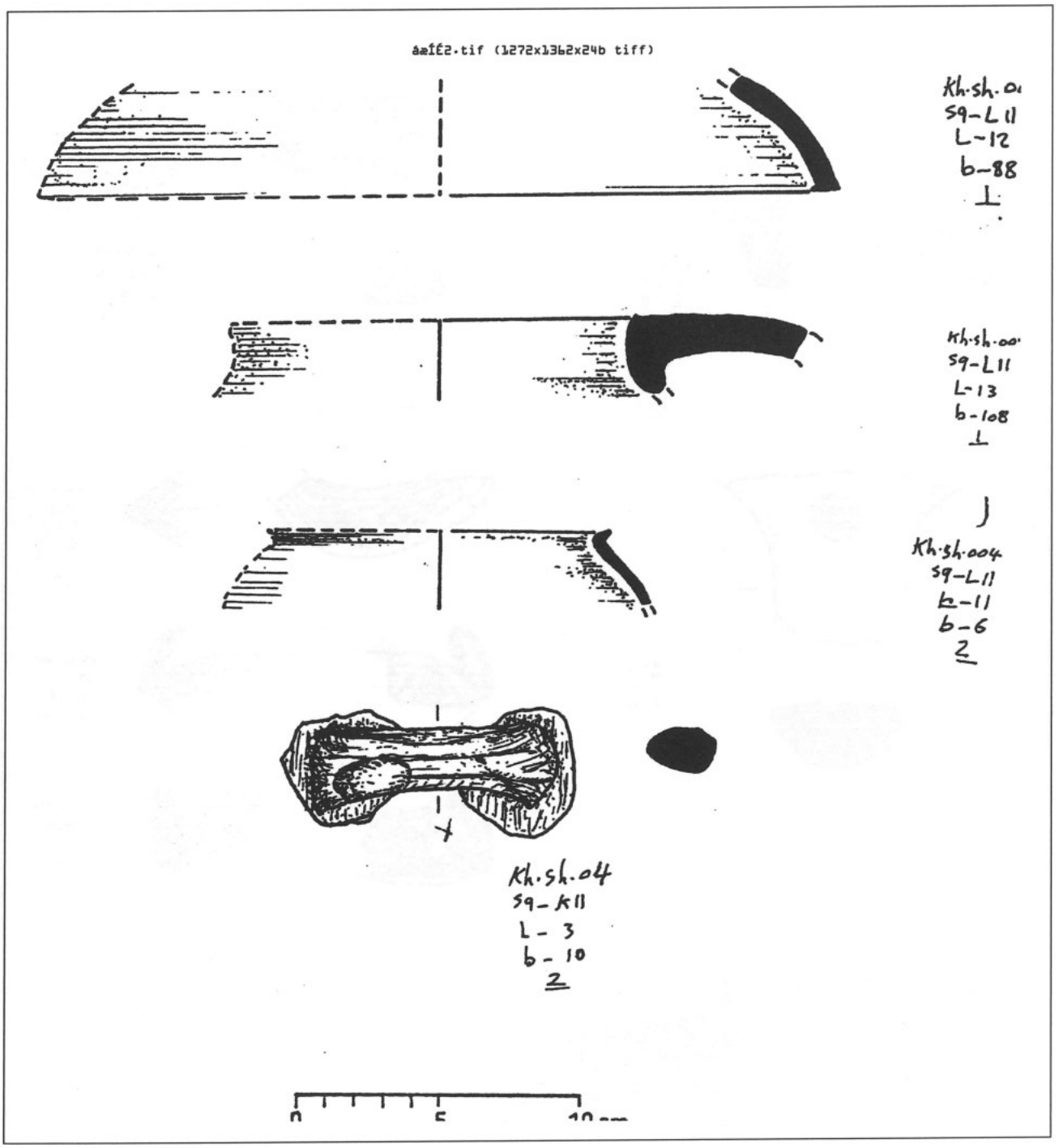
٤. الأباريق والشربات (**الشكل ١٢**): ظهرت بشكل عام من عجينة إما برتقالية أو صفراء شاحبة، بعضها مزخرف بزخارف محززة والبعض الآخر بزخارف مضافة. بعضها ذات رقبة طويلة والبعض الآخر قصيرة ولها حافة بارزة للخارج. أما القواعد فهي قرصية أو منبسطة أو منبعجة للداخل والبعض الآخر بقاعدة حلقية.

أما الأباريق فهي برقبة طويلة مع مقبض يمتد من الحافة إلى الكتف، يقابلها في الجهة الاخرى صنبور. أما الشربة فلها رقبة طويلة ذات تضليع، الفوهة من الاعلى اوسع من الرقبة ولها احياناً مصفاه في الجزء العلوي منها، وتكون المقابض منفردة على معظم القطع ولكن بعض الأشكال المصنوعة من الطينية البيضاء يكون لها مقابض أما مزدوجة أو ثلاثية. وبعض الأواني مقابضها على طرفي الاناء وعليها تحزيز على البدن.

٥. أواني كبيرة (Craters) (الشكل ١٣): أواني ذات أحجام كبيرة، سميكة الجدران وعميقة ذات عجينة رمادية اللون ضاربة إلى البني، جدرانها إما مائلة والحافة مقطوعة أو مستقيمة أو منبسطة ومتجه للخارج أو دائرية، والقواعد في اغلب الأحيان قرصية. بعض هذه الاواني لها مقابض حلقية وضعت على جانبي الاناء بشكل عمودي يصل من أسفل



١٠. رسومات توضيحية لكسر فخارية مختلفة الأشكال.

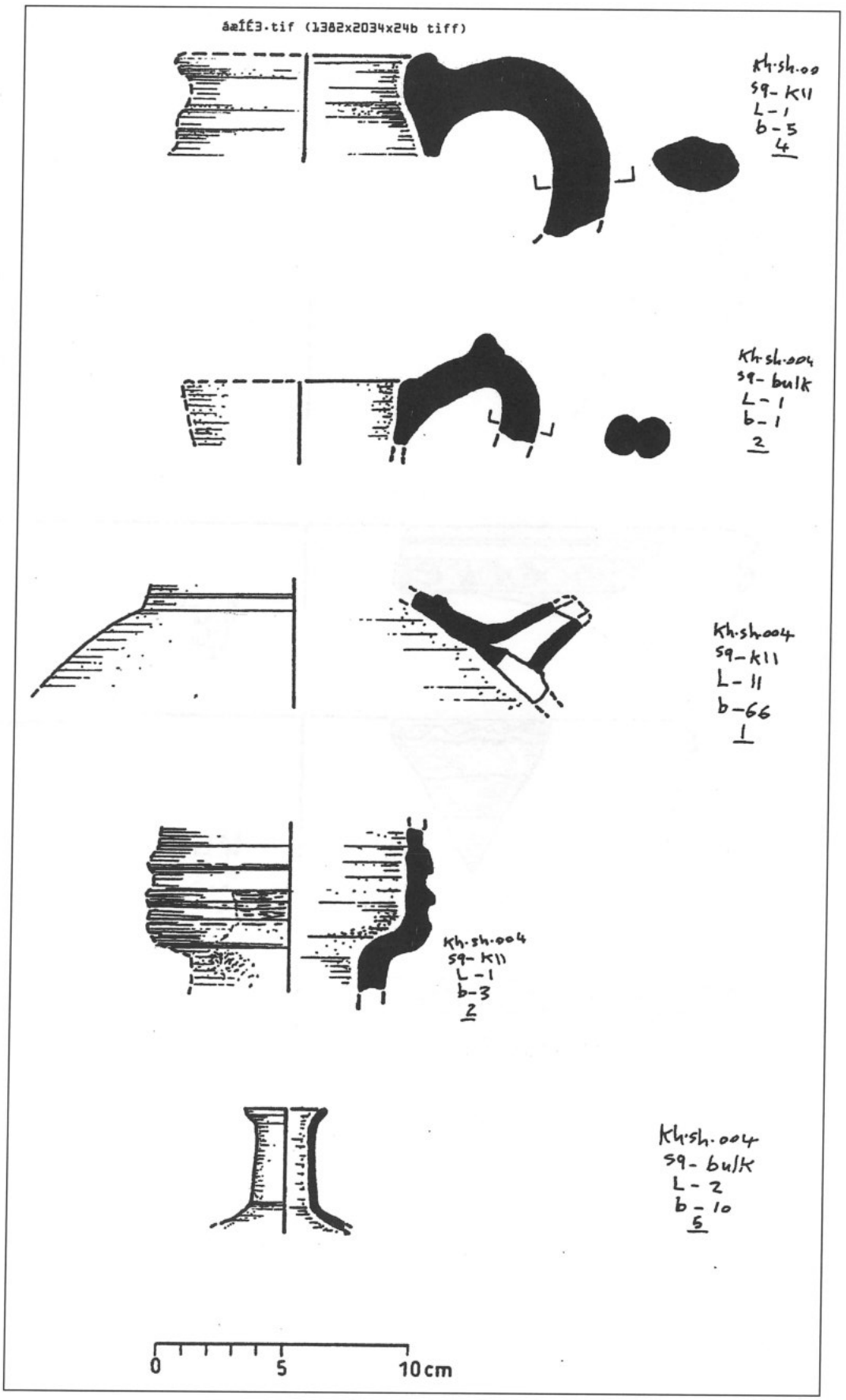


١١. رسومات توضيحية لأواني الطبخ الفخارية.

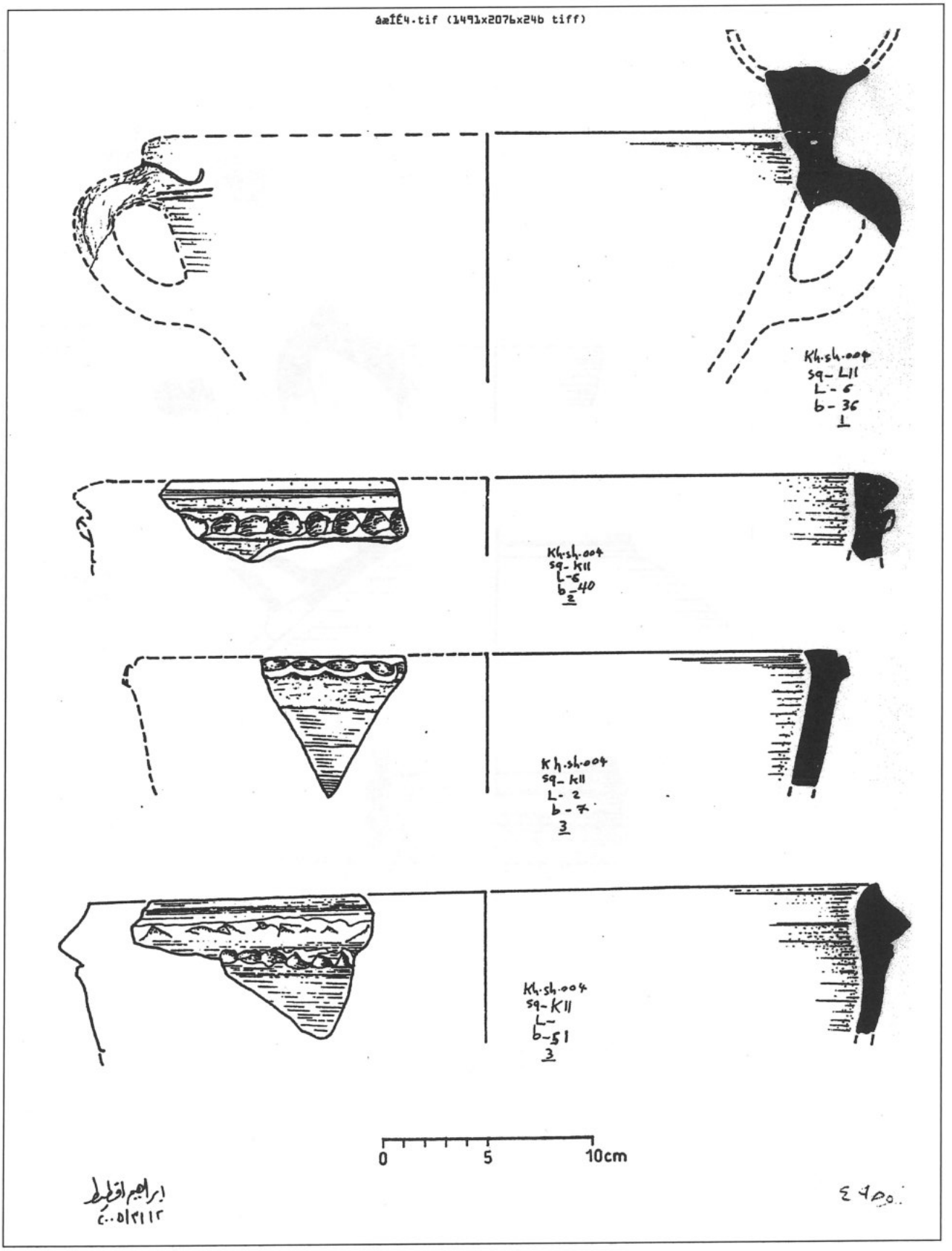
حافة الإناء إلى الجدران وهذا يبدو واضحا على احد هذه الأواني التي ظهرت خلال حفريات هذا الموسم، وقد زخرفت هذه الأواني بأشرطة زخرفية على الجزء العلوي من الإناء كبصمات الأصابع أو زخارف مشطية او حزوز مشكلة بعض الأشكال الهندسية كالمربعات.

٦. الصحون والزبادي والكؤوس (الشكل ١٤): إن العجينة المستخدمة في صنع هذه الأواني هي ذات لون بني فاتح أو رمادي وأحيانا البرتقالي، بعضها مصنوع بواسطة عجلة الخزاف والبعض الاخر باليد. الصغيرة منها ذات جدران رفيعة وذات قواعد دائرية ومنبسطة والجدران اما مستقيمة أو شبه دائرية مع انكسار في الجزء السفلي. اما الكبيرة منها فجدرانها اسمك وعليها زخارف محفورة ذات اشكال هندسية أو مسننة والبعض الآخر زخرف بواسطة بصمات الأصابع والتحزيز.

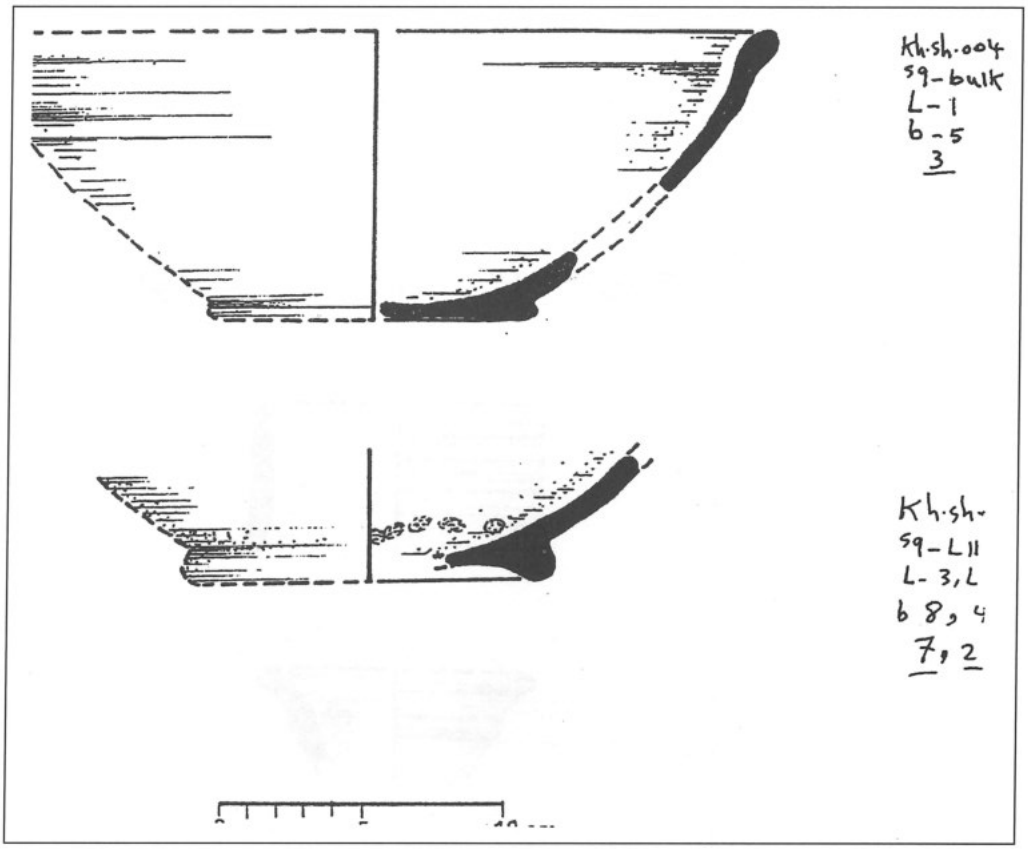
٧. قطع فخارية أخرى: عثر خلال هذا الموسم على كسر من تماثيل فخارية حيوانية مصنوعة من عجينة بيضاء اللون



١٢. رسومات توضيحية لكل من الأباريق والشربات.

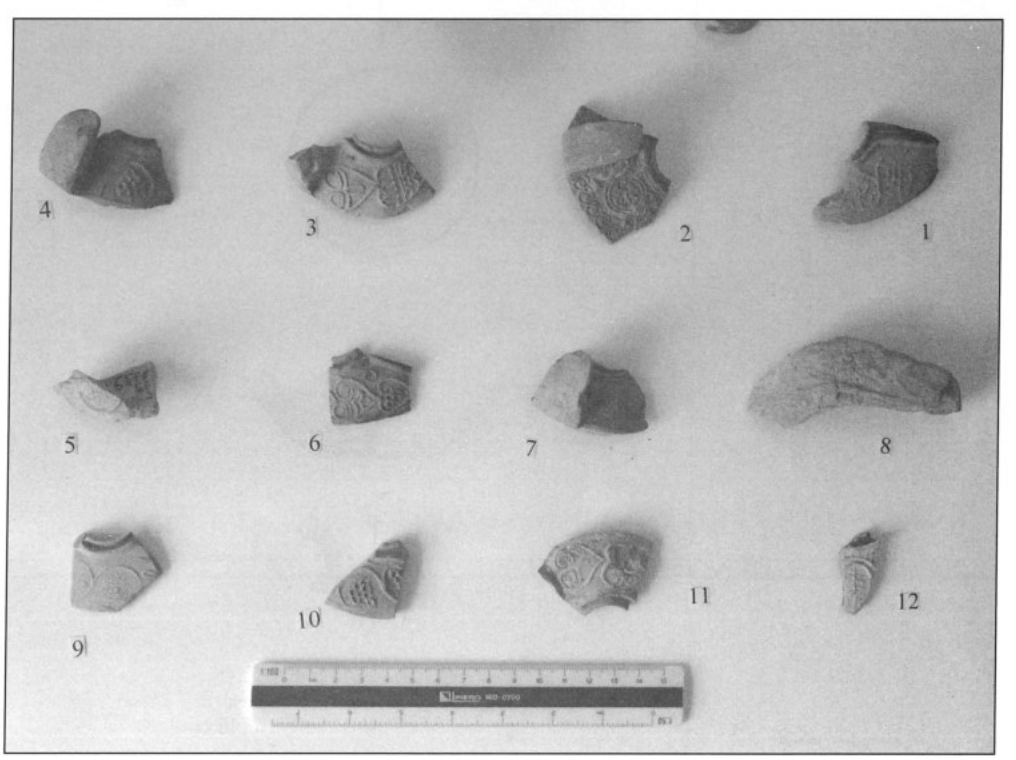


١٣. أواني فخارية كبيرة مختلفة الأشكال مزخرفة.



١٤. رسومات توضيحية للصحون والزبادي الفخارية.

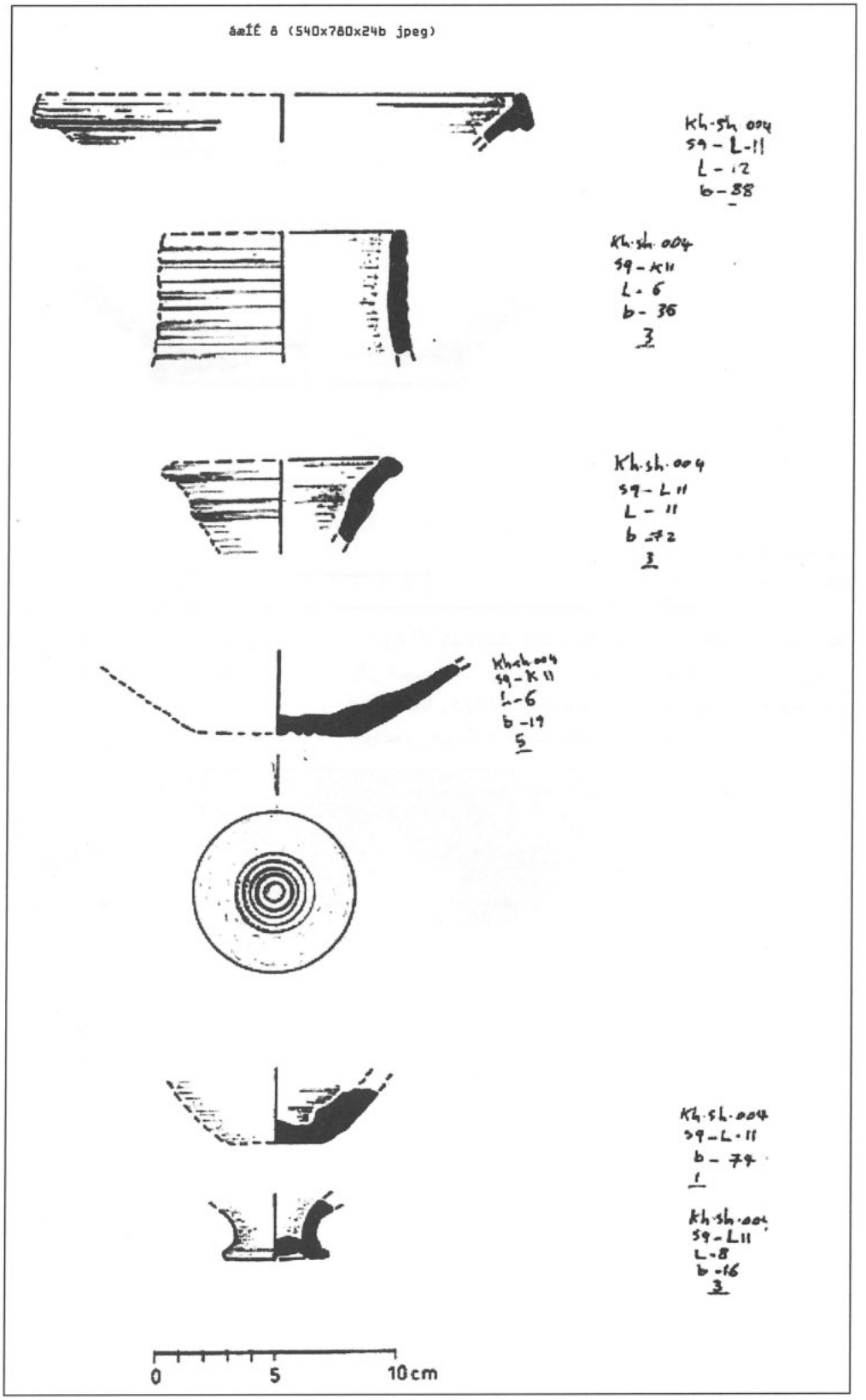
وهي عبارة عن أجزاء من حصان وكسر من تمثال صغير لكبش وكذلك على بعض الكسر الفخارية من أسرجة ذات عجينة وردية اللون عليها زخارف زهرة اللوتس وعناقيد العنب واوراق النخيل والازهار وأشكال هندسية (الشكلين ١٠ و١٥)، كما عثر أيضا على مطرتين فخاريتين، إضافة إلى كسرة من زبدية واسعة لها مقبض دائري مرتفع، وبداخلها ركزة تستخدم لكبار السن لغسل ارجلهم أثناء الوضوء وهي ذات قاعدة دائرية منبسطة.



١٥. صورة توضح نماذج مختلفة من الأسرجة الفخارية.

٨. الفخار المزجج: عثر أثناء حفريات هذا الموسم على بعض القطع الفخارية المزججة وهي عبارة عن قطع لصحون أو زبادي مصنوعة بعجينة بيضاء ومن ثم مزججة بالألوان الخضراء والصفراء، وأحياناً البيضاء والسوداء.

٩. الفخار البيزنطي (الشكل ١٦): القطع الفخارية التي تعود لهذه الفترة قليلة جدا، وجد بعض منها على الأرضية



١٦. الفخار البيزنطي.

المبلطة وعلى التربة المدكوكة التي أعدت لتكون طبقة تحت البلاطات الحجرية المدمرة، وهي عبارة عن صحون وأباريق وجرار.

الخلاصة

إن الحفريات التي أجريت في المربعين L11 وK11 في موسم ٢٠٠٤، تشير إلى وجود ثلاث مراحل رئيسية أولها المرحلة المعاصرة أو السطحية والتي استخدمت لفترة طويلة في الزراعة وقد تم العثور على بعض القطع الفخارية التي تعود إلى فترات سابقة في تربة هذه المرحلة. تأتي بعدها المرحلة الإسلامية المبكرة والمتمثلة كما في المعثورات التي تعود إلى الفترتين الأموية والعباسية وتشير بشكل واضح إلى إعادة استخدام هذا الموقع خلال هذه الفترة، ثم المرحلة البيزنطية التي تتمثل بشكل أساسي بالأرضية الحجرية التي تظهر على شكل بلاطات.

أما النتائج التي تم التوصل إليها في هذين المربعين خلال أعمال الحفر في هذا الموسم فهي تتشابه مع المربعات المجاورة لها L10 و J10 وL12 والتي حفرت في مواسم سابقة من حيث المحتوى واللقى الأثرية.

مروان أبو خلف
المعهد العالي للآثار الإسلامية-جامعة القدس

كتابات كوفية من منطقة الديسه ورم

سليمان الفرجات وسامي النوافله

المقدمة

حظيت الكتابات العربية قبل الإسلام والكتابات في العصر الإسلامي الأول باهتمام العلماء والباحثين الذين قاموا بدراستها وتحليلها ومقارنتها ببعضها البعض لاستنتاج أراء علمية ثابتة عن هذه الكتابات تقود إلى مزيد من المعرفة العلمية بأصول وقواعد وتطور الخط العربي، وقد انتهى الدارسون إلى الاستنتاج بأن الخط العربي قد تطور عن الخط النبطي المتأخر وقد عثر العلماء على العديد من الكتابات والنقوش النبطية والعربية بعضها يرجع إلى فترة ما قبل الإسلام كنقش النمارة سنة ٣٢٨م (ولفنسون ١٩٨٠: ١٨٩) ونقش جبل اسيس ٥٢٨م شرقي دمشق ونقش حران ٥٦٨م (الجبوري ١٩٧٧: ٥٢)، ولقد أولى المسلمون الأوائل موضوع الكتابة اهتماماً خاصاً وعناية فائقة منذ عصر الرسول (ص) الذي شجع الناس على الكتابة والقراءة حتى إن الروايات التاريخية تشير إلى انه طلب من بعض أسرى قريش بعد معركة بدر من الذين لم يقدروا على فداء أنفسهم أن يعلم كل منهم عشرة من المسلمين القراءة والكتابة (ابن سعد ١٣٢٢هـ: ص ١٤) وتشير النصوص التاريخية بان الرسول (ص) كان يشجع النساء على تعلم الكتابة والقراءة (البلاذري ١٩٥٧: ٥٨٠) لذا نظراً لاتساع رقعة البلاد الإسلامية والحاجة الملحة إلى تأمين الاتصال اللازم بين المدن والأمصار الإسلامية، سعى المسلمون إلى تطوير ونشر الخط الكوفي بما يتلاءم وحاجات الدولة ومصلحة الدين الإسلامي. وقد عثر على العديد من النقوش الإسلامية المؤرخة والتي اعتبرت من النظم الكتابية التي يمكن الرجوع إليها في تلك الفترة كنقش شاهد عبد الرحمن الحجري من أسوان سنة ٣١هـ ونقش سد معاوية ٥٨هـ ونقش حجر المسافات من فلسطين في عهد الخليفة عبد الملك بن مروان (٦٦-٨٦هـ) (التل ١٩٨١: ٢٥-٤٢).

الموقع الجغرافي للنقوش

عند دراسة أماكن انتشار هذه النقوش نجد إنها تتركز في الأماكن التي تتوفر فيها مصادر المياه كوادي الحفير الذي توجد في أحد جوانبه الصخرية بركة ماء كبيرة بنيت بشكل مستطيل منذ زمن الأنباط والثموديين ومن هذه الأماكن التي تنتشر فيها النقوش وادي الحفير، وادي رابك-شيره، وادي أبو رمان ووادي رم. وتعتبر ظاهرة إعادة استعمال البرك القديمة والسدود المنتشرة بالعشرات في منطقة حسمى التي تعود إلى مملكة الأنباط من الظواهر التي كانت سائدة في الفترة الإسلامية، وكان هناك على ما يبدو ظاهرة تقليد للأسلاف بخصوص حفر الآبار التجميعية لتخزين المياه واستغلال الأحواض الصخرية في الأودية لنفس الغاية ويبدو هذا جلياً في منطقة وادي رابك بالقرب من موقع القرية الإسلامية التي عثر فيها على بعض النقوش. وفي وادي أبو رمان الذي عثر فيه على النقوش (٧-٨-٩-١٠)، أما وادي رم ففيه مصادر مائية كافية كعين الشلالة وبعض البرك التجميعية القديمة ومن المؤكد وفرة مصادر المياه في الأماكن السالفة الذكر قد أعطى الحياة لها.

قرية شيره الإسلامية

إلى الجهة الشمالية من وادي رابك وفي الجانب الغربي من تلك المنطقة يقف المرء استعجاباً لكثرة القبور الإسلامية هناك ويتبادر إلى ذهن الجميع ان تلك القبور تعود إلى أولئك البدو الرحل الذين اعتادوا السكن في تلك المنطقة، إلا أن هذا الإحساس أو الرأي سرعان ما يتبدد حالما تتوغل إلى الإبط الغربي من ذلك الوادي حيث الكتابات الثمودية المتناثرة بكثرة على الحجارة هناك وأنقاض موقع إسلامي شهير من أواخر الفترة الأموية ويمكن مشاهدة العديد من الجدران والغرف القديمة مبنية على طول واجهتي ذلك الوادي الممتد حوالي ثلاثمائة متر ويتوسط هذه الأنقاض مسجد القرية وقد عثرنا على أحدى الحجارة المبنية في هذا المسجد على كتابات كوفية باسم المسجد (بسم الله الرحمن الرحيم - وهذا مسجد سلام ابن ذوابه صلى الله عليه وسلم)...الخ.

على مقربة من المسجد وإلى الجهة الشرقية الجنوبية منه وجدت كتابة كوفية أخرى غالبية أجزاءها مطمورة. وإلى الجهة الغربية من المسجد وعلى السفح المطل على هذا الموقع الإسلامي وعلى واجهة إحدى الحجارة الكبيرة تم العثور على كتابة كوفية ذات أهمية بالغة في دراسة تطور مراحل الكتابة والأبجدية القديمة وتكمن أهميتها بشكل خاص بأنها أضافت شيئا على تاريخ هذه المنطقة، سيما وأن تاريخ كتابتها ١٠٩هـ قد أعطانا الفترة الزمنية المطلوبة لتاريخ ذلك الموقع وبعض

الكتابات الكوفية في المنطقة والتي كنا نعتقد بأنها ترجع إلى نهاية الفترة الأموية. والمسجد عبارة عن غرفة مربعة بنيت بحجارة غير منتظمة، أطوالها ٦,٨٠م شمال جنوب ٧,٥٥م شرق غرب، أما عرض الجدار الشرقي للمسجد فهو حوالي ٠,٩٠-١,٠٤م وعرض الجدار الشمالي حوالي ٠,٧٠م. والسؤال المطروح لماذا حسمى؟ وما علاقة هذه المنطقة بموقع الحميمة وبالدعوة العباسية؟

إن انتشار العديد من الكتابات التي تعود للفترات الإسلامية المبكرة في منطقة حسمى يعطينا إشارة واضحة عن أهمية تلك المنطقة في الفترة الإسلامية وخاصة في العصر الأموي وبداية العصر العباسي وتعود تلك الأهمية إلى توفر ميزات فريدة للمنطقة من أهمها الموقع الجغرافي المتوسط على الطرق التجارية وخاصة الطريق التجاري الذي يربط الحجاز بالشام.

كما إن لتوفر المراعي والصيد بالإضافة إلى خصوبة التربة وتوفر مصادر المياه وعوامل أخرى ساعدت على استغلال هذه البيئة الطبيعية والزراعية من قبل الكثير من الأمم والشعوب وخاصة الأنباط والثموديين والمسلمين وغيرهم من الذين تعاقبوا على منطقة حسمى (الفرجات ١٩٩١: ١٧-٣٠).

ويقول ياقوت الحموي في وصفه حسمى "أنها أرض ببادية الشام تنزلها جذام" وفي أخبار المتنبي وحكاية مسيره من مصر إلى العراق وقال "حسمى أرض طيبة تؤدي لين النخلة من لينها وتنبت جميع النباتات مملؤه جبالاً في كبد السماء"، ثم يضيف "ومن جبال حسمى جبل يعرف بارم عظيم العلو تزعم أهل البادية إن فيه كروماً وصنوبراً" (الجبوري ١٩٧٧: ٢٥٩) أما الحميمة فهي من المناطق التي كانت مأهولة بالسكان في منطقة حسمى وذكر الطبري في تاريخه إن الوليد بن عبد الملك بن مروان أخرج علي ابن عبدالله بن العباس من دمشق وأنزله الحميمة في سنة خمس وتسعين للهجرة ولم يزل ولده بها إلى أن زالت دولة بني أمية وولد له بها نيف وعشرون ولداً ذكراً (ابن حلكان ١٩٤٩: ٢٧٨) وتذكر المصادر التاريخية أن الحميمة كانت ديار بني العباس ومنطلق الدعوة العباسية. فكانت لعلي بن عبدالله بن العباس وأولاده في أيام بني أمية. فيها ولد السفاح والمنصور وبها تربيا ومنها انتقلا إلى الكوفة وفيها بويع السفاح بالخلافة كما هو مشهود.

فبالإضافة إلى انتشار الكثير من النقوش والرسومات الصخرية الثمودية والنبطية التي تمثل حياة البداوة والرعي ومشاهد الصيد وأسماء التجار وأصحاب القوافل وأسماء الالهه في تلك الفترة (Jobling 1984: 191-202)[1]. أضاف المسلمون شيئاً جديداً ومتميزاً من النقوش والكتابات المبكرة على صخور وأحجار منطقة حسمى مما يضيف حلقة جديدة من حلقات دراسة تطور الخط العربي.

لذا فأن نزول بني العباس في منطقة الحميمة وحسمى له علاقة مباشرة بموضوع بحثنا لوجود تزامن على ما اعتقد بين تواجد بني العباس في المنطقة وبين الفترة الزمنية التي يمكن أن تنسب إليها هذه النقوش الإسلامية المكتشفة والتي يعتقد بأنها تعود في الغالب إلى الفترة الأموية وبداية الفترة العباسية.

جمع النقوش وقراءتها

النقش رقم (١)

النص

١. بسم
٢. الله الرحمن
٣. الرحيم اللهم
٤. تقبل من عبد العلا بن سعيد
٥. صلاته وصومه وحفظه
٦. في أهله وأخلف[له] في [بيته]
٧. وأصلحه انك عل[ى.....]
٨. صل الله عليه وسلم واسلم عليه
٩. ورحمت الله وبركاته
١٠. كتب في رمضان
١١. سنة تسع ومايه



الملاحظات

١. نلاحظ في الكلمة الثالثة السطر السادس وما بعدها [وأخلفه] عدم وضوح نهاية الكلمة فقرأناها وأخلفه، وأيضاً الكلمة التي تليها يظهر حرف الفاء وجزء من الياء أما الكلمة الأخيرة في السطر فيظهر فقط حرف التاء المربوطة في نهاية الكلمة فقرأناها [بيته].
٢. ورد رسم حرف العين في وسط كلمة سعيد مفتوحة إلى أعلى بدون قنطرة وهناك أمثلة عديدة مشابهة كما في النقش رقم (٢) من نقوش مكة المكرمة في كلمة لعلكم المؤرخ لسنة ٨٤ هـ (الراشد ١٩٩٥: ٢٦).
٣. رسم الياء في كلمة (في) في السطر السادس وفي كلمة (في) أيضاً في السطر العاشر جاءت على شكل خط يمتد من اليسار إلى اليمين تحت الكلمة وهذا يسمى بالياء الراجعة. وهناك حالات مشابهة في النقوش (١٥-١٧-١٩-

١. لقد تم جمع هذه النقوش والكتابات من قبل السيد سليمان الفرجات خلال المسح الأثري للكتابات الثمودية الذي أجراه الدكتور وليم جوبلنج عام ١٩٨٧ لمنطقة رم والديسة.

٢٠) في نفس المصدر السابق (الراشد ١٩٩٥: ٥٥-٧٤).

٤. قام الكاتب بتنقيط حرف الياء في كلمة الرحيم في السطر الثالث وكلمة سعيد في السطر الرابع.

٥. النص عبارة عن دعاء إلى الله تعالى أن يتقبل من عبد العلا بن سعيد صلاته وصومه وأن يحفظه في أهله وهو النص الوحيد المؤرخ إلى عام ١٠٩هـ وأطول نص وجد في المنطقة.

٦. النص واضح جداً وكتب بخط يابس وجميل والسطور منتظمة ومستقيمة والكلمات متناسقة وواضحة وراعى الكاتب التنسيق والمحافظة على المسافات بين الأسطر والكلمات، وقد عثر على هذا النقش في وادي شيره بالقرب من المسجد.

النقش رقم (٢)

النص

١. بسم الله
٢. الرحمن الر
٣. حيم هذا
٤. مسجد
٥. سلامه
٦. ابن ذو[ا] به
٧. صل الله
٨. عل[ى محـ] مد صل

الملاحظات

١. عثر على هذا النقش في أحدى المداميك الحجرية المبنية في الجدار الأمامي للمسجد في منطقة شيره والجزء السفلي منه مطمور تحت الأرض.



٢. النص مكتوب بالخط اليابس الجميل والأسطر والكلمات منسقة مما يدل على معرفة عاليه ومتقنة لاسس الكتابة من قبل الكاتب.

٣. بعض أجزء الكتابة غير واضحة بسبب تعرض سطح الحجر لعوامل التعرية.

٤. رسم الكاتب حرف اللام في كلمة الرحمن في السطر الثاني مع نتوء بسيط إلى جهة اليمين تحت بداية الحرف من الأعلى ولم نعثر في النقوش التي بين ايدينا على مثال مشابه لذلك.

٥. رسم الكاتب حرف الراء في كلمة الرحمن وكلمة الرحيم في السطر الثاني بوضع ملاصق تماماً تحت اسفل حرف اللام وظهر حرف اللام مرتكزاً عليها وتظهر كانها جزء منه.

النقش رقم (٣)

النص

١. بسم الله الرحمن الرحيم
٢. واصلى الله على سيدنا محمد
٣. واله [كاتبه أو كتبه] فراج
٤. ابن علثم غفر الله [له] ولوالديه
٥. ولجميع المسلمين.....



الملاحظات

١. كتب النقش على صخرة غير مستوية فظهرت هناك الأسطر غير منتظمة والكلمات متداخلة ويلاحظ عدم قدرة الكاتب على تنسيق الحروف والكلمات وقد نفذت الكتابة بطريقة غير متقنة يصعب قراءتها، وقد قام الكاتب بوضع اسمه في النقش، عثر على هذا النقش في وادي رابك.

النقش رقم (٤)

النص

١. نصر من الله وفتح قريب

الملاحظات

١. النقش عبارة عن آيه قرانية كتب بطريقة متقنة وهي الآية ١٣ من سورة الصف.

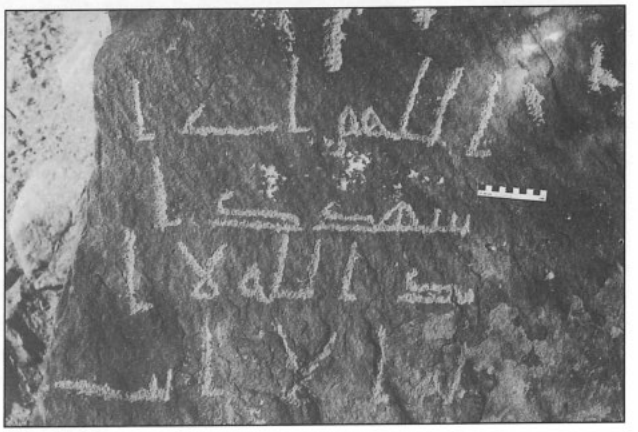


٢. رسم الكاتب حرف الألف في كلمة الله على عكس ما رسمت عليه في كلمات النقش رقم (١) بانحراف يشكل زاوية قائمة إلى جهة الشمال في اسفل الحرف بدلاً من اليمين. عثر على هذا النقش في منطقة الزلطيه.

النقش رقم (٥)

النص

١. اللهم انى أ
٢. شهدك أ
٣. نك الله لا إ
٤. له الا انت



الملاحظات

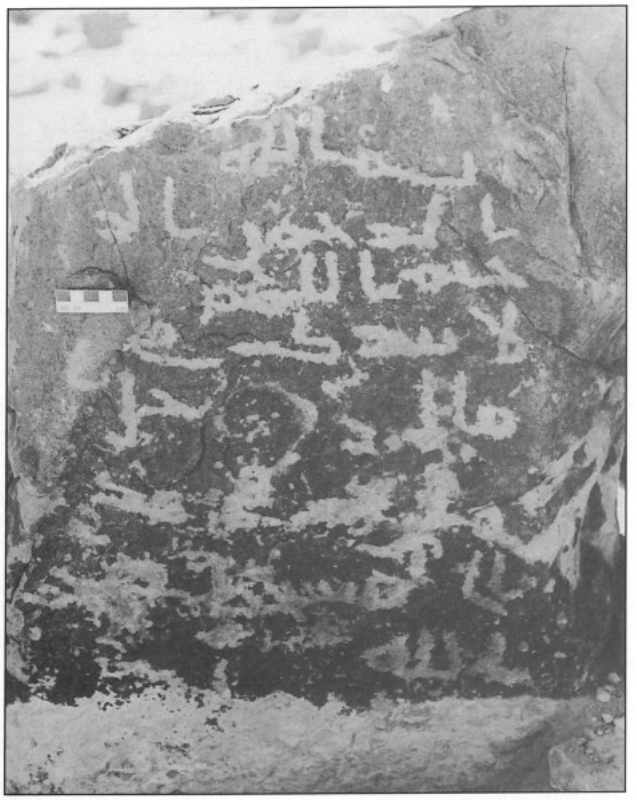
١. كتب هذا النقش بالخط اليابس بطريقة متقنة وجاءت الأسطر متساوية في الأطوال والمسافات بين الكلمات والأسطر.
٢. النقش يخلو من البسملة.

عثر على هذا النقش في وادي ابو رمان إلى الشمال الغربي من وادي رم.

النقش رقم (٦)

النص

١. بسم الله
٢. الرحمن الر
٣. حيم اللهم
٤. لا تترك [تبارك] في
٥. مال دخل
٦. [.....] في هذ
٧. المسجد [.....]
٨. الله



الملاحظات

١. النقش عبارة عن دعاء وهو غير واضح بشكل جيد لانه من المداميك الأرضية المبنية في الجدار الأمامي.
٢. نعتقد بأن هناك خطأ إملائياً في بداية السطر الرابع في كلمة لتبارك حيث كتبت لا تبارك.
٣. قام الكاتب بفصل وابعاد حرف الدال في كلمة دخل بسبب وجود عائق صخري، عثر على هذا النقش في وادي شيره.

النقش رقم (٧)

النص

١. الله ولي عاصم بن سراده
٢. الله ولي عمر[ب]ن عقبه.

الملاحظات

١. من طبيعة الخط نلاحظ ان السطر الأول يختلف عن السطر الثاني حيث ان السطر الأول كتب من قبل عاصم بن سراده والسطر الثاني من قبل عمر بن عقبه.
٢. كلمة ولي في هذا النقش وردت في نقوش اخرى مختلفة والمثال على ذلك النقش رقم (١٩) في كتابات عربية غير منشورة في جبل اسيس لمحمد ابو الفرج العش. والولي كما



جاء في القاموس المحيط هي المحب والصديق والنصير وقد ورد في الآيه رقم ٢٥٧ من سورة البقرة اشارة واضحة لذلك في قوله تعالى الله ولي الذين آمنو يخرجهم من الظلمات إلى النور.....

٣. تميز الخط في السطر الأول بإتقان وتناسق الحروف وهذا يدل على مهارة الكاتب بعكس خط السطر الثاني، عثر على هذا النقش في وادي ابو رمان.

النقش رقم (٨)

النص

١. اللهم اغفر
٢. لعمر بن
٣. عقبه

الملاحظات

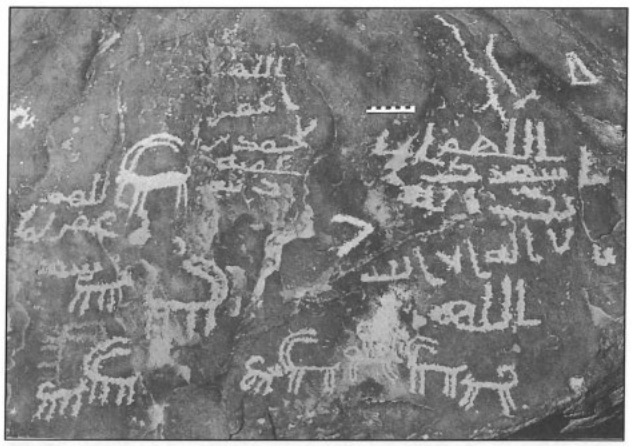
١. رسمت الهاء في كلمة اللهم والميم فوق مستوى الحروف بشكل شبه دائرة يختلف من النقوش الأخرى التي عثرنا عليها والهاء في هذا النقش تشبه رسم الهاء في نقش رقم ٢٢ (العش ١٩٦٤).
٢. النقش عبارة عن دعاء، وقد عثر عليه في وادي ابو رمان.



النقشان رقم (٩أ و٩ب)

النص

٩أ	٩ب
١. اللهم انى	١. اللهم
٢. اشهدك ا	٢. اغفر
٣. نك الله	٣. لمحمد بن
٤. لا اله الا انت	٤. عقبه
٥. اللهم	٥. ذنبه



الملاحظات

١. رسم الهاء في كلمة اللهم واشهدك في النقش (أ) يشبه رسمها في النقش رقم (٨) مما يرجح بأن هذا النقش قد كتب من نفس الشخص الذي كتب النقش رقم (٨).
٢. الكتابة اتسمت بالليونة والبساطة في النقشين ٩أ و٩ب.
٣. ورد اسم محمد بن عقبه في النقش (٩ب) وهو اخ لعمر بن عقبه المكتوب في النقش رقم (٨).
٤. حرف الباء في عقبه والذال والنون والباء في ذنبه ظهرت منقوطة.

عثر على هذا النقش في وادي ابو الرمان.

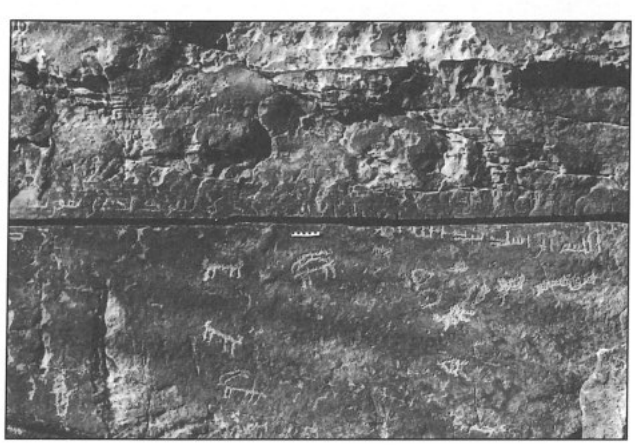
النقش رقم (١٠)

النص

١. اللهم انى اس[ا] لك ب[ا]نك الله لا شر[ي]ك لك

الملاحظات

١. حذفت الألف في وسط كلمة اسألك وبانك وكتبت [اسلك وبنك].
٢. حذفت الياء من كلمة شريك وكتبت شرك، عثر على هذا النقش في وادي ابو رمان.



النقش رقم (١١)

النص

١. بسم الرحمـ [.....] رب ادخل غانم في رحمتك

الملاحظات

١. الكاتب لم يكمل البسملة.

٢. الخط غير منتظم وغير منسق وكتبت الحروف بالخط اللين.

٣. رسم حرف التاء في كلمة رحمتك منقوطاً.

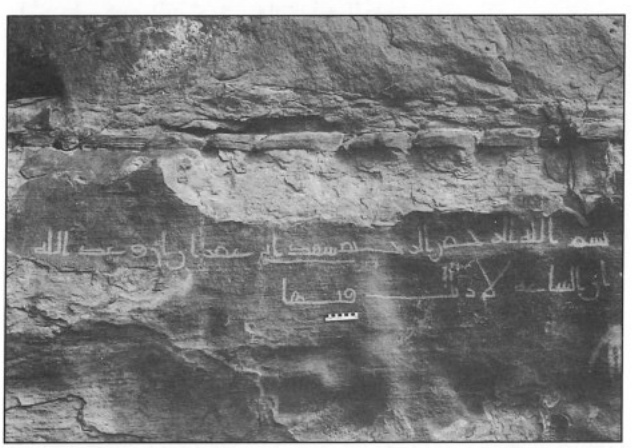


النقش رقم (١٢)

النص

١. بسم الله الرحمن الرحيم شهد ابي عمران ان وعد الله حق

٢. ان الساعه لا ريب فيها



الملاحظات

١. النقش كتب بخط يابس وجميل ومنسق وواضح مما يدل على المهارة الكتابية للكاتب.

٢. رسمت الميم في كلمة الرحمن والرحيم وعمران فوق مستوى الحرف وكذلك الهاء في كلمتي شهد وفيها وهناك تشابه بين رسم الهاء في هذا النقش والهاء في نقش حجر المسافات في فلسطين من عهد الخليفه عبد الملك بن مروان ٦٦ ـ٨٦هـ (التل ١٩٨١: ٤٥).

٣. السطر الثاني من الكتابة هو جزء من ايه قرآنية.

٤. الكتابة عثر عليها في جبل ام عشرين في وادي رم.

النقش رقم (١٣)

النص

١. بسم الله الر

٢. حمن الرحيم اللهم

٣. ا غفر لابي محجن ا

٤. بن زنباع ما تقدم من

٥. ذنبه وما تأخر



الملاحظات

١. النص واضح وكتب بخط يابس وجميل ومنسق السطور والكلمات.

٢. رسم بعض الحروف في هذا النقش شبيه برسم الحروف في نقش حفنه الأبيض المؤرخ لسنة ٦٤هـ وخاصة حرف الميم والحاء والجيم والنون والواو والكاف وحروفاً اخرى. كذلك هناك تشابه كبير بين حروف هذا النقش وبعض حروف نقش حجر المسافات في فلسطين وهذا يؤكد لنا انه كان هناك مدارس مختلفة لتعليم الخط العربي قديماً (حمد ١٩٦٨: ٣٢)، (التل ١٩٨١: ٤٣).

٣. الكتابة عبارة عن دعاء طلب المغفرة لما تقدم من ذنب الكاتب وما تأخر وقد ورد هذا الدعاء في سورة الفتح الآيه ٢ كما ورد في الحديث والدعاء المأثور وقد وجدت كتابات بأدعية مماثله لهذا الدعاء كما في النص رقم (٩) والنص رقم (٥٠) (العش ١٩٦٤: ٦ و٢٦٧).

النقش رقم (١٤)

النص

١. بسم الله الرحمن الرحيم الله الله اللهم

٢. صلى على محمد النبي اللهم اغفـ [.....]

٣. غفر لابي عمر ابن وعبد ا

الملاحظات

١. النص واضح والخط جميل وهناك كلمات واحرف زائده ففي السطر الأول فوق كلمة الرحيم نجد كلمة الله وفي نهاية السطر الثاني اراد الكاتب ان يرسم كلمة اغفر ولم



يكملها فرسم حرف الالف والغين وغير رأيه فرسم كلمة غفر في بداية السطر الثالث ولم يكمل الأسم في نهاية السطر فرسم عمر ابن وعبد ا فقط.

٢. النص عبارة عن دعاء.

النقش رقم (١٥)

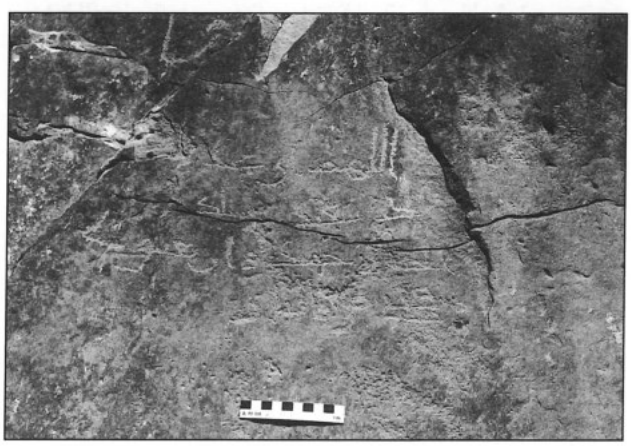
النص

١. اللهم ار عبد

٢. ك سعيد سلك

٣. الجنه برحمتك وان تغفر لي

٤. وقنى من النار



الملاحظات

١. النص عبارة عن دعاء مكتوب على صخرة منقرة لشخص اسمه سعيد.

٢. رسمت الهاء في كلمة اللهم والعين في كلمة سعيد بطريقة مختلفة عن النقوش الأخرى في المنطقة وهذا يدلنا على تعدد الكتاب. عثر على هذه الكتابة في وادي الحفير.

النقش رقم (١٦)

النص

١. اللهم اغفر لحرب ابن نعيم

٢. ذ [نبة] ما تقدم منه وما تاخرو

٣. جـ[هـ] ده الصراط المستقيم



الملاحظات

١. النص مكتوب بالخط اللين وهو عباره عن دعاء لشخص اسمه حرب ابن نعيم.

٢. الكتابة غير منتظمة الأسطر والكلمات، وجدت في وادي الحفير.

النقش رقم (١٧)

النص

١. اللهم

٢. اغفر لابن

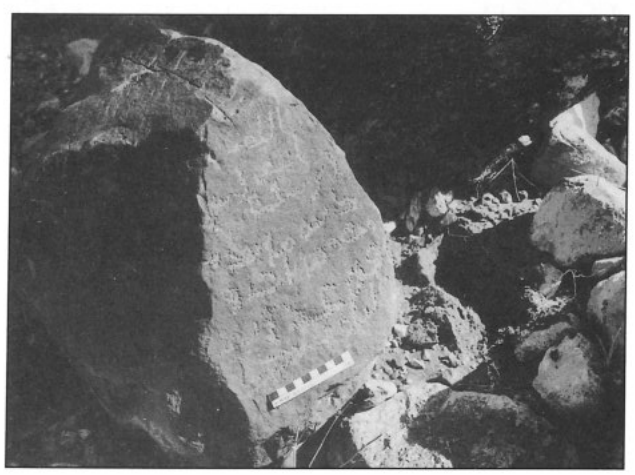
٣. ابي سلمه

٤. ذنبه ما تقدم

٥. منه وما تأخرو

٦. قه عذاب

٧. النار برحمتك



الملاحظات

١. النص عبارة عن دعاء لشخص يدعى ابن ابي سلمه.

٢. لقد ورد توضيح دعاء طلب المغفرة لما تقدم من ذنب وما تأخر في النقش رقم (١٣).

٣ . النص مكتوب بالخط اللين وهو غير منسق وغير واضح مما يدل على ضعف الكاتب، وجدت هذه الكتابة في وادي الحفير.

النقش رقم (١٨)

النص

١ . حضر في هذا المكان المبارك سبع ابن غياص ابن عصيله ابن حسن

٢ . سنت تصلطن الملك العادل شقمق نصر الله تعالى.

ما يهمنا في هذا النص هو انه كتب في اول سنه من حكم الملك العادل شقمق جد سلاطين المماليك وقد ورد باسم جقمق وليس شقمق.



الظواهر الإملائية والخصائص للنقوش المكتشفة

من خلال دراستنا لهذه النقوش وأسلوب كتابتها ورسم حروفها وما تحتويه من نصوص كتابية ومن ظواهر إملائية تشترك فيها مع العديد من النقوش والكتابات الإسلامية الأخرى التي تميز تلك الفترة، نجد أن تعدد الخطاطين أو النقاشين الذين كتبوا هذه النقوش أدى إلى إحداث تباين كبير في أسلوب وشكل كتابة هذه النقوش مما يجعلنا نصف خط هذه الكتابات إلى جيد ورديء حسب براعة وقدرة وخبرة النقاش في الكتابة إلا إننا لابد أن نشير إلى وجود العديد من المميزات والصفات المشتركة التي اتسمت بها معظم هذه الكتابات من حيث الأسلوب ورسم الكلمات فقد بدأت النقوش بالبسملة أو الدعاء وكانت هذه الظاهرة قد بدأت أيام الرسول صلى الله علية وسلم فقد روي إن أول من أفتتح الكتابة بها هو الرسول علية الصلاة والسلام إذ أنه كان يكتب (باسمك اللهم) ثم تركها وكتب (بسم الله) فتركها وكتبت (بسم الله الرحمن) فتركها وكتبت (بسم الله الرحمن الرحيم). فأصبحت سنة أتبعها المسلمون في كتاباتهم (الجبوري ١٩٧٧: ١١٢). وبعض هذه النقوش هي عبارة عن أدعية كاملة للعديد من الأشخاص، ويمكن تصنيف الكتابات إلى الفئات التالية

١ . آيات قرآنية

٢ . أدعية

٣ . كتابات تخليدية لأشخاص

٤ . حث على التمسك بالصلاة والعبادات

وعند دراستنا للظواهر الإملائية التي تميزت بها هذه النقوش نجد خلو الكتابة من الشكل والنقط باستثناء حرف الياء من كلمة الرحيم وسعيد في النقش رقم (١) وكذلك حرف الباء في كلمة عقبة وحرف الذال والنون والباء في كلمة ذنبه في النقش رقم (٩ب) وأيضاً حرف التاء في كلمة رحمتك في النقش رقم (١١)، أما ظاهرة حذف الألف في وسط الكلمة فهي ظاهرة كتابية شاعت في كتابة النقوش العربية النبطية والعربية واستمرت في فترة عهد الرسول والخلفاء الراشدين والفترة الأموية. والأمثلة على ذلك كثيرة ومتعددة بدءاً بكلمة (التج = التاج)، (ونجرن = نجران) في نقش النمارة وكلمة (معوية = معاوية) في نقش الطائف الذي يعود إلى سنة ٨٥هـ أما الأمثلة على ذلك في النقوش التي بين أيدينا فيتمثل ذلك بكلمة وسلم في النقش رقم (١)، وكلمة ذوابه في السطر السادس من النقش رقم (٢) وكلمة اسألك وبأنك في النقش رقم (١٠) وكلمة الصراط في السطر الثالث من النقش رقم (١٦).

أن تقطيع حروف الكلمة الواحدة التي تقع في آخر السطر وأول السطر الذي يليه ظاهرة كتابية أخرى اتسمت بها العديد من النقوش الإسلامية التي عثر عليها في بعض البقاع الإسلامية، ولدينا العديد من الأمثلة على هذه الظاهرة قسمت كلمة الرحيم بين نهاية السطر الثاني وبداية الثالث في النقش رقم (٢) وقسمت كلمة اشهدك بين نهاية السطر الاول وبداية السطر الثاني من النقش رقم (٥) وكلمة انك في نهاية السطر الثاني وبداية السطر الثالث وكلمة اله في نهاية السطر الثالث وبداية السطر الرابع من نفس النقش وقسمت كلمة الرحيم بين السطر الثاني وبداية الثالث في النقش رقم (٦) وكلمة هذا بين نهاية السطر السادس وبداية السطر السابع في نفس اللوحة كما قسمت كلمة انك بين نهاية السطر الثاني وبداية السطر الثالث في النقش رقم (٩أ) وأيضاً كلمة الرحمن بين نهاية السطر الأول وبداية السطر الثاني في النقش رقم (١٣) وكلمة ابن بين نهاية السطر الثالث وبداية السطر الرابع في نفس النقش، أما في النقش رقم (١٥) فقد قسمت كلمة عبدك بين نهاية السطر الاول وبداية السطر الثاني وفي النقش رقم (١٧) قسمت كلمة وقه بين نهاية السطر الخامس وبداية السطر السادس.

أما رسم التاء المربوطة التي وردت في النقش رقم (١) سطر رقم (٩) في كلمة (رحمت - رحمة) فهي ظاهره لها جذورها في النقوش العربية القديمة فنجد في نقش النمارة كلمة (مدين - مدينه) وفي نقش حران كلمة (سنت - سنة).

وعند إجراء مقارنة موضوعية لمجموعة النقوش التي بين أيدينا نجد العديد من المفارقات بينها فمنها ما هو مكتوب بخط هندسي يابس كما في النقوش (١-٢-٥-٧-١٢-١٣) ومنها ما أتسم بالليونة والبساطة كما في بقية النقوش ونجد أنه روعي الانتظام في المسافات بين السطر والحرف وبين الكلمة والأخرى وبين الحرف والأخر للمحافظة على جمال شكل النقش والأسطر والكلمات في النقوش (١-٢-٥-٧-١٢-١٣) بالإضافة إلى قيام الكاتب بالعمل على مد بعض الحروف المتصلة التي أضافت إلى الكتابة حسناً وتفخيماً مما حافظ

على الشكل العام للكتابة وهذا يدلنا على الخبرة ومرونة في الممارسة لهذا الفن مثال على ذلك النقوش (١-٢-٥-١٢-١٣) فقد مدت معظم حروف الكلمات في هذه النقوش للمحافظة على جمال السطور والكلمات.

أما في الجانب الآخر فضعف الكاتب وقلة ممارسته كما يتضح من النقوش (٣-١١-١٦-١٧) أدى ذلك إلى عدم مراعاة القواعد الأساسية للكتابة وتشويه الشكل العام للنقش وعدم مراعاة الانتظام والمسافات المعقولة بين بداية النقش ونهايته وبين الأسطر والكلمات والأحرف.

عند دراستنا لمجموعة النقوش التي بين ايدينا نجد انها تشكل مصدراً علمياً هاماً عن تاريخ الكتابة العربية وتطورها حيث تعتبر منطقة حسمى بحكم وقوعها على الطرق التجارية القديمة حلقة وصل بين الحجاز والشام لذا لاحظنا ان هناك تشابهاً واضحاً ما بين هذه الكتابات والكتابات التي عثر عليها في الحجاز وأيضاً بعض النقوش المكتشفة في منطقة الشام، وتعتبر هذه النقوش ثروة كبيرة لتاريخنا وذلك من خلال الأدعية وأسماء الأشخاص الذين دونوا اسماءهم والجدير بالذكر هنا ان أسلوب الكتابة الذي اتسمت به هذه النقوش من المحتمل انه يعود إلى نهاية القرن الأول وبداية القرن الثاني الهجريين باستثناء النقش رقم (١٨) الذي يعود للفترة المملوكية.

لذا فأن عمل دراسة وافية ومسح شامل للمنطقة المنتشرة فيها هذه النقوش سيضيف الشيء الكثير عن تطور الخط العربي وهذا ما نأمل أن يقوم به مستقبلا بعض الباحثين.

سليمان الفراجات
سامي النوافلة
محمية البتراء

المراجع

ابن الأثير، عز الدين ابو الحسن علي بن محمد بن عبدالكريم الجزري
١٩٦٧ **الكامل في التاريخ**. جـ١ و٢. بيروت: مطبعة دار الكتاب العربي.

ابن خلكان، ابو العباس شمس الدين احمد بن محمد
١٩٤٩ **وفيات الأعيان**. الطبعة الأولى، جـ ٥. مصر: مطبعة السعادة.

ابن سعد، محمد بن سعد
١٣٢٢هـ **الطبقات الكبير**. جـ١ وجـ٢، تصحيح ادوارد سحو. مطبعة بريل.

حمد، غانم قدوري
١٩٦٨ موازنة بين رسم المصحف والنقوش العربية القديمة. **مجلة المورد**، العدد الرابع، بغداد.

البلاذري، احمد بن يحيى بن جابر
١٩٥٧ **فتوح البلدان**. جـ٢، مطبعة لجنة البيان العربي.

التل، صفوان
١٩٨١ **تطور الحروف العربية على اثار القرن الهجري الأول الأسلامية**. عمان: مطابع دار الشعب.

الحموي، ياقوت
١٩٧٧ **معجم البلدان**. المجلد الثاني، بيروت.

الجبوري، سهيلة ياسين
١٩٧٧ **أصل الخط العربي وتطوره حتى نهاية العصر الأموي**. رسالة ماجستير، جامعة.

الراشد، سعد عبدالله
١٩٩٥ **كتابات إسلامية من مكة المكرمة**. الرياض.

الفرجات، سليمان
١٩٩١ نظام الري النبطي في منطقة الحميمة. **حولية دائرة الأثار العامة**.

العش، محمد ابو الفرج
١٩٦٤ كتابات عربية غير منشورة في جبل إسيس. جـ ٣، **مجلة الأبحاث**. بيروت.

ولفنسون، اسرائيل
١٩٨٠ **تاريخ اللغات السامية**. بيروت: دار القلم.

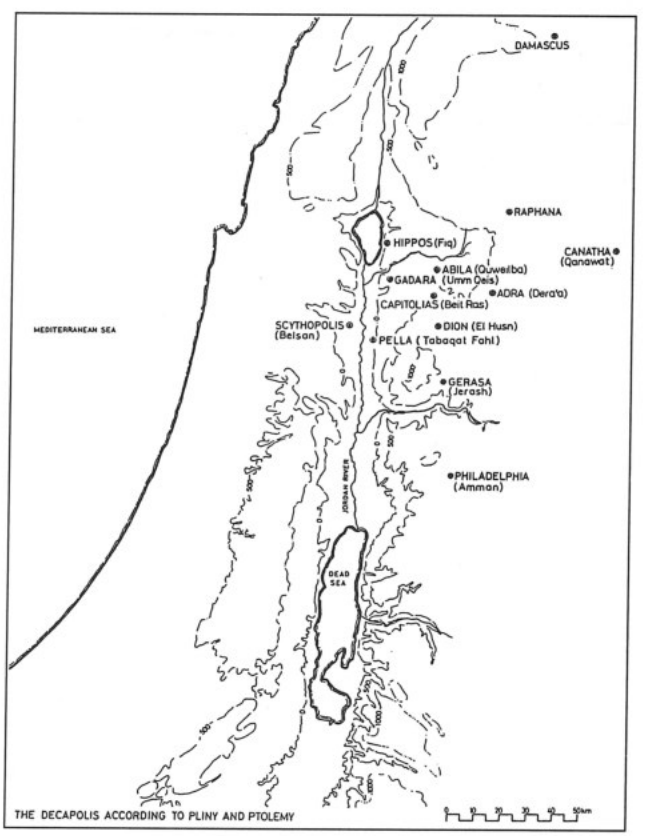
Jobbling, W.J.
1984 The Fifth Season of the Aqaba-Ma`an Survey 1.984 *ADAJ* 28: 191-202.

مسرح بيت راس الأثري

وجيه كراسنة وسلامة فياض

المقدمة

كان من أهم الاكتشافات الجديدة والتي يعود فضلها إلى أعمال التنقيبات الأثرية التي تقوم بها دائرة الآثار العامة هو اكتشاف أحد المسارح الأثرية لإحدى المدن الرومانية القديمة المجهولة كبيتولياس الواقعة على بعد ٥كم إلى الشمال من مدينة اربد (**الشكل ١**)، حيث ساهمت العوامل الطبيعية والبشرية وخاصة في الفترات البيزنطية والإسلامية على إخفاء هذا المسرح تماماً، لدرجة أنه لم يظهر منه إلا جزء من جداره الخارجي أثناء زيارة الرحالة الألماني شوماخر للمنطقة في نهاية القرن التاسع عشر (Schumacher 1890: 156)، ورجح أنه جزء من سور المدينة (**الشكل ٢**)، كما أن التنقيبات الأثرية التي قامت بها شيري لنزن في المنطقة خلصت إلى أن هذا الجدار هو جزء من سور مدينة كبيتولياس الرومانية (lenzen 1985: 180)، مما يعني بأن هذا المعلم المهم قد اختفى تماماً منذ العصور الإسلامية المبكرة وحتى السنوات القليلة الماضية، وقد تم الكشف عن هذا المعلم من خلال أعمال التنقيبات الأثرية التي قامت بها دائرة الآثار الأردنية منذ سنة ١٩٩٩م. حيث تم الكشف عن معظم العناصر المعمارية والحضارية التي تدل على عظمة مدينة كبيتولياس الأثرية التي لم تكن معروفة إلاّ من خلال المراجع التاريخية التي ذكرتها وبعض المعالم المعمارية البسيطة التي ما زالت قائمة في ثناياها، وتأتي هذا الاكتشافات لتؤكد على عظمة هذه المدينة وعلى دورها في النسيج الحضاري لهذا البلد ولهذه الأمة العظيمة.



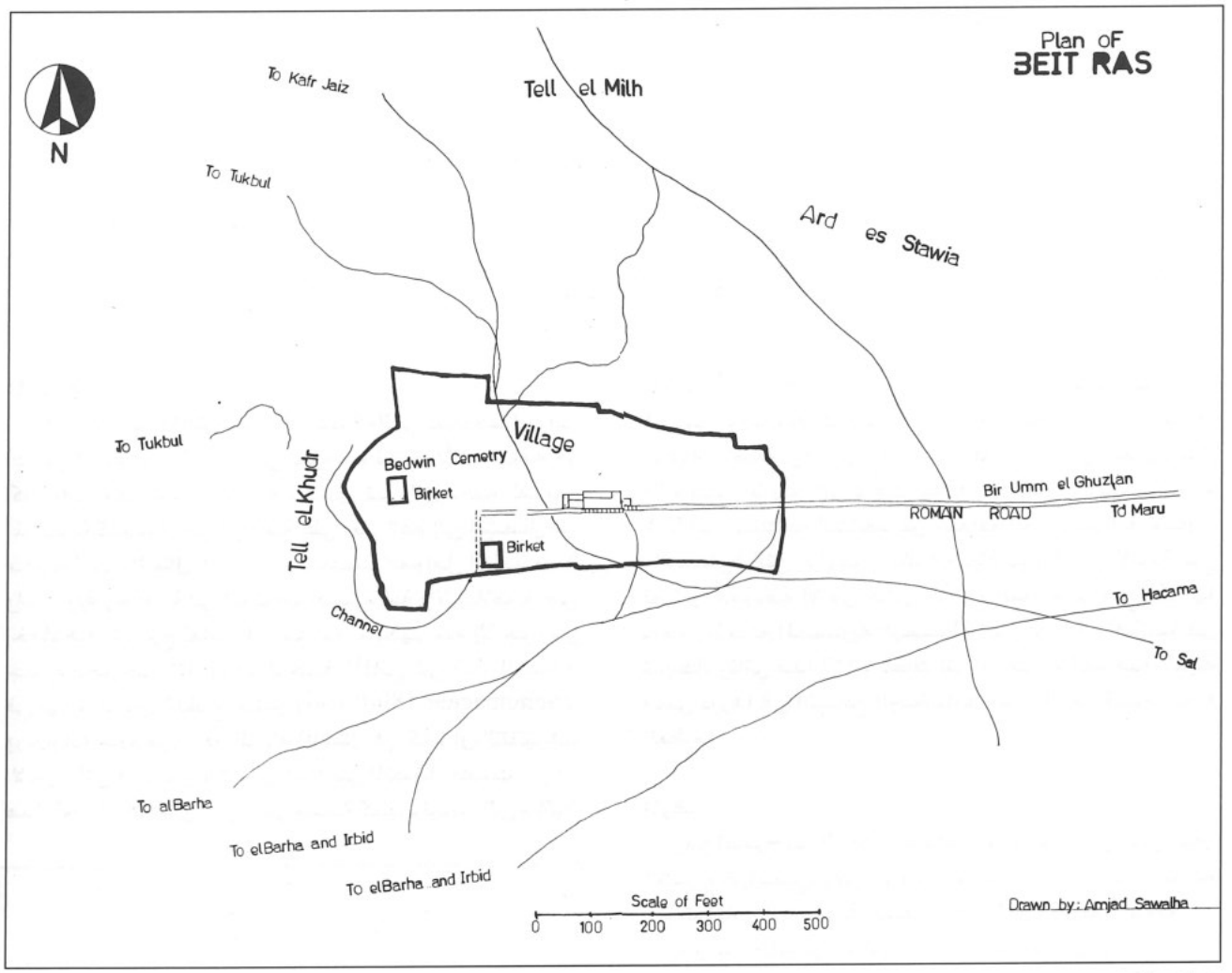
١. مخطط مدن الديكابولس.

الموقع

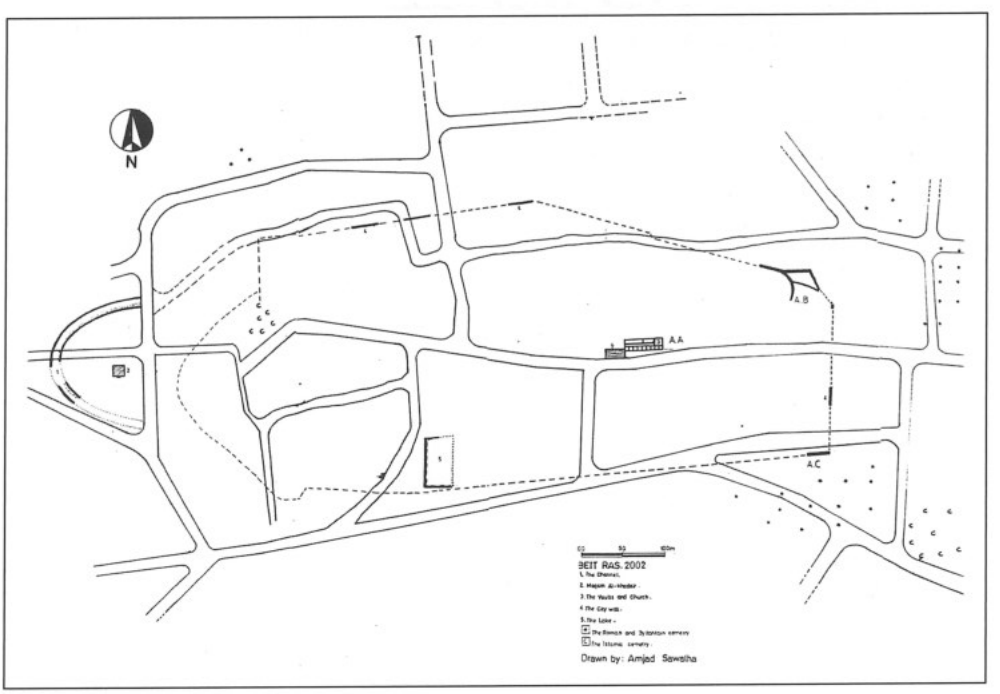
يقع المسرح في الجهة الشمالية لبلدة بيت راس وعلى يمين الشارع الرئيسي، وفي الزاوية الشمالية الشرقية لمدينة كبيتولياس الرومانية حسب مخطط شوماخر ويرتفع عن مستوى سطح البحر حوالي ٥٠٠م تقريبا (**الشكل ٣**).

التنقيبات الأثرية في مسرح بيت راس للموسم ٢٠٠٥م

يعتبر هذا الموسم السادس لأعمال التنقيبات الأثرية التي جرت في مسرح بيت راس، حيث تم متابعة العمل للكشف عن باقي أجزاء المسرح، وقد تم إكمال العمل في منطقة تغيير الملابس، حيث كشف عن غرفة مستطيلة في الجهة الشرقية أبعادها (٤,٧٥م × ٣,٤٠م) يتقدمها ممر مستطيل بعرض (١,٦٠م) تحتوي على ثلاثة مداخل يوجد اثنان منها في الجدار الشمالي يطلان في الأصل على خارج المسرح اغلقا لاحقاً مع امتداد سور المدينة الذي جاء بمحاذاة الجدار الشمالي الخارجي، ويلاحظ اختلاف ابعاد هذين المدخلين حيث يبلغ عرض المدخل الأول حوالي (١,٢٠م) بارتفاع (٢,٥٠م) وعرض المدخل الثاني حوالى (٢,٢٠م) بارتفاع (٣,٢٠م)، اما المدخل الثالث فيقع في الجدار الغربي للممر المؤدي إلى الغرفة ويطل باتجاه الغرب عرضه (١,٦٠م)، واستخدم الحجر الكلسي الطباشيري في بناء جدران الغرفة والممر ويلاحظ تعرض جداريها الجنوبي والغربي إلى الانهيار والتدمير ولم يبق من الجدار الجنوبي إلا بعض المداميك القليلة، ويلاحظ التفاوت في عرض هذا الجدار حيث يبلغ عرضة في الجزء الخاص لبناء الغرفة حوالي (١,٥٠م) بينما



٢. المخطط الذي وضعه الرحالة شوماخر ١٨٩٠.



٣. مخطط بيت راس التنظيمي موضحا عليه موقع المسرح.

يبلغ عرضه في الجزء الخاص ببناء الممر حوالي (٢,٧٠م)، ويلاحظ مدى التناظر الكبير ما بين الجزء الذي كشف عنه في هذا الموسم والجزء الغربي الذي يقع على نفس الامتداد والذي كشف عنه في المواسم السابقة، وبهذا يكون قد تم الكشف وبشكل كامل عن هذا الجزء من المسرح.

كذلك من أهم الأعمال التي تم القيام بها في هذا الموسم هي متابعة العمل في أجزاء من منطقة التجويف لكشف الجزء السفلي من المدرج المخصص لمقاعد للمشاهدين، حيث كشف عن مساحة تقدر بحوالي ٧٠م٢ من المدرج السفلي المخصص للمشاهدين، وقد عثر على عدد قليل من المقاعد التي لا زالت في مكانها الأصلي، ويلاحظ في هذا الجزء استغلال المنحدر الصخري بعد تسويته لوضع مقاعد المشاهدين (**الشكل ٤**).



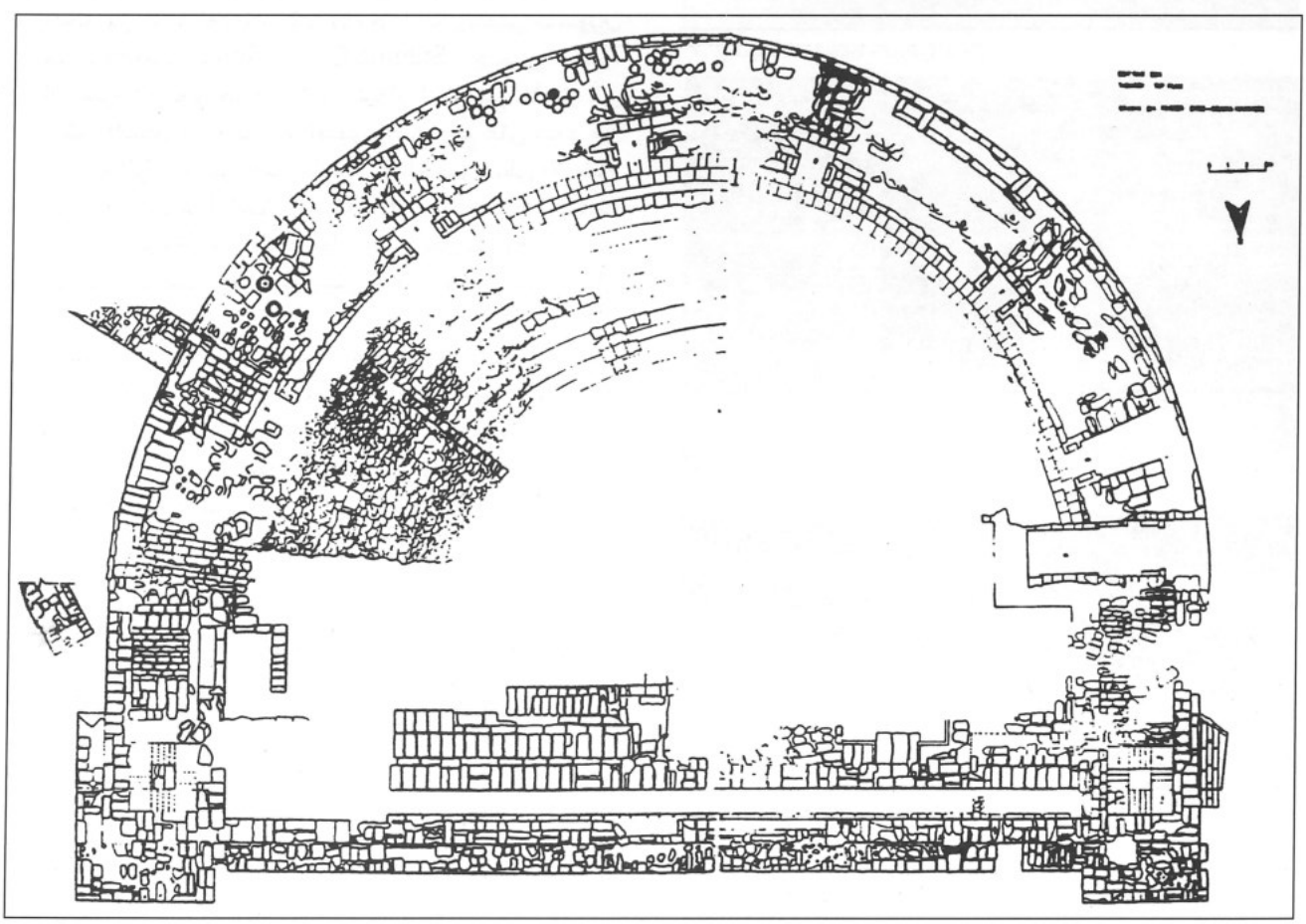
٤. أجزاء من منطقة المدرج التي كشف عنها هذا الموسم.

المخطط المعماري

لقد جاء المخطط المعماري لمسرح بيت راس مشابهاً لمعظم المسارح الرومانية في مدن الديكابولس مع بعض الاختلافات البسيطة فقط (**الشكل ٥**)، وقد احتوى هذا المخطط على العناصر المعمارية التالية

١. منطقة تغيير الملابس (Scaena): تقع في الجزء الخلفي من المسرح كما هي في معظم المسارح الرومانية، تتكون من غرفتين يربط بينهما ممر طويل بعرض حوالي ٢م له ثلاثة مداخل رئيسية في جداره الشمالي تطل إلى الخارج وثلاثة مداخل أخرى في جداره الجنوبي وعلى نفس استقامة الثلاثة الأولى تطل على منطقة المنصة (**الشكل ٦**).

٢. المنصة (Stage): وهي الجزء المخصص للنشاطات الفنية المختلفة والمقابلة لمنطقة المدرج المخصصة للمشاهدين ولا تزال هذه المنطقة بحاجة إلى مزيد من العمل للكشف عن جدارها الداخلي، ويبدو من بعض المؤشرات الأولية التي



٥. مخطط المسرح.



٦. غرفة تغيير الملابس.

كشف عنها أنها كانت مسقوفة بمادة الخشب، كذلك احتوت على قبوين الأول في الجهة الشرقية والاخر في الجهة الغربية.

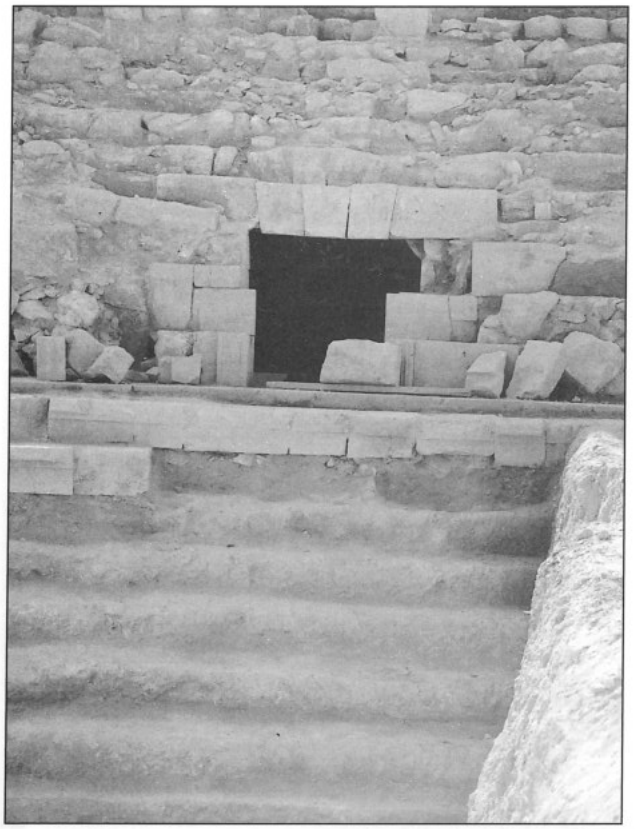
٣. الأوركسترا (Orchestra): تفصل المنصة عن المدرج، شكلها نصف دائري وفيها ممران في الجزء الغربي والشرقي يؤديان إلى قبوين متناظرين يؤديان إلى خارج المسرح ومن الجهتين كانا يستعملان لدخول وخروج المشاهدين.

٤. المدرج أو منطقة تجويف المسرح (Cavea): وهو الجزء المخصص للمشاهدين، وقد جاء هذا الجزء على مستويين هما Imma Cavea وSumma Cavea . حفر الجزء السفلي بالصخر حيث اعتمد الميلان الطبيعي للأرض في بنائه (**الشكل ٧**)، والجزء العلوي والذي رفع على عدد من الأقبية الموزعة على امتداد المنطقة للحصول على الارتفاع المناسب لبناء هذا الجزء (**الشكل ٨**). حيث استخدم لذلك ثمانية أقبية نصف دائرية مطلة إلى داخل المسرح لكل قبو مدخلان داخلي وخارجي وعلى جانب كل منهما درجان صاعدان.

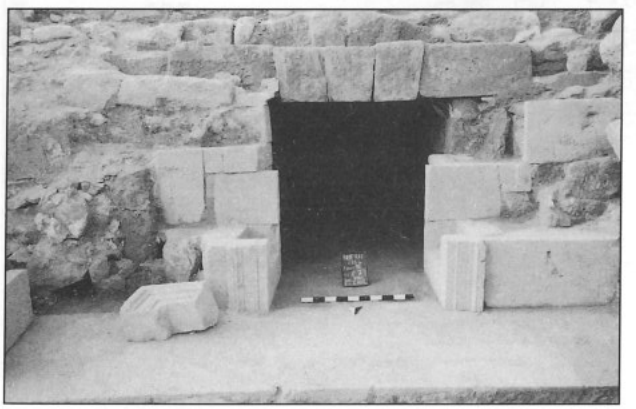
٥. الممر (Praecinctio): يفصل ما بين المستوى الأول من المدرج والمستوي الثاني، بعرض ١٦٠سم تقريباً، يطل عليه مداخل أقبية المستوى الثاني والأدراج الصاعدة إلى الجزء العلوي من المدرج (**الشكل ٨**).

٦. الشرفة العلوية: توجد في أعلى المسرح وتلتف حوله بعرض ٢,٥م تقريباً، ويلاحظ تعرض هذه الشرفة إلى التدمير الكلي تقريباً ولم يبق إلا القليل من العناصر المعمارية الدالة عليها (**الشكل ٩**)، كما يعتقد بأن هذه الشرفة كان يتقدمها صف من الأعمدة. كما ويرجح أنها كانت مسقوفة بالخشب حيث لوحظ وجود بعض الفتحات في تاجيات الأعمدة التي كانت تثبت فيها الأخشاب.

٧. أبراج المراقبة: برجان للمراقبة يوجد الأول في الزاوية الشمالية الشرقية والثاني في الزاوية الشمالية الغربية، مربع الشكل ٣ × ٣م تقريباً بداخله أدراج حجرية، يعتقد أن هذه الأبراج كانت تستعمل للمراقبة قبل وضع سور للمدينة (**الشكل ١٠**)، وهي شبيهه بأبراج مسرح عمان (دهش ١٩٩٣: ٧٣).



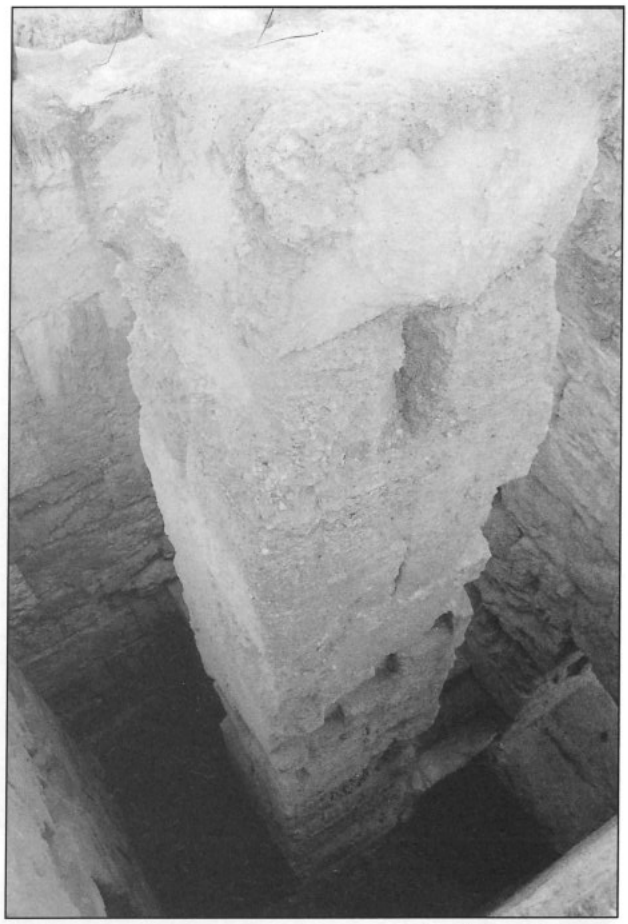
٧. أرضيات المقاعد المحفورة بالصخر.



٨. أحد أقبية الجزء العلوي والممر الفاصل.



٩. جزء من منطقة الشرفة.



١٠. منظر علوي لأحد أبراج المسرح.

٨. النفق: محفور في الصخر بارتفاع ١,٧٠م وبعرض ٨٠سم بطول ١٩,٥م يمتد من منتصف المنصة باتجاه الشمال إلى خارج المسرح، ويعتقد بأنه كان يستعمل من قبل الممثلين لتحقيق عنصر المفاجاءة أثناء القيام بالتمثيل.

العناصر المعمارية الإنشائية

من أهم العناصر الإنشائية ما يلي

١. مادة البناء: تم استعمال مادة الحجر في بناء المسرح كالحجر البازلتي الذي استعمل في بناء أساسات الجدران الرئيسية للمسرح مثل الجدار الخارجي الشمالي، والحجر الكلسي في بناء الجدران والأقبية والمقاعد والممرات وغيرها، كذلك تم استخدم الصخر بعد حفره وتشذيبه في تسوية الأرضية المخصصة لوضع مقاعد المشاهدين في الجزء السفلي وفي حفر النفق الموجود في منتصف المنصة. بالرغم من عدم العثور على أية بقايا لمادة الخشب إلاّ أنه يمكن القول واعتماداً على بعض المؤشرات بأن مادة الخشب قد استعملت في تسقيف المنصة وتسقيف الشرفة العلوية للمسرح.

٢. الجدران: استعمل الحجر بنوعية في بناء الجدران، حيث استعمل الحجر البازلتي أحياناً في بناء الأساسات، بينما استعمل الحجر الكلسي الصلب في بناء المداميك (**الشكل** ١١). وقد جاءت هذه المداميك بارتفاعات مختلفة تراوحت ما بين ٦٠سم و٣٠سم، ويلاحظ الدقة والتقنية العالية في بناءها.

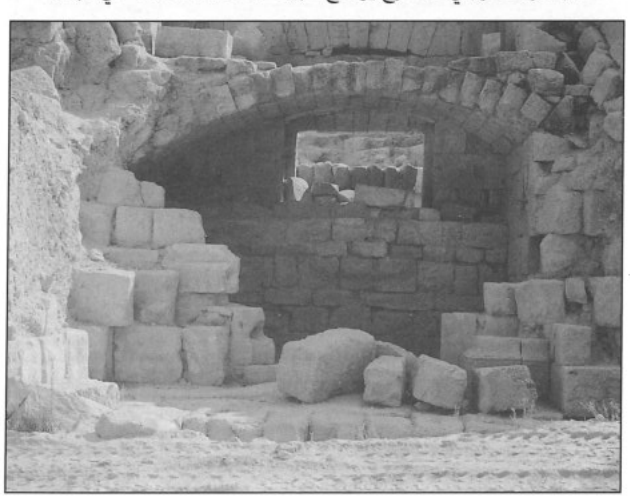
٣. الأقبية: تم استعمال نوعين من نظام التسقيف الأول نظام القبو الهابط (**الشكل** ١٢)، والثاني القبو نصف الدائري (**الشكل** ١٣)، حيث استعمل النوع الأول في تسقيف الأقبية المطلة على المنصة بينما استعمل النوع الثاني في تسقيف العقود المطلة على منطقة الأوركسترا والأقبية التي تم بنائها لرفع منسوب المستوى الثاني من المسرح.

٤. المقاعد أو منطقة تجويف المسرح لمقاعد المشاهدين: وهي على مستوين بني الجزء السفلي مباشرة على الصخر وذلك بعد تسويته وتجهيزه لوضع المقاعد الحجرية فوقه مباشرة بينما بني الجزء العلوي فوق بعض الأقبية نصف الدائرية وقد جاءت مقاعد المسرح على شكلين، تمثل الشكل الأول بالمقعد المسطح بعرض متفاوت وارتفاع ٤٠سم وبعمق ٧٠سم (**الشكل** ٧)، أما الشكل الثاني فقد تمثل بالمقاعد ذات المساند الخلفية (**الشكل** ١٤) ولم يتم تحديد مكان هذه المقاعد حيث لم يعثر إلاّ على مقعد واحد من هذا النوع، وجميع المقاعد من الحجر الكلسي الصلب.

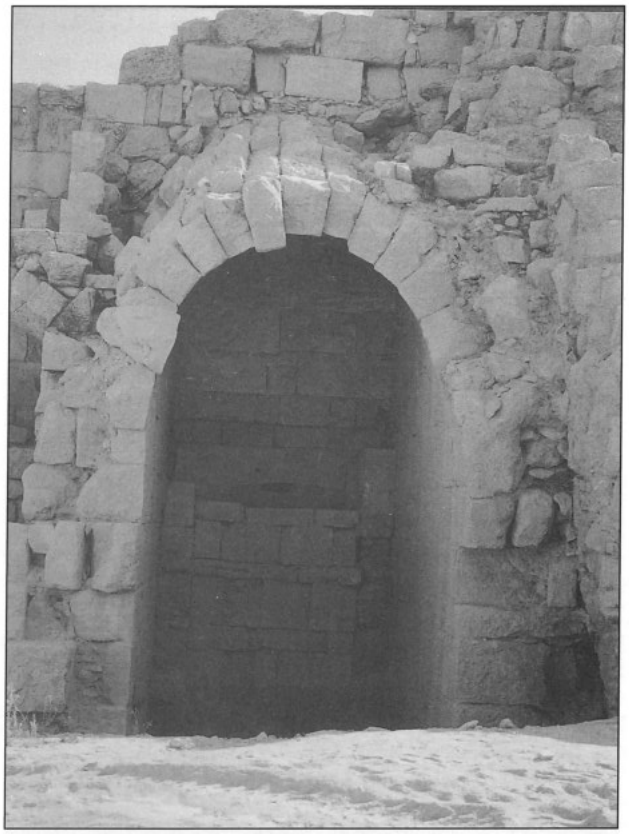
٥. الأعمدة: عثر على عدد كبير من أبدان الأعمدة أثناء التنقيبات الأثرية في غير مكانها ويرجح أن الشرفة العلوية



١١. الجدار الخارجي للمسرح يوضح طبيعة المادة المستخدمة في البناء.



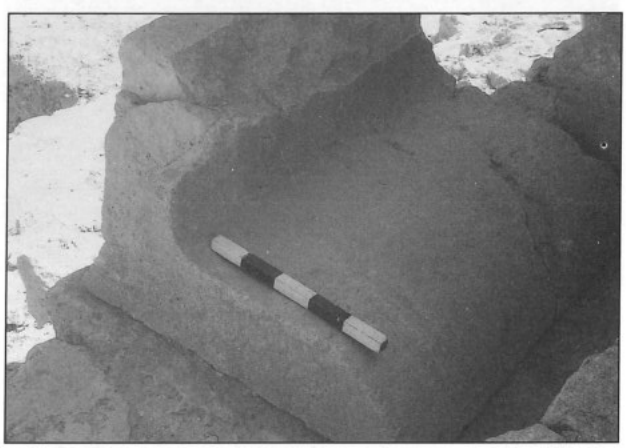
١٢. نظام التسقيف باستعمال القبو.



١٣. نظام التسقيف باستعمال القبو نصف الدائري.



١٥. زخرفة تعلو أحد أبواب الأقبية الشرقية.

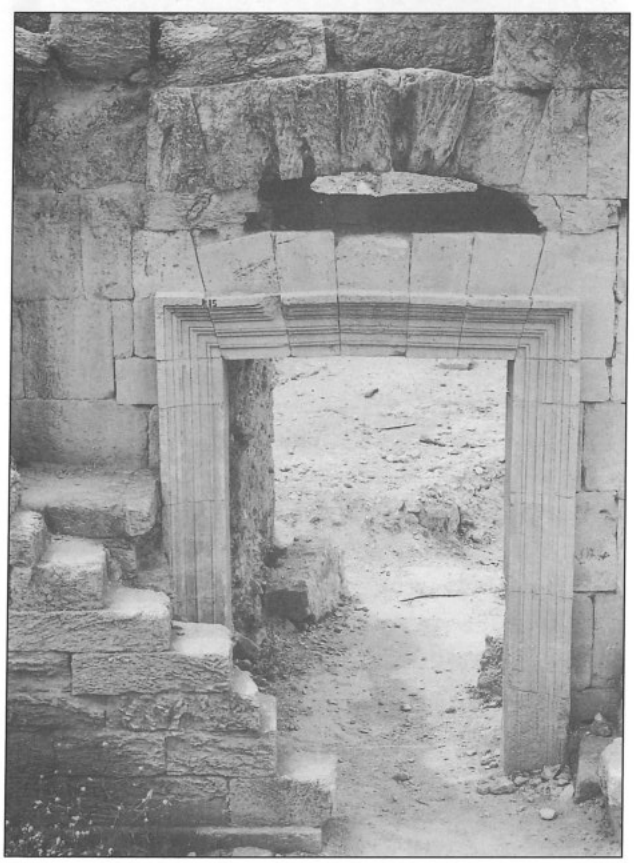


١٤. أحد المقاعد ذات المساند الخلفية.

كان أمامها صف من هذه الأعمدة كما أن خلفية المنصة كانت تحتوي على عدد من الأعمدة.

العناصر الزخرفية

نظراً للدمار الكبير الذي تعرض له المسرح بسبب إعادة استعمال حجارته في بناء بعض المعالم المعمارية الأخرى في الفترة البيزنطية والأموية، وتعرض الكثير من العناصر الزخرفية إلى النقل، إلا أن هناك بعض العناصر الزخرفية النباتية ما زالت تعلو المدخل الشرقي لأحد الأقبية (**الشكل ١٥**) وكذلك الزخارف الهندسية البارزة لمداخل المسرح (**الشكل ١٦**)،

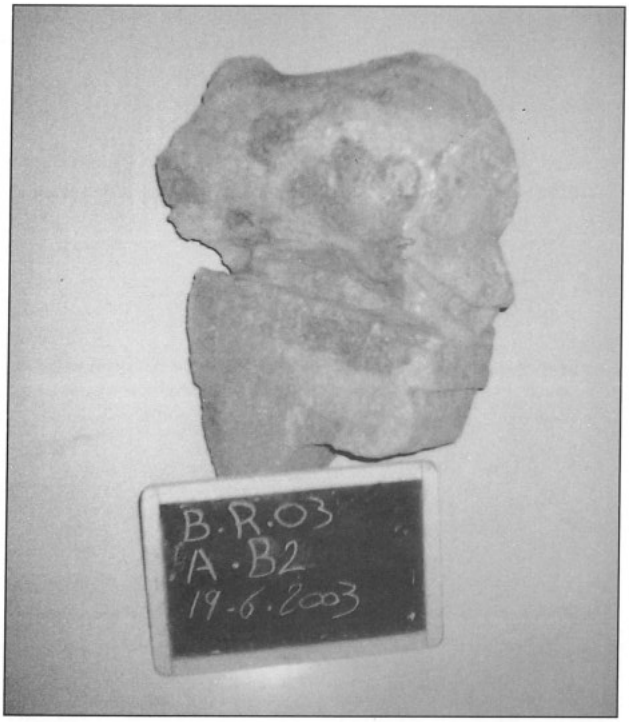


١٦. الزخرفة الهندسية المعتمدة لمداخل المسرح.



١٧. زخرفة هندسية ونباتية يعتقد بأنها كانت تزين الواجهات المرتفعة لخلفية المنصة.

وكذلك تم العثور خلال التنقيبات الأثرية على أشكال هندسية مختلفة ونباتية يعتقد بأنها كانت تزين الواجهات المرتفعة لمنطقة المنصة (**الشكل** ١٧)، وأشكال حيوانية (**الشكل** ١٨) وآدمية يعتقد بأنها كانت تزين الأجزاء الداخلية للمسرح.



١٨. زخارف حيوانية.

المراجع

دهش، منذر

١٩٩٣ **طرق بناء المسارح الرومانية في عمان وأم قيس دراسة مقارنة**. رسالة ماجستير، جامعة اليرموك: اربد.

فياض، سلامة وكراسنة، وجيه

٢٠٠٤ التنقيبات الأثرية في مسرح بيت راس مراحل العمل من الموسم الأول وحتى الموسم الخامس. **حولية دائرة الآثار** ٤٨: ٦٧-٧٥.

Lenzen, C.J., Gordon, R.L. and McQuitty, A.M.

1985 Excavation at Tell Irbid and Beit Ras 1985. *ADAJ* 29: 151-189.

Schumacher, G.

1890 *Northern Ajlun: withen the Decapolis*. London: Alexander P Watt.

سلامه فياض
وجيه كراسنة
دائرة الآثار العامة

تاريخ اليمن السياسي
في العصر العباسي الأول

صالح خلف الحمارنه

هذه الدراسة هي حول الوضع السياسي في البلاد اليمنية في العصر العباسي الأول، وتقف عند تأسيس أول دولة مستقلّة عن الخلافة قامت باليمن ٢٠٤ هجري ٨١٩م، ونعني دولة بني زياد.

كما هو معلوم بلاد اليمن ذات طبيعة جغرافية صعبة - نجود وتهائم - فمنذ ظهور الإسلام وقيام دولة الخلفاء الراشدين، كان اليمن مقسّما إلى مخاليف، أي إلى أقطار واسعة موزعة بين القبائل المختلفة، وحكام عديدين، وفي حالة استقلال ذاتي يذكرنا بالأذواء والأقيال السابقين على الإسلام.

بعد اليمن عن مركز الخلافة ووعورة طرقه كان من بين أهم الأسباب التي حالت بين الخلفاء العباسيين وبين توجيه الجيوش إلى اليمن بقصد توحيد السلطة فيه، فأصبحت تلقائيا بعيدة عن مجرى الأحداث، فالمتتبع لتاريخ العرب المسلمين منذ قيام دولتهم في صدر الإسلام، يرى بوضوح أن البلاد اليمنية نفسها قد استنفذت بسبب "الهجرة" وان دور القبائل اليمنية كان خارج ارض اليمن، هذا الدور الكبير والمهم في الفتوحات الإسلامية، وترسيخ دولة الإسلام ونشره، ثم تشييد الأمصار وإقامتها، والتي أصبحت من المراكز الرئيسة في دولة الخلافة، كل ذلك يفسّر سرّ المشاركة المتواضعة للبلد وللأرض اليمنية نفسها في صدر الإسلام مقارنة بأهمية وفعالية اليمانية كجماعات وأفراد في حياة العرب المسلمين (بروكلمان: ٨١؛ سيد ١٩٧٤: ٨١).

بعد مقتل الخليفة الوليد بن يزيد سنة ١٢٦ هجري، اضطربت الدولة الأموية وازداد نشاط حركات المقاومة لحكم بني أميّة في مختلف الأمصار ومن مختلف الفئات، خوارج وعلويين وعباسيين، انتهت بالتالي بنهاية الدولة الأموية. ونشير هنا إلى واحدة من هذه الأحداث التي وقعت باليمن موضع دراسة هذه الورقة، ونعني نشاط عبد الله بن يحي - طالب الحق - في حضرموت واليمن.

يذكر الطبري في حوادث سنة ١٢٨ هجري

"في هذه السنة لقي أبو حمزة الخارجي عبدالله بن يحيى طالب الحق، فدعاه إلى مذهبه" (الطبري: ٣٠٢).

ويشرح الطبري الخبر فيقول

"كان أول أمر أبي حمزة، وهو المختار بن عوف الأزدي السّليميّ من البصرة، أنه كان يوافي كل سنة مكة يدعو الناس إلى خلاف مروان بن محمد والي خلاف آل مروان. قال: فلم يزل يختلف في كل سنة حتى وافى عبدالله بن يحيى في آخر سنة ثمان وعشرين ومائة. فقال له: يا رجل، اسمع كلاما حسنا، واراك تدعو إلى حق، فأنطلق معي، فاني رجل مطاع في قومي، فخرج حتى ورد حضرموت، فبايعه أبو حمزة على الخلافة، ودعا إلى خلاف مروان وآل مروان" (الطبري: ٣٠٢؛ خيّاط: ٥٨٩)

وكان عبد الله بن يحيى مجتهدا عابدا وحسن السيرة ورأيه من رأي الخوارج الاباضية. ورأى في اليمن جورا وعسفا شديدا، فأتى صنعاء سنة ١٢٩ للهجرة وأقام أشهرا وكثر جمعه، واستولى على اليمن. ثم أن الخليفة مروان بن محمد أرسل جيشا من أهل الشام بقيادة عبد الملك بن محمد القيسي، فهزم الخوارج وقتل طالب الحق عبد الله بن يحيى (الطبري: ٣١٧-٣١٨؛ عطوان: ٥٠٢ و٥٠٤).

وما حركة أبي حمزة الخارجي في حضرموت واليمن إلا واحدة في سلسلة حركات الخوارج التي كانت تعم بلدان الخلافة، فقبيل حركة أبي حمزة هذا، كان الخوارج قد وصلوا إلى أوج نجاحهم في حركة الضحّاك بن قيس الشّيباني عام ١٢٦ للهجرة، الذي تعاظمت حركته فاستولى على الكوفة وبسط نفوذه على العراق وأعلن نفسه أميرا للمؤمنين حتى انظم إليه رجالات من بني أمية، أبرزهم كان عبد الله بن عمر بن عبد العزيز والي الأمويين على العراق، وكذلك الوالي قبله منصور بن جمهور زعيم بني كلب، وذاعت مقولة الشاعر شيبيل بن عزرة الضبعي

ألم تر أن الله أظهر دينه فصلت قريش خلف بكر بن وائل (الطبري: ٢٨٩).

لم تقتصر حركات المقاومة أواخر الحكم الأموي على الخوارج بل كان هناك حركات مقاومة أُخرى مهمة من أبرزها حركة الحارث بن سريج الذي بدأ حركته عام ١١٦ للهجرة في خراسان وفي بلاد ما وراء النهر، واستمر في حركته حتى عام ١٢٨ للهجرة/٧٤٥م، وقد رفع شعار "العمل بكتاب الله وسنة رسوله" وأنه صاحب الرايات السود، وكان متوجها بدعوته بشكل خاص إلى المسلمين من غير العرب، وكانت "المرجئة" المرجع الفكري لهذه الحركة، التي شارك بفاعلية فيها جعد بن درهم شيخ المرجئة نفسه (الطبري: ١٥٤). ناهيك عن الحركات العلوية التي لم تنقطع تقريبا طوال فترة الخلافة الأموية، أما ما يهمنا منها ونحن نكتب في تاريخ اليمن، فهي حركة زيد بن علي بن الحسين، الذي نهض في الكوفة وفيها قتل أيام هشام بن عبد الملك سنة ١٢٢ للهجرة. وقد دعا زيد بن علي الناس

إلى العمل بكتاب الله وسنة رسوله وجهاد الظالمين والدفاع عن المستضعفين وإقفال المجمر، كما دعا المسلمين إلى نصر أهل بيت رسول الله، ومن بعده خرج ولده يحيى في خراسان وقتل أيضا أيام الوليد بن يزيد سنة ١٢٦ للهجرة (الطبري: ٢٠٤-٢٠٥ و٢٣٢)، لقد جئنا على ذكر حركة زيد بن علي - والتي وقعت زمن الأمويين - لأهميتها البالغة جدا في تاريخ اليمن، حيث أن الشيعة الزيدية قد نجحوا لاحقا في إقامة دولة لهم في اليمن ومركزهم كان في صعدة، وذلك على يد الأمام الهادي إلى الحق عام ٢٨٤ للهجرة، وكانت هذه الدولة أطول الدول الإسلامية عمرا حيث استمرت تحكم في اليمن أكثر من ألف سنة (سيد ١٩٧٤: ٨٢).

أما الذي نجح في القضاء على الدولة الأموية، فكانت الثورة العباسية، لقد اتخذت الدعوة العباسية الحميمة في الشراة مركزا لها، ومن مرو في خراسان منطلقا للثورة سنة ١٢٩ للهجرة، وكان انتصارها الحاسم في معركة الزاب الأعلى سنة ١٣٢ للهجرة، هذه المعركة التي خسرها آخر خلفاء بني أمية مروان بن محمد وقد قتل بعد ذلك (اليعقوبي: ٣٣٨؛ الدوري ١٩٨٨: ٩).

مع قيام الدولة العباسية تدخل البلاد اليمنية في نطاق البلدان التي شملتها الخلافة العباسية فيرسل الخليفة أبو العباس عمر بن عبد الحميد بن عبد الله بن زيد بن الخطاب عاملا على اليمن، وان هذا العامل قد بوّب جامع صنعاء إذ لم يكن له باب من قبل (محمود ١٩٦٩: ٩٨٠؛ الخزرجي). ثم أن الخليفة أبا العباس أخذ يرسل من أبناء خواله من بني حارثة اليمانية عمّالا على اليمن لاطمئنانه إليهم، وليكونوا بمثابة جسر مودة بينه وبين اليمانية، فأرسل محمد بن يزيدي بن عبد المدان الحارثي، ثم خلفه عبد الله بن مالك الحارثي، وتبعه علي بن الربيع بن عبد الله الحارثي. وأحب هنا أن أشير إلى نقطة هامة، أنه أثناء ولاية الأمير علي بن الربيع على اليمن ١٣٤ - ١٤٠ هـ (زامباور: ١٧٦) وصلتنا كتابة على لوح مثبت في مئذنة جامع صنعاء تشير بوضوح إلى أن الخليفة ابي العباس كان يلقب بالمهدي، لا السفّاح وهذا تصحيح لما هو شائع في سيرته.

واثبت النص هنا - نقلا عن بحث قيّم لعبد العزيز الدوري - بعنوان الفكرة المهدية (الدوري ١٩٨١: ١٢٣)

"بسم الله الرحمن الرحيم/لا اله الا الله وحده لا شريك له محمد رسول الله بالهدى ودين الحق ليظهره على الدين كله ولو كره المشركون/أمر المهدي عبدالله عبدالله /أمير المؤمنين أكرمه الله بإصلاح المساجد وعمارتها/على يد الأمير علي بن الربيع/أصلحه الله في سنة ست وثلاثين ومائة عظم/الله اجر المهدي و تقبل عمله".

هذه الوثيقة تشير بوضوح أن أبا العباس، أول خلفاء العباسيين قد اتخذ لقب المهدي قبل أن يتخذه ثالثهم محمد بن عبدالله ١٥٨-١٦٩هـ /٧٧٥-٧٨٥م، بتدبير من والده المنصور. هذا وقد عززت هذا الأمر المصادر أيضا، فقد جاء في كتاب أخبار العباس ما يلي: "أن محمد بن علي قال لبكير بن ماهان، مشيرا لولده عبدالله بن الحارثية-هذا المجلّي عن بني هاشم القائم المهدي".

وبعد علي بن الربيع يتولى على اليمن عبدالله بن الربيع الحارثي، الذي امتدت ولايته حتى أيام المنصور الذي يعزله ليخلفه معن بن زائدة الشيباني.

فقد وردت على المنصور الأخبار من اليمن بأن الأهالي قد طردوا واليهم عبدالله بن الربيع وثار الخوارج في البلاد (الازرقي: ١٧٥). عندها يولي المنصور معن بن زائدة أميرا على اليمن، فقد ارتاب الخليفة في حلف تم ما بين اليمانية وربيعة، رأى فيه خطرا مباشرا يهدد أمن الخلافة (خياط: ٤٦١). ورأى بأن يلقي على معن بن زائدة مهمة كسر هذا الحلف.

ويفصل اليعقوبي الخبر كما يلي

"في هذه السنة (١٤٢هـ) خرج أبو جعفر إلى البصرة يريد الحج، فلما صار بالجسر الكبير، أتاه الخبر بأن أهل اليمن قد اظهروا المعصية، وأن عبد الله بن الربيع عامل اليمن قد هرب ممن وثب عليه وضعف عنهم. فوجه بمعن بن زائدة الشيباني إلى اليمن. وانصرف أبو جعفر، ولم يحج، وقدم معن بن زائدة اليمن فقتل من بها قتلا فاحشا، وأقام تسع سنين" (اليعقوبي: ٣٧٢).

سار معن إلى اليمن في عسكر من قومه، وبصحبته عدد من أبنائه الناشئين وابن أخيه يزيد بن مزيد، وللحال أعمل السيف في المخاليف "وأحرب مدينة معافر، وقتل من أهلها نحوا من ألفين، كما قتل عبدالله بن يحيى الحضرمي، وخمسة عشر ألفا معه بحضرموت، والبس السواد لأهل اليمن" (محمود ١٩٦٩: ٩٨). لا ندري كم هي دقيقة هذه الأرقام في عدد القتلى، ولا مدى بعد المبالغات في المعلومات التي تذكرها المصادر، لكن لا شك بأن مهمة معن في اليمن كانت صعبة وقاسية، ذلك أن قبائل اليمن قوية الشكيمة وأنها منحرفة في هواها عن بني العباس.

ترى لماذا وقع اختيار أبي جعفر على معن بن زائدة وهو إلى وقت قريب كان مستترا عنه، فهو خصمه وطلبته؟ وثم كيف نفسر خطاب التكليف الذي وجهه أبو جعفر لمعن بن زائدة ، حيث يقول مخاطبا معنا

"قد وليتك اليمن، فابسط السيف فيهم، حتى ينقض حلف ربيعة واليمن! قال معن : أبلغ من ذلك ما يحب أمير المؤمنين"

فولاه اليمن وتوجه إليها فبسط السيف فيهم حتى أسرف (الأصفهاني: ٤١)، كما وأعطى عطايا لم يعط مثلها أحد (البلاذري: ٢٣٧؛ بن يحيى ١٩٧٨). لماذا معن بالذات؟ ولكي نجيب على هذا السؤال، دعنا نعود للوراء قليلا ونتحدث عن الرجل، فمعن من مخضرمي الدولتين الأموية والعباسية ومن الرجال البارزين في كل من الدولتين. فكان بجانب آخر عمّال بني أمية على العراق يزيد بن عمر بن هبيرة الفزاري، يحارب معه العباسيين عند حصارهم له في واسط، يذكر أبن قتيبة

"يطول الحصار، ويمتد شهورا ويثقل عليهم، فأرسل أبو العباس أخاه أبا جعفر للإشراف على الحصار الذي طال، ودعا ابن هبيرة اليمانية الذين كانوا في واسط للتضامن معه، ولكن أبا جعفر انتبه للخطر ولخوفه من أن يثور اليمانية مع أبن هبيرة كتب إليهم قائلا: "السلطان سلطانكم والدولة دولتكم" (إبن قتيبه: ٢٤١).

فينحاز زياد بن صالح الحارثي كبير اليمانية - أبو الصواعق - وعامل ابن هبيرة على الكوفة (البلاذري: ١٣٨) مع أصحابه إلى دعوة المنصور، مما اضطر أبن هبيرة لقبول الصلح وكتب له كتاب أمان له ولمن معه، ولكن العهد لم يحفظ وقتل ابن هبيرة رغم تردد أبي جعفر الذي كان من رأيه الوفاء له والاحتفاظ بابن هبيرة (الطبري: ٣٦٠-٣٦٢).

لقد كان معنا منحازا لدولة بني أمية لأنه يرى أنها تمثله - كما تمثل بقية رجالات وزعماء العهد الأموي من أمثال ابن هبيرة ونصر بن سيّار - فكانوا جميعا يعتبرون الدعوة العباسية خراسانية وانتصارها كسب للموالي والفرس في خلافة أبي جعفر حدثت واقعة "يوم الهاشمية" الذي أصبح يوما حاسما في علاقة أبي جعفر بمعن بن زائدة الشيباني، جاء في كتاب الكامل لأبن الاثير: "وفي هذه السنة -١٤١هـ- كان خروج الراوندية على المنصور، وهم قوم من أهل خراسان على رأي أبي مسلم يقولون بتناسخ الأرواح وأن ربهم الذي يطعمهم ويسقيهم هو المنصور، فأخذ المنصور رؤوسهم فحبس منهم مائتين، فغضب أصحابهم وقصدوا نحو المنصور فخرج لهم من القصر ماشيا، وتكاثروا عليه حتى كادوا يقتلونه. وجاء معن بن زائدة وكان مستترا من المنصور بقتاله مع ابن هبيرة كما ذكرناه، فلم يزل يقاتل حتى تكشف الحال وظفر بالراوندية فقال له المنصور: من أنت؟ قال: طلبتك يا أمير المؤمنين معن بن زائدة، فقال آمنك الله مثلك يصطنع" (ابن الأثير: ١٢٩) - الهاشمية نسبة إلى هاشمية الكوفة حيث كان ينزل المنصور قبل بنائه بغداد، بعدها يتولى معن على اليمن واليا تسع سنين ثم كتب المنصور إليه: "سنة ١٥١ هـ أن يقدم، فاستخلف أبنه زائدة على اليمن، وقدم على أبي جعفر وكان معن قد أسّن، فقال له أبو جعفر: كبرت سنك يا معن! قال: في طاعتك يا أمير المؤمنين! قال: وانك لتتجلد، قال: على أعدائك، قال: وان فيك لبقية، قال: هي لك". من هذه القصص الطريفة، نتلمس أن الخليفة المنصور أصبح غير مطمئن لاستمرار معن أكثر في إمارته على اليمن خوفا من تثبيت أقدامه وهو الأمير الشجاع والقائد المجرب الطموح فقد تحدثه نفسه في الانفصال والخلع. ومن جهة أخرى كانت الأوضاع في بلد آخر بعيد عن مركز الخلافة مضطربة منذ زمن بعيد، وهذا البلد هو سجستان. فرأى المنصور أن يرسل قائده المجرب معن بن زائدة واليا عليه، فذهب معن إلى سجستان وأتخذ من مدينة بيست مركزا له. وجاء عن الطبري "ودخلت سنة اثنين وخمسين ومائه وفيها قتل الخوارج معن بن زائده الشيباني ببست سجستان"، وقيل أن قاتله بالتحديد هو هلال بن المفضل الطائي من بني فطرة وكان معن قد قتل أخاه في اليمن فتبعه حتى سجستان فقتله ثأرا لأخيه، وقال شاعرهم "ونحن قتلنا خير بكر بن وائل" (اليعقوبي: ٣٨٤-٣٨٥؛ الطبري: ٥٠٣؛ الأزدي: ١٧٧)

يبدو أن المنصور قد ارتاح لتولية يزيد بن منصور - خال ولده محمد المهدي - أميرا على اليمن الذي بقي واليا حتى بعد وفاة المنصور ذلك أن المهدي قد أقرّه واليا على اليمن حتى وفاة يزيد بن منصور نفسه (الخزرجي: ٨٣). ثم جاء الغطريف - خال الرشيد - أميرا على اليمن، الذي واجه فتنة ثائرة بين أهل جند وصنعاء واستطاع بكثير من الصبر أن يصلح بينهم (الخزرجي: ٨٦).

مع تولي هارون الرشيد الخلافة (١٧٠-١٩٣هـ) تبرز في اليمن ثلاثة أمور بشكل واضح

١. كثرة الولاة الذين يرسلون لتولّي الإمارة في اليمن الواحد تلو الآخر، فيذكر كتاب "اليمن في عهد الولاة" أن الرشيد أرسل أكثر من ١٢ واليا عليها (الخزرجي: ٨٦-٨٨)، وهذا دليل واضح على استمرار الاضطراب في اليمن. وان الأهالي بمختلف قبائلهم ومخاليفهم لم يخلدوا للسكينة والرضوخ.
٢. كثيرا ما يكون الوالي على اليمن واليا في الوقت نفسه في مكّة، فمثلا أرسل الرشيد محمدا بن إبراهيم الهاشمي واليا على اليمن وجمع له الحجاز، كذلك فإن عامله حمّاد البربري قد جمع بين مكّة واليمن عام ١٨٤ هـ (القلقشندي: ٢٦٧).
٣. أخذت ثورات الخوارج بالتصعيد من جديد، صحيح أن نشاط الخوارج قد قلّ عما كان عليه أيام الأمويين، وان شوكتهم في العهد العباسي لم تكن كشوكتهم وقوتهم في العهد الأموي، ومع ذلك فقد حاربوا العباسيين بقوة وصلابة وجلد، يشبه ذلك الذي كان لهم في العصر الأموي.

فالخوارج نظروا أيضا إلى بني العباس كنظرهم إلى خلفاء بني أميّة، كلهم لا يصلح للخلافة، ولم يختر الخليفة منهم اختيارا حرّا صريحا، ولم يستوف الشروط التي يجب توافرها في الأمام، وكلهم يجب الخروج عليه (أمين).

ففي أيام السفاح تحرك خوارج عمان والجزيرة، وكذلك اشتعلت ثورة الوليد بن طريف - الشاري - في الجزيرة الفراتية أيام الرشيد، والذي يهمنا أنه في أيام الرشيد أيضا ثار الخوارج في اليمن بزعامة الهيصم، فبعث الرشيد مولاه حمّادا البربري وقال له: أسمعني أصوات أهل اليمن (الخزرجي: ٩٠). وجاء عند اليعقوبي تفاصيل عن حركة الهيصم ثم كيفية القضاء عليه نثبتها فيما يلي: "ووثب الهيصم بن عبد المجيد الهمذاني باليمن سنة ١٧٩هـ، وغلب عليها، فكان معقله بجبل له مسور، وكان معه عمر بن أبي خالد الحميّري مقيما بعشتان، وكان معه الصّباح بناحية يقال لها حراز، فلقوا حمّادا البربرّي وكانت بينهما وقائع قتل فيها نيّف وعشرون ألفا من الناس، وأسر حمّاد عمر بن أبي خالد، فوجه به إلى الرشيد، واتصلت الحرب بينه وبين الهيصم تسع سنين. ثم صار إلى حمّاد رجل من أهل البلد فأعلمه أن الهيصم قد نزل من قلعته، وصار إلى قرية من القرى متنكرا يتجسس الأخبار، فوّجه معه إلى تلك القرية بقائد فأخذ الهيصم، فقال الهيصم: والله ان القتل لشيء ما انكره، وما خلقت الرجال الا للموت والقتل. فحمله حمّاد على جمل وأدخله صنعاء، ثم وجه به إلى الرشيد فدعا بالهيصم فأمر بضرب عنقه" (اليعقوبي: ٤١٢).

وأقام حمّاد البربري أميرا على اليمن ثلاث عشرة سنة، سام أهلها سؤ العذاب (اليعقوبي: ٤١٣) حتى دانوا له وأطاعوا وسلموا ما يجب عليهم من الخراج المعتاد وزيادة. ومع ذلك نقرأ في كتاب اليمن في عهد الولاة "وعمرت اليمن في أيامه

وخاصة صنعاء وأمنت السبل حتى كانت القوافل تقدم من اليمامة فيها القطيع من الغنم على كل شاة مخلتان في كل مخلاة ستة أمداد تمر فتباع بأرخص الأثمان، وأخصب اليمن في أيامه خصبا لم يعهد مثله ورخصت الأسعار" (الخزرجي: ٩٠-٩١). وكان حمّاد عبدا لهارون فأعتقه في أول خلافته، ثم عزل الرشيد حمّادا واستعمل مكانه عبدالله بن مالك، فلم يزل في البلد محمود السيرة جميل المذهب حتى توفي هارون (اليعقوبي: ٤١٣).

جاء في كتاب "اليمن في عهد الولاة"

"أن الرشيد أرسل في وقت سابق بمحمد بن برمك واليا على اليمن فأقام بها حتى جرّ إليهم النهر المعروف بالبرمكي، و يعطي الخزرجي صورة براقة تشيد بأعمال هذا البرمكي حيث يقول: وكان ابن برمك من أحسن الولاة القادمين على اليمن عدلا ورفقا وحسن سيرة ، وكان كثير الصدقة في جميع أحواله، وكثير التفقد لأحوال الرعية محبا ومشفقا عليهم" - لا ندري ربما ما قيل عن ابن برمك يدخل ضمن مبالغات الكتاب في سيرة آل برمك (الخزرجي: ٩٠).

أما في زمن المأمون فتتميز الحالة السياسية في اليمن بالنهوض العلوي الذي شمل البلاد اليمنية. فحين ثارت الفتنة ما بين الأخوين الأمين والمأمون، ودارت الحرب بينهما وقتل الأمين عام ١٩٨هـ، عندها اندلعت حركات العلويين من جديد وبشكل لم يعرف من قبل منتهزين الخلاف الذي وقع في البيت العباسي (المسعودي)[1] . والفوضى الشاملة التي عمت ارض الخلافة، وحيث أن مسألة الخلافة بنظر العلويين لم تسو بعد بينهم وبين بني عمومتهم، لذا سارع العلويين لانتهاز هذه الفرصة للعمل على تنحية العباسيين عن كرسي الخلافة التي فازوا بها دونهم.

ومن الملاحظ أن حركات العلويين هذه قد شملت الأقاليم العربية من أقطار الخلافة كالعراق والحجاز واليمن. وان أخطر هذه الحركات كانت حركة العلوي محمد بن إبراهيم المعروف بابن طباطبا وكان القائد المحرك لثورة أبي السرايا الشيباني سنة ١٩٩هـ، وقد شملت بلاد اليمن، حيث جاءها إبراهيم بن موسى الكاظم واليا عليها من قبل ابن طباطبا، الذي توفي قبل وصول إبراهيم بن موسى إليها سنة ٢٠٠هـ [2] .

لقد شجع العلويين على نشاطهم في اليمن أمران الأول اعتقاد حسن في حب آل البيت ناتج عن دخول الإمام علي (رضي الله عنه) إلى اليمن، وخاصة في وسط قبائل همدان (سيد ١٩٨٨: ٥٢)، والثاني هو بعد اليمن وتطرفها عن مركز الخلافة.

فكانت حركة إبراهيم بن موسى الكاظم هي الأبرز لنشاط العلويين في اليمن "ولما آلت الخلافة إلى المأمون، وظهرت دعاة الطالبين بالنواحي ظهر إبراهيم بن موسى الكاظم سنة مئتين ولم يتم أمره وكان يعرف بالجّزار لسفكه الدماء" (عمارة: ١٣٤). استطاع إبراهيم بن موسى أن يسيطر على اليمن بسهولة، ذلك أن واليها العباسي اسحق بن موسى الهاشمي أخلى صنعاء مع جنده، حتى قبيل وصول إبراهيم إليها فقد بمجرد سماعه اقتراب الثوار العلويين (عمر ١٩٩٦: ٢٤٤)، وهكذا بسط إبراهيم بن موسى سيطرته على إقليم اليمن لأكثر من سنة رغم انحسار سيطرة العلويين في كل من العراق والحجاز. يذكر اليعقوبي "ووجه - الحسن بن سهل - حمدويه بن علي بن عيسى بن ماهان إلى اليمن، وإبراهيم بن موسى بن جعفر العلويّ متغلب بها، فحاربه إبراهيم بمن معه من اليمن، وكانت وقعات منكرة تأخذ من الفريقين، فخرج إبراهيم بن موسى مندحرا من اليمن يريد مكة فدخلها وغلب عليها" (اليعقوبي: ٤٤٨).

وحدث في أثناء ذلك أن بايع المأمون لعلي الرضى ابن موسى بولاية العهد، وإبراهيم بن موسى مقيم في مكة فسارع إبراهيم فبايع للمأمون ولولي عهده وبايع الناس ولبسوا الأخضر (اليعقوبي: ٤٤٩)، وفي هذه السنة - ٢٠٢هـ - حج بالناس إبراهيم بن موسى، فدعا لأخيه بعد المأمون بولاية العهد (الطبري: ١٤٥).

فكتب المأمون إلى إبراهيم بن موسى بولاية اليمن، فخرج من مكة وصار إلى صنعاء وأمر المأمون عيسى الجالودي بالخروج معه ومعونته على محاربة حمدويه بن علي بن ماهان فحمدويه كان قد خلع المأمون (اليعقوبي: ٤٤٨-٤٤٩). ولكن الجالودي ماطل وتعذر ولم ينشط لمساعدة إبراهيم بن موسى، فخسر إبراهيم ولم يرده شيء دون مكة (وبالتالي يخرج لمرو عند المأمون) عندئذ يعلن حمدويه بن علي استقلاله عن السلطة المركزية استياء من سياسة المأمون الموالية للعلويين شأنه في هذا شأن أهل بغداد.

فوجه المأمون بعيسى بن يزيد الجالودي عاملا على اليمن، فنفذ الجالودي إلى اليمن، وزحف إليه حمدويه، وشبت الحرب بينهما وانهزم حمدويه فلاذ ببيت في مدينة صنعاء فأتبعه الجالودي حتى صار إلى الدار التي كان ينزلها، فأخذه الجالودي وهو في ثوب جارية من جواريه، فقال له: سؤة لك، قائد وأبن قائد يقاتل خليفة ويفرّ من الموت هذا الفرار، قد آمنك الله على دمك حتى تصير إلى أمير المؤمنين، فيحكم فيك برأيه، وأشخصه إلى المأمون (اليعقوبي: ٤٥٥).

تتوالى الأحداث بسرعة، فبعد بيعة المأمون لعلي الرضى بولاية يشتد ذلك على بني العباس جدا، وخرجوا وبايعوا إبراهيم بن المهدي، ولقب - المبارك - فجهز المأمون لقتاله وسار المأمون نحو العراق (السيوطي: ٣٠٧) ولكي يمهد لدخول مقبول لدار السلام، أخذ وبطريقته الخاصة يزيل كل العقبات. ففي سنة اثنتين ومائتين قتل الفضل بن سهل ذو الرياستين في حمام غيلة، وذلك بمدينة سرخس من بلاد خراسان، وذلك في دار المأمون في مسيره إلى العراق (المسعودي: ٣٤٧)، ثم قضى علي بن موسى لعنب أكله وأكثر منه، وقيل أنه كان مسموما وذلك سنة ثلاث ومائتين، والمأمون بطريقه إلى بغداد

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١. لقد ذكر المسعودي أنه "في سنة مائتين أمر المأمون بإحصاء ولد العباس من رجالهم ونسائهم وصغيرهم وكبيرهم، فكانوا ثلاثة وثلاثين الفا".

٢. المؤلف مجهول والمصدر بعنوان العيون والحدائق ج٣، تحقيق دي خويه ليدن ١٨٦٩: ص٣٤٧.

(المسعودي).

وفي الوقت نفسه – والمأمون متوجه لبغداد – أتاه أيضا كتاب من عامله على اليمن بخروج الأشاعرة وعك وهم أجل عرب تهامه، وكان المأمون قد أتى بقوم من ولد زياد بن أبيه وقوم من ولد هشام وفيهم رجل من تغلب يقال له محمد بن هارون، وكانوا أكثر من مئة رجل – وقد أضافهم المأمون إلى الحسن بن سهل (الحموي: ١٣٢).

وجاء في كتاب "تاريخ اليمن"

لما وفد وجوه اليمن على المأمون، وكان فيهم محمد بن زياد، من ولد عبيدالله بن زياد بن أبي سفيان، فأستعطف المأمون، وضمن له حياطة اليمن من العلويين. فوصله وولاه اليمن، وقدّمها سنة ثلاث ومئتين وفتح تهامه اليمن، وهو البلد الذي على ساحل البحر الغربي واختط فيها مدينة زبيد، ونزلها واختارها كرسيًا لتلك المملكة (عمارة: ١٣٤).

ولعل المأمون باختياره محمد بن زياد أميرا على اليمن، أراد أن يرمي العلويين بخصم لهم من بني أمية ليضع حدا لنفوذهم. حيث أن حركة إبراهيم بن موسى قد تبعها فيما بعد حركات واضطرابات شتى في أنحاء البلاد اليمنية قام بها علويين جاءت على ذكرها المصادر العربية الإسلامية، ومنها كتاب الكامل لأبن الأثير، نذكر واحدة منها على سبيل المثال، أقربها لقيام دولة بني زياد

"في هذه السنة (٢٠٧هـ)، خرج عبد الرحمن بن أحمد بن عبد الله بن محمد بن عمر بن علي بن أبي طالب رضي الله عنهم ببلاد عك في اليمن، يدعو إلى الرضا من آل محمد (ص). وكان سبب خروجه أن العمال باليمن أساؤوا السيرة فيهم فبايعوا عبد الرحمن هذا" (ابن الأثير: ٤٦٨).

يؤكد عمارة أن محمدا بن زياد قد استولى على اليمن أجمع، ودخلت في طاعته أعمال حضرموت والشحر وديار كندة وصار في مرتبة التبابعة (عمارة: ١٣٤).

وحين اختط محمد بن زياد مدينة زبيد سنة ٢٠٤هـ، فقد راعى في ذلك الناحيتين العسكرية والمدنية، حتى أصبحت زبيد من أهم المدن اليمانية عمرانا وثقافة (الحضرمي ٢٠٠٠؛ العميد ١٩٧٠).

ويصف مدينة زبيد الجغرافي المقدسي من القرن الرابع للهجرة العاشر للميلاد "بأنها بغداد اليمن، فهي بلد جليل ونفيس، حسن البيان ومستقر ملوك اليمن وقصبة تهامه، وبها نجار كبار وعلماء وأدباء، بلد مفيد لمن دخله مبارك على من سكنه" (المقدسي).

ان قيام الدولة الزيادية (٢٠٤-٤٠٩هـ /٨١٩-١٠١٨م) هو تتويج للذات اليمنية، هذه الذات التي كانت تسعى طوال الفترات السابقة للظهور والتميز. وقد فهم المأمون هذا التميز، كما فهمه قبله أبوه الرشيد بالنسبة لدولة الأدارسة ودولة الأغالبة، فأن المأمون فعل الشيء نفسه بالنسبة لدولة بني زياد وبعدهم لدولة بني طاهر. كما وان قيام دولة بني زياد كانت فاتحة للدول المستقلة اللاحقة، التي قامت على امتداد البلاد اليمنية، والتي جميعها جاءت بصورة أو بأخرى تجسيدا للذات اليمنية، وتمثيلا للمجتمع اليمني ذو الأطياف المتعددة في مخاليفه المختلفة جغرافيا، مذهبيا، عقائديا وقبائليا، لقد كان جهاد أهل اليمن جهادا اجتماعيا واعيا، كما كان جهادا دينيا ضد حكم جائر. هذا وتزامن قيام دولة بني زياد كأول دولة مستقلة في اليمن زمن المأمون الذي مع نهاية خلافته (٢١٨هـ/٨٣٣م). انتهى العصر العباسي الأول، حيث أن الخليفة المعتصم الذي تولى الأمر بعده قد نقل عاصمة الخلافة إلى سرّ من رأى / سامرا، وقد أدخل بشكل واسع وقوي عنصرا جديدا كان له خطورته وقوته في مجتمع الخلافة على مدى الأيام ألا وهو العنصر التركي، إلى جانب العنصرين الأولين العربي والفارسي. وبهذا يؤرخ العديدين انتهاء العصر العباسي الأول.

صالح خلف الحمارنه
الجامعة الأردنية-عمان

المصادر

المصادر حسب التسلسل الزمني للمؤلفين

خليفة بن خياط

١٩٦٧ **تاريخ بن خياط**. تحقيق أكرم العمري، النجف .

ابن قتيبة، عبدالله بن مسلم

١٩٠٤ **الامامة والسياسة** (منسوب إليه). القاهرة.

البلاذري، احمد بن يحي

انساب الأشراف – القسم الثالث.

١٩٧٨ تحقيق عبدالعزيز الدوري. بيروت .

اليعقوبي

١٩٧٠ **تاريخ اليعقوبي**. بيروت : دار صادر.

الطبري، ابو جعفر محمد بن جرير

١٩٨٨ **تاريخ الطبري – تاريخ الأمم والملوك**. بيروت : دار الكتب العلمية.

الاشعري، علي اسماعيل

١٩٦٧ **مقالات الإسلاميين واختلاف المصلين**. الازدي، ابو زكريا يزيد بن محمد تاريخ الموصل. تحقيق علي حبيبة القاهرة .

الاصفهاني، ابو الفرج علي

مقاتل الطالبيين. شرح وتحقيق السيد احمد صقر. بيروت: دار المعرفة.

كتاب الاغاني. تصحيح الشيخ احمد الشنقيطي. مصر: مطبعة التقدم.

المسعودي، علي بن الحسين

١٩٦٦ **مروج الذهب ومعادن الجوهر**. تحقيق محمد محي الدين عبد الحميد. القاهرة .

الهمذاني، ابو محمد الحسن بن احمد

١٩٧٤ **صفة جزيرة العرب**. تحقيق محمد بن علي الاكوع. بيروت ١٣٧٣.

الأكليل. تحقيق القاضي محمد علي الأكوع. الرياض .

المقدسي-البشاري، ابو عبدالله محمد بن احمد

١٩٥٧ **احسن التقاسيم في معرفة الاقاليم**. السلسلة

الجغرافية. بيروت: دار احياء التراث.
عماره اليمني، نجم الدين ابي محمد
تاريخ اليمن. نشره حسن سليمان محمود. القاهرة .
ياقوت الحموي، شهاب الدين ابي عبدالله
١٩٧٩ **معجم البلدان**. بيروت : دار احياء التراث العربي.
ابن خلكان، أبو العباس شمس الدين
١٩٦٩-٧٢ **وفيات الاعيان وانباء ابناء الزمان**. تحقيق احسان عباس. بيروت .
ابن الطقطقا، محمد بن علي
١٩٩٥ **الفخري في الآداب-السلطانيه**. بيروت : دار صادر.
الخزرجي، ابو الحسن موفق الدين
١٩٧٦ **اليمن في عهد الولاة**، مأخوذ من مخطوط كتاب الخزرجي الكفاية والاعلام في من ولي اليمن وسكنها من ملوك الاسلام. تحقيق راضي دغفوس. تونس .
القلقشندي، احمد بن علي
١٩٦٤ **صبح الاعشى في صناعة الانشا** . تحقيق عبدالستار فراج. الكويت .
السيوطي، جلال الدين عبد الرحمن
١٩٥٢ **تاريخ الخلفاء**. تحقيق محمد محي الدين عبد الحميد. القاهرة : مطبعة السعادة.

المراجع

أمين، احمد
١٩٣٣ **ظهر الإسلام**. القاهرة.
بيضاني، ايمان احمد
٢٠٠٣ الحياة الاقتصادية والمظاهر الاجتماعية في اليمن. **مجلة اليمن** العدد١٧.
بروكلمان، كارل
تاريخ الأدب العربي، ج.٣ ترجمة عامر النجار.
حسن، ناجي
١٩٦٦ **ثور زيد بن علي**. بغداد.
الحضرمي، عبد الرحمن بن عبد الله
٢٠٠٠ **زبيد-مساجدها ومدارسها في التاريخ**. دمشق.
حلمي، احمد
١٩٥٩ **الخلافة والدولة في العصر العباسي**. القاهرة.
الحمارنه، صالح
١٩٨٢ معن بن زائدة الشيباني. **مجلة افكار** العدد ١. عمان.
٢٠٠٣ الحالة في حمص عشية سقوط الدولة الأموية. **مجلة البحث التاريخي** العدد ٧. سوريا: حمص.
الدوري، عبد العزيز
١٩٨١ الفكرة المهدية بين الدعوة العباسية والعصر العباسي الاول. ضمن الكتاب التذكاري للدكتور احسان عباس **دراسات عربية واسلامية**. بيروت.
١٩٨٨ العصر العباسي الأول، الطبعة الثانية. بيروت.
زامباور، ادوار
١٩٥١-١٩٥٢ **معجم للأنساب والأسرات الحاكمة** ١-٢. ترجمة زكي محمد حسن وآخرون. القاهرة.
سيد، ايمن فؤاد
١٩٨٨ **تاريخ المذاهب الدينية في بلاد اليمن**. بيروت.
١٩٧٤ **مصادر تاريخ اليمن في العصر الاسلامي**. القاهرة.
شكري، محمد سعيد
٢٠٠١ احداث الردّة في اليمن. **مجلة اليمن** عدد ١٧. جامعة عدن.
عبدالله، ماضي محمد
١٩٥٠ دولة اليمن الزيدية نشأتها- تطورها- علاقاتها. **المجلة التاريخية المصرية** عدد٣.
عطوان، حسين
١٩٨١ **الوليد بن يزيد**. بيروت.
العلي، صالح احمد
التنظيمات الاقتصادية والاجتماعية في البصرة.
عمر، فاروق
١٩٨٨ **الخلافة العباسية**. دار الشروق.
العميد، صابر مفيد
١٩٧٠ بناء مدينة زبيد في اليمن. **مجلة كلية الآداب**- جامعة بغداد العدد ١٣.
محمد بن صالح
١٩٧٨ دولة الخوارج في اليمن بنو مهدي في زبيد. **المجلة التاريخية المصرية** عدد ٢٥. القاهرة.
محمود، حسن سليمان
١٩٦٩ **تاريخ اليمن السياسي في العصر الاسلامي**. بغداد.
النجار، عامر
١٩٨٨ **الخوارج**. القاهرة.

كنيسة البازيليكا الغربية في خربة ياجوز[1]

لطفي خليل

المقدمة

تقع خربة ياجوز حوالي (١١كم) شمال مدينة عمان وعلى بعد (٤كم) شمال شرق الجامعة الأردنية بالقرب من طريق شفا بدران المتفرعة من طريق صويلح ـ الزرقاء، ويحتل الموقع الأثري السفح الجنوبي لوادي ياجوز بمساحة (٦٢٥ × ٤٧٠م)، ويحيط بالموقع التلال والأراضي الزراعية، كما يوجد على طرفه الجنوبي الغربي عين ياجوز التي تتدفق مياهها الغزيرة على مدار السنة.

وقد سجل الموقع في برنامج معلومات الآثار الأردنية المحوسب الجاديس (JADIS) تحت رقم ٢٣١٥,١٦٦ في الخارطة رقم ٣١٥٤,٢ وبالإحداثيات SE; UTM Zone:36; UTME: 7757, UTMN: 35477; PGE: 236.900; PGN: 159.900; Elev. + 860 (Palumbo 1994: 2.143)

يطلق على خربة ياجوز اسم "تلعة نمر" نسبة إلى الشاعر المعروف في التراث الأردني "نمر العدوان" والمتوفى عام ١٢٣٨ هجري الموافق ١٨٢٣م، وتوجد رفاته في المقبرة التي تقع إلى الغرب من الموقع الأثري، كما يطلق السكان المحليين على الخربة اسم "المدرج" وهذه التسمية اكتسبها الموقع بسبب طبيعته الطبوغرافية المتدرجة والمنحدرة من الشمال باتجاه وادي ياجوز (Khalil 1998: 457).

وقد اعتقد بعض الرحالة خطأ بأن ياجوز هي "Jahaz" التوراتية (Oliphant 1880: 266)، لكن (Merril) ينفي هذا الاعتقاد ويرجح أن ياجوز هي البلدة الرومانية (Gadda) الواقعة على بعد ١٣ ميلاً من عمان و١١ ميلاً من قلعة الزرقاء (Merril 1881: 277)، وعلى أية حال فليس هناك أي دليل يثبت أن هناك علاقة بين خربة ياجوز والموقعين السالفين الذكر.

لقد جعلت المميزات الطبيعية والمتمثلة في المناخ الجيد والمياه وتوفر الأراضي الزراعية الخصبة من خربة ياجوز موقعاً هاماً، مما جعلها محطة وسوقاً للقوافل التجارية ما بين مدينتي فيلادلفيا (عمان) وجيراسا (جرش) على الطريق المعروف بالطريق الجديد (Via Nova) والذي أمر بإنشائه الإمبراطور الروماني تراجان وكان يمتد من بصرى الشام شمالاً وحتى العقبة جنوباً، وقد أنجز العمل به في سنة ١١٤م (Parker 1997: 21) ويستدل على ذلك من وجود حجارة المسافات (Mile Stones) المنتشرة في منطقة شفا بدران، حيث عثر على اثنين من هذه الحجارة تم نقلها إلى متحف الآثار في الجامعة الأردنية.

تاريخ البحث العلمي في موقع ياجوز

لقد زار خربة ياجوز والمناطق الأثرية المحيطة بها العديد من الرحالة والباحثين الغربيين خلال القرنين التاسع عشر والعشرين، وقاموا بوصف ما شاهدوا من بقايا معمارية ومظاهر طبيعية في المنطقة، ويمكن تلخيص أهم هذه الأعمال مرتبة حسب تاريخ زيارة كل رحالة للموقع مع إبداء بعض الملاحظات كالتالي

يعتبر (Merril) أول من قام بزيارة خربة ياجوز عام ١٨٧٦م، ثم عاد وزارها مرة أخرى عام ١٨٨٣م، وقام بوصف العديد من المظاهر المعمارية مثل العوارض الحجرية الضخمة والتاجيات والأعمدة الكورنثيه والعتبات المنحوتة بشكل متقن، ومما يثير الانتباه، أنه كان قد سجل وجود تماثيل آدمية مشوهه الوجوه تم استبدال الوجوه برسم الصليب وهو بذلك يشير إلى تاجيات الأعمدة في كنيسة البازيليكا التي اكتشفت عام ١٩٩٣م، كذلك أشار إلى وجود تماثيل لأسدين ونسر وكذلك تمثال لإمرأة، ومن الجدير بالملاحظة أن الرحالة الذين لحقوا بـ (Merril) لم يذكروا شيئاً عن تلك التماثيل.

لقد وصف هذا الرحالة بيئة منطقة خربة ياجوز بأنها مغطاة بأشجار البلوط والصنوبر والبطم بكثافة وأن مياه عين ياجوز تتدفق بغزارة في وادي الحمام (Merril 1881: 273-277).

سجل الرحالة (Oliphant) وجود جدران اعتقد أنها لمعبد روماني بالقرب من نبع عين ياجوز (Oliphant 1880: 266).

لقد زار الكولونيل البريطاني (Conder) الموقع في عام ١٨٨١م أثناء المسح الذي قام به للأردن، ووصف النواحي الجغرافية وطبيعة المنطقة المحيطة بعين ياجوز فسجل وجود بلدة رومانية وبيزنطية ووصف المظاهر المعمارية من جدران وأقبية نصف برميلية خاصة في الجزء الغربي من الموقع (Conder 1889: 279)، ويبدو أن وصف (Conder) ينطبق على ما تم اكتشافه أثناء حفريات قسم الآثار في الجامعة

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١ لقد تم إعداد هذا البحث أثناء سنة التفرغ العلمي ٢٠٠٤/٢٠٠٥ التي حصلت عليها من الجامعة الأردنية.

الأردنية في المنطقة (E).

كما قام الرحالة الألماني (Schumacher) بزيارة الموقع عام ١٨٨٤م ولم يهتم بتسجيل ما لاحظه من مظاهر أثرية فقط، بل وصف ما شاهده من بساتين وأشجار مثمرة من عنب ورمان إلى جانب أشجار البلوط الكثيفة (Schumacher 1886: 304-306).

وفي بداية القرن العشرين، قام (Dalman) بزيارة خربة ياجوز وتسجيلها أثناء رحلته من جرش إلى عمان (Dalman 1911: 28).

لقد شجع وصف (Merril) في الربع الأخير من القرن التاسع عشر لآثار وطبيعة خربة ياجوز أن يقوم ((McCown) عام ١٩٣٠م بزيارة الموقع، وسجل أنه لم يعثر على الكثير مما ذكره الرحالة الذين سبقوه، كما ذكر أنه لم يشاهد ما ذكره من سبقه عن كثافة أشجار البلوط وغيرها، بل سجل وجود أربع شجرات فقط وهي التي ما تزال قائمة إلى اليوم في داخل المقبرة الإسلامية. لقد وصف (McCown) وجود مظاهر معمارية متعددة وآبار ماء وبركة ماء ذات بناء جيد (McCown 1930: 14-15).

وصف (Glueck) الرحالة التوراتي خربة ياجوز بأنها تعود إلى العصرين الروماني والبيزنطي، كما وصف العديد من المواقع الأثرية المحيطة بخربة ياجوز مثل شفا بدران حيث شاهد عدداً من أحجار المسافات والتي تعود إلى القرن الثاني الميلادي، كما أنه وصف أم الرجوم وبرجها العموني وما حوله من مغاور وآبار وقبور، وأرخ موقع كوم ياجوز والواقع إلى الشرق من خربة ياجوز إلى العصر الحجري النحاسي وذلك من خلال تأريخ الكسر الفخارية التي عثر عليها على سطح الموقع (Glueck 1937-1939: 177).

قام (Thompson) عندما كان مديراً للمركز الأمريكي للأبحاث الشرقية في عمان بإجراء حفريات أثرية في قرية ياجوز على السطح المقابل للخربة الأثرية في عام ١٩٧٠م، حيث عثر على مقبرة رومانية داخل كهف أعيد استعماله في العصر البيزنطي كمعصرة للزيتون، وسجل ملاحظاته حول المباني وآثار القرية العثمانية الواقعة على السفح الشرقي للقرية (Thompson 1972: 38-40).

في عام ١٩٩٣م قام فريق من دائرة الآثار الأردنية بإجراء حفريات في الجزء الشرقي الجنوبي من الموقع حيث تم الكشف عن آثار كنيسة مبنية على الطراز البازيليكي وبداخلها بئر ماء، تبلغ أبعاد الكنيسة ٢٨ × ١٧م وتتكون من ثلاثة أروقة، ويقع المدخل الرئيسي للكنيسة في الجهة الجنوبية حيث توجد الأرضية المبلطة بالحجارة والتي تقود إلى المرفقات المعمارية الأخرى في الكنيسة، لقد أرخت الكنيسة إلى الفترة الواقعة ما بين منتصف القرن الخامس إلى أوائل القرن الثامن الميلادي.

إن أهم ما يميز هذه الكنيسة هي تاجيات الأعمدة التي عثر عليها في صحن الكنيسة والتي تتكون من مزيج من الطرازين الأيوني والكورنثي مع وجود بعض الوجوه الآدمية المشوهة (سليمان ١٩٩٨: ٥-١١) (Suleiman 1966: 457).

ومن الملاحظ وجود حجرين لمذبحين من العصر الروماني قد استعملا في بناء الكنيسة مما يؤكد أن هذين الحجرين قد جاءا من معبد روماني كان موجوداً في الموقع وأعيد استعمالها في بناء الكنيسة في العصر البيزنطي.

وبما أنه لم يكتشف نقش كتابي في كنيسة البازيليكا هذه ولا في كنيسة البازيليكا موضوع البحث، ومن أجل تمييزهما عن بعضهما، لذا سميت الكنيسة موضوع البحث بالغربية نسبة إلى موقعها الجغرافي في المنطقة (E) وعلى الحدود الغربية للموقع الأثري.

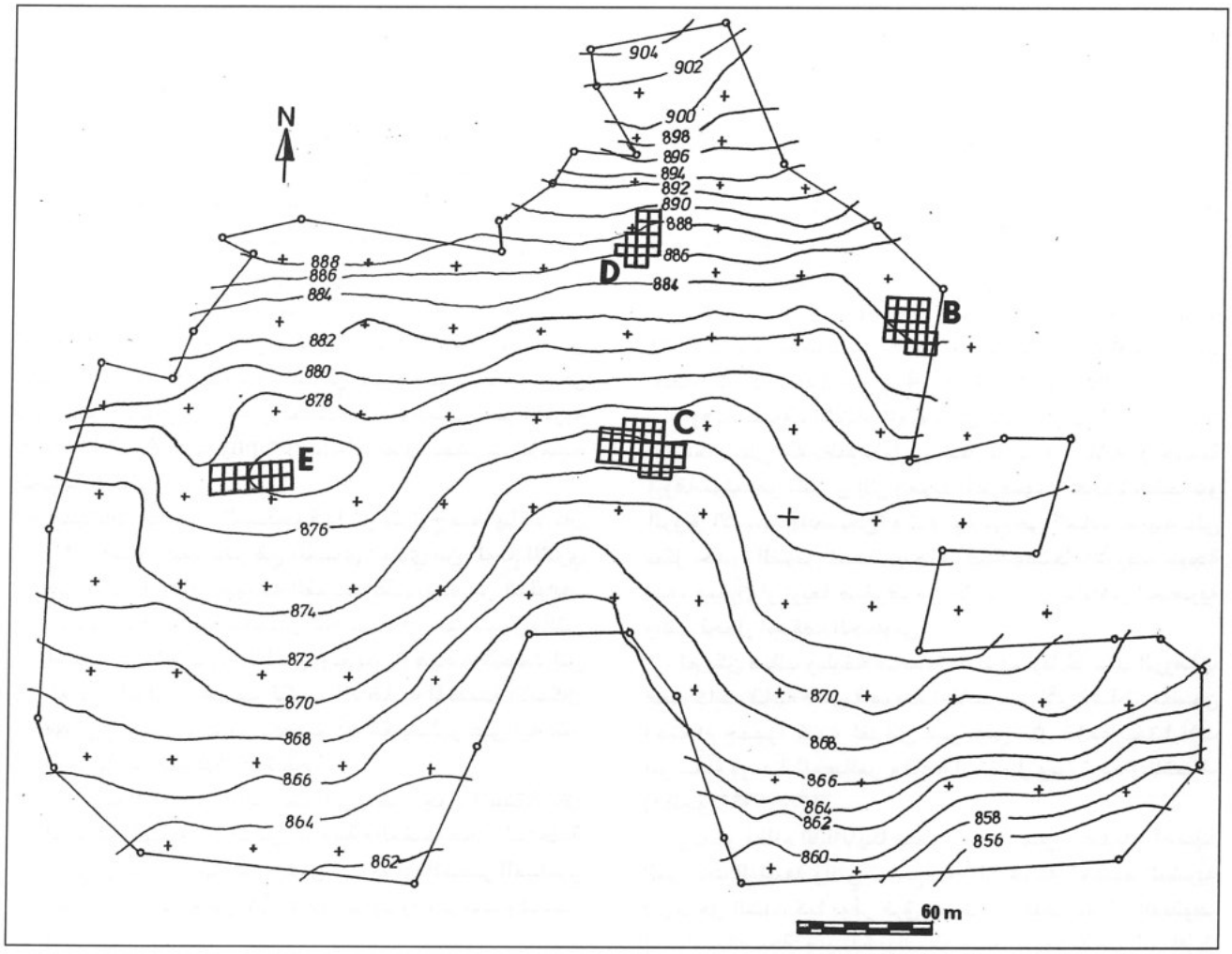
التنقيبات الأثرية في موقع ياجوز خلال الأعوام ١٩٩٥-٢٠٠٣

أنجز قسم الآثار في الجامعة الأردنية بإشراف المؤلف تسعة مواسم من العمل الأثري الميداني في خربة ياجوز من أجل تدريب طلبة البكالوريوس والماجستير في القسم على أعمال المسح والتنقيب الأثري والذي يشمل الحفر والتسجيل والوصف والرسم والتصوير وكتابة التقارير خلال الفصول الصيفية.

لقد تم الكشف عن العديد من العمائر الدينية والمدنية والصناعية في الموقع إلى جانب اكتشاف الكثير من اللقى الفخارية والزجاجية والمعدنية، ويمكن تلخيص أهم المكتشفات خلال المواسم التسعة (١٩٩٥-٢٠٠٣م) (**الشكل ١**) كما يلي

١- الكنيسة الصغيرة :(Chapel) اكتشفت الكنيسة في المنطقة (B) والتي وجدت بها العناصر المعمارية المختلفة من حنية، ومحرس المذخر وحاجز الهيكل، وقد رصفت أرضية الهيكل بفسيفساء ملونة، كما يوجد قاعة للعبادة تبلغ أبعادها (١٥ × ١٠م)، وهناك خمس غرف ملحقة بالكنيسة من الناحيتين الشمالية والغربية، أهمها الغرفة الواقعة في الجهة الغربية حيث عثر بالقرب من مدخلها على النقش الإهدائي المكتوب باللغة اليونانية في أرضية فسيفسائية ملونة، مما مكن من تأريخ بناء الكنيسة الصغيرة إلى سنة ٥٠٨م (Khalil 1998: 463)، لقد عثر أثناء الحفر في ركام تلك الغرفة فوق الأرضية الفسيفسائية على طبقة من الرماد بسمك حوالي ١٠سم تحتوي على كسر فخارية تعود للعصر الأموي، مما يرجح أن الكنيسة قد هدمت بفعل الزلزال الذي حدث سنة ٧٤٩م ولا يستبعد أن يكون قد حدث حريق مدمر بسبب حدوث الزلزال.

٢- المدفن: أكتشف تحت الكنيسة الصغيرة مباشرة، وهو مدفن محفور في الصخر الجيري، وقد عثر بداخله على ١٣٢ هيكلاً عظمياً لرجال ونساء من فئات عمرية مختلفة، يتكون المدفن من نوعين من القبور النوع الأول محفور في الصخر بشكل عموي (Loculli) وعدد قبور هذا النوع سبعة، بينما النوع الثاني مبني من الحجارة الجيرية المشذبة جيداً في صحن المدفن وعدد قبور هذا النوع ستة (Khalil 1998: figs.10,11). وقد احتوت الثلاثة عشر قبراً على عدد كبير من اللقى الأثرية الكاملة والتي كانت مرفقة مع جثث الموتى، فمثلاً عثر على ٣٠ شمعداناً فخارياً (Khalil 2001b: 617-627) و ١٠ أواني زجاجية



١. خارطة كنتورية لخربة ياجوز تبين المناطق المختلفة.

(Khalil 2001a: 127-138) و ٢٢ سراج فخاري وأدوات زينة متعددة الأشكال.

وبناءاً على اللقى المختلفة يمكن تأريخ المدفن إلى الفترة الواقعة ما بين القرن السادس ـ القرن الثامن الميلادي، ويتوافق هذا التاريخ مع فترة بناء ودمار الكنيسة الصغيرة.

٣- معصرتا عنب: تم الكشف عن معصرتي عنب في المنطقة (C)، تتكون كل معصرة من أحواض الهرس ونظام عصر ميكانيكي وحوض ترسيب وبئر لجمع العصير، وأرخت فترة استعمال المعصرتين من خلال التقنية المستعملة والكسر الفخارية التي تم العثور عليها في الطبقات الأثرية فبناء المعصرة الجنوبية يعود إلى القرن الثاني الميلادي، بينما يعود بناء المعصرة الشمالية إلى القرن الخامس الميلادي. وقد استمر استعمال المعصرتين حتى منتصف القرن السابع الميلادي تقريباً. كما استعملت ثلاثة أحواض في المعصرة الشمالية خلال العصر الأموي. ويشير وجود المعصرتين والوسائل الميكانيكية في عصر العنب على أن خربة ياجوز كانت مركزاً هاماً لصناعة النبيذ خلال الفترة ما بين العصر الروماني المتأخر والعصر البيزنطي خاصة إذا علمنا أن سعة بئري جمع العصير في المعصرتين حوالي ٦٥٠٠ لتر مكعب من عصير العنب (Khalil and Al Nammari 2000: 41-57).

٤- المنطقة السكنية في منطقة (D): توجد إلى الشمال من معصرتي العنب حيث تشكل وحدة سكنية يبلغ قياس أبعادها ٢٧ × ٢٠م، ويوجد مدخلها في الجهة الجنوبية من البناء وقد بنيت أساسات الجدران على الصخر مباشرة وبعرض متر تقريباً.

تتكون الوحدة السكنية من ١١ غرفة مبنية من الحجارة الجيرية المشذبة ومغارتين وبئر في الساحة المكشوفة الواقعة في وسط البناء، ويوجد نوعين من الغرف تختلف في مساحتها، فيبلغ أبعاد النوع الأول ٥ × ٥م، بينما أبعاد النوع الثاني ١١ × ٥م، ويبدو أن النوع الأول قد نتج عن تقسيم غرف النوع الثاني، وفي كلا الحالتين فهناك العديد من قواعد الأقواس التي كانت تحمل الكتل الحجرية المكونة لسقوف الغرف.

لقد تم تأريخ الوحدة السكنية بواسطة الأواني الفخارية والأسرجة والنقود النحاسية وغيرها من اللقى إلى الفترة الواقعة ما بين أواخر العصر الروماني إلى العصر البيزنطي.

٥- المنطقة السكنية في المنطقة (E): تقع في الجزء الغربي من الموقع حيث عثر على طبقات أثرية في المنطقة الواقعة

غرب وشمال غرب كنيسة البازيليكا الغربية موضوع البحث، وتشير الأدلة المعمارية والطبقات واللقى الأثرية أنه تم في فترة ما بعد زلزال ٧٤٩م استصلاح الغرف التي كانت ملحقة بالكنيسة والواقعة إلى الشمال والغرب من الساحة المبلطة بتقوية قواعد الأقواس وتغطية الساحة المبلطة بالحور المدكوك للسكن بها في العصر العباسي (Khalil and Kareem 2002: 111-150).

لقد أنجز حفر ٣٧ مربعاً في المنطقة (E) أي حوالي ٩٢٥م^2 خلال المواسم المختلفة، وقد وصل التنقيب في بعض المربعات إلى عمق حوالي مترين، ورغم عدم الوصول إلى أساسات الكنيسة الغربية والمباني الملحقة بها، إلا أنه يمكن تمييز خمس أنواع من الطبقات والعمائر الأثرية (Stratigraphy and Architecture)، تمثل الفترات الزمنية المختلفة كالتالي

١- الطبقات الرمادية السطحية والتي يتراوح سمكها ما بين ٢٠-٦٠سم، حيث عثر في المستوى العلوي من الموقع الأثري في منطقة E والكنيسة الغربية على عدد من الطوابين المصنوعة من الصلصال المجفف في الشمس والتي استعملت لتحضير الطعام، وتم تأريخ هذه الطبقات إلى العصر المملوكي حسب الكسر الفخارية المتعددة الأشكال والأنواع، ومن الجدير بالذكر أنه لم يعثر على أية آثار معمارية مرافقة لهذه الطبقات.

٢- أرضيات الحور المدكوك جيداً في بعض أجزاء المنطقة مثل الساحة المبلطة والأقواس المرممة والتقسيمات الداخلية والتي أرخت إلى ما بعد زلزال ٧٤٩م، أي العصر العباسي المبكر حسب اللقى الأثرية من نقود وأسرجة وكسر فخارية.

لقد دمر الزلزال معظم عمائر جنوب بلاد الشام (Russel 1985: 37-59)، وتظهر آثار التدمير واضحة في كنيسة البازيليكا الغربية والكنيسة الصغيرة ومنطقتي (D وC) في خربة ياجوز هناك مواقع أثرية أخرى تظهر فيها آثار التدمير بفعل هذا الزلزال واضحة خاصة في طبقة فحل (Smith 1973: 165-166) وجرش (Zayadine 1986: 19).

٣- الطبقات الواقعة تحت الرماد وهي ذات ألوان تتراوح ما بين البنى الفاتح والبني الغامق والممزوجة أحياناً بالحور الرخو والتي تحتوي على حطام الأقواس المتهدمة وكسر القرميد الفخاري الذي استعمل في سقف الكنيسة الجملوني وغيرها مما نتج من كارثة زلزال ٧٤٩م، وتتراوح سمك هذه الطبقات من ٣٠-١٢٠سم.

٤- الجدران والقناطر الحجرية القائمة: وهي ما تبقى من آثار كنيسة البازيليكا الغربية بعد الزلزال، كذلك الأرضيات الفسيفسائية والأرضيات المكونة من الشحف والملاط المرتبطة بالجدران والقناطر الحجرية.

الكنيسة الغربية

المخطط والبناء

بنيت الكنيسة الغربية على النظام البازيليكي حيث يبلغ طولها من الجدار الخارجي حتى الجدار الغربي للرواق الأوسط ٢٧,٧٠ متراً بينما يبلغ عرض الكنيسة مع الجدران حوالي ١٢,٦٠ متراً (**الشكل ٢ و٣**).

تتكون الكنيسة من جزئين رئيسيين هما منطقة الهيكل والقاعة الرئيسية للمتعبدين والتي تتكون من ثلاثة أروقة، ممشيان جانبيان هما شمالي وجنوبي والرواق الأوسط (الصحن) وهو أعرضها، وينتهي الصحن بحنية نصف دائرية في الجهة الشرقية.

وكلمة بازيليكا (Basilike) كلمة يونانية ومعناها صالة الملك وقد سميت بهذا الاسم نسبة إلى (Basileus) أحد خلفاء الأسكندر المكدوني (Ferguson 1990: 141).

وقد عرف النظام المعماري البازيليكي لدى اليونان والرومان على أنه نظام طولي يتشكل البناء من ثلاثة أو خمسة أروقة تمتد من الشرق إلى الغرب، أعرضها وأعلاها سقفاً هو الرواق الأوسط (الصحن) والذي ينتهي في العادة بحنية على شكل حذوة الفرس تسقف بنصف قبة، وتشكل الأروقة نتيجة لبناء صفين أو أربعة صفوف من الأعمدة أو القناطر الحجرية والتي تحمل السقف الجملوني.

لم يكن هناك وظيفة محددة لبناء البازيليكا عند الرومان، فقد كانت قاعة المدينة متعددة الأغراض لأي نشاط يتضمن اجتماع جمهور كبير لغرض غير ديني مثل قاعة للمقابلات الرسمية وردهة للمجالس وقاعة استقبال وسوق ودار للقضاء (مانجو ١٩٩٩: ٣٨).

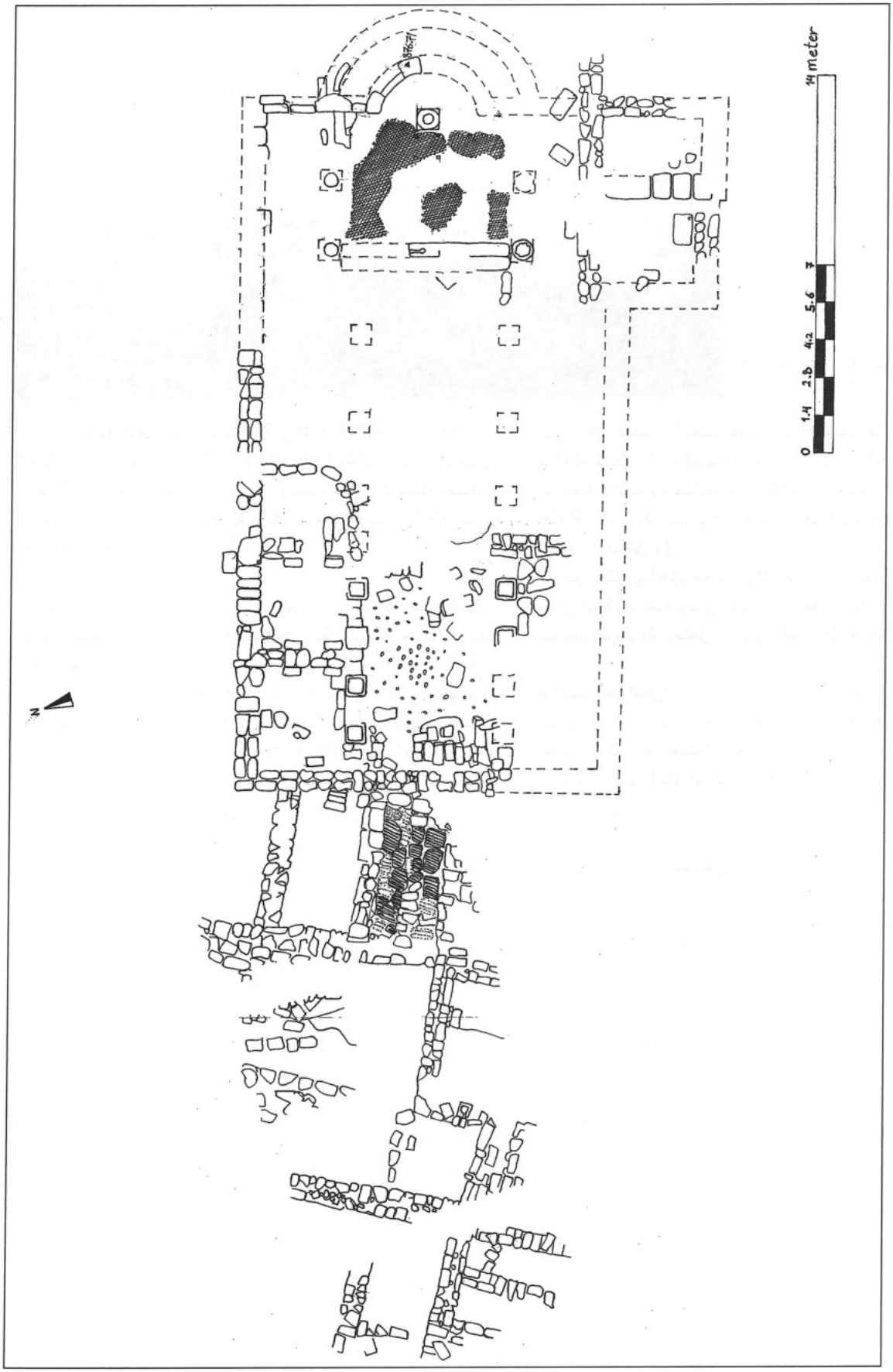
يتميز نظام البازيليكا بمميزات معمارية عديدة أهمها الفراغات الواسعة والتي تسمح بسهولة حركة الحشود البشرية في داخل البناء، كما يوفر فرق المستويات المختلفة في السقوف إضاءة وتهوية جيدة بواسطة مجموعة من النوافذ (Ferguson 1990: 141).

لقد ورثت العمارة البيزنطية الكثير من الأساليب والطرز المعمارية الرومانية، ولكن ارتبط طراز البناء البازيليكي ارتباطاً وثيقاً بالديانة المسيحية واعتبر بناء ملائم من حيث الطراز المعماري والعقيدة، خاصة أنه لم يرتبط في العصر الروماني بأية دلالات وثنية (Fletcher 1992: 208).

واستعمل طراز البازيليكا المعماري بشكل واسع في بناء الكنائس في الأردن وفلسطين خلال الربع الثاني من القرن الرابع الميلادي وتواصل استعمال هذا الطراز مع بعض التعديلات الطفيفة حتى القرن السادس الميلادي حيث شكل هذا النظام المعماري النموذج الرئيسي لكنائس الأسقفية والأبرشية وكنائس الأديرة (Smith 1973: 154).

ولا بد من الإشارة هنا إلى أن هناك طرز معمارية أخرى قد اتبعت في بناء الكنائس في العصر البيزنطي مثل الكنائس المركزية والتي يمكن أن تكون مربعة أو دائرية أو مضلعة، كما ظهر تخطيط البازيليكا على شكل الصليب (مانجو ١٩٩٩: ٤٤-٥٨).

يتكون مخطط كنيسة ياجوز الغربية من جزئين رئيسيين هما منطقة الهيكل (Sanctuary) وتشمل الحنية والغرفتين الجنوبيتين (Diaconicon) ومحرس المذخر (Reliquary)



٢. مخطط كنيسة البازيليكا الغربية في خربة ياجوز.



٣. منظر الكنيسة الغربية من الأعلى يبين أجزاء الكنيسة المختلفة.

وموضع طاولة القرابين (Liturgy Table) وحاجز منطقة الهيكل (Chancel Screen). وكذلك القاعة الرئيسية وتشمل ثلاثة أروقة: ممشيان جانبيان وصحن في الوسط وهناك ساحة مبلطة وغرف ملحقة بالكنيسة في الناحية الغربية (**الشكل ٢ و٣**).

الحنية: تقع ضمن الجدار الشرقي وهي مبنية على شكل قوس نصف دائري من الحجارة الجيرية المشذبة جيداً ويبلغ قطر الحنية من الداخل ٣,٥م بينما يبلغ من الخارج ٤,٦٠م، ويوجد حجران في الناحية الشمالية يمكن أن تشكل قوساً خارجياً بقطر مقداره ٨م، ومن المرجح أن هذه الحجارة كانت جزءاً من مقاعد رجال الدين (Synthronon) داخل الحنية والتي تكون في العادة عنصراً طقسياً هاماً، ويبدو أن معظمها قد دمر في كنيسة ياجوز الغربية.

الهيكل: هي المنطقة الواقعة ما بين الحنية والحاجز وهي مخصصة لرجال الدين حيث كانت تقام الطقوس الدينية المختلفة فيها وتبلغ مساحتها في كنيسة ياجوز الغربية ٧,٥٠م × ٥,١٠م وتوجد بها أرضية فسيفسائية ملونة وقد ثبت في الأرضية الفسيفسائية محرس المذخر وموضع أرجل طاولة القرابين وتقع منطقة الهيكل في المربعين ذات الأرقام (٤٤ و٤٥).

الغرفتان الجنوبيتان: وهما على يسار الحنية ويعتقد أنهما كانتا تستعملان لحفظ ملابس الكهنة والهدايا والأدوات التي كانت تستعمل في الطقوس الدينية وتبلغ مساحة الغرفة الشرقية ٣,٥ × ٢م، بينما مساحة الغرفة الغربية حوالي ٣,٥ × ٣م ويتم الوصول ما بين الغرفة الغربية ومنطقة الهيكل بواسطة درجتين تقعان في المربعين (٤٨ و٤٩).

محرس المذخر: يقع على بعد ١,٢٥م غرب الحنية وهو عبارة عن حجر جيري مشذب جداً شبه مربع الشكل تبلغ أبعاده ٨٠ × ٨٦سم وبارتفاع ١٠سم فوق سطح الأرضية الفسيفسائية، على شكل صندوق كانت تحفظ به الأشياء المقدسة، وقد حفر بداخله شكل دائرة كبيرة قطرها ٧٨سم بداخلها دائرة أخرى قطرها ٣٠سم وعمقها يبلغ ١٥سم وحفر أيضاً إطار حول أطراف الدائرة لتثبيت ما يفترض أن يكون غطاءاً لمحرس المذخر (**الشكل ٤**).

لم يعثر بداخل محرس المذخر على موجودات مقدسة، ولكن وبالقرب منه وعلى الأرضية الفسيفسائية عثر على قطعة عظمية مزخرفة يحتمل أن يكون لها علاقة به.

طاولة القرابين: توجد على بعد ٢٥سم غرب محرس المذخر تتكون من أربع قطع حجرية مغروسة في الأرضية الفسيفسائية ويوجد بداخل كل قطعة حجرية حفرة تشكل مكاناً لوضع أحد القوائم الأربع لطاولة القرابين التي توضع عليها الأناجيل والشمعدان.

حاجز منطقة الهيكل: هناك فصل في داخل الكنيسة بين منطقة الهيكل والغرفتين الجنوبيتين المخصصتين لرجال الدين وبين القاعة الرئيسية والمخصصة لعبادة الجمهور، ويحدد الهيكل بواسطة الحاجز المكون من أعمدة قصيرة وألواح رخامية.

لقد عثر أثناء الحفريات في منطقة الهيكل في الكنيسة الغربية على ثلاث قواعد لأعمدة الحاجز ويعتقد أن قاعدة العمود الرابع قد دمرت بفعل لصوص الآثار. ويوجد بين قواعد الأعمدة صف من الحجارة المشذبة جداً والتي تشكل مع قواعد الأعمدة أساسات الحاجز، ويظهر أحد هذه الحجارة بطول ٣,٧٥م على شكل عتبة بداخلها حفرة تثبت المزلاج لإغلاق باب الحاجز عند الضرورة، ويبلغ قطر قواعد الأعمدة في الحاجز حوالي ٤٥سم، وقد عثر على بعد ١٠م شمال الحاجز على حطام عمودين في الردم ويتناسب قياس قطر تلك الأعمدة مع قواعد الأعمدة المذكورة أعلاه.

ومما يؤسف له، أن الجزء الجنوبي من منطقة الهيكل والحاجز وما تحتويه من أرضية فسيفسائية مدمر كلياً بفعل عبث لصوص الآثار.



٤. منظر من الشمال لمنطقة الهيكل تظهر فيه الحنية ومحرس المذخر وموضع أرجل طاولة القرابين والحاجز والأرضية الفسيفسائية.

القاعة الرئيسية: لقد كشفت الحفريات الأثرية في المربعات (٢٦و٣٠ و٣٦ و٣٧ و٤٦ و٤٧ و٥٧) أثناء موسمي ٢٠٠٢ و٢٠٠٣ عن معظم العناصر المعمارية في القاعة الرئيسية حيث يبلغ طولها من الحاجز حتى الجدار الغربي ١٨,٥م ويبلغ اتساعها ١١,٦٠م، وتتكون من ثلاثة أروقة تمتد من الشرق إلى الغرب، يبلغ عرض كل رواق جانبي ٣,٢٥م بينما يبلغ عرض الرواق الأوسط (الصحن) ٤,٧٥م.

لم تستعمل الأعمدة في تقسيم الأروقة ورفع السقف الجملوني للكنيسة، بل يوجد صفين من القناطر الحجرية، واكتشفت سبع قناطر حجرية في صف واحد لفصل الرواق الشمالي عن الصحن، بينما تم الكشف في الموسم الأخير (عام ٢٠٠٣) عن قنطرتين على الجهة الجنوبية والمقابلة للصف الأول من القناطر وبهذا أصبح بالإمكان تصور الملامح الرئيسية للقاعة الرئيسية دون أية صعوبة. لقد وجدت هذه القناطر الحجرية لإقامة العقود عليها ولارتكاز دعائم السقف الجملوني للقاعة الرئيسية، إن البعد بين كل قنطرتين في كل صف بعد ثابت ويبلغ ١م، ما عدا البعد ما بين القنطرتين الأولى والثانية من ناحية منطقة الهيكل فيبلغ ١,٧٥م.

ومن الجدير بالذكر أن هناك عدداً من القناطر الحجرية لا تزال تحتفظ بعدد من المداميك وتميل إلى الداخل لتشكل قوس العقد مع القنطرة في الصف المقابل، كما كشفت الحفريات في ركام صحن الكنيسة عن عدد من الأقواس المهدمة بفعل زلزال ٧٤٩م والتي لا تزال حجارتها مرصوصة بجانب بعضها فوق الأرضية.

يعتقد أن المدخل الرئيسي للكنيسة يقع في الجهة الجنوبية ولم تكشف الحفريات عنه بعد، وقد بني هذا الاعتقاد على المقارنة مع الكنيستين البازيليكا الشرقية والصغيرة والوحدة السكنية في المنطقة (D) حيث يقع المدخل الرئيسي لتلك العمائر في الناحية الجنوبية، كما عثر على العتبة السفلى لباب يوجد في الجهة الغربية من القاعة الرئيسية والذي يتم الوصول إليه من الساحة المبلطة، ومن المعروف أن البلاط الحجري قد استخدم في الساحات العامة والممرات ومداخل المباني مما يرجح الاعتقاد بوجود المدخل الرئيسي جنوب هذه الساحة، ويبلغ معدل أبعاد البلاطة الحجرية بـ ٣,٥ × ٢,٥×٠,٥م ويتراوح سمكها ما بين ٣٠×٤٠سم وكانت توضع فوق رصفه من الدبش وتثبت بالملاط.

هناك عدد من الغرف التي تقع شمال وغرب الساحة المبلطة، ويعتقد أن هذه الغرف الملحقة بالكنيسة كانت تستعمل لسكن رجال الدين أثناء استعمال الكنيسة وهي نفس الغرف التي تم ترميمها وإعادة تأهيلها للسكن في العصر العباسي (Khalil and Kareem 2002: 113-116).

لقد رصفت أرضية المنطقة المحاذية للهيكل بالفسيفساء ولكنها قد دمرت بفعل الزلزال تدميراً كاملاً أما باقي الأروقة الثلاثة فقد رصفت أرضيتها بشحف من الحجارة الصغيرة والمثبتة بالملاط.

تعرف تقنية البناء بشكل عام بأنها الاستخدام الفعال للمواد الخام المتوفرة محلياً والإبداع في خلق الفراغات المعمارية التي يمكن للإنسان استخدامها في حياته اليومية، وتشتمل تقنية البناء على الأساسات والجدران والأسقف والأرضيات والنظم المعمارية المتعبة في البناء.

بقيت تقنيات البناء في الفترة البيزنطية ثابتة منذ العصر الروماني، ويعود ذلك إلى اعتماد هذه التقنيات على مواد البناء المتوفرة محلياً وعلى التقاليد المعمارية الموروثة وعلى الأيدي الفنية العاملة في العمارة (مانجو ١٩٩٩: ٩).

وقد استخدم المعماري البيزنطي الحجارة بأنواعها المختلفة كمادة خام أساسية في إنشاء الكنائس في الأردن وفلسطين لتوفر الحجارة كما تدل على ذلك المحاجر الكثيرة والمنتشرة في المنطقة، هذا إلى جانب أن الحجارة تتميز بتحملها للأوزان في الإنشاء ومقاومتها الجيدة للعوامل الطبيعية (Wright 1983: 337).

لقد تم بناء العمائر الدينية والمدنية والصناعية في خربة ياجوز بالحجارة الجيرية، ويبدو أن المصدر الرئيسي لتلك الحجارة هو محلياً حيث وجد أن تكوين الحمّر الجيولوجي وهو عبارة عن طبقة سميكة من الحجر الجيري الصلب الملائم للتحجير متوفر على السطح في مناطق خربة ياجوز وشفا بدران والمضبعة. وتم مسح هذه المناطق حيث سجل ١٩ مقلعاً في المناطق الثلاث والتي استغلت في العصر الروماني المتأخر والعصر البيزنطي، وتختلف هذه المقالع إختلافاً كبيراً من حيث الشكل والحجم (Khalil and Ronza 2005).

أما الجدران الخارجية لكنيسة ياجوز الغربية فقد بنيت بالحجارة الجيرية المشذبة جيداً واختلفت قياسات الحجارة في الجدار الواحد، واستعمل الملاط لملئ الحلول والفراغات بين الحجارة، واستعملت الحجارة المشذبة قليلاً أو غير المشذبة أحياناً في بناء الواجهات الداخلية ولم يهتموا بنوعية هذه الحجارة لأنها كانت تغطى بطبقات عديدة من الملاط، وظهرت جدران الكنيسة الرئيسية من صفين من الحجارة بعرض حوالي ٩٠سم وقد ملئ الفراغ في وسط الجدار بالدبش والمونة.

وتم الكشف في الحفريات عن معظم العناصر المعمارية الرئيسية في كنيسة البازيليكا الغربية في خربة ياجوز مثل الأرضيات ومستوياتها والجدران والأبواب والقناطر الحجرية والأقواس المتهدمة والأبعاد بينها، إلى جانب كميات كبيرة من كسر القرميد الفخاري والذي استعمل في تغطية السقف الجملوني للكنيسة.

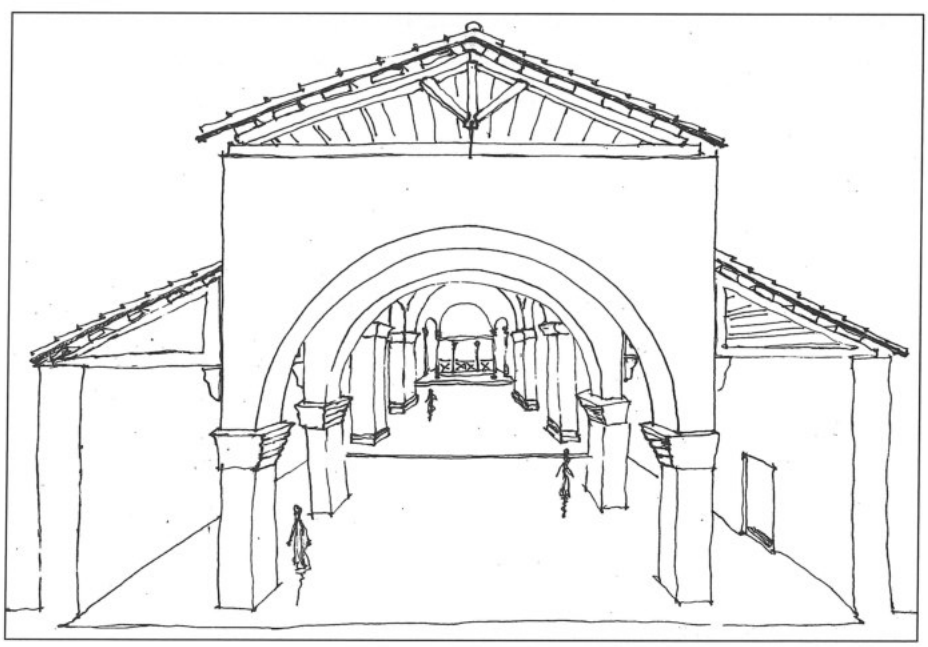
يمتاز القرميد الفخاري بأنه خفيف الوزن ويقاوم تسرب المياه والعوامل الجوية الأخرى، وكان يصنع من الصلصال المتوفر بكميات كبيرة ويصبح بعد حرقه على درجات حرارة عالية صلب جداً وذو ألوان جميلة لا تتغير بمرور الزمن، ولذلك استعمل القرميد الفخاري في سقف المباني منذ القرنين الثاني والأول قبل الميلاد وكانت ترتب البلاطات بوضعها جنباً إلى جنب بشكل طولي، بحيث يتم تتبع ميلان السقف الجملوني، وقد استخدم في تثبيتها وإغلاق نقاط الاتصال بين البلاطات مادة الملاط (Adam 1994: 213).

كذلك عثر على كميات كبيرة من كسر القرميد الفخاري في ركام سقف الكنيسة الغربية، ويمكن تمييز نوعين من القرميد الأول ذو أشكال مستوية ويبلغ معدل أبعاد البلاطات ٤٥ × ٣٥سم، ويتراوح سمكها ما بين ٢.٣سم، وهذا النوع الأكثر شيوعاً.

أما الثاني فهو ذو أشكال نصف أسطوانية ويتراوح أقطار البلاطات بين ٧.١٠سم، وقد استخدم هذا النوع لتغطية الفراغات الناتجة عن التقاء زوايا البلاطات من النوع الأول والتي لا يمكن تغطيتها بالأشكال المستوية.

لقد تم تمثيل استخدام القرميد في تغطية سقوف الكنائس والمباني في العصر البيزنطي في الأرضيات الفسيفسائية للكنائس المكتشفة في الأردن فمثلاً الأرضية الفسيفسائية في كنيسة الخارطة في مأدبا والتي تعود إلى القرن السادس الميلادي، ظهر فيها ٢٧ صورة لأسماء المدن والمواقع والكنائس من بينها مدينة عمان (بتشريللو ١٩٩٣: ٩١.٩٢ و٩٦).

بناءاً على ما تم اكتشافه أثناء الحفريات في موقع الكنيسة من عناصر معمارية متنوعة وبالدراسة المقارنة للعديد من الكنائس في الأردن يمكن تصور الملامح الأصلية لكنيسة البازيليكا الغربية في خربة ياجوز دون عناء، حيث أمكن إعادة بناء أو تخيل ثلاثي الأبعاد افتراضي لأجزاء الكنيسة المختلفة (**الشكل ٥**).



٥. إعادة بناء أفتراضي ثلاثي الأبعاد لكنيسة البازيليكا الغربية في خربة ياجوز.

الأرضيات الفسيفسائية

كشفت الحفريات الأثرية بقايا أرضيات فسيفسائية في منطقة الكنيسة الغربية كالتالي

١- في الغرفة الغربية المحاذية لمنطقة الهيكل من الجنوب الواقعة في المربع (٤٦) عثر على أرضية فسيفسائية ذات مكعبات كبيرة (٢ × ٢ × ٢سم^3) بيضاء اللون بدون أي زخارف وقد دمرت معظم أجزائها بفعل الزلزال عام ٧٤٩م، ما عدا أجزاء بسيطة بالقرب من الجدار الشمالي للغرفة، ويغطي باقي أجزاء الغرفة طبقة من الملاط تحت الأرضية الفسيفسائية.

٢- المنطقة الواقعة ما بين الهيكل وصحن الكنيسة حيث يظهر بقايا أرضية فسيفسائية ملونة ومن الواضح أن الزلزال قد دمرها كلياً بحيث أصبح لا يمكن التعرف على أية معالم للأرضية.

٣- منطقة الهيكل (**الشكل ٤**) وهي أرضية ملونة تقع في المربعين (٤٤ و٤٥) وتشتمل على الألوان البيضاء والحمراء والوردية والخضراء والزرقاء، مكعباتها صغيرة الحجم (١ × ١ × ١سم^3).

ومما يؤسف له أن جزءاً كبيراً من منطقة الهيكل بما فيها قسم كبير من هذه الأرضية الهامة والتي يعتقد أنها كانت تحتوي على نقش كتابي دمره لصوص الآثار.

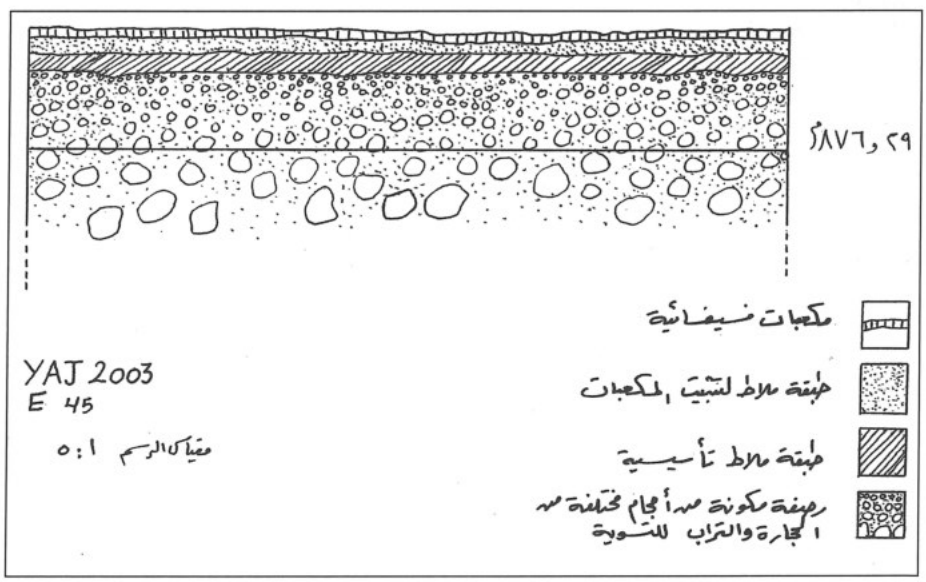
وقد تبين من خلال دراسة هذه الأجزاء المدمرة أن تقنية رصف الأرضية الفسيفسائية يمكن تلخيصها بالمراحل التالية حيث يتم اولاً وضع طبقة سميكة من الدبش المتوسط والصغير الحجم مخلوطة مع تراب لونه بني مصفر، تليها طبقة من الحصى والتراب المدكوك لتسوية الأرض. ثم وضع طبقة ملاط تأسيسية يبلغ سمكها حوالي ٢سم وطبقة ملاط ثانية لتثبيت وترتيب المكعبات الفسيفسائية فوقها ويبلغ سمكها ١,٥سم ومن ثم المكعبات الفسيفسائية (**الشكل ٦**).

يتكون موضوع العمل الفني الرئيسي في هذه الأرضية الفسيفسائية من كبش يقف تحت شجرة مثمرة ويحيط بهذا العمل إطارين مزخرفين، الإطار الخارجي عبارة عن جدلة على شكل شريط لولبي، أما الإطار الداخلي فهو مكون من حلقات مترابطة مع بعضها البعض على شكل عقدة، ويظهر في وسط كل دائرة من الدوائر صليب تنتهي أطرافه بشكل زهرة ثلاثية الأوراق. ويظهر الكبش بقرنين طويلين معقوفين إلى الخلف وبذنب طويل كثيف نهايته ملتوية وينظر إلى الأمام يقف تحت شجرة مثمرة كثيفة ومتراصة الأوراق في حالة حركة حيث يخطو برجله الأمامية اليمنى إلى الأمام.

لقد ظهر مثالان مشابهان جداً لهذا المشهد، أحدهما في أرضية كنيسة القديس سيرجيوس في أم الرصاص ويعود تاريخها إلى ٥٧٨/٥٨٨م، كبشان متقابلان تحت شجرتين مثمرتين ويحرك كل منهما أحدى يديه ينظران إلى الأمام وبينهما النقش الإهدائي (Piccirillo 1993: 234, fig. 331) أما المثال الآخر فهو في الأرضية الفسيفسائية في كنيسة الرسل في مدينة مأدبا والمؤرخة إلى سنة ٥٧٨م، حيث يشاهد كبشان متقابلان تحت شجرة واحدة في مشهد يشبه ما تم ذكره سابقاً (Ibid: 106, fig. 92).

إن توافق المشهدين في كنيستي مأدبا مع المشهد في كنيسة خربة ياجوز يدعو إلى الاعتقاد أن الجزء المدمر من أرضية كنيسة ياجوز كان يحتوي على كبش آخر ونقش إهدائي.

لقد ظهر رسم الكبش في مشاهد عديدة أخرى في أرضيات كنائس في الأردن وخاصة في مدينة مأدبا فمثلاً يظهر كبشان متقابلان تحت شجرتين مثمرتين أحدهما واقف والآخر راقد، وذلك في الأرضية الفسيفسائية المعروفة بـ "فسيفساء الجنة" (Ibid: fig. 139)، كما يظهر كبش يقف تحت شجرة مثمرة وقد ربط من قرنيه بحبل لونه أحمر في الأرضية الفسيفسائية في كنيسة التعميد الصغيرة والتي تؤرخ إلى ٥٢٦م (Ibid: 118, fig.117)، وكذلك يظهر كبشان متقابلان بينهما وعاء في أرضية كنيسة مريم العذراء وفسيفساء "القصر المحروق" وكلتا الأرضيتين تؤرخان إلى النصف الأول من القرن السادس الميلادي (Ibid: 77, fig.



٦. مقطع يبين الطبقات الموجودة تحت الأرضية الفسيفسائية في منطقة الهيكل.

.43, 80)

ومن الجدير بالملاحظة أن معظم الأرضيات الفسيفسائية المذكورة أعلاه بما فيها أرضية الكنيسة الغربية في خربة ياجوز هي أرضيات موجودة في منطقة الهيكل وهي المنطقة المقدسة في الكنيسة، ويمكن الاستدلال على ذلك أن تمثيل الكبش تحت الشجرة المثمرة له دلالات رمزية مقدسة في الديانة المسيحية حيث يمثل "الكبش" رمزاً للتضحية منذ القرن الخامس الميلادي (Urech 1985: 249)، ويرى دارسي اللاهوت برمزية التضحية بالكبش وموت السيد المسيح عليه السلام (Ibid: 249-250).

تاريخ الكنيسة

هناك عدة اعتبارات تجعل الجزم يوضح تاريخ محدد لبناء كنيسة البازيليكا الغربية في خربة ياجوز أمر غير ممكن وذلك بسبب انتشار بناء الكنائس على الطراز البازيليكي في الأردن انتشاراً واسعاً في عمارة الكنيسة المبكرة خاصة خلال الفترة ما بين القرن الرابع - القرن السادس (مانجو ١٩٩٩: ٣٨). وعليه لا فائدة من مقارنة بناء الكنيسة الغربية في ياجوز مع كنائس أخرى معروف تاريخ بناءها في الأردن لأن هناك عشرات الكنائس المبنية على الطراز البازيليكي. كذلك لم يعثر على أي نقش يحدد سنة أو فترة بناء الكنيسة في الأرضية الفسيفسائية. ولم يتم الوصول أثناء الحفريات إلى أساسات الكنيسة لتحديد تاريخ تقريبي اعتماداً على تأريخ الفخار. بالاعتماد على موضوع الأرضية الفسيفسائية في منطقة الهيكل والمتمثل في استخدام رسم الكبش كرمز للتضحية والذي بدأ بالظهور في بداية القرن الخامس الميلادي (Urech 1985: 249)). وعند مقارنة هذا الموضوع مع الأمثلة المشابهة من حيث الشكل والمضمون في كنيسة سيرجيوس في أم الرصاص وكنيسة الرسل في مأدبا واللتان تعودان إلى الربع الأخير من القرن السادس، يمكن القول أن بناء الكنيسة تم خلال القرن السادس الميلادي واستمر استعمالهما حتى زلزال ٧٤٩م.

الخلاصة

استغل سكان خربة ياجوز المصادر الطبيعية المتوفرة لديهم خير استغلال، خاصة وأن النشاط المعماري في بداية العصر البيزنطي قد أنصب بشكل كبير على بناء الكنائس، ولم يكتفي المعماري البيزنطي بالحصول على الحجارة الجيرية الجيدة من المحاجر المنتشرة في الموقع والمناطق المحيطة به من أجل بناء الكنائس الثلاثة بل أعاد استعمال حجارة المعابد الرومانية المهدمة خاصة في بناء كنيسة البازيليكا الشرقية والكنيسة الصغيرة، ويمكن إرجاع السبب في استعمال هذه الحجارة إلى هدم المعابد الرومانية الوثنية في الموقع والرغبة في سرعة إنجاز بناء الكنيستين.

إن اكتشاف ثلاث كنائس في خربة ياجوز ليس بالأمر المستغرب خاصة عندما نعلم أن مدينة جرش تحتوي على ١٢ كنيسة وأن مدينة مأدبا وضواحيها يوجد بها أكثر من ٢٠ كنيسة، ومهما اختلفت الآراء حول تعدد الكنائس في الموقع الواحد فإنه دليل واضح على توفر مصادر مالية لتمويل مثل هذه المشاريع المعمارية الضخمة، ويشار في هذا المجال إلى تضافر جهود ثلاث جهات في تمويل بناء الكنائس في الفترة البيزنطية المبكرة وهي الدولة والكنيسة المحلية والمتبرعون (مانجو ١٩٩٩: ١٨).

يستدل من الإنجازات المعمارية الدينية والمدنية واللقى المكتشفة في الموقع على الازدهار الاقتصادي الذي عاشته خربة ياجوز خاصة خلال العصر البيزنطي. كما دلت المكتشفات ذات العلاقة بالتصنيع الغذائي مثل طواحين الحبوب البازلتية ومعاصر العنب والزيتون على أن هناك مساحات زراعية شاسعة مخصصة لإنتاج الحبوب وكروم العنب والزيتون، مما يؤكد أن خربة ياجوز كانت من المراكز الريفية الهامة خلال العصر البيزنطي.

لطفي خليل
الجامعة الأردنية

المراجع

بتشريللو، ميشيل
١٩٩٣ **مادبا، كنائس وفسيفساء.** ترجمة ميشيل صباح وأخرون. القدس: معهد الأباء الفرنسيسكان.

مانجو، سيريل
١٩٩٩ **العمارة البيزنطية.** ترجمة رندة قاقيش. دمشق: دار مشرق - مغرب للخدمات الثقافية والطباعة والنشر.

سليمان، امصيطف
١٩٩٩ نتائج أعمال مشروع الحفريات الأثرية في خربة ياجوز للأعوام ١٩٩٤-١٩٩٦. **حولية دائرة الآثار العامة** ٤٣: ٥-٢٥.

Adam, J.
1994 *Roman Building Materials and Techniques*. London: Bats Ford Ltd.

Conder, C.
1889 *The Survey of Eastern Palestine*. London: Palestine Exploration Fund.

Dalman, G.
1911 Bei Ben Ummonitern and Jurud nach Jerusalem. *Palastinajahrbuch* 31: 135-138.

Ferguson, E.
1990 Basilica. Pp. 141-146 in *Encyclopedia of Early Christianity*. New York and London: Garland Publishing Inc.

Fletcher, B.
1992 *A History of Architecture,* Delhi-India: Butter worths.

شكر وتقدير

أتوجه بالشكر والتقدير إلى السيدة ماريا ايلينا رونزا لقيامها برسم إعادة البناء الافتراضي للكنيسة (الشكل ٥)

Glueck, N.
1937/1939 Exploration in Eastern Palestine, III. *Annual of the American Schools of Oriental Research*: 14-18.
Khalil, L.
1998 University of Jordan Excavation at Khirbet Yajuz. *ADAJ* 42: 457-472.
2001a Glass Vessels and Miniature Jugs form Khirbet Yajuz Cemetery, Jordan. *Levant 33*:127-138.
2001b Pottery Candlesticks form the Byzantine Period at Yajuz. *SHAJ 7*: 617-629.
Khalil, L. and Al-Nammari, F.
2000 Two Large Wine Presses at Khirbet Yajuz, Jordan. *BASOR* 318: 41-57.
Khalil, L. and Kareem, J.
2002 Abbasid Pottery form Area E at Khirbat Yajuz, Jordan. *Levant 34*: 111-150.
Khalil. L. and Ronza, M.E.
2005 Roman Quarries at Khirbet Yajuz and Surrounding Areas: Archaeological Evidence. *Forthcoming issue of Levant.*
McCown, C.
1930 Spring Field Trip. *BASOR* 39: 10-27.
Merril, S.
1881 *East of the Jordan, A Record of Travel and Observation in the Countries of Moab, Gilead and Bashar.* London: Richard Bently and Son.
Oliphant, L.
1880 *The Land of Gilead with Excursions in the Lebanon.* Edinburgh and London: William Blackwood and Sons.
Palumbo, G. (ed.)
1994 *Jordan Antiquities Database and Information System.* Amman: Department of Antiquities and American Center of Oriental Research.
Parker, S.
1997 The 1994 Season of the Roman 'Aqaba Project. *BASOR 305*: 19-44.
Piccirillo, M.
1985 Rural Settlements in Byzantine Jordan. Pp. 257-262 in A. Hadidi (ed.), *SHAJ 2*: 251-262. Amman: Department of Antiquities of Jordan.
1993 *The Mosaics of Jordan.* Amman: American Center of Oriental Research.
Russel, K.
1985 The Earthquake Chronology of Palestine and Northwest Arabia from the Second through the Mid-Eight Centuries AD. *BASOR* 260: 37-59.
Schumacher, G.
1986 *Across the Jordan: Being an Exploration and Survey of Part of Huaran and Julan.* London: Richard Bently and Son.
Smith, R.H.
1973 *Pella of the Decapolis I, The 1967 Season of the Season of the College of Wooster Expedition to Pella.* Wooster, Ohio: The College of Wooster.
Suleiman, E.
1996 A Short Note on the Excavation of Yajuz, 1994-1995. *ADAJ* 40: 457-462.
Thompson, H.
1972 A Tomb at Khirbet Yajuz. *ADAJ* 17: 37-41.
Urech, E.
1985 Lexikon Christlicher Symbole. Germany: Christliche Verlagsanstalt, Konstanz.
Wright, G.R.
1985 *Ancient Buildings in Syria and Palestine*, Vol.I. Brill, Leiden-Koln.
Zayadine, F. (ed.)
1986 *Jerash Archaeoloical Project*, 1981-1983,Vol. I. Amman: Department of Antiquities of Jordan.

تواصل حركة بناء المساجد في العصر الأيوبي في ضوء المساجد الباقية في شمال المملكة الأردنية الهاشمية

(دراسة أثرية مقارنة)

عبد العزيز صلاح سالم

تكمن أهمية موضوع تواصل حركة بناء المساجد في العصر الأيوبي في ضوء المساجد الباقية في شمال المملكة الأردنية الهاشمية، دراسة أثرية مقارنة في محاولة لتوضيح الغموض المحيط باستمرارية بناء المساجد في العصر الأيوبي، ورغم أن الشواهد الأثرية الباقية تؤكد تواصل حركة بناء المساجد في تلك الفترة الهامة من تاريخ الدولة العربية الإسلامية إلا أن بعض الدراسات والأبحاث السابقة تشير إلى توقف بناء المساجد خلال هذا العصر، واستبدالها بإنشاء المدارس التي قامت بنفس الدور الديني والتعليمي معا. ولذا تقوم الدراسة بتتبع المساجد الأثرية الباقية في شمال المملكة الأردنية الهاشمية مثل مسجد عجلون، مسجد ريمون، مسجد كفرنجة، مسجد إربد، مسجد طبقة فحل ومسجدي حبراص وبيت راس، ومحاولة حصر أجزائها الأيوبية، والتعرف على ظروف إنشائها، وتحليل عناصرها المعمارية والفنية، وعقد الدراسة المقارنة لتحديد الأصول الأيوبية المشتركة في تلك المساجد، بالإضافة إلى تكوين صورة شبه متكاملة حول تخطيط المسجد في العصر الأيوبي، ومواد وأسلوب بنائه، والتجديدات والتغييرات التي طرأت عليه خلال العصرين المملوكي والعثماني.

كما تتناول الدراسة بالشرح والتحليل النقوش الكتابية الموجودة في المساجد الأثرية الباقية في شمال المملكة الأردنية الهاشمية، للاستفادة منها في تحديد تواريخ الإضافات المعمارية في هذه الأبنية واستكمال رسم مخططاتها ومتابعة تطورها الأثري والفني، وتصحيح بعض من القراءات السابقة وذلك من خلال ربطها بنقوش كتابية أخرى مرتبطة بنفس الشخصيات، مع الاستفادة من بعض كتب التراجم والمصادر التاريخية في تتبع تراجم الشخصيات المتعلقة بالمساجد الأيوبية في منطقة شمال الأردن.[1]

وإذا كان الشائع أن الدولة الأيوبية دولة عسكرية، عُنيت في المقام الأول ببناء العمارة الحربية والاستحكامات العسكرية، فإنها أيضا أقامت الأضرحة لأولياء الله الصالحين الذين ساعدوها على نشر الوعي الديني، كما اهتمت ببناء المدارس[2] التي ساعدت على نشر مذهبها السني بدلا من مذهب الفاطمين الشيعي (ماهر ١٩٧٦: ٩). وعلى الرغم من أن بعض الدراسات تشير إلى اختفاء عنصر المسجد كمنشأة معمارية ودينية خلال العصر الأيوبي، وأنه استعاض عن بناء المساجد بتأسيس المدارس كمنشآت دينية تعليمية تجمع بين وظيفة المسجد الدينية، ووظيفة المدرسة التعليمية (El-Basha 1999: 39). وإذا اتفقنا وصحة هذا الرأي خاصة مع ظهور المدارس في مصر[3] ذات الطراز المعماري الخاص سواء المكونة من إيوانين كما يتضح في المدرسة الكاملية ٦٢٢هـ/١٢٢٥م، أو الجمع بين زوجين بكل منهما إيوانان كما في المدرسة الصالحية، ثم تعددها في العصر الأيوبي بحيث آربت على عشرين مدرسة في مدينة القاهرة (الباشا ١٩٩٩: ٣١٤)[4] فإنه ينبغي الإشارة إلى الظروف السياسية والحربية التي ساعدت على التوسع في تشييد المنشآت الدينية التعليمية وبخاصة في القاهرة، وربما يرجع سبب ذلك إلى أن القاهرة كانت مزدانة بالعديد من المساجد الجامعة الكبيرة، كجامع عمرو بن العاص بمدينة الفسطاط، وجامع العسكر بمدينة العسكر (Shiha 2001: 59-80) وجامع أحمد بن طولون بمدينة القطائع (Garaudy 1985: 148-155) وجامعي الأزهر والحاكم بمدينة القاهرة (Stierlin 2002: 139-157)، وغيرها من المساجد

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١. قام الباحث بالزيارات الميدانية للمساجد الباقية في شمال المملكة الأردنية الهاشمية مثل مسجد عجلون وكفرنجه وريمون وجرش وإربد وبيت راس وحبراص وسحم وأم قيس وغيرها من الأماكن لمحاولة الوقوف على البقايا الأيوبية وحصرها وتحديد الإضافات التي طرأت عليها وذلك خلال الفترات التالية: من ٢٥ إلى ٣٠ ايار، ومن ١٧ إلى ٢٠ حزيران ٢٠٠٣م، ومن ٩ إلى ١٥ تموز ٢٠٠٤م، والفترة من ٣ إلى ١٠ آب ٢٠٠٥م.

٢. استحدث السلاجقة نظام المدارس، وهي منشآت علمية سنية لمحاربة المذهب الإسماعيلي الشيعي، وتهيئة العقول لفكرة الجهاد ضد الصليبيين، وصار على هذه السياسة نور الدين محمود زنكي في الشام ثم صلاح الدين الأيوبي في مصر للقضاء على الدعوة الفاطمية.

٣. عرفت مدينة الأسكندرية نظام المدارس السنية منذ أواخر أيام الفاطميين قبل قدوم صلاح الدين إلى مصر، وأول مدرسة أنشئت في الاسكندرية هي المدرسة الحافظية التي أسسها رضوان بن ولخشي وزير الخليفة الفاطمي ٥٣٣هـ، وأسند التدريس فيها إلى الفقيه المالكي أبي الطاهر بن عوف، وفي سنة ٥٤٤هـ بنى العادل بن السلار وزرير الخليفة الظافر الفاطمي مدرسة سنية أخري، وأسند التدريس فيها إلى الفقيه الشافعي أبي الطاهر أحمد السلفي (العبادي١٩٩٥: ٤١).

٤. تحولت المدرسة ذات الأربعة أواوين إلى الطراز المتعامد في العصر المملوكي الذي ظهر في أول الأمر في المدرسة الظاهرية (الباشا ١٩٩٩: ٣١٤).

التي رأي الأيوبيون أنها كافية لتأدية الغرض الديني حينذاك، في حين دعت الحاجة السياسية والتعليمية إلى تشييد المدارس كمنشآت دينية تعليمية تهدف إلى تحويل مذهب مصر من مذهب الفاطمين الشيعي إلى المذهب الشافعي السني (المقريزي ٢٠٠١: ٣٣٢-٣٣٣) [٥]، كما كان انشغال الأيوبيين بالجهاد ضد الصليبين سببا آخر في التوسع في بناء الأبنية الدفاعية والتحصينية العسكرية في تلك الفترة الهامة من تاريخ الأمة الإسلامية (نويصر ١٩٩٦: ١) [٦].

ولا يمكن التسليم بالقول بتوقف حركة بناء المساجد خلال العصر الأيوبي خصوصا في بلاد الشام، كمنشأة دينية واجتماعية وتعليمية لها دورها المعروف في الإسلام، فلم تؤد سياسة سلاطين بني أيوب بدءاً من عصر الناصر صلاح الدين (ابن شداد ١٩٦٢: ٢٥) [٧] إلى آخر سلاطين بني أيوب، إلى إهمال بناء المساجد، كما لم يَعمِّد الأيوبيون إلى توقف حركتها كمنشآت دينية وتعليمية هامة (الهرني ٢٠٠٤: ٥٦) [٨]، وفقا لما ورد من إشارات تاريخية ونقوش أثرية تفيد تعمير الأيوبيين للمساجد في منطقة شمال المملكة الأردنية الهاشمية، بالإضافة إلى تشييدهم بعض من المساجد التي لا تزال باقية شاهدة على اهتمام بني أيوب ومواصلتهم لحركة بناء المساجد، وموضحة بجلاء سمات الطراز المعماري والفني لعمارة المساجد في هذا العصر. وتشير المصادر التاريخية إلى أن الملك الصالح نجم الدين أيوب (ابن تغري بردي ١٩٩٧: ١٦-١٧) [٩] قد أمر بإنشاء المسجد الجامع في مدينة عجلون (الدلالعة ١٩٩٧: ٤) [١٠] في سنة ٦٤٥هـ/١٢٤٧م، الذي يعد من أقدم المساجد الأيوبية الجامعة الباقية في بلاد الشام، ولقد نالت مدينة عجلون (غوانمة ١٩٨٦: ٤٥) [١١] اهتمام الخلفاء والسلاطين منذ



١. النص التأسيسي في مسجد عجلون.

العصور الإسلامية الأولى حتى أصبحت من المدن الهامة في منطقة الأردن، ثم ازدادت أهميتها خلال العصر الأيوبي (الرشدان ١٩٩٨: ٤٤) [١٢]. وبعد أن استقرت عجلون (المقريزي ١٩٩٧: ٤٢٧) [١٣] في يد الملك الصالح نجم الدين أيوب (النويري ١٩٩٢: ٣١٢) [١٤]، أمر ببناء مسجدها الجامع (غوانمة ١٩٨٦: ٤٥)، كما يثبت ذلك اللوحة التأسيسية المثبتة (الشكل ١) فوق عتب المدخل الشمالي الحالي للمسجد، ويمكن قراءة نقوشها الكتابية على النحو التالي

١- بسم الله الرحمن الرحيم إنما يعمر مساجد الله من آمن بالله واليوم الآخر واقام الصلاة وآتى الزكاة ولم يخش إلا

٢- الله فعسى أولئك أن يكونوا من المهتدين هذا ما أنشأ وأعمر العبد الفقير إلى رحمته الراجي عفوه وغفرانه

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٥. سلك الناصر صلاح الدين الأيوبي لتحقيق ذلك عدة طرق منها نقل الصلاة الجامعة من معقل الشيعة بجامع الأزهر إلى جامع الحاكم بأمر الله، كما أبطل في سنة خمس وستين وخمسمائه الأذان "بحي على خير العمل محمد وعلى خير البشر، ثم أمر أن يذكر في خطبة يوم الجمعة الخلفاء الراشدون، ثم عزل صلاح الدين قضاة مصر من الشيعة وولى قاضي القضاة صدر الدين عين الملك بن درباس الهذباني الشافعي وجعل إليه الحكم في جميع بلاد مصر.

٦. وجهت الدولة الأيوبية كل قوتها إلى النواحي الحربية حيث كان هناك صراع دائم بينها وبين الصليبيين في الشام، وعلى الرغم من ضراوة القتال الذي دار في هذه الفترة إلا أن ذلك لم يمنع الاتصال الحضاري بين الصليبيين والمسلمين وذلك الاتصال الذي كان له أثره الواضح على عمارة وفنون الشرق الأوسط (نويصر ١٩٩٦: ١).

٧. هو السلطان الملك الناصر أبو المظفر صلاح الدين يوسف بن الأمير نجم الدين أيوب بن شادي بن مراون، أقيم في وزارة الخليفة العاضد بعد وفاة عمه أسد الدين شيركوه في يوم الثلاثاء الخامس عشر من جمادي الأولى سنة أربع وستين وخمسمائه، ولقب بالملك الناصر (ابن شداد ١٩٦٢: ٢٥)، (ابن واصل ١٩٥٣: ٣-٥٠).

٨. من ذلك أن الناصر صلاح الدين الأيوبي استهل عهده بعد فتح بيت المقدس بعملين جليلين هما إنشاء المدارس والعمل على تزويد المسجد الأقصى بالكتب العلمية.

٩. هو الملك الصالح نجم الدين أيوب بن السلطان الملك الكامل محمد بن السلطان الملك العادل أبي بكر بن الأمير نجم الدين أيوب، مات وهو على المنصورة في ليلة النصف من شعبان، فأخفت زوجته أم خليل شجر الدر موته خوفا على المسلمين إلى أن حضر ولده المعظم توران شاه من كيفا.

١٠. عجلون تعني الاستدارة، والناظر إلى قمم جبال عجلون يرى أن كثيراً منها يأخذ شكلا مستديراً، كما تعني أيضا اسم صغير البقر (عجل) والواو والنون للتصغير على الطريقة الآرامية. ومن الأسباب التي جعلت بعض المؤرخين يطلقون عليها اسم عجلون هو وجود راهب اسمه عجلون كان يسكن في دير قديم مكان القلعة فسميت القلعة باسمه ثم المدينة ثم انتقلت إلى المناطق المجاورة لمدينة عجلون. ولقد انطلق منها صلاح الدين الأيوبي في كل هجماته ضد الصليبين.

١١. عجلون: اسم علم، فأحد ملوك مؤاب اسمه عجلون، وقد حارب هذا الملك الإسرائيليين وانتصر عليهم وخضعوا له مدة ثمانية عشر عاما. وتقع مدينة عجلون في أحضان منطقة جبلية غير بعيدة عن قمة جبل عوف وتبعد مدينة عجلون عن عمان مسافة ٧٣كم.

١٢. في عام ٦٢٨هـ/١٢٢٩م، تشكلت إمارة الكرك الأيوبية المستقلة بزعامة الملك الناصر داود، وكانت تشمل كلا من الكرك، السلط، عجلون، البلقاء، الأغوار، نابلس، القدس، الخليل وبيت جبريل، كما أصبحت عمان إحدى مدن الكرك الأيوبية.

١٣. كانت مدينة عجلون تحت حكم السلطان الأيوبي الملك الناصر داود ضمن إمارة الكرك الأيوبية، وظلت كذلك حتى أواخر سنة ٦٤٣هـ/١٢٤٦م، حيث أتى سيف الدين على بن قليج صاحب قلعتها إلى دمشق بعد أن شق عصا الطاعة على الناصر داود، وأعلن دخوله في طاعة الملك الصالح نجم الدين أيوب صاحب مصر، فسلم القلعة لنوابه، وبذلك تسلم الملك الصالح نجم الدين أيوب في سنة أربع وأربعين وستماية عجلون بوصية صاحبها سيف الدين بن قليج عند موته، عندئذ رتب الملك الصالح بقلعة عجلون الأمير علاء الدين ايدكين بن عبد الله البندقدار الصالحي.

١٤. تذكر حوادث سنة ٦٤٣هـ وصول سيف الدين بن قليج من عجلون منفصلا عن خدمة الملك الناصر داود، وأوصى بعجلون وما له بها من الأموال للملك الصالح، ونزل بدمشق بدار فلوس.

٣- عمر بن دعماش بن يوسف الحميدي الملكي الصالحي النجمي في أيام مولانا السلطان الملك الصالح أبو المكارم نجم الدنيا والدين أيوب بن

٤- السلطان الملك الكامل محمد بن السلطان الملك العادل[١٥] أبو بكر بن أيوب خليل [١٦] أمير المؤمنين جمع الله له خير الدنيا والآخرة

٥- وذلك في العشر الأخير من شهر جماد الأخير المبارك سنة خمس وأربعين وستماية أثابه الله تعالى[١٧].

ويقع هذا الجامع في منتصف مدينة عجلون الحالية على يسار الصاعد إلى قلعة عجلون، ويتبع تخطيط الجامع النظام القديم للمساجد الجامعة، ويتكون من بيت للصلاة وصحن مستطيل يدور حوله ثلاث مجنبات إلى جهاته الشرقية والجنوبية والشمالية، ومدخله الرئيسي يقع في الجهة الشرقية (غوانمة ١٩٧٩: ١٧٥)[١٨].

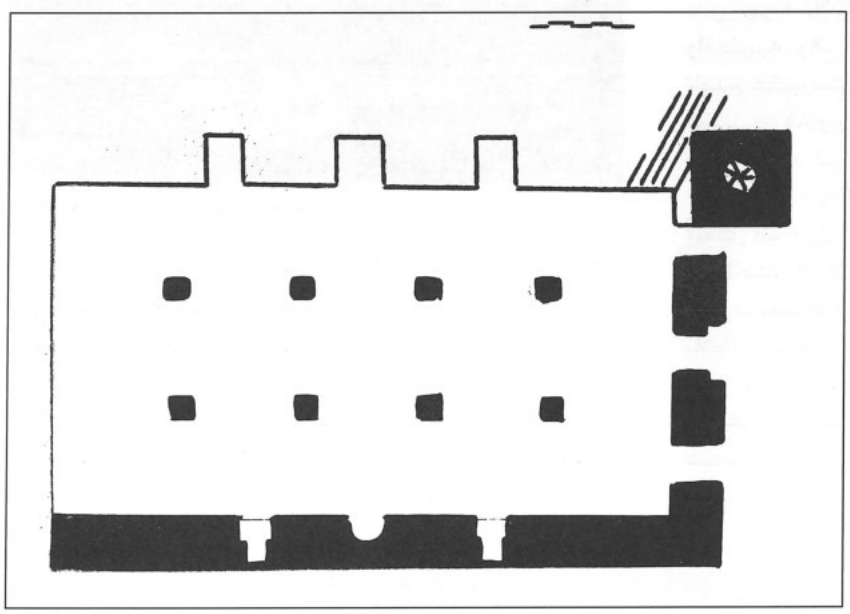
وتتكون الواجهات الخارجية لمسجد عجلون من ثلاثة واجهات حرة، أما الرابعة فملاصقة للأبنية الحديثة، وتشتمل الواجهة الشمالية الآن على محلات تجارية (**الشكل ٢أ، ٢ب**)، أما الواجهة الجنوبية فتشتمل على حائط خالي من الزخرفة فتح فيه باب يؤدي إلى دورات مياه حديثة، ويفتح الآن على سوق بجوار المسجد (**الشكل ٣**)، والواجهة الغربية ملاصقة لأبنية حديثة (**الشكل ٤**). أما الواجهة الرئيسية وهي الواجهة الشرقية فتشتمل على مدخل حديث وعدد من المخازن التجارية التي يعلوها مكاتب هيئة الأوقاف في المملكة الأردنية الهاشمية (**الشكل ٥**)، وهذا المدخل يفضي إلى ردهة تؤدي إلى الصحن المكشوف الذي ينتهي إلى ثلاثة أبواب أثرية أوسعها أوسطها[١٩]. كما يعتبر الباب الأوسط المدخل الرئيسي لبيت الصلاة، ويعلوه عقد على شكل حذوة الفرس ويرتفع هذا



٣. الواجهة الجنوبية لمسجد عجلون.



٢أ. الواجهة الشمالية لجامع عجلون.



٢ب. مخطط مسجد عجلون.

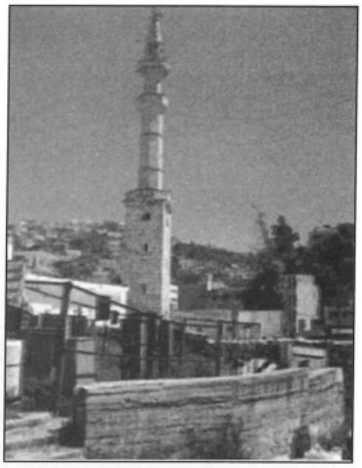
١٥. هو السلطان الملك العادل أبو بكر بن السلطان الملك الكامل محمد بن السلطان الملك العادل أبي بكر بن الأمير نجم الدين أيوب، مات الملك العادل في يوم الخميس سابع جمادي الآخرة سنة خمس عشرة وستماية للهجرة (ابن واصل ١٩٥٣: ٣١٣) (ابن تغري بردي ١٩٣٠: ٢- ٣١) (المقريزي ٢٣٦).

١٦. خليل أمير المؤمنين: عرف هذا اللقب في مصر منذ عهد الدولة الفاطمية ثم استعمله الملوك الأيوبيون، فاستعمله صلاح الدين، فبعد أن خطب للعباسيين أرسل إليه الخليفة المستضئ الخلع والأولوية ولقبه بخليل، وكان الملك العادل يستعمله في سلطنة صلاح الدين ولما تسلطن في سنة ٦٠٤هـ أرسل إليه الخليفة العباسي الناصر يقلده جميع البلاد التي فتحها ويخاطبه "بشاهنشاه ملك الملوك خليل أمير المؤمنين"، وأطلق اللقب على الملك الصالح نجم الدين أيوب وابنه من شجر الدر "خليل"، كما أطلق هذا اللقب بصفة دائمة على أولاد الملوك في عهد المماليك (الباشا ١٩٥٧: ٢٠٠).

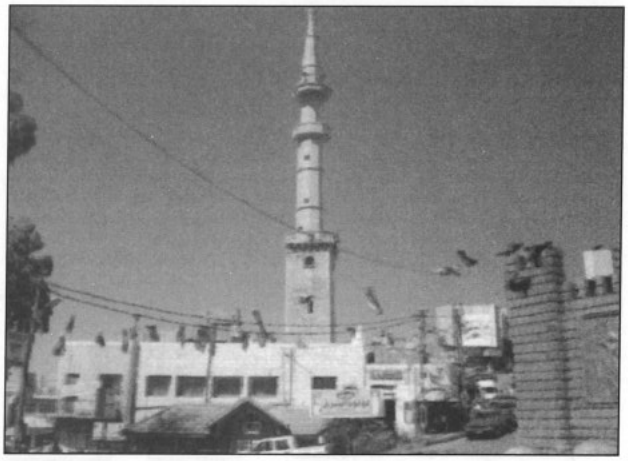
١٧. يذكر بن واصل أن سنة خمس وأربعين وستماية دخلت والسلطان الملك الصالح نجم الدين أيوب بالشام ونائبه بالديار المصرية الأمير حسام الدين أبو علي بن محمد بن أبي على.

١٨. تعرض هذا المدخل للهدم سنة ٧٢٨هـ فأعاد الملك الناصر محمد بن قلاوون المدخل.

١٩. الثابت أن هذه الواجهة قد تعرضت للهدم مرتين الأولي سنة ٧٢٨هـ وأعادها الملك الناصر محمد بن قلاوون وجدد الباب الرئيس لها، أما المرة الثانية فقد تمت في العصر الحديث حيث ازيلت الأجزاء القديمة وحل محلها الأبنية القائمة.



٤. الواجهة الغربية لمسجد عجلون.



٥. الواجهة الشرقية لمسجد عجلون.

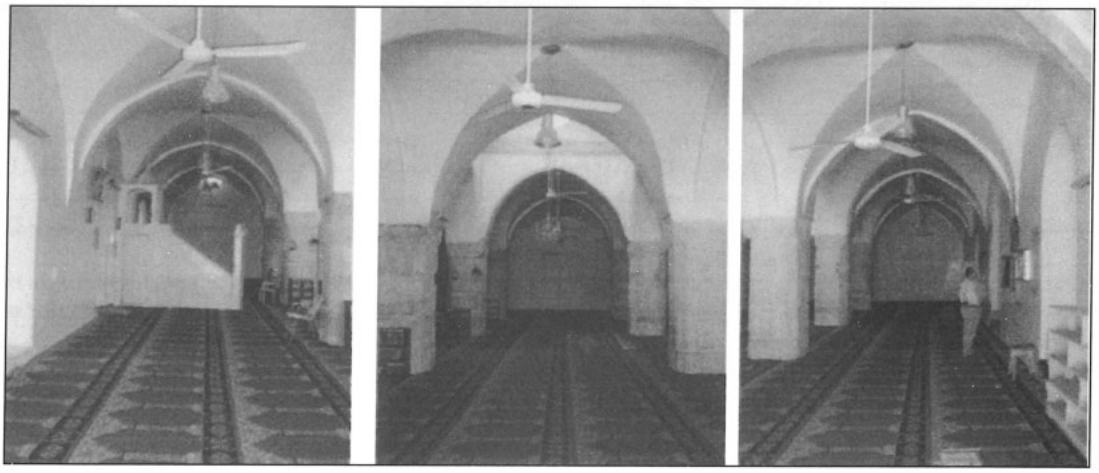
المدخل عن أرضية بيت الصلاة بمقدار ١٠سم (**الشكل ٦**)، ويبلغ طول هذا الباب ٢,٨م، أما عرضه فيبلغ ١,٦م، أما البابان الآخران فيقعان إلى شمال هذا المدخل وإلى جنوبه، وكلاهما على شكل مستطيل يعلوه عتب مستقيم. أما الباب الشمالي فيبلغ ارتفاعه ٣,٧٥م وعرضه ١,٤م بعمق ٢,٢ م، ولهذا المدخل عتبة خارجية من الحجارة بعلو ١٠سم تتساوى مع صحن بيت الصلاة، ويحمل هذا الباب فوق عتبه المستقيم



٦. المدخل الرئيسسي لمسجد عجلون.

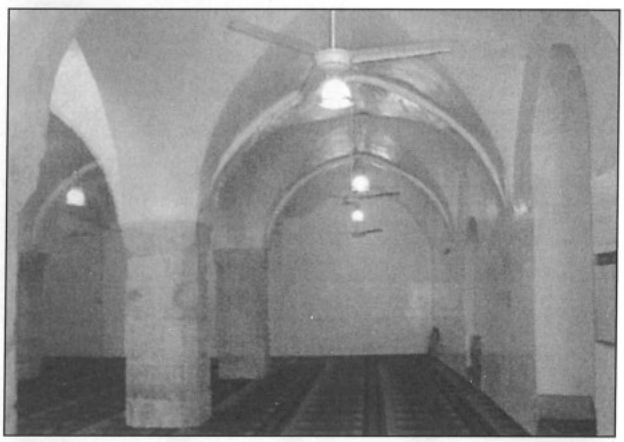
النص التأسيسي على حجر طوله ١,٢٨م وعرضه ٦٠ سم. أما الباب الجنوبي فطوله ٢,٧م، وعرضه ١,٦٣م بعمق ٢,١م يعلوه عقد متجاوز على شكل حذوة الفرس، ويرتفع عن أرضية بيت الصلاة ٣٣سم خمس درجات، ويفضي هذا الباب إلى غرفة صغيرة ملاصقة للجدار الجنوبي من المسجد، كما يوجد في هذه الغرفة باب آخر في الجهة الجنوبية يؤدي إلى خارج المسجد وباب آخر يؤدي إلى غرفة من الجهة الشرقية لها باب يفضي إلى الشارع العام. ويتألف صحن المسجد من مستطيل يدور حوله ثلاث مجنبات إلى جهاته الشرقية والشمالية والجنوبية. وقد تعرضت المجنبة الشرقية والجنوبية والميضأة للهدم عقب سيل سنة ٧٢٨هـ/١٣٢٨م، وأعاد تجديده الناصر محمد بن قلاوون (غوانمة ١٩٨٦: ٤٥-٥٠).

أما بيت الصلاة فهو مستطيل الشكل يبلغ طوله من الشرق إلى الغرب ٢٧,٨ م وعرضه من الشمال إلى الجنوب ١٤,٨م ويمكن الدخول إليه من ثلاثة أبواب حيث يؤدي كل باب منها إلى إحدى البلاطات الثلاثة الممتدة عرضا من الشرق إلى الغرب بمحاذاة جدار القبلة. ويتكون بيت الصلاة من ثلاث بلاطات عرضية متوازية مع جدار القبلة، حيث تنقسم هذه البلاطات إلى خمسة عشر اسطوانة تعلوها قبب متقاطعة (**الشكل ٧**)، فيما بينها صفوف من الدعائم المربعة الضخمة عددها ثمانية طول ضلع الواحدة ٨٠سم وارتفاعها نحو مترين تشكل صفوفا موازية لجدار القبلة، ذات عقود مدببة (**الشكل**

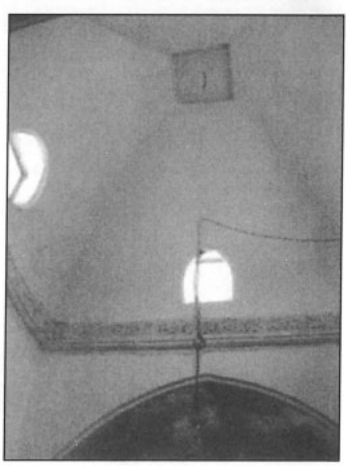


٧. التقسيمات الداخلية لمسجد عجلون.

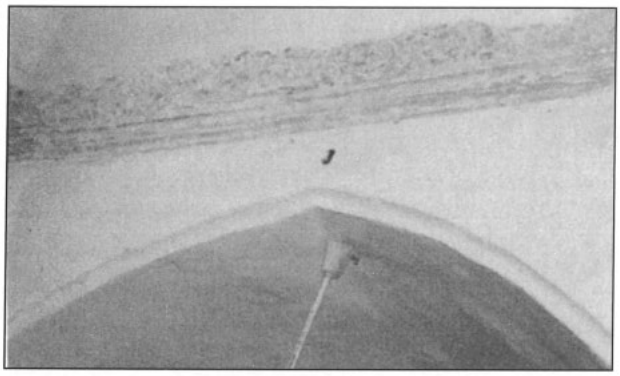
٨)، وترتفع أرجل هذه العقود عن الأرض بمقدار ٤,٦٥م، ويلاحظ أن العقود الواقعة في الجهة الشرقية والغربية من البلاطات الثلاثة أكثر اتساعا من العقود الثلاثة الوسطى، كما يستند العقد الأخير في كل الجهات الأربعة على دعامة ملتصقة بالجدار. وتتصدر بلاطة المحراب قبة مربعة مضلعة ترتكز على مقرنصات قائمة في أركان الدعائم الضخمة التي تكون قاعدة القبة (**الشكل ٩**)، ويفتح في رقبة القبة أربع نوافذ صغيرة، ويشغل رقبة القبة إفريز من الزخارف النباتية تتكون



٨. نظام العقود المتبع داخل مسجد عجلون.



٩. القبة من الداخل.



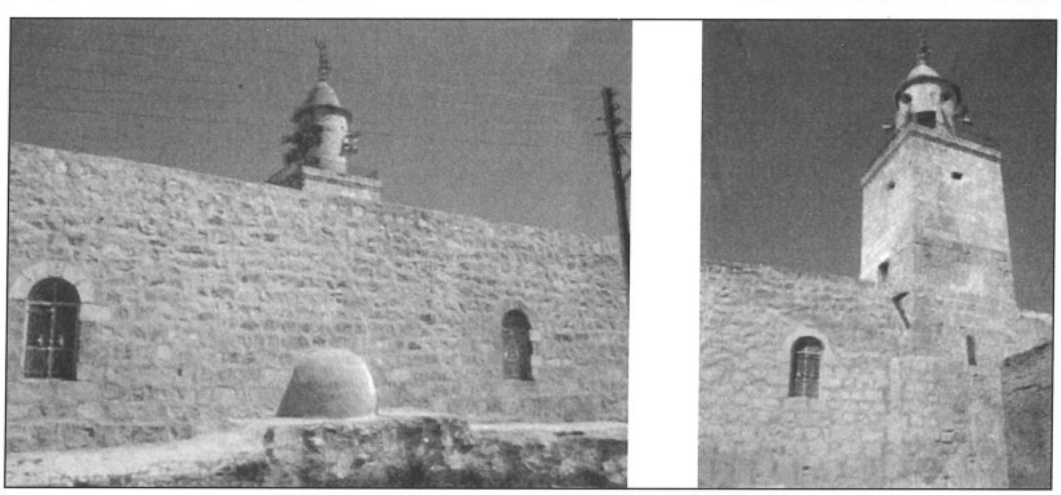
١٠. الزخارف النباتية الموجودة على القبة.

من فروع نباتية وأوراق ودوائر تحيط بصرر وردية ذات أشكال جميلة (**الشكل ١٠**). كما يتوسط جدار القبلة المحراب وهو مجوف يبلغ طوله ٢,٩م، وعرضه ١,٧٥م، وعمق تجويفه ١,٢م، ويرتكز على عمودين صغيرين طولهما ١,٨٥م، ويتوج كل منهما تاج تزينه زخارف هندسية بسيطة الشكل (غوانمة ١٩٨٦: ١٩-٢٠) (**الشكل ١١**).

ويتشابه مسجد ريمون القديم الذي يقع في وسط بلدة ريمون، الواقعة بين مدينتي جرش وعجلون، سواء في تخطيطه أو في بعض عناصره المعمارية مع مسجد عجلون مما يؤكد عودة أصوله المعمارية الأولى إلى العصر الأيوبي (**الشكل ١٢أ**،



١١. تاجية أحد عمودي المحراب.



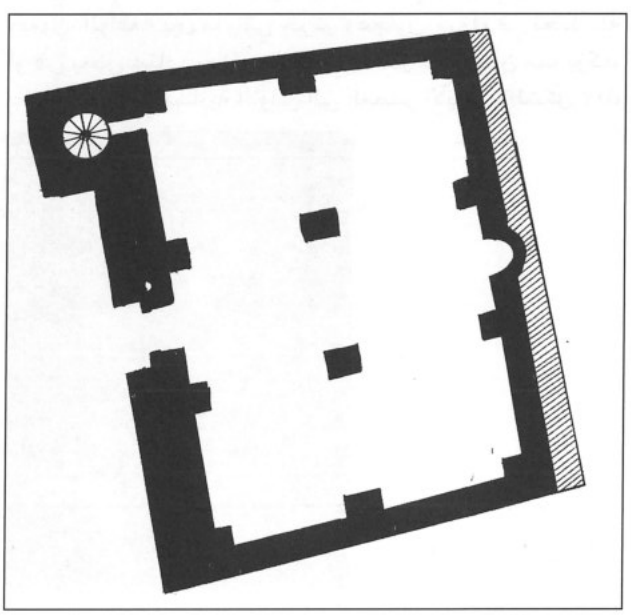
١٢أ. مسجد ريمون.

١٢ب)، حيث يحتوي على بيت للصلاة ومئذنة، وبيت الصلاة مستطيل الشكل غير منتظم الأضلاع، ويبلغ طول ضلعه الغربي ١٤,٧م، والجنوبي ١٧,٣م أما طول ضلعه الشرقي ١٧م، والشمالي ١٩م. وسماكة الجدران تتراوح من متر في الضلعين الشرقي والجنوبي إلى مترين في الضلع الشمالي. ومدخل بيت الصلاة في الجهة الشمالية في مواجهة جدار القبلة والمحراب، وهو مدخل مزدوج بعقود مدببة، فالخارجي عرضه ٢,٤٥م، وارتفاعه ٣,٦٥م أما الداخلي فعرضه ١,٥٥م، وطوله ٢,٦٥م. كما يتكون بيت الصلاة من ثلاث بلاطات ممتدة من الشمال إلى الجنوب عمودية على جدار القبلة، وتنقسم البلاطات الثلاثة في بيت الصلاة إلى ست أساطين، وتعلو هذه الأساطين أقبية متقاطعة، وبيت الصلاة محمول على اثنتي عشر دعامة، عشرة منها قائمة في الجدران الأربعة، وتوجد الدعامتان الباقيتان في وسط بيت الصلاة. ويفتح في المسجد ست نوافذ في الجهات الغربية والجنوبية والشرقية، اثنتان في كل جهة، وتنتهي النافذتان القبليتان بعقد مدبب لكل منهما، ويقع المحراب في منتصف جدار القبلة في مواجهة المدخل الرئيسي (**الشكل ١٣**)، ولا يوجد في المسجد قبة للمحراب كما هو الحال في المساجد الأيوبية (الدلالعة ١٩٩٧: ٤٩).

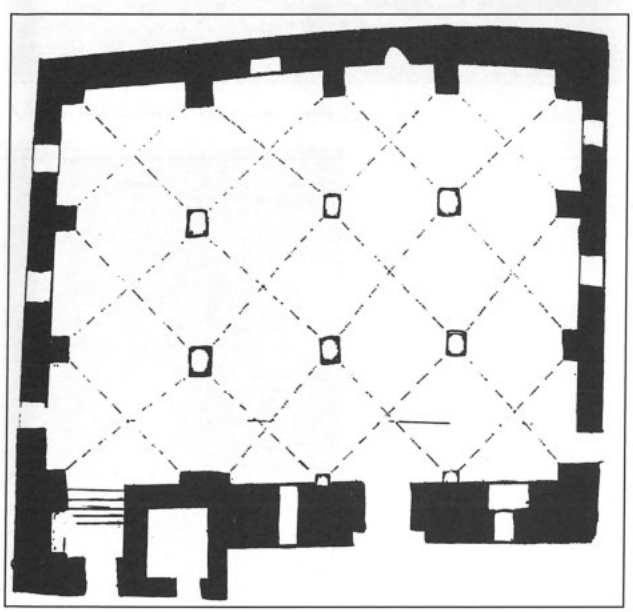
كما يتشابه تخطيط مسجد إربد الكائن في المنطقة القديمة من مدينة إربد (**الشكل ١٤أ، ١٤ب**)، مع مسجدي



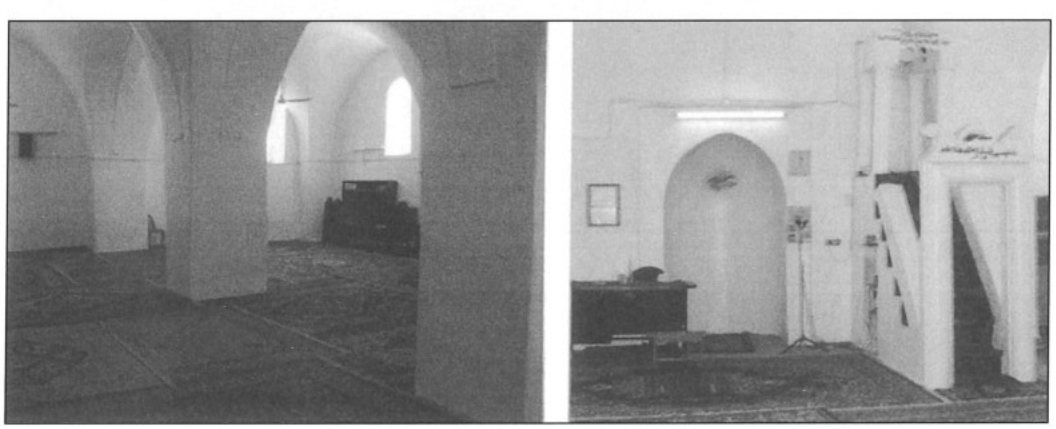
١٤أ. مسجد أربد من الخارج.



١٢ب. مخطط مسجد ريمون.



١٤ب. مخطط مسجد أربد.

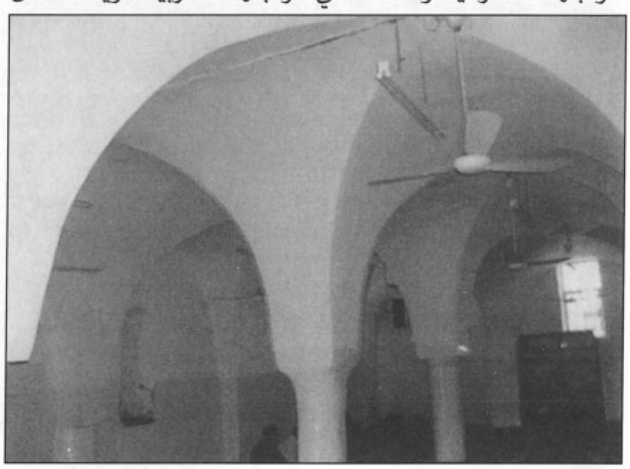


١٣. بيت الصلاة والمحراب في مسجد ريمون.

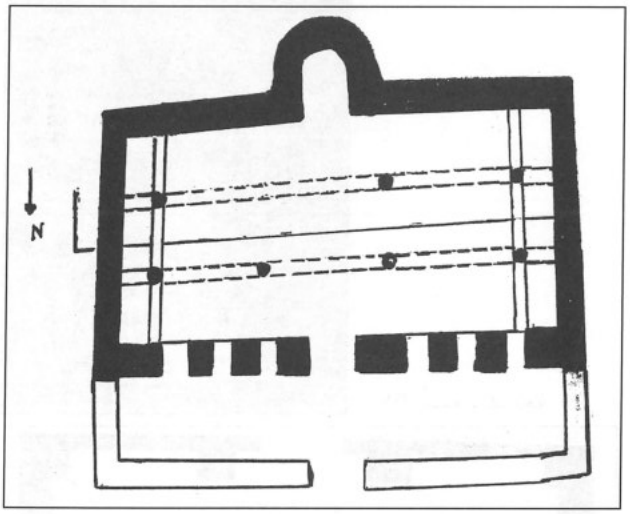
عجلون وريمون، حيث يتكون هذا المسجد من بيت للصلاة ومئذنة، وثلاث مجنبات لم يبق منها سوى جزء بسيط، فقد أدخلت عليه العديد من التعديلات والتجديدات، وبيت الصلاة مستطيل الشكل مساحته الداخلية ١٨ × ١١,٥٠م، ويتكون من أربع بلاطات ممتدة من الشمال إلى الجنوب عمودية على جدار القبلة، وتنقسم هذه البلاطات الأربعة إلى اثنتي عشر أسطونة، وتعلو هذه الأساطين قباب متقاطعة (**الشكل ١٥**) ويقوم بيت الصلاة على أربعة صفوف من الأعمدة عددها ٢٠ عموداً، ستة منها في وسط المسجد، يقابلها ١٤ عموداً تمثل دعامات وقواعد ملاصقة لجدران المسجد الأربعة الداخلية، وتثبت من هذه الدعامات والأعمدة أقواس تلتقي فيما بينها مكونة من ١٢ قبة، وترتفع هذه الأقواس عن أرضية المسجد مسافة ٥ أمتار تقريبا. ويلاحظ أن الأعمدة الستة التي يقوم عليها بيت الصلاة جلبت من مواقع مختلفة (غوانمة ١٩٨٩: ٣٥).

وتقع مئذنة مسجد إربد في الزاوية الشمالية الشرقية من المسجد، وهي مبنية بشكل دائري وبداخلها درج حلزوني يتكون من ٢٤ درجة، وتحتوي المئذنة على ثلاث نوافذ اثنتان في الواجهة الشرقية والثالثة في الواجهة الغربية. ويلاحظ أن نفس النمط المعماري المستخدم في الدرج اللولبي الداخلي في مئذنة ريمون، بالإضافة إلى الكوابيل الحجرية قد ظهر أيضا في مئذنتي عجلون وإربد، وهو ما يؤكد وحدة العناصر المعمارية في المساجد الأيوبية (الدلالعة ١٩٩٧: ٥٠).

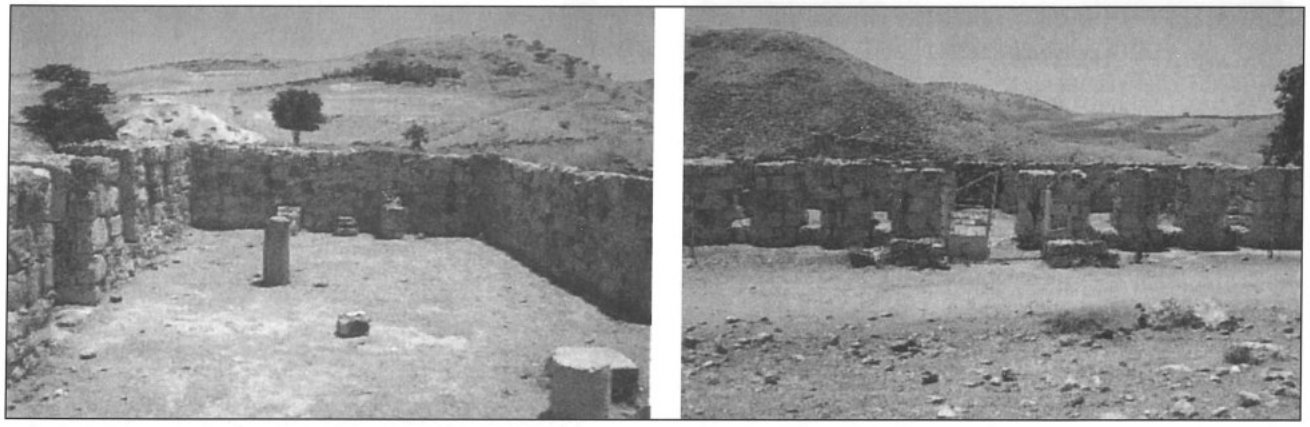
ويتفق تخطيط مسجد طبقة فحل الذي يعود إلى القرن الثالث عشر الميلادي مع التخطيط العام للمساجد الأيوبية (**الشكل ١٦أ، ١٦ب**)، ورغم أنه متهدم تماما، إلا أن الأجزاء الباقية منه تؤكد التشابه بينه وبين تخطيط كل من مساجد عجلون وريمون وإربد، فالمسجد عبارة عن شكل مستطيل طول واجهته الشمالية ١٩,١٠م، ويتوسطها المدخل الرئيسي، كما تضم بقايا فتحات مستطيلة الشكل بنيت بأحجار كبيرة ومتوسطة غير منتظمة وبقايا لامتداد صحن المسجد، يبلغ طول الواجهة الشرقية ٩,٣٠م والجنوبية ١٨,٥٠م، حيث يتوسطها المحراب الذي يبرز عن سمت الجدار، كما تدل البقايا الموجودة على أن الواجهات كانت مغطاة بطبقة من الملاط (الدويكات ٢٠٠٤: ٩١) [٢٠].



١٥. مسجد أربد من الداخل.



١٦ب. مخطط مسجد طبقة فحل.



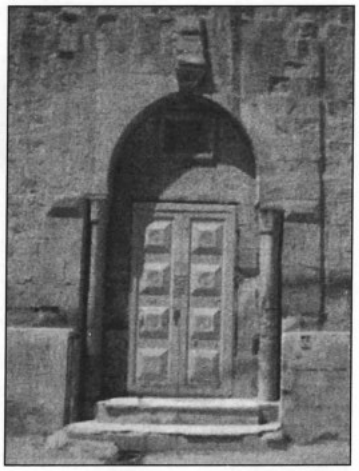
١٦أ. مسجد طبقة فحل.

٢٠. تعتبر طبقة فحل واحدة من المدن العشر التي ازدهرت واشتهرت في شمال الأردن، منذ مطلع القرن الأول الميلادي في العصور الإغريقية والرومانية، واستمرت في الازدهار والتطور عبر العصور البيزنطية والإسلامية، وكانت مركزا مهما للمواصلات والقوافل التجارية القادمة من اليمن والحجاز ثم العقبة إلى طبقة فحل وبيسان وموانئ البحر المتوسط.

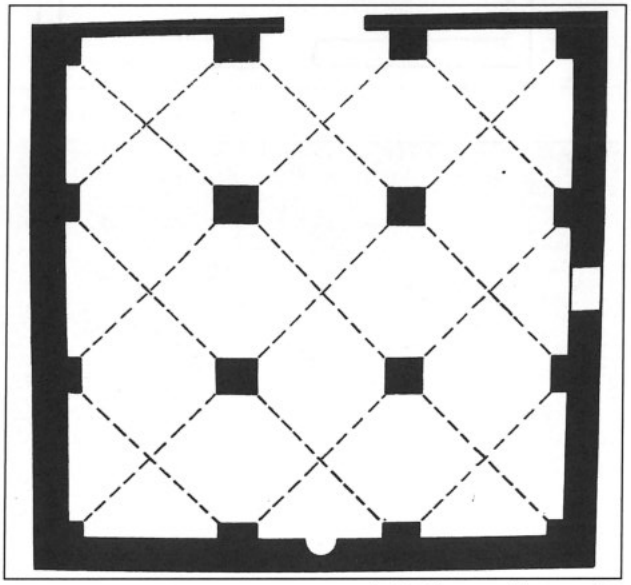
أما بيت الصلاة فهو بناء مستطيل الشكل تبلغ مساحته ١٦,٨٠م×٢٥,٧م، ويتكون من ثلاثة أساكيب تمتد من الشرق إلى الغرب موازية لجدار القبلة، وينقسم عن هذه الأساكيب خمسة عشر بلاطة ممتدة من الشمال إلى الجنوب عمودية على جدار القبلة، ويعتقد أن هذه البلاطات كان يعلوها مجموعة من العقود المتقاطعة كمثيلتها بمسجد عجلون وريمون وإربد، كما تتشابه الأرضية مع أرضية مسجدي حبراص وبيت رأس، ويعتقد بأنه كان لمسجد طبقة فحل مئذنة تقع في الجهة الشمالية الشرقية، ولم يتبق منها الآن شيئا (الدويكات ٢٠٠٤: ٩١-١٠٧).

كذلك نجد التشابه واضحا بين المساجد السابق الإشارة إليها والأصول القديمة في المسجد القديم الذي يقع في وسط بلدة كفرنجة التي تبعد ١٢كم جنوب غرب مدينة عجلون، والمعروف أن البناء الحالي يرجع إلى العصر العثماني (**الشكل ١٧أ، ١٧ب**)، لكنه يقوم على أصول أيوبية، يتألف المسجد من بيت للصلاة ومحراب ومنبر وأما أعمدته الداخلية فهي مربعة الشكل تشبه الأعمدة الموجودة في مسجدي عجلون وريمون التي تعود إلى العصر الأيوبي (**الشكل ١٨**)، ومن هنا يبدو التشابه واضحا بين تخطيط مسجدي عجلون وريمون وتخطيط مسجد كفرنجة (الدلالعة ١٩٩٧: ٤٩).

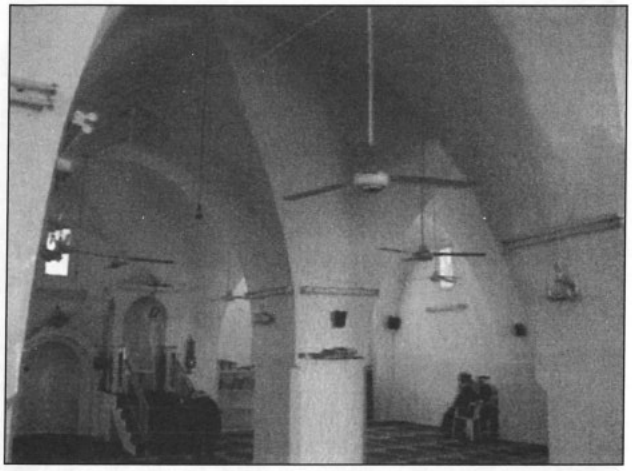
ويتضح أيضا التشابه بين تخطيط المساجد الأيوبية وتخطيط مسجد حبراص المتهدم [٢١] (الدويكات ٢٠٠٤: ٨٠-٩٠)، التي تدل الأجزاء المتبقية منه على أنه بني على النمط الأيوبي (**الشكل ١٩**)، خاصة في تخطيط بيت الصلاة المستطيل الشكل الذي يبلغ طول جدار القبلة والجدار الشمالي ٢٦,٥م والجدار الشرقي ١٠,٥م، والغربي ١١,٥م، ويتكون بيت الصلاة من ست بلاطات و١٨ أسكوبا، إحدى هذه البلاطات تمتد من الباب الرئيسي للمسجد عمودية على المحراب، وهناك ثلاث بلاطات على يمين هذه البلاطة واثنتان على يسارها (**الشكل ٢٠**)، كما ويقوم السقف على عشرة أعمدة بازلتية بتيجان تعود للفترة البيزنطية المتأخرة، والملاحظ أن هذا المسجد كان كبيراً



١٧أ. مسجد كفرنجة.



١٧ب. مخطط مسجد كفرنجة.



١٨. مسجد كفرنجة من الداخل.



١٩. مسجد حبراص من الخارج.

٢١. تدل المخلفات الأثرية الباقية في بلدة حبراص على أنها تعود إلى فترات زمنية بعيدة، حيث تشكل الآثار الرومانية والبيزنطية جزء كبيراً من بقايا هذه البلدة بدليل وجود كثير من الأعمدة الرومانية والبيزنطية في التل الذي يطل على مسجد حبراص، ونقلت بعض منه لاستخدامها في بناء المسجد، وقد بقيت البلدة خلال العصور الإسلامية عامرة بالسكان.



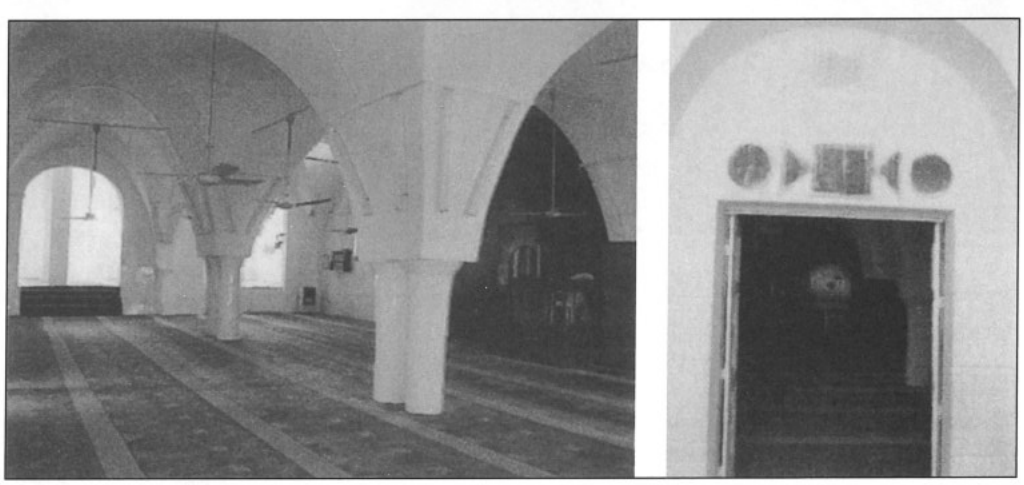
٢٠. مسجد حبراص المتهدم من الداخل.

بحيث تقدر مساحته بنفس مساحة مسجد عجلون، ولكنه يزيد عنه في عدد البلاطات والأساكيب. بالإضافة إلى أن مسجد عجلون لم تستخدم فيه الأعمدة البازلتية المجلوبة من مخلفات بيزنطية، وإن كنا نجد أن حجارة جدار القبلة في مسجد عجلون قد تم جلب بعضها من أبنية رومانية وبيزنطية، ولبيت الصلاة بابان، الأول عمودي على بلاطة المحراب، والثاني في الجدار الشرقي (غوانمة ١٩٨٩: ٤٩-٦٤).

ويتشابه بيت الصلاة في مسجد بيت راس [٢٢] مع المساجد السابقة، فالمسجد مستطيل الشكل تبلغ أبعاده ١٩,١٠م×١٠,٣٠م، ويتكون من أسكوبين كانا يمتدان من الشمال إلى الجنوب بشكل عمودي على جدار القبلة، يعلو هذه البلاطات مجموعة من العقود المتقاطعة التي تشكل قبابا داخلية غير بارزة عن السطح (ابن العربي ٢٠٠٢: ٢٢٠) ويقوم بيت الصلاة على صف واحد من الأعمدة عددها أربعة أعمدة بازلتية بتيجان رومانية وبيزنطية في وسط بيت الصلاة، وكانت هذه الأعمدة بشكل مزدوج يقابلها عشرة أكتاف ملاصقة لجدران المسجد الأربعة الداخلية (الدويكات ٢٠٠٤: ٧٠) (**الشكل ٢١**).

التجديدات المملوكية على عمارة المساجد الأيوبية

لعبت منطقة شرق الأردن دوراً هاماً خلال العصر المملوكي، حيث كان الجزء الشمالي منها يشكل أحد النيابات المهمة في بلاد الشام، مثل: نيابة دمشق، حلب، طرابلس، صفد وعجلون، أما الجزء الجنوبي فكان يضم نيابة الكرك. وقد بدأ اهتمام المماليك بمنطقة شرق الأردن على نحو واضح خاصة مع تزامن الخطر المغولي على مصر وبلاد الشام، وكان الظاهر بيبرس [٢٣] أول من لفت النظر للموقع الاستراتيجي والعسكري الذي تتمتع به منطقة الأردن كملتقى للطرق المؤدية إلى بلاد الشرق الأدنى الإسلامي، وأنه خط الدفاع الأمامي لمصر في وجه الفرنج والمغول. كما كان الظاهر بيبرس على علم بأهمية منطقة شرق الأردن كجزء متمم لمملكته، لذا قام ببناء جسر على نهر الأردن لكي يربط مواصلاته بين سوريا والشرق (الدويكات ٢٠٠٤:



٢١. المدخل وبيت الصلاة في مسجد بيت راس.

٢٢. بيت راس: تبعد عن مدينة إربد بضعة كيلومترات شمالاً، وهي قرية أثرية قديمة.

٢٣. هو السلطان الملك الظاهر ركن الدين أبو الفتح بيبرس الصالحي النجمي وهو أحد مماليك الملك الصالح نجم الدين أيوب تولي المملكة بعد قتل الملك المظفر سيف الدين قطز بن عبدالله المعزي في سنة ثمان وخمسين وستماية (ابن خلكان ١٥٥).

٣٦). أدخل الظاهر بيبرس العديد من التجديدات والإضافات على المساجد الأيوبية بمنطقة شمال المملكة الأردنية الهاشمية موضوع الدراسة، منها ما يلي:

أولا: تجديدات الظاهر بيبرس البندقداري في مسجد عجلون

عندما اعتلى الظاهر بيبرس عرش دولة المماليك في مصر والشام (٦٥٨-٦٧٦هـ/ ١٢٦٠-١٢٧٧م)، أدرك ما تمتاز به منطقة شرق الأردن [٢٤] من أهمية وذلك لموقعها الاستراتيجي الهام ولتوسطها بين مصر والشام والعراق والحجاز، فقام بإعادة بناء قلعة الربض التي هدمها التتار وقام بترميم قلعة السلط (الرشدان ١٩٩٨: ٤٤)، واهتم السلطان الظاهر بيبرس بمدينة عجلون، فبني صومعة في سنة ٦٦٢هـ/١٢٦٣م في مسجدها، وثبت ذلك في اللوحة التأسيسية فوق الباب الغربي للمئذنة (اليونيني ١٩٩٢: ٢٣١) [٢٥]، وقد أقيمت هذه المئذنة بعد بناء الجامع بسبع عشرة سنة تكريما لأهالي مدينة عجلون الذين أقام بينهم الظاهر بيبرس مع أستاذه علاء الدين ايدكين البندقدار (اليونيني ١٩٩٢: ٥٥٣) .[٢٦] تقع هذه المئذنة في الركن الشمالي الشرقي من واجهة بيت الصلاة، بالقرب من الباب الشمالي، وبنيت من الحجر الأحمر المشهر، وهي مربعة الشكل يبلغ طول ضلعها ٤,٥ م وارتفاعها ٢٢م، وسمك الجدران من الخارج ١,٣٧م، وقطرها من الداخل ١,٦٠م (الحمصي ١٩٨٢: ١٧-٢١) [٢٧] **(الشكل ٢٢)**.

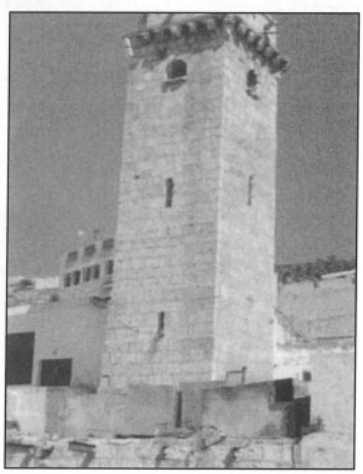
وقد بني جسم المئذنة السفلي من ستة عشر مدماكاً، يبدأ البناء عريضا ثم يستدق في مرحلتين بشكل تجميلي، ويمكن الصعود إلى أعلى المئذنة بواسطة درج من الحجر قطع بشكل مروحي، وعدد تلك الدراجات ٥٠ درجة، وللمئذنة ثلاث نوافذ من الجهة الشرقية والسفلى والوسطى طولية على شكل المزاغل، فهي ضيقة من الخارج وواسعة من الداخل، ومهمتها هنا إدخال الضوء إلى الدرج [٢٨] والنافذة الثالثة تقع في نهاية المئذنة وهي واسعة بقوس مدبب ونافذتان من الجهة الشمالية السفلى طوليتان كالتين في الواجهة الشرقية والعلوية واسعتان بقوس مدبب، وللمئذنة باب صغير مستطيل الشكل طوله ١,٣٥م، وعرضه ٧٢سم، يقع في الجهة الغربية من المئذنة، يعلوه لوحة تأسيسية على حجر طوله ٢,١٧م وعرضه ٤٥سم، ويتألف النص من ثلاثة أسطر يمكن قراءته على النحو التالي

١- بسم الله الرحمن الرحيم إنما يعمر مساجد الله من آمن بالله واليوم الآخر وأقام الصلاة وأتى الزكاة ولم يخش إلا الله فعسى

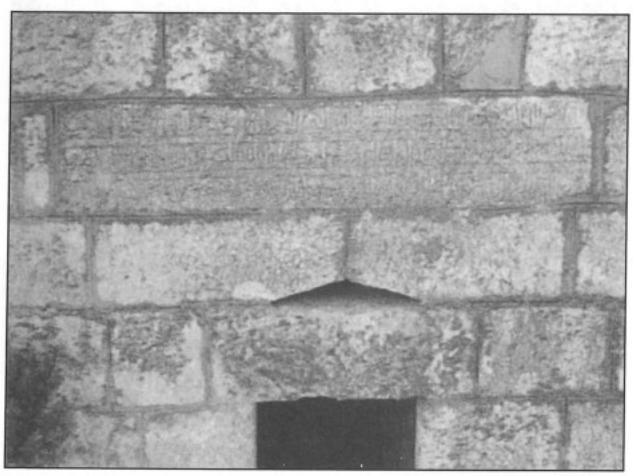
٢- اولئك أن يكونوا من المهتدين أنشأ هذه المنارة المباركة في أيام السلطان الظاهر ركن الدنيا والدين بيبرس قسيم أمير المؤمنين

٣- بنظر الفقير إلى الله الراجي رحمة ربه عز الدين بن عبد الله الشوري تغمده الله واسكنه بحبوحة جنته ورحم الله من ترحم عليه سنة اثنين وستين وستماية **(الشكل ٢٣)**.

وينتهي الدرج إلى شرفة بارزة عن بناء المئذنة، وترتكز على كوابل حجرية تقوم مقام المقرنصات، خمسة كوابل من كل جهة، وهناك في كل ركن كابول على شكل زاوية (غوانمة ١٩٨٦: ٦٩) [٢٩].



٢٢. مئذنة مسجد عجلون.



٢٣. النص التأسيسي لمئذنة عجلون.

٢٤. بعد هزيمة المغول في عين جالوت ٦٥٨هـ/ ١٢٦٠م أولى السلطان الظاهر بيبرس منطقة الأردن اهتمامه الخاص (غوانمة ١٩٩٧: ٢٠٢).

٢٥. في هذه السنة أمر الملك الظاهر بإنشاء خان بالقدس الشريف لابن السبيل وفوض في بناؤه ونظره جمال الدين محمد بن نهار ونقل إليه من القاهرة باباً كان على دهليز بعض قصور الخلفاء (اليونيني ١٩٩٢: ٢٣١).

٢٦. استمر علاء الدين ايدكين نائبا حتي حوادث سنة ٦٦٢هـ عندما استدعاه الملك الظاهر بيبرس وأمره أن يستنيب عنه الأمير نور الدين على بن محلي (مجلي)، ولما وصل علاء الدين إلى القاهرة عزله عن حلب وأقر الأمير نور الدين في نيابة السلطنة، فأحسن السيرة وعمر البلاد وأعاد الفلاحين إلى مواطنهم وأفرد الخاص ما كان عليه في الأيام الناصرية (اليونيني ١٩٩٢: ٢٣١)، (النويري ١٩٩٢: ٣١٢).

٢٧. تعد هذه المئذنة من أقدم المآذن الباقية في المملكة الأردنية الهاشمية، وهي لا تختلف في شكلها العام عن الشكل المربع الشائع في مآذن بلاد الشام حيث استمدت هذا الطابع من العصر الأموي. (الحمصي ١٩٨٢: ١٧.٢١).

٢٨. نظراً لطبيعة مدينة عجلون ربما استخدمت هذه المزاغل لأعمال المراقبة والاستطلاع لمقدمة قلعة عجلون الرابضة بالقرب من المسجد.

٢٩. كانت المئذنة تنتهي بخوذة أو مبخرة إلا أنها هدمت حديثا وأقيم محلها زيادة أسطوانية الشكل.

ثانيا: تجديدات الظاهر بيبرس البندقداري في مسجد ريمون

قام الملك الظاهر بيبرس بإدخال زيادات في مسجد ريمون، أهمها إعادة بناء مئذنته الباقية (**الشكل ٢٤**) التي تولى بناءها الأمير أيدمر الظاهري نائب دمشق (المقريزي ١٩٧٩: ٣٤٢) [٣٠]، ونفذ البناء وأشرف عليه الأمير ناصر الدين منكلي في سنة ٦٧٦هـ/١٢٧٧م كما هو مثبت في النقش الموجود في واجهة المئذنة الغربية الذي يتكون من أربعة أسطر يمكن قراءته على النحو التالي

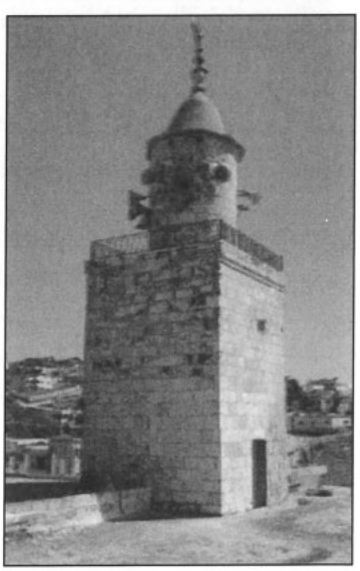
١- بسم الله الرحمن الرحيم أمر بانشاء هذه
٢- المنارة المباركة الأمير عز الدين
٣- أيدمر الطاهر(ي) [٣١] بنظر الأمير ناصر الدين
٤- منكلي [٣٢] في سنة ست وسبعين وستماية محمد ايدمر

والنص السابق يشير إلى أن البناء تم في أواخر عهد الظاهر بيبرس وأوائل حكم ابنه الملك السعيد ٦٧٦-٦٧٨هـ/١٢٧٧-١٢٧٩م، وهذا ما يثبته النقش التالي الموجود الآن داخل المسجد أمام الباب الذي يؤدي إلى المئذنة (غوانمة ١٩٨٦: ١٩-٢٠)، ويقرأ على النحو التالي

١- رسم بعمارة هذه المنارة
٢- مولانا السلطان الملك
٣- الظاهر رحمه الله ونصر
٤- السلطان الملك السعيد
٥- خلد الله ملكه [٣٣] رحمه الله (**الشكل ٢٥**)
٦- ونستعين

ويقع مدخل المئذنة في الجدار الشمالي لبيت الصلاة في الركن الشمالي الشرقي، يتصدره نقش كتابي يشير إلى أن البناء تم في أواخر عهد الظاهر بيبرس وأوائل حكم ابنه الملك السعيد ٦٧٦-٦٧٨هـ/١٢٧٧-١٢٧٩م. طول مدخل المنارة ١٥٠سم، وعرضه ٧٠ سم، ويصعد إليها من خلال درج لولبي الشكل مكون من قطع حجرية منحوتة، وهو دائري ضيق في الوسط، عريض من الخارج. ويشكل التقاء هذه الدرجات عاموداً دائرياً في الوسط، وشكلاً مروحياً في الأطراف. ويبلغ طول المئذنة ١٦م، فالجزء السفلي قديم طوله ٨,٥٠م، أما الجزء العلوي فقد بني في العصر الحديث ويبلغ طوله ٧,٥٠م (غوانمة ١٩٨٩: ٣٥) والجدير بالذكر أن ثلاثة من القضاة قاموا بتجديد وترميم مسجد ريمون ويبدو ذلك واضحا من خلال النقش المثبت في واجهة المنارة الشمالية [٣٤] الذي يقرأ على النحو التالي

١- بسم الله الرحمن الرحيم عز
٢- يدوم للموالي السادة
٣- عز الدين [٣٥] قاضي القضاة ال
٤- جمال الدين والقاضي
٥- صفي الدين رضي الله عنهم (غوانمة ١٩٨٦: ٢٣) (**الشكل ٢٦**).



٢٤. مئذنة مسجد ريمون.



٢٥. النقش التأسيسي للمئذنة.

٣٠. الأمير عز الدين أيدمر نائب دمشق حتى سنة ٦٧٨هـ/١٢٧٩م، تولي نيابة الكرك والشوبك، ومات في يوم الأربعاء ثاني ربيع الأول من سنة ٧٠٠هـ (المقريزي ١٩٧٩: ٣٤٢).

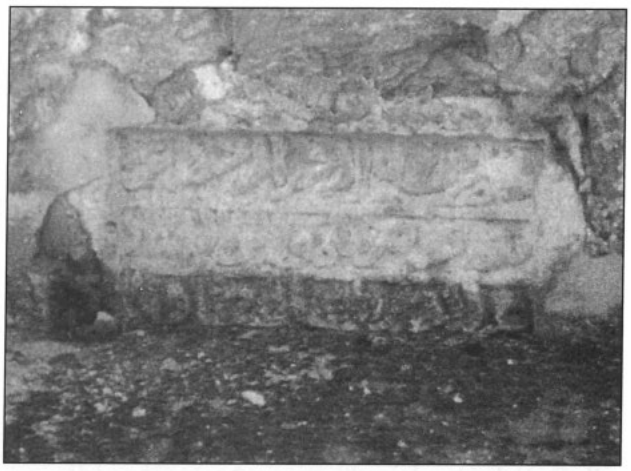
٣١. يعد الأمير عز الدين ايدمر من خواص الملك الظاهر بيبرس، وهو الوحيد الذي حضر دفنه (ابن تغري بردي ١٩٤٠: ٢٦٣).

٣٢. الأمير ناصر الدين بن منكلي الظاهري السعدي حكم منطقة عجلون في زمن الظاهر بيبرس، وعثر على نقش في مقام الصحابي الجليل أبي عبيدة يشير إلى أن القبة المباركة المبنية على الضريح بأمر السلطان بيبرس، وفي نهاية النقش كتب "وذلك بنظر الأمير الأجل الأعز اللبيب ناصر الدين بن منكلي الظاهري السعدي نائب مملكة عجلون المحرر في شهر ذي الحجة سنة خمس وسبعين وستماية" (القضاة ١٩٨٨: ٦٦).

٣٣. قرأ يوسف غوانمه هذه الكلمة على نحو "خلد الله ماله" ومن الدراسة الميدانية للأثر في الفترة من ٣ إلى ١٠ نيسان ٢٠٠٥م، أمكن تصحيح القراءة السابقة فالصحيح هو "خلد الله ملكه" (غوانمة ١٩٨٦: ٢١).

٣٤. يلاحظ أن السطرين الرابع والخامس قد اختفيا أسفل السقف الأسمنتي الحديث الملاصق لجدار المئذنة من الناحية الشمالية وذلك من خلال الدراسة الميدانية للمسجد في الفترة من ٣ إلى ١٠ نيسان ٢٠٠٥م.

٣٥. عز الدين: لقب قاضي قضاة الشافعية وهو محمد بن عبد القادر بن عبد الخالق الأنصاري المعروف بابن الصائغ، تولي منصب القضاة بدمشق في عهد الظاهر بيبرس وابنه السعيد، وتوفي القاضي عز الدين بدمشق في شهر ربيع الآخر سنة ٦٨٣هـ، وجمال الدين: قاضي القضاة المالكي (ابن تغري بردي ١٩٤٠: ٢٧٢-٢٦٤).



٢٦. تجديدات القضاة في جامع عجلون.

ثالثاً: تجديدات السلطان المنصور قلاوون في مسجد حبراص

المعروف أن مسجد حبراص بني في بداية الأمر بدون مئذنة مثل مسجد عجلون، وبقي كذلك حتى أمر السلطان المنصور قلاوون (٦٧٨-٦٨٩هـ/١٢٧٩-١٢٩٠م)، الأمير الأشرف الحسامي طرنطاي ببناء المئذنة في سنة ٦٨٦هـ/١٢٨٧م (ابن تغري بردي١٩٣٠: ٣١٩) [٣٦]، وأناط مهمة الإشراف على البناء إلى الأمير لؤلؤ المنصوري الحسامي، وكانت هذه المئذنة مربعة الشكل على نسق مئذنة مسجدي عجلون وريمون، متصلة في الجزء الشرقي من الجدار الشمالي للمسجد على يسار الداخل إلى بيت الصلاة، يبلغ طولها ٤,٤م، وظلت موجودة حتى عام ١٩٧٠م، حيث قرأ يوسف غوانمة النص الموجود في هذا المسجد على النحو التالي

١- بسم الله الرحمن الرحيم انما يعمر مساجد الله من آمن بالله واليوم
٢- الآخر أمر بعمارت هاذه المأذنة المقر الأشرف الحسامي طر
٣- نطاي المنصوري (نايب) السلطنة بتولي العبد الفقير إلى الله
٤- لولو المنصوري الحسامي في شهر صفر سنة ست وثمانين وستماية (غوانمة ١٩٨٩: ٥٩) [٣٧].

رابعاً: تجديدات الناصر محمد بن قلاوون في مسجد عجلون

يعد السلطان الملك الناصر محمد بن قلاوون من أبرز سلاطين المماليك الذين حكموا بلاد الشام وإمارة الشام، وإمارة الكرك، وقد ظهرت له بصمات واضحة في تاريخ شمال شرق الأردن، وكان السلطان الناصر محمد بن قلاوون يولي أهالي عجلون عناية خاصة فقد وقفوا بجانبه وقفة قوية أثناء خروجه من دمشق إلى الكرك، ولم ينس الملك الناصر ذلك فلما دانت له البلاد وتمكن له السلطان أرسل إلى نوابه في دمشق وعلى فترات، وأمرهم بإلغاء الجبايات، ففي أعوام ٧١٠هـ، ٧١٦هـ، ٧٢٤هـ، ثارت فتن في حوران وعجلون والبلقاء بسبب المظالم وكثرة المكوس، ولما وصلت الأنباء للملك الناصر في القاهرة كتب إلى نائب دمشق يلومه على ظلمه ويأمره برفع الجباية عن الأهالي، وفي زمن الملك الناصر تطورت منطقة عجلون تطوراً عظيماً اتسمت بمظاهر حضارية، فازدهرت بالعمران، وكثرت الأسواق، وزرعت البساتين، واستغلت المياه، ووجدت الطواحين والمعاصر والحوانيت، وقام الملك الناصر بإعادة بناء المدخل الرئيسي [٣٨] في مسجد عجلون عقب تعرضه للهدم نتيجة السيل الذي حدث في عام ٧٢٨هـ [٣٩]، وقد أشرف على إعادة البناء تاج الدين محمد الأخنائي قاضي عجلون، وثبت ذلك في النقش المثبت الآن في صحن هذا المسجد والذي يقرأ كالتالي

١- بسم الله الرحمن الرحيم انما يعمر مساجد الله من آمن بالله واليوم الآخر وأقام الصلاة وأتي الزكاة
٢- ولم يخش الا الله فعسى اوليك ان يكونوا من المهتدين جدد هذا الباب المبارك في أيام سيدنا قاضي القضاة علم الدين الا
٣- خنائي بالشام المحروس بأمر مولانا القاضي تاج الدين محمد الاخنائي الحاكم بعجلون في شعبان سنة اثنين وثلاثين وسبعمائة من الهجرة النبوية المحمدية (**الشكل** ٢٧).

ولا يستبعد أن يكون الناصر محمد بن قلاوون قام في نفس العام ٧٣٢هـ بإدخال التجديدات والإضافات في مسجد بيت راس، كما نستدل على ذلك من النقش الكتابي المدون بخط الثلث المملوكي والذي يعلو المدخل الرئيسي في مسجد بيت راس، ويمكن قراءته على النحو التالي

١- بسم الله الرحمان
٢- الرحيم نصرا من
٣- الله وفتح قريب
٤- في ٢ محرم سنة ٧٣٢هـ (الدويكات ٢٠٠٤: ٧٠) (**الشكل** ٢٨).

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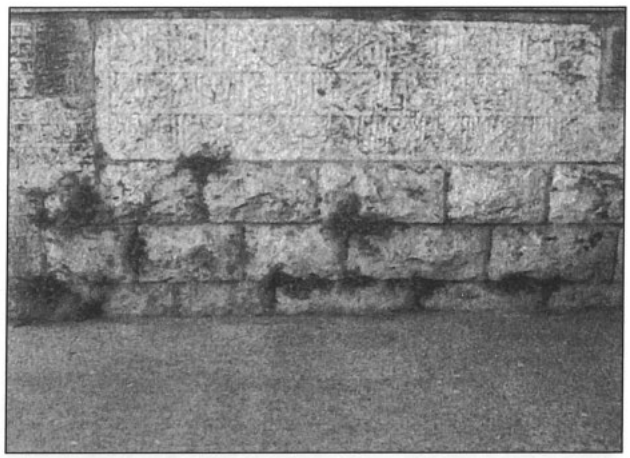
٣٦. خرج الأمير حسام الدين طرنطاي في سنة ٦٨٦هـ إلى حصار قلعة صهيون وبرزية في شمال الشام وانتزعهما من الأمير سنقر الأشقر نائب دمشق المتمرد على السلطة والمعتصم بهاتين القلعتين. واسطحب الأمير طرنطاي معه الأمير حسام الدين لاجين نائب دمشق وتمكنا من سنقر الأشقر واحضراه إلى دمشق (ابن تغري بردي١٩٣٠: ٣١٩).

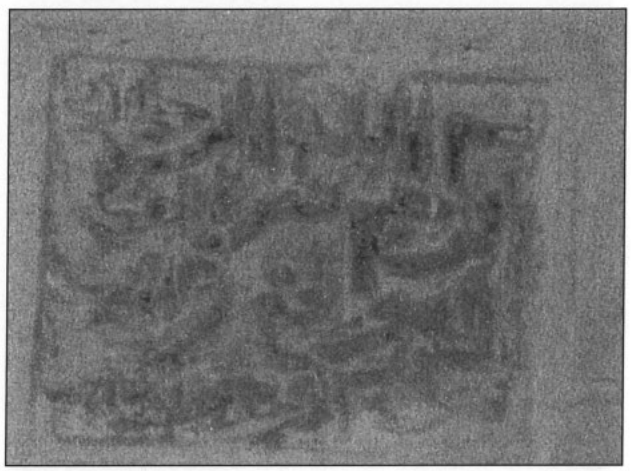
٣٧. لم أتمكن من الوقوف على هذا النص التأسيسي أثناء زياراتي المتكررة في عين المكان، نظرا لتهدم المسجد تماما وعدم استخدامه ونمو الأعشاب الكبيرة التي تغطي مساحة المسجد الداخلية والخارجية، ولقراءة نقوشه (غوانمة ١٩٨٩: ٥٩).

٣٨. شيدت واجهة مسجد عجلون في بداية الأمر على نسق الواجهات ذات المدخل الكبير الذي يعلوه عقد ويتألف من صنجات حجرية متعشقة يتناوب فيها اللونان الأبيض والأسود في شكل زخرفي جميل وباب خشبي تكسوه صفائح من النحاس المخرم بنقوش نباتية وهندسية.

٣٩. في أيام السلطان الملك الناصر محمد بن قلاوون أتى سيل جارف على مدينة عجلون ومنشأتها وذلك في عام ٧٢٨هـ/١٣٢٨م، وقد سبب هذا السيل هدم أجزاء من المسجد الجامع شمل الباب الشرقي والرواق القبلي والمطهرة والأوقاف التابعة للمسجد مع الأمتعة والبضائع التي فيها، وقد دخلت المياه وهي تحمل معها الحجارة والطين والأخشاب إلى قلب المسجد حتى بلغ الماء داخله إلى القناديل المعلقة في السقف.



٢٧. نقش الناصر محمد بن قلاوون بمسجد عجلون.



٢٨. نقش الناصر محمد بن قلاوون بمسجد بيت راس.

خامساً: تجديدات السلطان خشقدم [٤٠] في مسجد عجلون (٨٦٥-٨٧٢ هـ/١٤٦١-١٤٦٧م)

صار السلطان خشقدم على منوال السلطان الناصر محمد بن قلاوون في اهتمامه بأهالي منطقة عجلون، وتؤكد النقوش الأثرية هذا الاهتمام، حين أصدر السلطان خشقدم مرسوم سلطاني يأمر فيه بإلغاء بعض المظالم التي أحدثت فيها وأدت إلى مصادرة بعض القطع والبساتين، فقام السلطان بردها إلى أصحابها (غوانمة ١٩٨٢: ١٠٤-١٠٥) [٤١]. ويحتفظ مسجد عجلون بنقشين حجرين طول الأول منهما ٥٥ سم وعرضه ٣٥ سم، ومثبت الآن في أسفل الجدار الشرقي من صحن المسجد، ويحتوي على ثلاثة أسطر يمكن قراءته على النحو التالي

١- .....الملكي الظاهري خشقدم خلد الله ملكه وجميع أنظار (هـ) [٤٢]

٢- ..لعزله ورد القطعة التي بقرب الخان والبساتين والجبايات والمظالم

٣- ..... رد له المعز الحسامي خرج بالأمر الملكي بتاريخ أربع (وسبعين وثمانه) (**الشكل ٢٩**).

ويتعلق النقش الآخر بإلغاء بعض الضمانات التي كانت ترهق كاهل المواطنين في مدينة عجلون، وأمر السلطان خشقدم بإلغائها، وهو مكون من ثلاث أسطر على حجر طوله ٥٦سم وعرضه ٣٦سم، يمكن قراءته على النحو التالي

١- بسم الله الرحمن الرحيم المرسوم بالأمر الشريف العالي

٢- .... الذين بعجلون من ضمانات

٣- جميعا حسب المربع الشريف وملعون ابن ملعون من جدده (غوانمة ١٩٨٦: ٦٤) (**الشكل ٣٠**).

كما يوجد جزء من نقش كتابي ربما يعود لعصر السلطان خشقدم، يمكن إعادة قراءته على النحو التالي

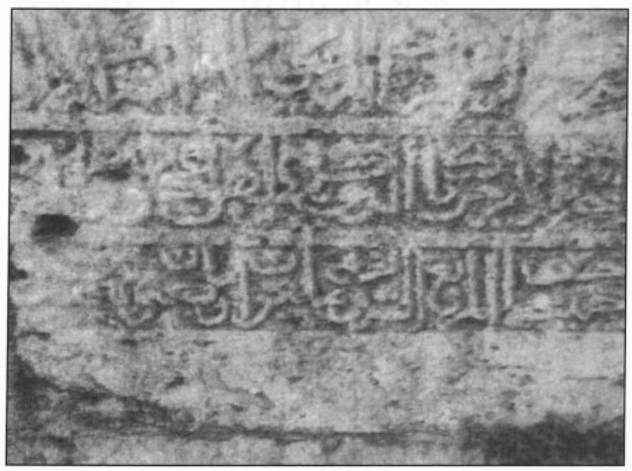
١- (بسم الله ا) لرحمن الرحيم ....

٢- .....(ال) سلطان الملكي الظاهري

٣- ..... وهذا لمنفعة الذين .....



٢٩. نقش السلطان خشقدم بإلغاء المظالم.



٣٠. نقش السلطان خشقدم بإلغاء الضمانات.

٤٠. هو السلطان الملك الظاهر سيف الدين أبو سعيد خُشقدم الناصري المؤيدي.

٤١. يشبه المرسوم الذي أصدره السلطان جقمق سنة ٨٤٢-٨٥٧هـ/١٤٣٨-١٤٥٣م، بشأن إلغاء المظالم عن نصارى بيت المقدس، وأثبته عل سور المسجد الأقصى بالقدس (غوانمة ١٩٨٢: ١٠٤-١٠٥).

٤٢. قرأت هذا العبارة في السابق على النحو التالي "لا يضار جميع" ومن خلال الدراسة الميدانية يمكن قراءتها كالتالي" وجميع نظاره" (القضاة ١٩٨٨: ٧٦).

٤- ..... لعنه و .. و ..
٥- .....(ر) دها ورسم ان ..... (**الشكل ٣١**).

التجديدات العثمانية في عمارة المساجد الأيوبية

أهتم العثمانيون بالمساجد الباقية في شمال الأردن (ماتزان ١٩٩٣)، وقاموا بتعميرها وإدخال بعض التجديدات عليها، كإعادة بناء مسجد كفرنجه في سنة ١٣٢٠هـ/١٩٠٢م وذلك في عهد السلطان العثماني عبد الحميد الثاني (١٢٩٣-١٣٢٧هـ/١٨٧٦-١٩٠٩م)، والذي عهد ببنائه إلى فوزي باشا، وتمت إعادة البناء وفق الأسس الأيوبية المملوكية التي كان عليها المسجد، كما قاموا بتثبيت ذلك في اللوحة التأسيسية للمسجد التي يمكن قراءتها كالتالي

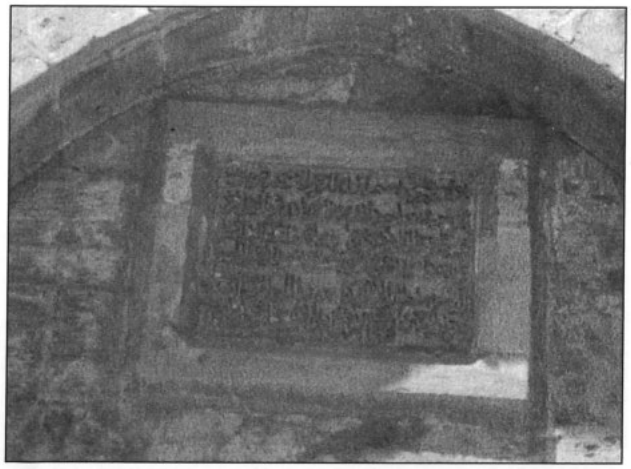
١- تم بواسطة بسم الله الرحمن الرحيم فوزي باشا
٢- انما يعمر مساجد الله من آمن بالله واليوم الآخر
٣- هذا جامع الفاروق من جعل باحيائه للطاعات بابا مشرعا
٤- وبعد اندراس جددته عصبة تصدت لفعل الخير والبر أجمعين
٥- بأيام سلطان الانام مليكنا حميد المزايا من به الفضل جمعا
٦- (و) قرابة للرحمن ارخ ما أزهى به نبي الله في الفردوس لمن سعى بيننا
٧- ١٣٢٠ هـ (غوانمة ١٩٨٦: ٣٨) (**الشكل ٣٢**).

أدخل العثمانيون التعديلات والتجديدات في مسجد بيت راس، حيث يوجد أعلى المدخل نقش كتابي يتضمن كتابة قرآنية من سورة التوبة، وشارات عبارة عن الرايات المتقاطعة وهي شعار الدولة العثمانية، وشارة النجمة مع الهلال، ويمكن قراءة النقش على النحو التالي

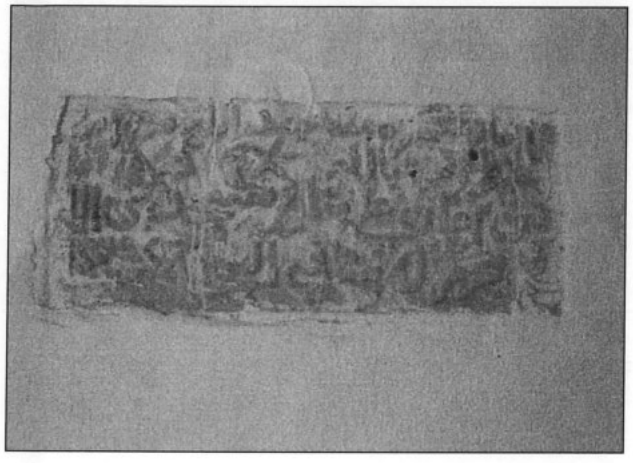
١- انما يعمر مساجد الله من آمن
٢- بالله
٣- من أعان على بناء مسجد بني الله
٤- له بيت في الجنة سنة١٣٤٢هـ (**الشكل ٣٣**).

ونخلص من دراسة المساجد الأيوبية الباقية في منطقة شمال المملكة الأردنية الهاشمية، إلى أن العصر الأيوبي شهد تواصل حركة بناء المساجد جنبا إلى جانب تشييد المدارس، وكان من أهم مميزات عمارة المساجد الأيوبية فضلا عن التخطيط الشائع السائد في معظم المساجد الأيوبية الباقية في شمال الأردن، استخدام مادة الحجر التي حلت تدريجيا محل الآجر الذي شاع استعماله في العصور السابقة (أبو الشعر ١٩٩٥: ٢٩-٣٩).[٤٣]

كما يلاحظ تطور الزخارف الكتابية في المساجد الأيوبية، فالنص التأسيسي بمسجد عجلون المثبت فوق عتب المدخل الشمالي الحالي للمسجد كتب بخط النسخ الذي شاع استخدامه في العصر الأيوبي، وتضمن عدة معلومات هامة حول المنشأ، السلطان الصالح نجم الدين أيوب ونسبه إلى البيت الأيوبي وألقابه، واسم المشرف على البناء الأمير عمر بن دعماش بن يوسف الحميدي الصالحي، وتاريخ الإنشاء في شهر جمادى الأخر لسنة ٦٤٥هـ، ويعد هذا النص على درجة كبيرة من الأهمية لأنه النص الأيوبي الوحيد الذي وصلنا من مساجد المملكة الأردنية، ويتضح فيه تطور خط النسخ الذي



٣٢. نقش تجديد مسجد كفرنجة.



٣٣. نقش تجديد مسجد بيت راس.



٣١. نقش كتابي.

٤٣. تتكون منطقة عجلون من مواقع ذات تربة رملية وكلسية، وتميل إلى الاصفرار والبياض (أبو الشعر ١٩٩٥: ٢٩-٣٩).

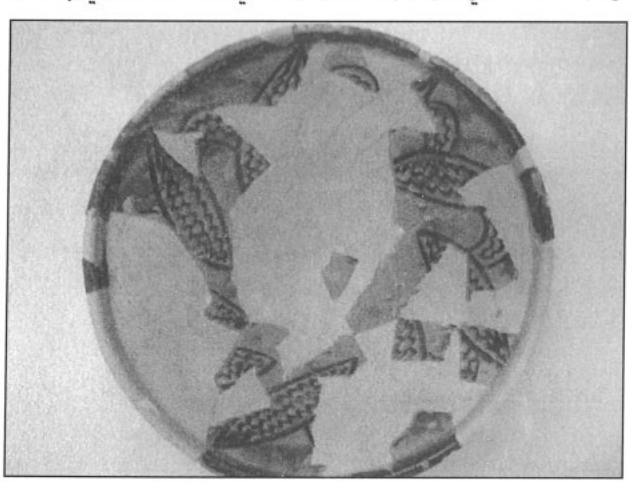
نشأ وتطور خلال العصر الأيوبي، كما يتشابه مع النصوص الكتابية التي تعود لنفس العصر، نسوق منها نص تجديد المشهد الحسيني بالقاهرة في سنة ٦٣٤هـ/١٢٣٧م، ومنارته الواقعة أعلى الباب الأخضر والتي أوصى بإنشائها أبو القاسم يحيي السكري، كما هو مثبت في نصين الأول منهما يقرأ كالتالي "الشيخ الصالح المرحوم أبو القاسم بن يحيي المعروف بالزرزور ابتغاء وجه الله ورجاء ثوابه وكان تمامها على يد ولده محمد سنة ثلاث وثلاثين وستة مائه عفا الله عنه". أما الثاني فيقرأ "بسم الله الرحمن الرحيم أوصى بإنشاء هذه المئذنة المباركة على باب مشهد السيد الحسيني تقربا إلى الله ورفعا لمنار الإسلام الحاج إلى بيت الله أبو القاسم بن ناصر السكري المعروف بالزرزور تقبل الله منه وكان المباشر لعمارتها ولده لصلبه الأصغر الذي انفق عليها من ماله بغية عمارتها خارجا عما أوصى به والده المذكور وكان فراغها في شهر شوال سنة أربع وثلاثين وستمائة" (عبدالوهاب ١٩٤٦: ٨٤).

ونجد الأسلوب الكتابي نفسه الموجود في النص التأسيسي لمسجد عجلون يتشابه مع النقوش الكتابية بتابوت ضريح الخلفاء العباسيين التي تقرأ كالأتي "اللهم أعد بركات القرآن العظيم على عبدك الفقير إلى رحمة ربه أبو نادلة هاشم بن على المرتضى ابن الأمير السيد العلوي الحسني سفير الخلافة المعظمة العباسية شرفها الله تعالي وعظمها توفي يوم الثلاثاء العاشر من ربيع الآخر من سنة أربعين وستماية إلى رحمة الله تعالى" (ماهر ١٩٧٦: ٢٢٨).

ومن جهة أخرى تطابق النص التأسيسي لمسجد عجلون مع النصوص الكتابية الموجودة في المدرسة الصالحية بالقاهرة، حيث يوجد نص كتابي يمكن قراءته داخل العقد الكبير على النحو التالي "بسم الله الرحمن الرحيم أمر بإنشاء هذه المدارس المباركة مولانا السلطان الأعظم الملك الصالح نجم الدنيا والدين أبي الفتح أيوب خليل امير المؤمنين[٤٤] أعز الله نصره في سنة احدى واربعين وستماية". كما يوجد فوق العتب بالواجهة الرئيسية لوحة رخامية تحمل أربعة أسطر من الكتابات بخط النسخ الأيوبي تقرأ كالتالي

١- بسم الله الرحمن الرحيم والذين جاهدوا فينا لنهدينهم سبلنا وان الله لمعى المحسنين. هذه التربة المباركة بها ضريح مولانا السلطان الملك الصالح
٢- السيد العالم العادل المجاهد المرابط المثاغر نجم الدنيا والدين سلطان الاسلام والمسلمين سيد ملوك المجاهدين وارث الملك عن ابائه الاكرمين ابي الفتح
٣- أيوب بن السلطان الملك الكامل ناصر الدين ابي المعالي محمد بن ابي بكر بن ايوب توفى الى رحمة الله تعالى وهو بمنزلة المنصورة تجاه الفرنج المخذولين مصافحا للصفاح بنحره مواجها للكفاح
٤- بوجهه وصدره املا ثواب الله بمرابطته واجتهاده عاملا بقوله تعالى: وجاهدوا في سبيل الله حق جهاده أوفده الله الجنة العالية وأورده انهارها الجارية وذلك في ليلة النصف من شعبان سنة سبع واربعين وستماية (نويصر ١٩٩٦: ٧٩-٨٠).

وقد حاول البعض ذكر أن مسجد عجلون بني على أنقاض كنيسة بيزنطية، وهذا القول ليس له دليل من الصحة لأن منطقة بناء المسجد كانت منطقة تتوسط الفضاء المحيط بقلعة عجلون، ولا توجد بقايا سواء في الأساس أو الجدران تؤكد هذا الزعم، بالإضافة إلى أن المصادر التاريخية تؤكد عدم تمركز الصليبيين في مدينة عجلون مدة طويلة[٤٥] كما نستنتج أن قباب المساجد الأيوبية تميزت بتصدرها بلاطة المحراب، وارتكاز خوذة قبتها المضلعة والمربعة الشكل على مقرنصات قائمة في أركان الدعائم الضخمة الأربعة، التي تكون قاعدة القبة، كما ينفتح في عنق القبة نوافذ صغيرة للإضاءة، ويتضح ذلك في قبة مسجد عجلون، فالقبة من الخارج لا تبرز كثيرا لقصر عنقها وقلة ارتفاعها (الدويكات ٢٠٠٤: ١٢٣-١٤٠)[٤٦] كما تحتفظ رقبة قبة مسجد عجلون بأفريز من الزخارف النباتية التي تتكون من فروع نباتية وأوراق الكرمة ودوائر تحيط بصرر وردية ذات أشكال جميلة، وتعد هذه الزخارف الوحيدة الباقية في مساجد شمال المملكة الأردنية، وتتميز بقربها من الطبيعة إلى حد كبير وأنها دقيقة ومليئة بالحركة، وتتشابه هذه الزخرفة مع الزخارف النباتية على الخزف المرسوم تحت الطلاء الذي ينسب إلى عجلون في القرن السابع الهجري، الثالث عشر الميلادي (**الشكل ٣٤**). كما يتضح الشبه الكبير بين الزخارف النباتية الأيوبية في المساجد موضوع الدراسة، وزخارف القسم الأسفل من مئذنة الباب الأخضر بالمشهد الحسيني، وزخارف مئذنة المدرسة الصالحية، وقبة السادات الثعالبة، والزخارف الجصية في ضريح الخلفاء العباسيين بالقاهرة (نويصر ١٩٩٦: ١١٠) مما يدلل على تطور الأسلوب الزخرفي في استخدام الزخارف الحجرية والجصية[٤٧] في الزخارف المعمارية في العصر الأيوبي (ماهر



٣٤. صحن فخاري مزجج من عجلون يعود للقرن ٧هـ/١٣م

٤٤. ظهر هذا اللقب على التحف المعدنية الخاصة بالسلطان الملك العادل أبي بكر (سالم ١٩٩٩: ١٤٠).
٤٥. راجع (ا بن العربي ٢٠٠٢: ٢٢٠).
٤٦. يبدو أن هذه القبة هي نموذج من القباب الإسلامية الأولى التي تطورت في العصر المملوكي (الدويكات ٢٠٠٤: ١٢٣-١٤٠).

١٩٧٦: ١٢). كما يلاحظ من خلال بقايا المساجد الأيوبية في شمال الأردن التوسع في استخدام الزجاج [٤٨] المعشق في الجص المتعدد الألوان وخاصة اللون الأخضر والأصفر، وطليت زخارفه الجصية باللون الأسود الذهبي، وهو ما يتشابه مع زخارف خزف البريق المعدني في العصر الأيوبي (سالم ٢٠٠٠: ٢٤-٤٣) [٤٩].

وتنتهي الدراسة إلى مجموعة من النتائج منها ما يلي

- ❖ إثبات حركة التواصل في بناء المساجد في العصر الأيوبي، وتصحيح الآراء السابقة في هذا الخصوص.
- ❖ حصر البقايا الأيوبية في المساجد الأثرية الباقية في شمال المملكة الأردنية الهاشمية، مثل مسجد عجلون ومسجد ريمون ومسجد كفرنجة ومسجد إربد ومسجد طبقة فحل ومسجدي حبراص وبيت راس وغيرها من المساجد الباقية في المنطقة.
- ❖ رسم صورة شبه متكاملة حول المسجد في العصر الأيوبي، من حيث تخطيطه ومواد وأسلوب بنائه، والتعرف على الظروف المحيطة بالإنشاء وبعض الشخصيات المرتبطة بهذه الأعمال المعمارية الدينية.
- ❖ تحديد التجديدات والتغييرات التي طرأت على المساجد الأيوبية خلال العصرين المملوكي والعثماني، وتحليل عناصرها المعمارية والفنية.
- ❖ تأكيد اهتمام الأيوبيين بمنطقة شمال الأردن نظرا لموقعها الجغرافي المميز لمرور قوافل التجارة الدولية بالإضافة إلى مرور الحجيج من هذه المنطقة.
- ❖ إثبات وحدة المساجد الأيوبية في منطقة شمال الأردن سواء في العناصر المعمارية أو في وحدة مواد البناء والأساليب الزخرفية وفق المخططات المتشابهة.
- ❖ تحليل النقوش الكتابية الموجودة في المساجد الأثرية الباقية في شمال المملكة الأردنية الهاشمية، وتصحيح بعض من القراءات السابقة.

عبد العزيز صلاح سالم
كلية الآثار/ جامعة القاهرة

المصادر المراجع

أولا: المصادر

ابن تغري بردي الأتابكي، جمال الدين أبو المحاسن يوسف
١٩٩٧ **مورد اللطافة في من ولي السلطنة والخلافة**. تحقيق نبيل محمد عبد العزيز أحمد. القاهرة: مطبعة دار الكتب المصرية.
١٩٤٠-٣٠ **النجوم الزاهرة في ملوك مصر والقاهرة**، ج ٧ و ٦. طبعة مصورة عن طبعة دار الكتب المصرية.

ابن خلكان، أبو العباس شمس الدين أحمد بن أبي بكر
وفيات الأعيان وأنباء أبناء الزمان. تحقيق إحسان عباس، مج ٤. بيروت: دار صادر.

ابن شداد، بهاء الدين يوسف بن رافع
١٩٦٢ **النوادر السلطانية واليوسفية في سيرة صلاح الدين الأيوبي**. حققه محمد محمود صبح. القاهرة: الدار القومية للطباعة.

المقريزي، تقي الدين أبي العباس أحمد بن علي
١٩٩٧ **السلوك لمعرفة دول الملوك**، ج١، ط.١ تحقيق محمد عبدالقادر عطا. بيروت: منشورات دار الكتب العلمية.
بدون تاريخ **المواعظ والاعتبار بذكر الخطط والآثار "الخطط المقريزية"** ج.٢ القاهرة: طبعة بولاق.
٢٠٠١ **اتعاظ الحنفا بأخبار الأئمة الفاطميين الخلفا**،ج ٢، ط.١ تحقيق محمد عبدالقادر أحمد عطا. بيروت: دار الكتب العلمية.

النويري، شهاب الدين أحمد بن عبدالوهاب
١٩٩٢ نهاية الأرب في فنون الأدب، ج .٢٩ تحقيق محمد ضياء الدين الريس ومحمد مصطفى زيادة. الهيئة العامة للكتاب.
١٩٩٣ **نهاية الأرب في فنون الأدب**، ط١، ج .٢٩ القاهرة: دار الكتب المصرية.

ابن واصل، جمال الدين محمد بن سالم
١٩٧٢،١٩٧٣ **مفرج الكروب في أخبار بني آيوب**، ج .١ تحقيق جمال الدين الشيال. القاهرة. وج٥ تحقيق حسنين ربيع ومراجعة سعيد عاشور.

اليونيني، قطب الدين بن موسي بن محمد
١٩٩٢ **ذيل مرآة الزمان**، مج ٢، ط.٢ القاهرة: دار الكتاب الإسلامي.

ثانيا: المراجع

الباشا، حسن
١٩٥٧ **الألقاب الإسلامية في التاريخ والوثائق والآثار**. مكتبة النهضة المصرية.
١٩٩٩ التأثيرات الفاطمية والسورية في العمارة الأيوبية، **موسوعة العمارة والآثار والفنون الإسلامية**، مج١، ط.١ مطبعة أوراق شرقية للطباعة والنشر والتوزيع.

الحمصي، أحمد فائز وأخرون
١٩٨٢ **روائع من العمارة العربية في سورية**. دمشق: منشورات وزارة الأوقاف.

الدلالعة، عز الدين محمد عقلة
١٩٩٧ **عجلون في العصر الأيوبي والمملوكي**. رسالة

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٤٧. كسيت معظم حنيات المحاريب بالزخارف الجصية في العصر الأيوبي، كما ظهر في هذه الزخارف تأثيرات أندلسية (سالم ١٩٩٩: ٢٣٧-٢٤٧).

٤٨. بلغت صناعة الزجاج في مصر والشام خلال العصر الأيوبي درجة كبيرة من الرقي والازدهار، حيث شهد العصر الأيوبي ظهور أساليب صناعية وزخرفية جديدة بدأت منذ العصر الأيوبي واكتمل نضوجها في العصر المملوكي (سالم ٢٠٠٠: ٦٥).

٤٩. بعد حريق الفسطاط في أواخر العصر الفاطمي رحل بعض الخزافين إلى بلاد الشام وساهموا في إنتاج خزف البريق المعدني (سالم ٢٠٠٠: ٢٤-٤٣).

ماجستير، قسم الآثار، معهد الآثار والإنثروبولوجيا. الأردن: جامعة اليرموك.

الدويكات، محمد فاتح عيد

٢٠٠٤ **المساجد المملوكية في منطقة إربد، دراسة أثرية مقارنة**. رسالة ماجستير، قسم الآثار، معهد الآثار والأنثروبولوجيا. الأردن: جامعة اليرموك.

الرشدان، وائل منير

١٩٩٨ عمان في العصر الإسلامي. **مجلة دراسات تاريخية** ٦٥-٦٦.

ماتزان، روبير

١٩٩٣ **تاريخ الدولة العثمانية**. ترجمة بشير السباعي. القاهرة: دار الفكر للدراسات والنشر والتوزيع.

سالم، عبد العزيز صلاح

الفنون الإسلامية في العصر الأيوبي، الجزء الأول، التحف المعدنية. القاهرة: مركز الكتاب للنشر.

٢٠٠٠ **الفنون الإسلامية في العصر الأيوبي**، الجزء الثاني. القاهرة: مركز الكتاب للنشر.

العبادي، احمد مختار

١٩٩٥ **في تاريخ الأيوبيين والمماليك**. بيروت: دار النهضة العربية.

عبد الوهاب، حسن

١٩٤٦ **تاريخ المساجد الأثرية**. مكتبة الدار العربية للكتاب، جزآن، الطبعة الأولى.

العربي (حمزة بن العربي النظرتي)

٢٠٠٢ **جولة بين الآثار**، ج.٢ تحقيق زكي أحمد المغيص. دار الكندي.

غسان، هند أبو الشعر

١٩٩٥ **إربد وجوارها (ناحية بني عبيد)**. دائرة المكتبة الوطنية الأردنية.

غوانمة، يوسف حسن درويش

١٩٨٦ **المساجد الإسلامية في منطقة عجلون**. عمان: منشورات مركز الدراسات الأردنية، سلسلة الدراسات التاريخية والتراثية رقم ٢.

١٩٨٩ **مدينة إربد في العصر الإسلامي**. جامعة اليرموك: منشورات مركز الدراسات الأردنية.

١٩٧٩ تاريخ شرقي الأردن في عصر دولة المماليك الأولي. القسم الحضاري، وزارة الثقافة والشباب. عمان.

١٩٩٧ **مدينة عمان الأردنية في التاريخ الإسلامي الوسيط، بحوث في تاريخ الحضارة الإسلامية**. مؤسسة شباب الجامعة الأسكندرية.

١٩٨٢ **تاريخ نيابة بيت المقدس في العصر المملوكي**. دار الحياة.

القضاة، أحمد مصطفى

١٩٨٨ **صفحات من جبال عجلون**. المملكة الأردنية الهاشمية.

ماهر، سعاد محمد

١٩٧٦ **مساجد مصر وأولياؤها الصالحون**، ج.٢ مصر: مطابع الأهرام التجارية.

نويصر، حسني

١٩٩٦ **العمارة الإسلامية في مصر عصر الأيوبيين والمماليك**. القاهرة: مكتبة زهراء الشرق.

الهرني، سلامة محمد

٢٠٠٤ مكتبات بيت المقدس من الفتح العربي إلى الاغتصاب الصهيوني. **مجلة التاريخ العربي** ٣٢. الدار البيضاء.

المراجع الأجنبية

El-Basha, Hassan.

1999 Ayyubid Architecture in Egypt, Encyclopedia of Islamic Architecture. *Arts and Archeology* I: 39. Awräq Sharqiya.

Stierlin, Henri.

2002 *Islam du Bagdad à Cordoue*. Taschen.

Shiha, Mostafa.

2001 *Islamic Architecture in Egypt.* Prism Publication Office.

Garaudy, Roger.

1985 *Mosquée Miroir de l'islam, Les Editions du Jaguar*, : 148-155