

THE HASHEMITE KINGDOM OF JORDAN

STUDIES IN THE HISTORY AND ARCHAEOLOGY OF JORDAN

VII

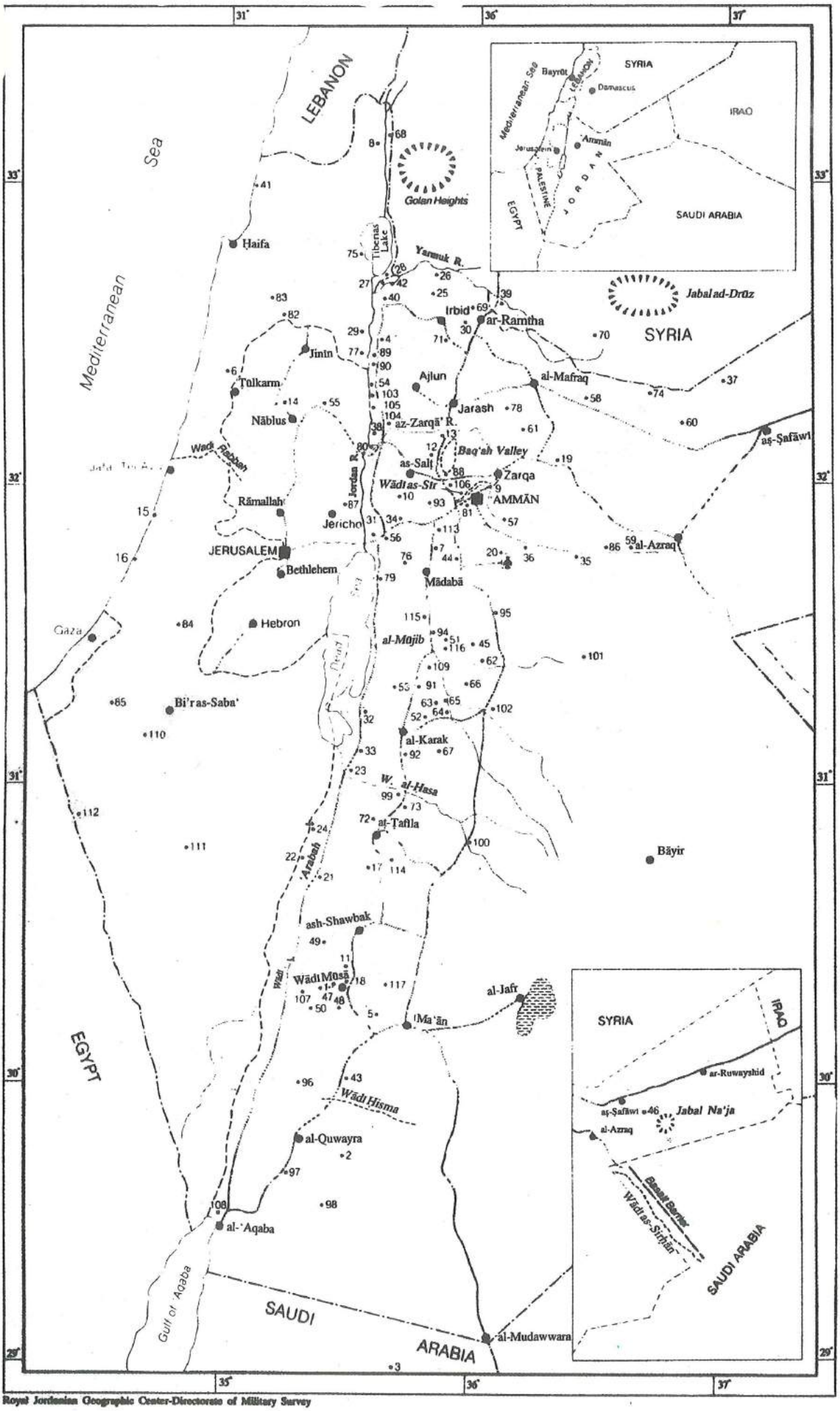
First Published in 2001
by the Department of Antiquities
Amman - Jordan

Layout: Majeda Ibrahim

STUDIES IN THE HISTORY AND ARCHAEOLOGY OF JORDAN

VII

Department of Antiquities
Amman - Jordan

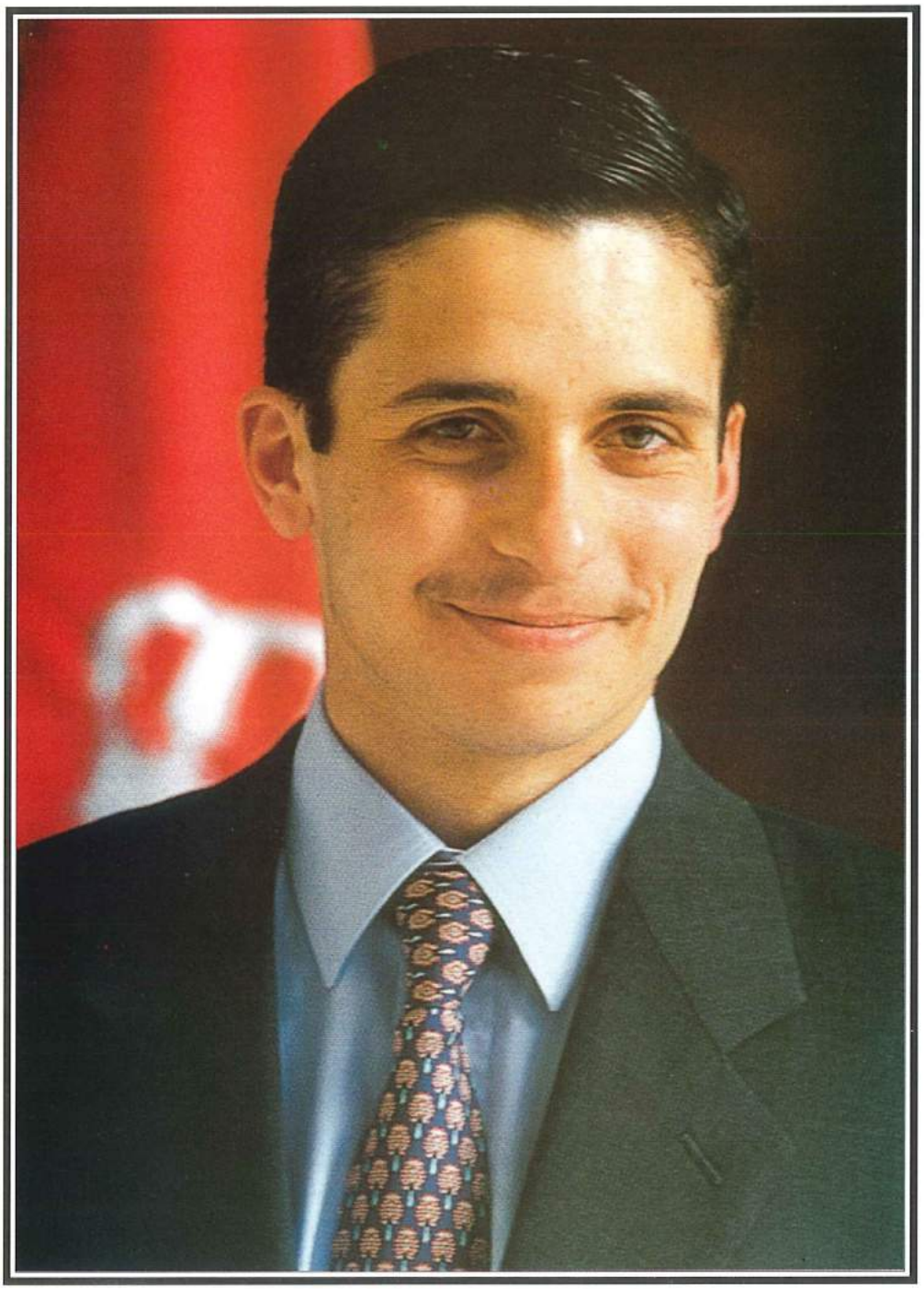

LEBANON
Mediterranean Sea
SYRIA
IRAQ
SAUDI ARABIA
EGYPT
JORDAN
PALESTINE
Golan Heights
Jabal ad-Drūz
Haifa
Tiberias Lake
Yarmuk R.
Irbid
ar-Ramtha
Jinin
Tūlkarm
Nāblus
Ajlun
Jarash
al-Mafraq
az-Zarqā' R.
Baq'ah Valley
as-Salt
Zarqa
Wādī as-Sīr
AMMĀN
aṣ-Ṣafāwī
Wadi Rabbah
Jordan R.
Rāmallah
Jericho
JERUSALEM
Bethlehem
al-Azraq
Mādabā
Dead Sea
Gaza
Hebron
al-Mūjib
Bi'r as-Saba'
al-Karak
W. al-Hasa
aṭ-Ṭafīla
Bāyir
Arabah
ash-Shawbak
Wādī Mūsā
al-Jafr
Ma'ān
Wādī Hisma
al-Quwayra
al-'Aqaba
Gulf of Aqaba
al-Mudawwara
ar-Ruwayshid
Jabal Na'ja
Wādī as-Sirḥān
Royal Jordanian Geographic Center-Directorate of Military Survey

KEY

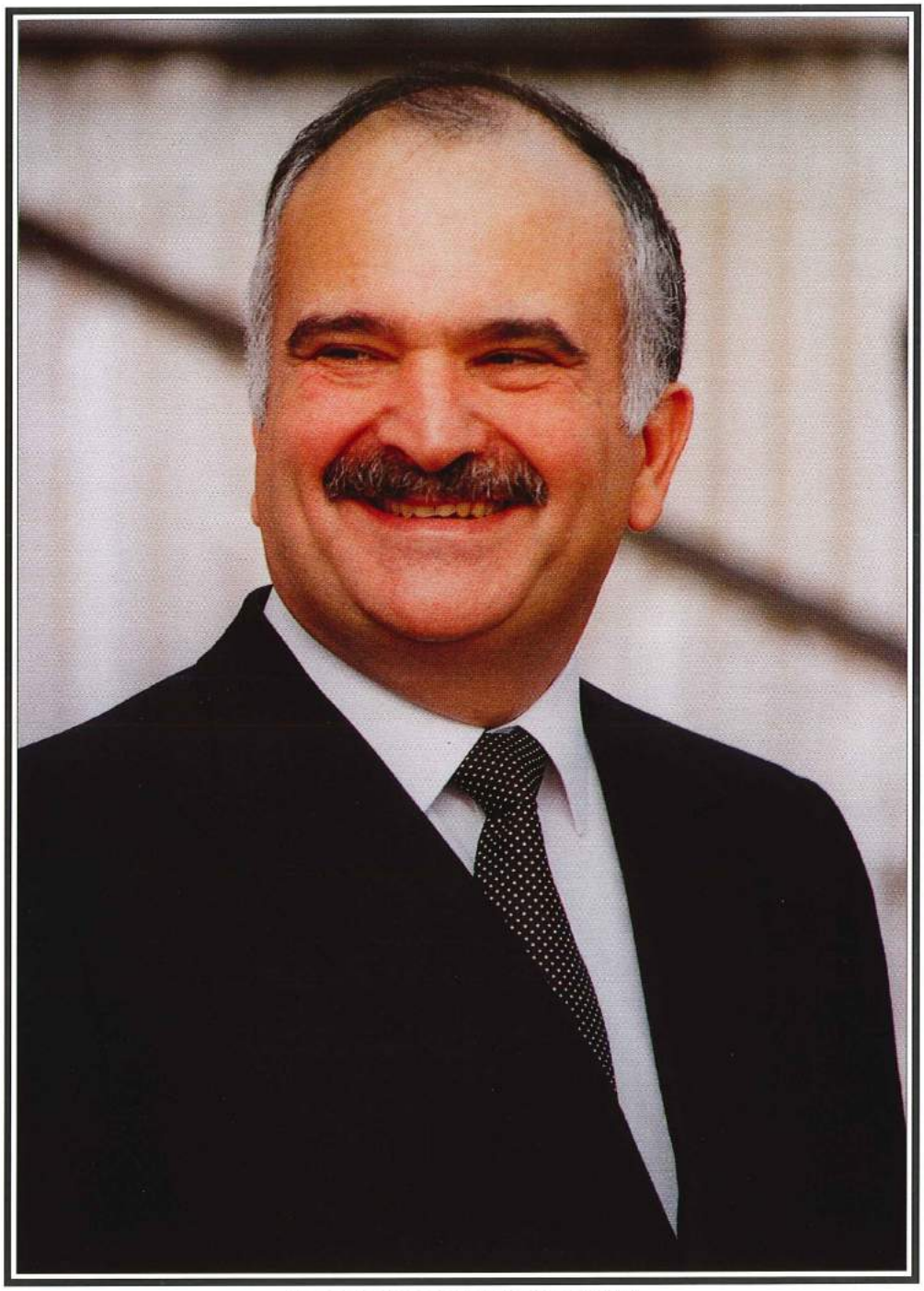
1 Petra
2 Wādī Ramm
3 Madā'in Ṣāliḥ (Ḥegra)
4 Ṭabaqat Faḥl (Pella)
5 Basṭa (al-Basṭa)
6 Qāqūn
7 Ḥisbān
8 Baysamūn
9 'Ayn Ghazāl
10 Wādī Shu'ayb (site)
11 Bayḍa
12 Khirbat Umm ad-Danānīr
13 Abū Thawwāb
14 Samaria
15 Ashdūd
16 'Asqalān
17 Buṣayra
18 Ṭawīlān
19 Qaṣr al-Ḥallābāt
20 Qaṣr al-Mushatta
21 Faynān
22 Khirbat an-Nuḥās
23 aṣ-Ṣāfī
24 Khirbat al-Jāriya
25 Bayt Rās
26 Quwayliba (Abila)
27 al-Ḥammah (al-Ḥimma)
28 al-Qahwānah
29 Munḥaṭṭa
30 'Ayn Rāḥūb
31 Ghrubba
32 Bāb adh-Dhrā'
33 Numayra (an-Numayra)
34 Tall Iktanū
35 Qaṣr al-Kharrāna
36 al-Muwaqqar
37 Jāwā
38 Tall Umm Ḥammād
39 Dar'ā (Adhri'āt, Adraa)
40 ash-Shūna ash-Shamāliyya
41 'Akka (Acre)
42 Umm Qays (Gadara)
43 Rās an-Naqab
44 al-Qasṭal
45 Umm ar-Raṣāṣ
46 Dhuwayla
47 al-Wu'ayra
48 Ṣabra
49 Ba'ja
50 Umm al-'Amad
51 'Arā'ir
52 Adir
53 Khirbat Fāris
54 Tall Abū Ḥāmid
55 Tall al-Fār'a (North)
56 Tulaylāt al-Ghassūl
57 Saḥāb
58 Umm al-Jimāl (Umm aj-Jimāl)
59 Qaṣr al-'Uwaynid
60 Dayr al-Kahf
61 Khirbat as-Samra (as-Samrā')
62 Qaṣr ath-Thurayya
63 Khirbat al-Fityān
64 Rujm Banī Yāsir
65 al-Lajjūn
66 Qaṣr Bshīr
67 Qaṣr Abū Rukba
68 Tall 'Anafa
69 Khirbat az-Zayraqūn (az-Zarāqūn)
70 Buṣra
71 Aydūn
72 'Aymā
73 Khirbat adh-Dhariḥ
74 Umm al-Quṭṭayn
75 Ṭabariyyah (Tiberias)
76 Ṣiyagha (Mount Nebo)
77 Baysān
78 Riḥāb
79 'Ayn az-Zāra
80 Katārit as-Samrā'
81 Umm Udhayna
82 Ṭa'annak
83 Megiddo
84 Lachish
85 Tall al-Fār'a (South)
86 Quṣayr 'Amra
87 Khirbat al-Mafjar
88 Tall Ṣāfūṭ
89 Tall al-Ḥayyāt
90 Tall Abū an-Ni'āj
91 al-Qaṣr
92 Mu'ta
93 'Irāq al-Amīr
94 Dhībān
95 Ḍab'ah
96 Ḥumayma
97 Khirbat al-Khāldī
98 Ramm
99 Khirbat at-Tannūr
100 al-Ḥasa
101 Qaṣr aṭ-Ṭūba
102 al-Qaṭrāna
103 Tall as-Sa'īdiyya
104 Tall Dayr 'Allā
105 Tall al-Mazār
106 Tall Sīrān
107 Umm al-Biyāra
108 Tall al-Khalayfī
109 al-Bālū'
110 al-Khālṣa
111 'Abda (Oboda)
112 'Auja al-Ḥafīr (Nessana)
113 Tall al-'Umayrī
114 Gharandal (Arindela)
115 Khirbat Iskandar
116 al-Lāhūn
117 Udhruḥ



HIS MAJESTY KING ABDULLAH THE SECOND BIN AL-HUSSEIN
OF THE HASHEMITE KINGDOM OF JORDAN



HIS ROYAL HIGHNESS CROWN PRINCE
HAMZEH BIN AL-HUSSEIN



HIS ROYAL HIGHNESS PRINCE
EL-HASSAN BIN TALAL

STUDIES IN THE HISTORY AND ARCHAEOLOGY OF JORDAN VII: JORDAN BY THE MILLENIA

Contents

SYSTEM OF TRANSLITERATION 18

SPEECHES
Dr Ghazi Bisheh 19
H.R.H. Prince El-Hassan bin Talal 21
Professor Kjeld Møllgård 25

Khair Yassine 27
THE ARCHAEOLOGY OF JORDAN: ACHIEVEMENTS AND CHARTING THE FUTURE

Denyse Homès-Fredericq 33
ANCIENT TRAVELLERS IN MOAB AND MODERN EXCAVATIONS

David Kennedy 39
HISTORY IN DEPTH: SURFACE SURVEY AND AERIAL ARCHAEOLOGY

Geoffrey A. Clark, Nancy R. Coinman and Michael P. Neeley 49
THE PALEOLITHIC OF JORDAN IN THE LEVANTINE CONTEXT

Donald O. Henry 69
THE MIDDLE PALEOLITHIC OF JORDAN: AN OVERVIEW

J. Brett Hill 79
THE ROLE OF ENVIRONMENTAL DEGRADATION IN LONG TERM SETTLEMENT TRENDS IN WĀDĪ AL-ḤASĀ, WEST-CENTRAL JORDAN

Phillip C. Edwards 85
NINE MILLENNIA BY LAKE LISAN: THE EPIPALAEOLITHIC IN THE EAST JORDAN VALLEY BETWEEN 20,000 AND 11,000 YEARS AGO

Gary Rollefson 95
JORDAN IN THE SEVENTH AND SIXTH MILLENNIA BC

Mohammad Najjar 101
TOWARDS A COMMONLY ACCEPTED CHRONOLOGICAL FRAMEWORK OF THE PRE-POTTERY NEOLITHIC B PERIOD IN JORDAN

Hans-Dieter Bienert 107
THE PRE-POTTERY NEOLITHIC B (PPNB) OF JORDAN: A FIRST STEP TOWARDS PROTO-URBANISM?

Hamzeh M. Mahasneh 121
THE NEOLITHIC BURIAL PRACTICES IN WĀDĪ AL-MŪJIB DURING THE SEVENTH MILLENNIUM BC

Alan H. Simmons 143
CORE AND PERIPHERY MODELS DURING THE NEOLITHIC — IS THE ANALOGY APPROPRIATE?

Edward B. Banning 149
SETTLEMENT AND ECONOMY IN WĀDĪ ZIQLĀB DURING THE LATE NEOLITHIC

Susanne Kerner 157
POTTERY DECORATION AS A MEDIUM TO EXAMINE SPECIALISED PRODUCTION IN THE SIXTH TO FOURTH MILLENIA BC

Genevieve Dollfus and Zeidan Kafafi 163
JORDAN IN THE FOURTH MILLENNIUM

Juan A. Fernández-Tresguerres Velasco 173
JABAL AL-MUṬAWWAQ AT THE END

OF THE FOURTH MILLENIUM BC

Kay Prag 179
THE THIRD MILLENIUM IN JORDAN: A PERSPECTIVE, PAST AND FUTURE

Timothy P. Harrison 191
URBAN OR RURAL? THE DEVELOPMENT OF REGIONAL COMMUNITIES IN THE HIGHLANDS OF JORDAN DURING THE THIRD MILLENNIUM

Christophe Nicolle et Frank Braemer 197
LE LEVANT SUD AU BRONZE ANCIEN: POUR UNE DÉFINITION DES SYSTÈMES SOCIO ÉCONOMIQUES NON INTÉGRÉS

Walter E. Rast 205
TRACING THE COURSE OF EB IV PASTORALISM AND SEDENTISM IN TRANSJORDAN AND THE NEGEV

Jens Kamlah 211
PATTERNS OF REGIONALISM: THE PLATEAU OF NORTHERN JORDAN DURING THE EARLY BRONZE AGE IN LIGHT OF THE ZAYRAQŪN SURVEY

Hermann Genz 217
EARLY BRONZE AGE POTMARKS FROM KHIRBAT AZ-ZAYRAQŪN: SOME ASPECTS CONCERNING THEIR MEANING

Eveline J. van der Steen 229
EXCAVATIONS AT TALL AL-ḤAMMAH

David Warburton 233
EGYPTIAN CAMPAIGNS IN JORDAN REVISITED

Samantha Eames 239
A "GATEWAY COMMUNITY" IN NORTHERN JORDAN: THE UNIVERSITY OF SYDNEY ḤAWRĀN PROJECT

Bruce McLaren 247
COMPARATIVE CERAMIC ANALYSIS AS A DATING MECHANISM IN 'MARGINAL' ZONES: A CASE STUDY

Rachael T. Sparks 259
PALESTINIAN STONE VESSELS - THE EVIDENCE FROM PELLA

Piotr Bienkowski 265
THE IRON AGE AND PERSIAN PERIODS IN JORDAN

Larry G. Herr 275
SOCIAL SYSTEMS IN CENTRAL JORDAN: MOVING TOWARD THE FIRST MILLENNIUM BC AND THE EARLIEST IRON AGE POLITIES

Douglas R. Clark 285
LABORING TO BUILD A HOUSE: THE HUMAN INVESTMENT IN IRON AGE CONSTRUCTION IN THE MĀDABĀ PLAINS

Gerrit van der Kooij 295
THE VICISSITUDES OF LIFE AT DAYR 'ALLĀ DURING THE FIRST MILLENNIUM BC, SEEN IN A WIDER CONTEXT

Peter M. Fischer 305
THE IRON AGE AT TALL ABŪ AL-KHARAZ, JORDAN VALLEY: THE THIRD MAJOR PERIOD OF OCCUPATION. A PRELIMINARY SYNTHESIS

P. M. Michèle Daviau 317
NEW LIGHT ON IRON AGE RELIGIOUS ICONOGRAPHY: THE EVIDENCE FROM MOAB

Margreet Steiner 327
I AM MESHA, KING OF MOAB, OR: ECONOMIC ORGANIZATION IN THE IRON AGE II

Magnus Ottosson 331
IN QUEST OF THE ARAMAEANS IN NORTHERN JORDAN

Osamah Abu-Qorah 343
WHO WERE THE HEBREWS AND ISRAELITES? A SCHOLARLY PERSPECTIVE FROM JORDAN

Niels Peter Lemche 347
JORDAN IN THE BIBLICAL TRADITION: AN OVERVIEW OF THE TRADITION WITH SPECIAL REFERENCE TO THE IMPORTANCE OF THE BIBLICAL LITERATURE FOR THE RECONSTRUCTION

OF THE HISTORY OF THE ANCIENT TERRITORIES OF THE STATE OF JORDAN

Jesper Hoegenhaven 353
THE ORACLES AGAINST THE NATIONS IN THE BOOK OF ISAIAH: THEIR POSSIBLE VALUE FOR THE STUDY OF THE HISTORY OF JORDAN IN THE IRON AGE

Jean-Paul Rey-Coquais 359
JORDANIE, D'ALEXANDRE À MOAWIYA: UN MILLÉNAIRE D'HELLÉNISATION

Fawzi Zayadine 365
THE SETTLEMENT OF THE ARABIAN TRIBES IN SOUTH JORDAN AND THE SINAI AT THE END OF THE FIRST MILLENIUM BC

Burton MacDonald 373
RELATION BETWEEN PALEOCLIMATE AND THE SETTLEMENT OF SOUTHERN JORDAN DURING THE NABATAEAN, ROMAN AND BYZANTINE PERIODS

Chang-Ho C. Ji 379
'IRĀQ AL-'AMĪR AND THE HELLENISTIC SETTLEMENTS IN CENTRAL AND NORTHERN JORDAN

Adolf Hoffmann 391
HELLENISTIC GADARA

Laurent Tholbecq 399
THE HINTERLAND OF PETRA FROM THE EDOMITE TO THE ISLAMIC PERIODS: THE JABAL ASH-SHARĀH SURVEY (1996-1997)

Stephan G. Schmid 407
THE "HELLENISATION" OF THE NABATAEANS: A NEW APPROACH

Helmut Merklein and Robert Wenning, with a contribution by Yvonne Gerber 421
THE VENERATION PLACE OF ISIS AT WĀDĪ AṢ-ṢIYYAGH, PETRA: NEW RESEARCH

Zbigniew T. Fiema 433
REMARKS ON THE URBANISTIC DEVELOPMENT OF PETRA'S CENTER IN THE NABATAEAN AND ROMAN PERIODS

Bernhard Kolb 437
A NABATAEAN MANSION AT PETRA: SOME REFLECTIONS ON ITS ARCHITECTURE AND INTERIOR DECORATION

Martha Sharp Joukowsky 447
PETRA: BROWN UNIVERSITY EXCAVATIONS OF THE GREAT TEMPLE. QUESTIONS ABOUT FUNCTIONAL ANALYSIS

Jean-Marie Dentzer, Jacqueline Dentzer-Feydy et Pierre-Marie Blanc 457
BUṢRĀ DANS LA PERSPECTIVE PAR MILLÉNAIRES: LA BUṢRĀ NABATÉENNE

David F. Graf 469
FIRST MILLENNIUM AD: ROMAN AND BYZANTINE PERIODS LANDSCAPE ARCHAEOLOGY AND SETTLEMENT PATTERNS

Sabri Abbadi 481
A NEW SAFAITIC INSCRIPTION DATED TO 12-9 BC

Pamela M. Watson 485
ROMAN WATER INSTALLATIONS IN THE VICINITY OF PELLA

Jacqueline Calzini Gysens and Luigi Marino 493
THE QAṢR RABBA TEMPLE PROJECT: PRELIMINARY REMARKS ON THE ARCHITECTURE AND STATE OF CONSERVATION

W. Harold Mare 499
ABILA OF THE DECAPOLIS IN THE ROMAN PERIOD: A TIME OF REVITALIZATION AND EXPANSION

Nayef Goussous 509
FOUR UNPUBLISHED COINS OF THE DECAPOLIS AND PROVINCIA ARABIA IN THE SECOND CENTURY AD

Niels Hannnestad 513
THE MARBLE GROUP OF DAIDALOS, HELLENISM IN LATE ANTIQUE 'AMMĀN

Abdel Sami Abu Dayyah 521
SELECTED ROMAN STONE QUARRIES IN CENTRAL JORDAN: A CULTURAL RESOURCE

Thomas Weber 531
ROMAN MONUMENTAL ARCHES IN THE NEAR EAST. MONUMENTS OF CIVIC REPRESENTATION OR CUSTOM TOLL STATIONS?

Karel H. H. Vriezen, Ute Wagner-Lux, Nicole F. Mulder and Robert L. J. J. Guinée 537
UMM QAYS-GADARA: THE LARGE TERRACE IN THE FIRST MILLENNIUM AD

Claudia Bührig 547
SOME ASPECTS OF THE MONUMENTAL GATE *EXTRA MUROS* OF GADARA FROM THE LATE ROMAN PERIOD SEEN IN ITS CONTEXT OF URBAN DEVELOPMENT

Mohammad Al-Daire 553
UMM QAYS 1998: THE FOURTH CENTURY AD MEMORIAL BASILICA OF GADARA

Manfred Lindner 561
FROM EDOMITE TO LATE ISLAMIC: SETTLING FLUCTUATION ON THE NEWLY SURVEYED JABAL AṢ-ṢAFFĀḤA, NORTH OF PETRA (JORDAN)

John Peter Oleson 569
KING, EMPEROR, PRIEST AND CALIPH: CULTURAL CHANGE AT ḤAWAR (ANCIENT AL-ḤUMAYMA) IN THE FIRST MILLENNIUM AD

Robert Schick 581
CHRISTIANITY IN SOUTHERN JORDAN IN THE BYZANTINE AND EARLY ISLAMIC PERIODS

Konstantinos D. Politis 585
EARLY BYZANTINE MONASTICISM IN SOUTHERN JORDAN

Mohammad Waheeb 591
WĀDĪ AL-KHARRĀR ARCHAEOLOGICAL PROJECT (AL-MAGHṬAS)

Ina Kehrberg 601
A CRITICAL LOOK AT TYPOLOGIES OF CERAMICS PRODUCED IN THE LATE ROMAN PERIOD AT JARASH

Alexandra Uscatescu 607
MID FOURTH-FIFTH CENTURIES AD STAMPED POTTERY FROM THE HIPPODROME OF GERASA

Lutfi Khalil 617
POTTERY CANDLESTICKS FROM THE BYZANTINE PERIOD AT YĀJŪZ

Michele Piccirillo 629
AN EPOCH OF TECHNICAL AND ARTISTIC CONTINUITY IN JORDAN BETWEEN THE BYZANTINE AND THE UMAYYAD PERIODS

Alan Walmsley 633
RESTORATION OR REVOLUTION? JORDAN BETWEEN THE ISLAMIC CONQUEST AND THE CRUSADES: IMPRESSIONS OF TWENTY-FIVE YEARS OF ARCHAEOLOGICAL RESEARCH

Michelle Joguin 641
DES POTS ET DES HOMMES: L'EXEMPLE D'UMM AL-WALĪD

Denis Genequand 647
WĀDĪ AL-QANĀṬIR (JORDANIE): UN EXEMPLE DE MISE EN VALEUR DES TERRES SOUS LES OMEYYADES

Michal Gawlikowski 655
FROM DECAPOLIS TO AL-URDUNN: THE CITIES OF JORDAN IN THE EARLY ISLAMIC TIMES

Antonio Almagro and Ignacio Arce 659
THE UMAYYAD TOWN PLANNING OF THE CITADEL OF 'AMMĀN

Antonio Almagro and Ignacio Arce 667
THE UMAYYAD PALACE OF 'AMMĀN: STRATIGRAPHY AND RESTORATION

Khaled Suleman Al-Jbour 673
ARABIC INSCRIPTIONS FROM WĀDĪ SALMA

Flemming Aalund 681
THE STONE BUILDING TRADITION IN

THE ḤAWRĀN WITH A SPECIAL VIEW TO THE DEVELOPMENT OF THE PLAN OF BUILDINGS

Raouf Abujaber 691
THE PEOPLE OF JORDAN DURING THE SECOND MILLENIUM AD

Pietro Ruschi and Guido Vannini 695
THE FORTIFIED CRUSADER-AYYUBID SETTLEMENTS IN THE PETRA VALLEY: A STUDY CASE FOR A PROJECT OF RESTORATION

Christina Tonghini and Andrea Vanni Desideri 707
THE MATERIAL EVIDENCE FROM AL-WU'AYRA: A SAMPLE OF POTTERY

Khalil Salameh 721
THE ROLE OF PHOTOGRAMMETRY IN THE CONSERVATION OF JARASH

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

ـة ة	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

Your Majesty,
Your Royal Highnesses,
Excellencies,
Ladies and Gentlemen.

It is a great honour for me to stand here in the presence of Her Majesty Queen Margarethe and Their Royal Highnesses Crown Prince Al-Hassan and Princess Sarvath Al-Hassan to welcome you all to the opening of the 7th International Conference on the History and Archaeology of Jordan whose theme is, "Jordan by the Millenia".

The series of triennial International Conferences on the History and Archaeology of Jordan, initiated by His Royal Highness Crown Prince Al-Hassan, has become an excellent vehicle for fostering cultural exchanges and ideas, and a venue for sharing knowledge and insights with as wide an audience as possible. Since the first conference which was held at Oxford in March, 1980 the Archaeology of Jordan has experienced significant change in its method of retrieving data and in its theoretical underpinnings. Perhaps one of the most important changes of the last two decades is the degree to which Archaeology has become a team project rather than the province of individual genius. This development can be seen in the increasing adoption of interdisciplinary projects and the concomitant shift in focus to ecological and environmental issues as is apparent in the publications of the Madaba Plain Project.

In organizing this conference, it was thought that the moment is ripe for utilizing the vast corpus of data collected in the past two decades to pull together in a synthetic manner the present state of knowledge, produce new interpretations of culture change within large conceptual frameworks, and chart the way for Archaeology in Jordan in the next millenium.

A conference of this kind would not have been possible without the support, help and cooperation of many academic institutes and individuals. It is my pleasant duty to acknowledge some of them:

To H.R.H. Crown Prince Al-Hassan who initiated the idea of triennial conferences to promote active research in the History and Archaeology of Jordan, we are particularly grateful for his unfailing support and continuous interest.

Our sincere thanks are also extended to the University of Copenhagen and its President professor Kjeld Møllgaard for the kind invitation to host this conference. The efforts of the organizing committees both in Jordan and Denmark are gratefully acknowledged. Our thanks also go to the Deans of Faculties of the Univ. of Copenhagen as well as the Conventum Congress Service for preparation of the logistics.

At last, but not least, I would like to pay special tribute to Prof. John Strange and the colleagues who collaborated with him for the tremendous efforts they put into the preparation and organization of this conference.

The fact that this conference is held in Copenhagen in the wake of the visit of His Majesty King Hussein, and being inaugurated with the presence of Her Majesty Queen Margarethe and Their Royal Highnesses Crown Prince Al-Hassan and Princess Sarvath Al-Hassan is an eloquent testimony to the friendly relations between Jordan and Denmark, and which, we trust, will continue to prosper in the future.

Your Majesty,
Your Royal Highness,
Excellencies,
Professor Kjeld Møllgaard (Rector Magnificus for the University of Copenhagen and host of the Conference),
Ladies and Gentlemen,

It is my pleasure to be here in Copenhagen to take part in this 7TH INTERNATIONAL CONFERENCE ON THE HISTORY AND ARCHAEOLOGY OF JORDAN. The theme of the Conference, "Jordan by the Millennia" implies identification of the achievements of the successive cultures and societies which flourished in Jordan throughout the millennia, and shed light on dialogue and interaction between man and his fellow man, his land, as well as with neighbouring civilisations.

In the past two decades, Jordan has experienced a number of highly specialised conferences on the History of Bilād ash-Shām (Greater Syria) and the Archaeology of Jordan.

The idea behind these conferences is to take a pause from the turmoil of events in today's world, and to recognise the achievements of the past and their relevance to the present. It is hoped that as we look at the humanitarian needs of identifying our past and present, that such conferences will serve areas of commonality; to think and act in terms of universal values and with a sense of common humanity. We regard research in history and archaeology as a means of promoting understanding among nations and states, if only because such research almost invariably points to the essential unity of human interests and aspirations.

For too long our region has been bogged down in a tragic effort to live in monologue rather than dialogue; hence the importance of promoting dialogue among the different cultures and faiths.

In February I was invited by the President of the World Bank and the Archbishop of Canterbury to attend a dialogue on "World Faiths and Development" at Lambeth Palace in London. It provided an opportunity for frank and intensive exchange between religious leaders and development experts drawn from nine of the world's faiths, and leading staff of the World Bank. There

was a broad consensus that the long-term well-being of all the world's people, depends on safeguarding the spiritual, moral, environmental and cultural resources on which humankind depends.

The gathering represented a conversation, rather than a clash of civilisations. It emphasises, to my mind, the common challenges facing both the developing and the advanced countries.

It is our task for the new millennium to arrive at what I term Terra Media, the middle ground — centrist politics — which are an important, if not essential, factor for stability in the Middle East region and beyond.

Images from the past have enormous potential for encouraging either hatred or understanding, for establishing either a shared or a conflicting heritage. It is therefore inevitable that archaeology in the Middle East, in its reconstruction of ancient societies in the midst of modern political challenges, will continue to play a role not only in elucidating the past, but also in shaping the region's present and future. It is hoped, however, that conferences such as this will act as springboards, not only for academic cross-fertilisation, but for the furtherance of policy dialogue between world cultures, and for implanting the principles of peace, tolerance and justice among peoples.

As the frontiers between countries are eroding under the impact of new technologies and free trade, we ask why it is that the physical proximity that connected the Mediterranean countries in the Hellenistic and Roman period, and in the later medieval centuries and tied Muslims, Christians and Jews in a web of intercommunal relations, can no longer restore balance and tolerance today between cultures so similar that they revere the same Abrahamic origins? Why is it that some of us have chosen to retreat into narrow nationalistic enclaves determined to resist the ideas and influences of neighbours?

Of course none of us can change history, especially the history of the cataclysmic wars that raged throughout the Middle East region as east and west faced each other, but we can and we must, absorb the lessons of the past to reinvigorate the present, for the prosperity of all.

Situated as it was at a highly significant cross-road, throughout history, Jordan has been a vibrant centre where races, religions, languages and peoples blended and interacted to create, and lead, a well-balanced life characterised by a cosmopolitan outlook.

This outlook is best reflected in the versus of Meleager of Gedara — present Umm Qays in northern Jordan — (flourished ca. 90 BC) when he says:

> If you are Syrian, Salaam!
> If Phoenician, Naidius!
> And if Greek, Khaire! All say the same.

To achieve that kind of outlook we have to introduce change in categories of feeling and thinking; cast aside stereotypes, and see the former enemy as a human being, one with dignity.

Today, I call for a human ethic which is transboundary in nature and which is committed to an absolute of promoting human worth as well as human dignity.

I would like to share with you, a code of conduct in the context of religious dimensions and interfaith dialogue. The product of fifteen years of debate appear in one sheet, succinctly and directly — the *rules of conduct of religious dimensions and interfaith dialogue* emphasise:

The association between theology and practicality;
To begin with commonality;
To take into account the Enlightenment tradition;
To be courageous in looking afresh at firstly our own and, secondly, each other's heritage and history;
To be courageous in developing a framework for disagreement.

To remember my friend the late Cardinal Agostino Casaroli, former Vatican Secretary of State, I would like to share his belief by which he was always guided that, "*Man is made for dialogue. The man who does not answer is like a plant denied nourishment from the soil*".

The international character of this conference with participants from many countries and background, demonstrates the high interest enjoyed of the archeology of Jordan among scholars in many parts of the world, and for that we are grateful.

Finally, it would be remiss of me not to express my personal sense of pride in the presence of Your Majesty Queen Margarethe in this inaugural meeting.
Judging by the list I have received, I see that you have a very full programme, so I wish you all a vibrant exchange of ideas and pleasant encounters in the course of the next four days.

Thank you ladies and gentlemen.

Your Majesty,
Your Royal Highness,
Dear Colleagues and Friends,
Ladies and Gentlemen,

On behalf of the University of Copenhagen it is my pleasure to welcome all of you to the Seventh International Conference on the History and Archaeology of Jordan.

Churchill once said very gracefully that an improvised speech is not worth the paper it is written on. So I followed the advice of Petronius, the renowned Roman author, who was ordered to take his own life by Nero. He stated that one must honour guests, even if they come from the Provinces, such as any other wilderness in Europe, by bidding them welcome with a written speech, even if the number of guests was limited. The host must from the beginning demonstrate to his guests that he esteems them so highly that he has prepared himself for their visit. Guests deserve more than mere improvisation. So here you are — certainly not limited in number — and not only from the wilderness in Europe.

It happens — as is the case to-day — that organizers of conferences on topical subjects at the University ask the rector to be part of the opening ceremony. I do it gladly, because it is nice to welcome guests coming from abroad with a personal word from the institution which is hard to locate. The University of Copenhagen is so scattered physically over the capital that our guests may not even recognize that Copenhagen indeed has a university with nearly 7,000 employees and 32,000 students, distributed over 6 faculties, more than 80 departments, 5 museums and 3 major university hospitals.

As you probably have realized we are now in the old main Hall of the University in the very heart of Copenhagen. Here — not in this house but at this site — our University was founded 519 years ago, the first of June 1479. The inauguration is shown on the painting behind me. The ceremony took place in the Church of Our Lady, opposite the entrance to the University. Christian I, King of Denmark, is enthroned under a red canopy in the choir of the church, and the Bishop of Roskilde, the Chancellor of the University, is presenting to him the first 3 professors (theology, law and medicine) of the newly-founded University.

If we regard the universities on the world map of that time, there is no doubt that those in the southern part of Europe were dominating, and that especially the universities in the Mediterranean area, were the leading centers of excellence. The universities are fewer the further north in Europe that you go at that time. In the 15th Century we are experiencing something new and unique in Denmark and the Nordic countries with the founding of our university. Something new and unique, but not something remote and reclusive. If we look at some of the most prominent and internationally well known personalities and main figures within the University of Copenhagen in the centuries after the establishment, we find intellectual flexibility which coped with the surroundings and entered into constructive relationships with society. Science was not a narrow and well defined business pursued by the scientist in his ivory tower. Time and time again, we see that the most prominent professors participated in the administration of the city and its development along with their scientific studies. The lectures were open to the citizens of Copenhagen. King Frederik III who was scientifically inclined, followed the pubic dissections performed by Thomas Bartholin and Niels Steensen. The research, teaching and the passing on of knowledge were all of the highest international level. It was natural to have an international outlook. Guest professor and exchange student are modern words, but the activities defined by these terms are hundreds of years old.

And now to the present time and to tonight's opening of the conference "Jordan by the Millennia".

Every third year since 1980 we have had conferences on the History and Archaeology of Jordan. This remarkable Forum was initiated by His Royal Highness Crown Prince el Hassan of Jordan. The meetings have discussed important knowledge about human civilization — its history and development during 1 1/2 million years.

His Royal Highness Crown Prince el Hassan has been protector for all the meetings and for this very congress in Copenhagen Her Majesty our Queen has also agreed to stand as protector. I am convinced that you will have a successful meeting and I would like to conclude by thanking my hard-working colleague Professor John Strange from University of Copenhagen and his co-organizers of the conference for their great enthusiasm and strong efforts in getting things moving. Thank you for your attention and good luck with the conference.

Khair Yassine
University of Jordan
Amman - Jordan

Khair Yassine

The Archaeology of Jordan: Achievements and Charting the Future

Introduction

After nearly two centuries of activity, the archaeological community in Jordan has reached a new maturity. At the beginning of the 19th century, the discovery of the Mesha *stele* stimulated archaeological awareness amongst the local inhabitants and the wider community. From this date, activities and exploration expanded in both scope and expertise. Following the establishment of the Kingdom of Jordan, local and visiting international teams began discovering ancient sites throughout the country. The Department of Antiquities was established in 1924 as part of the Department of Antiquities of Palestine. George Horsfield was appointed the first Inspector of Antiquities and carried out preliminary excavations, clearance and restoration work at Jarash and Petra. In 1928 an autonomous department was set up with Rida Tawfiq as Director.

While many of the first archaeologists who worked in Jordan may have been motivated by particular religious beliefs, the discipline has moved away from historical particularism and the narrow focus of earlier research. The research of today is multi-disciplinary involving geomorphology, geology, archeobotany, archaeozoology, anthropology and uses theory from many other subjects, e.g. geography and Central Place Theory; economics and Chaos Theory. Jordanian archaeology remains rooted in the humanities but the application of science, e.g. analysis of materials is growing in importance as the establishment of the archaeo-metric department at the Institute of Archaeology and Anthropology, Yarmouk University, testifies. Simultaneously, technological advances such as ground-penetrating radar, computerised Geographical Information Systems, satellite imaging, and electronic archives have begun to be used. Thematic problems, e.g. the archaeology of a landscape over time, are replacing site-specific studies, e.g. the Mādabā Plains Project, Bāb adh-Dhrā', Wādī Faynān and Tall Nimrīn Project. Other themes include the investigation of the social and cultural changes brought about by the advent of animal and plant domestication in both, the arid and fertile zones; the characteristics of the eastern frontier of the Roman Empire; the nature of the transition between the Late Byzantine-Early Islamic periods.

With the establishment of many permanent schools and institutions of archaeological research in Jordan, especially after the occupation of the West Bank by the Israelis, the archaeological picture changed entirely. The establishment of American, British, French, German and Italian centers as well as new Jordanian departments of archaeology within Jordanian universities has made Jordan one of the most active and attractive places to conduct archaeological research. This flurry of activity and interest coincides with the Jordanian government's growing concern for Cultural Resource Management as the challenge of the growth in tourism and the infrastructural development, e.g. the construction of major new roads, affect the heritage of the country. In recognition of the needs of tourism, major international projects at sites like Jarash, Petra, 'Ammān, and Mādabā have been initiated.

Department of Antiquities

Since its establishment and under the provisions of the Antiquities Law, officials of the Department of Antiquities of Jordan have been authorized to compile and publish a list of protected archaeological sites in the country and set recognized standards for the conduct of the archaeological work. The Department is responsible for every aspect of archaeological work in Jordan. It has also conducted and participated in many excavations and has carried out several archaeological surveys. The list of its activities for the past five years alone is impressive.

Publications

A multitude of publications bearing directly or indirectly on the archaeology of Jordan has appeared over the years. These include final and preliminary reports on the results of excavations and surveys, monographs including excavation reports, period- and site-specific studies. The publication of the *Annual of the Department of Antiquities* (*ADAJ*), now totalling 41 volumes, summarizing current research has become the most important reference tool for

the study of Jordanian archaeology. The series enables readers to enjoy the fruits of scholars' planned research over the years, and to share their conclusions, their achievements, their problems, and their doubts. The size of *ADAJ* has grown from 50 pages to over 500 since it began publication in 1951. Similarly, the Department has greatly expanded the library of Jordanian publications by producing six volumes (to date) of the *Studies in the History and Archaeology of Jordan*. These are proceedings of a series of triennial international conferences on the History and Archaeology of Jordan initiated by HRH Prince al-Hassan to promote active research in this field and to encourage dialogue between scholars from different countries. The conferences and volumes represent a variety of studies and are a new and important chapter in the history and archaeology, not only of Jordan, but also of the Near East. The archaeological, geographical, sociological, epigraphic, philological, and anthropological studies are completely original and complementary to the "traditional, well-known" history of the Levant. The volumes of the past six conferences are extremely interesting because they address specific issues and introduce a wealth of new ideas. Topics vary, some on Jordan in general, others about one region, or one site, or about a well-defined chronological period. The volumes complement *ADAJ* as an important resource for studying Jordan's archaeology. Together, the two series enrich our understanding of Jordan and its role in the story of Middle Eastern civilization.

While Jordan can boast several reference works besides the conference proceedings, e.g. the encyclopediac *Bibliography and Gazeteer of the Archaeology of Jordan,* compiled by D. Homès-Frederiq and Basil Hennessey in 1986 and the volume on the *Archaeology of Jordan* in preparation and edited by R. Adams, P. Bienkowski and B. Macdonald, these do not include the historiography of Jordanian archaeology. There is a place for recording the development of Jordanian archaeology, its institutions and its challenges which are unique to Jordan. The publications mentioned above are in English and yet there is a real need for such a publication to be accessible to a public beyond the scholarly community. This means that, like *ADAJ*, portions of it should be in Arabic and other portions in at least one other language. Here again is another area where the Department of Antiquities, the Departments at the University of Jordan, Yarmouk and other universities, and the international institutes might cooperate to the mutual advantage of all. It may be time to produce an Encyclopedia of the Archaeology of Jordan.

JADIS

One of the greatest achievements of Department of Antiquities in recent years has been the development of a computerised system for the registration of all archaeological sites in the country. It is called JADIS, an acronym for the "Jordan Antiquities Database and Inventory System." By using this computerized system, any interested party is able to enter the map coordinates of any area in Jordan and get an immediate listing of the antiquities sites in the area. However, like all systems this program needs constant upgrading to include new data and information as more archaeology comes to light.

Conservation

The Department of Antiquities is keen to protect and conserve the country's antiquities. For many years, the Department has not had a team of professional archaeological conservators. Moreover, conservation and restoration is neither well defined by a Code of Practice nor protected by law. While not every site will require conservation, i.e the back-filling of a Neolithic or non-touristic site may make more sense than consolidating its walls, there is a growing problem with sites comprising visually attractive architecture and architectural decoration: foreign teams are permitted to excavate without the presence of conservator/restorer. To address this urgent need for preservation, the Department seeks assistance from a number of parties. Since Petra is the prime site for conservation, a center of stone restoration has been established at the site with the help of the German Government. The aim is to train personnel, to deliver and install most of the required equipment, and to assess the current situation. The use of computer-aided design has been very successful. After extensive trials, restoration of Petra's architectural treasures are on their way. In addition to conserving the great edifices of Petra, the Department of Antiquities and ACOR have been cooperating fully in restoring and publishing the very delicate papyrus scrolls of Petra. The quantity of readable texts in the charred papyrus scrolls excavated from the Byzantine church at Petra in December 1993 has been a treasure-trove of information about life in Petra in the mid-sixth century AD. Conservation work and unfolding of the fragments of papyrus scrolls was completed in May, 1995, by a team from Finland. A total of 152 scrolls have been identified. Over 100 meters of scrolls averaging some 30 centimeters wide have been unraveled to reveal documentary texts written by different scribes using a variety of cursive and formal scripts. As opposed to earlier times when Petra's wealth was generated by long-distance Oriental trade, the archives indicate that land ownership was the backbone of Byzantine Petra's society. Traditional Nabataean names appear among the more common Christian, pagan, Greek, and Roman (Latin) names. The scrolls are significant for several reasons: they are the only papyrus rolls discovered in Jordan, and they represent the largest group of written material from antiquities found in modern Jordan.

Local Institutions

Jordan University

The Department of Archaeology at Jordan University was the first scientific research center to be established in the country. It teaches archaeology at two levels: the undergraduate and the graduate. Since its establishment in 1962, many students have graduated with BA and MA degrees. Today, faculty members at Yarmouk, Mu'ta, and other institutions hold degrees from the Department at Jordan University. The University Museum, although it has a teaching structure, serves to promote archaeology within the University community at large. The Department has conducted several major archaeological excavations, among them Tall al-Mazār, Jarash, Petra, Rujm al-Kursī, and al-Maqaṣṣ. It also conducted, with others, surveys of the Jordan Valley and the three reservoir dam sites in Wādī al-'Arab and on the az-Zarqā' and al-Yarmūk Rivers. The Department has a highly developed policy on Jordanian field archaeology that places emphasis on multidisciplinary research. Almost every archaeological expedition now contains scholars from other disciplines such as architects, botanists, historians, gemorphologists, anthropologists, hydrologists, metallurgists, epigraphers—in fact, anyone who might contribute to a fuller understanding of Jordan's past. In the newest excavation of Jordan University at Tall Nimrīn, the project followed exactly this approach.

The Institute of Archaeology and Anthropology at Yarmouk University

The Institute of Archaeology and Anthropology was established in 1984 with the aim of promoting interdisciplinary research and greater public awareness of the heritage of Jordan and the Arab World. In the field of anthropology, the Institute carried out an extensive study of the Jordan Valley, focusing on the changes in the Valley's infrastructure, its built-up environment, and its demographic and economic characteristics. In the field of epigraphy, several projects have collected epigraphic material from the Jordanian desert, Ghadīr al-Mallāḥ, and Bi'r al-Ghuṣayn. Also, many archaeological activities have been launched, some jointly with international teams. The list is impressive: excavations at al-Kharrāna, Abū Thawāb, Saḥāb, Yaṣīla, Dawḥala/ Nu'ayma, 'Ayn Rāḥūb, Khirbat az-Zayraqūn, Basṭa, 'Ayn Ghazāl, Wādī Shu'ayb, Abū Ḥāmid, Khirbat adh-Dharīḥ, and Dayr 'Allā. The Museum of Jordanian Heritage at Yarmouk University is one of its kind.

International Institutions

By their presence and activity, the international institutions sustain long-term research projects in Jordan. The American, British, French, German, Italian and Spanish governments maintain a premanent presence in Jordan both with the aim of facilitating the academic work of their own nationals, but also and increasingly to encourage and stimulate joint projects which address both academic issues and more practical issues of heritage management, site presentation and conservation. These institutes are an integral part of scholarly life in Jordan. The financial resources spent on their activities indicate the willingness of their home countries to participate in the exploration and preservation of Jordan's cultural heritage.

New Techniques

Science and Archaeology

The methodology of archaeological research has been developed greatly in the last decades thanks to statistical and computer sciences. Geophysical techniques used in subsurface mapping have included seismic refraction, ground-penetrating radar, and electromagnetic induction. These methods of investigation are used by scholars working in Jordan, yet not on a large scale. However, they do indicate rapid scientific growth in archaeological activities. Optically-stimulated luminescence dating is used for establishing a chronology of soil landscapes and for providing a time-frame for the deposition of aeolian sand sheets. It is rewarding for those working in Jordan to benefit from the aerial photographic archive compiled by David Kennedy. The use of satellite imagery archaeology constituted much of the research and topics presented in the 6th conference of the History and Archaeology of Jordan which was received with great appreciation. The advantages of satellite imagery over traditional aerial photography is evident, not only because this imagery is captured in an electronic format, but also because of the possibility of it being recorded as multi-spectral data. Such data is different in its detail and is often in very narrow wavelengths, including some that are invisible to the human eye and beyond the sensitivity range of the film. Though satellite imagery still needs improvement in terms of ground resolution in order to be applied with success to problems of site location and settlement pattern analyses, it is hoped that these obstacles will be overcome.

Recording

Today, most if not all archaeological projects in Jordan use computer-assisted recording systems in the field. These include electronic databases, digitized photos, and digitized drawings, to mention only the more obvious types of information. Movement in this direction is needed not only to facilitate record keeping and excavation, but also in order to established permanent interactive databases that may be more easily coordinated and integrated with other and future projects. The harsh physical and climatic conditions that often prevail at Jordanian sites some-

times makes the use of electronic equipment more difficult than one would desire, but the emergence of new technologies dictate that this challenge be met. However, as more and more teams from Jordan and other nations utilize electronic recording and imaging systems, there is need for establishing standards. Stated otherwise, it would be extremely useful if standardized systems could be developed that would enable and facilitate sharing of information across sites and projects. The varieties and rapid changes in technology, as well as the varying needs of diverse projects, however, make this difficult and a dream that must be sought in the future.

Dissemination of Archaeological Information

A logical step beyond electronic recording and imaging is electronic dissemination of archaeological information. Again, rapid changes in technology pose a challenge, but one that can be met. Various modes of dissemination are being tested and used by projects in Jordan. However, paper or hard-copy publications and archives will always remain an important part of archaeology everywhere, not just in Jordan. These may be supplemented if not superseded by use of the Internet, on the one hand, and CD-Rom distribution, on the other hand. In short, the two methods may effectively be used together.

It may be noted that dissemination on the Internet is forcing a change in our thinking about issues such as the role of the individual scholar; the proprietary rights of project directors; and the nature of archaeological archives. In subtle ways, universally accessible modes of communication are bringing home the fact that Jordan's archaeological data, even after excavation by international teams, belongs in and belongs to Jordan.

Publishing on the Web means that data will not only be presented in a stable and final form associated with print media, but also that the actual databases from any project may be used interactively and in perpetuity by scholars other than a project's directors. This interactive usage is changing Jordanian archaeology and is enabling project directors to increase their dialogue with other scholars who now have immediate access to their excavation records. And, as mentioned above, it is clarifying the fact that information from Jordan belongs to and must be accessible to the people of Jordan. Distances become insignificant, and projects led by non-Jordanians can no longer argue either that, for certain kinds of information, they need to retain the materials outside Jordan, or that the information should be exclusively theirs for long periods of time. (Alison's comments: at the moment with the Antiquities law, it is my understanding that the documentary archive belongs to the project director while the material/finds archive belongs to Jordan although some part of it may be on loan for analysis or as a result of "division". Are "division objects" still the property of Jordan although they may be on permanent loan?) It is important, therefore, that the electronic publications do not merely present information but also allow others to use it in their own research and that project directors do not restrict access to the electronic archive. Historically, Jordan has always welcomed others to share in our heritage. Others must do the same. Recording and disseminating Jordan's archaeological information electronically, we would hope, will assist us in achieving our common goal.

A problem that electronic publishing presents, in addition to standardization, is the nature of the archaeological archive—both electronic and traditional. This is a serious problem that Jordanian archaeology, like that in other regions, will have to face as Jordan becomes more engaged in the electronic world. Maintaining Web servers is at this time expensive and not completely trouble-free. Agencies that are dedicated to archaeology should begin to develop repositories for electronic archaeological archives that would be maintained and upgraded in perpetuity by the sponsoring agency. Here is an area where again the cooperation of the Department of Antiquities and the various national and international institutes can play a decisive leading and continuing role.

Charting the Future

Despite the great accomplishments in the field of excavation, publication, scientific advancement, and technology in Jordan's archaeology, the increase in clandestine excavations or tomb-robbing as it is more popularly known, is difficult to stem. Coupled with the rising demand for antiquities and uncontrolled building activities are socio-economic factors such as the 1988 economic recession and the Gulf War with its associated negative effects on the economy of Jordan, which have led to the desperate chasing of and digging for income. However, closer cooperation between the Department of Antiquities and Public Security bodies in the last two years has reduced the scale of such excavations, although it has not eliminated the practice. Other factors effecting the cultural heritage are agricultural expansion, urban developement and rapid population growth. All these present a real challenge to the bodies responsible for protecting our national heritage. In view of this grim account, is there any hope for Jordan's past to be preserved and saved?

Public Education and Museums

Greater public awareness and education offers significant solutions to this challenge. At the moment the general public know little about Jordan's past and the meaning of the surviving heritage. An awareness campaign could encompass general articles, television/radio campaigns, popular site presenation and additions to the national education curriculum. There is a vacuum in all of these areas which is partially filled by the publications and radio se-

ries by Rami Khouri produced in English. In a recent move by the Friends of Archaeology society, a modest effort has been planned to address this problem through a television campaign. Lectures and information sessions on archaeology must be scheduled to translate course subjects into appropriate children's stories, replacing traditional term papers. Not only children are in need of layman's information, but also adults need books and popular magazines in Arabic on Near Eastern archaeology. Since the closure of the publication of the popular Arab Museum Magazine hardly any such publication can be found. Books and popular magazines in Arabic are needed to fill an information void by providing well-illustrated booklets on major Jordanian sites and their value in the present. They should be informative even at the pictorial level. The textual information should be brief enough to provide parents with a background story for the pictures. Essential aspects of protection and preservation should be considered, in an effort to raise public consciousness, based on the careful exposition of the true purpose of excavated information. Exhibitions and popular events are necessary, including television coverage in a series entitled "Heritage of Jordan." Active site protection programs coupled with public information campaigns hold the best promise for improving the frightening local situation today.

The museums in Jordan do not reflect its rich heritage. The most recent concept of museums and museum exhibitions is not yet generally applied although there is recognition that there is a need to reach out to the public and particularly school-children. This led some dedicated citizens to launch a successful campaign for building a National Museum. The Greater Amman Municipality has signed a loan agreement with the Japanese government. Part of this loan will be used for building a new National Museum in Rās al-'Ayn, ideally situated in the center of 'Ammān, to attract citizens and tourists. The training of suitably qualified museum curators is the next priority. Directing public awareness towards protecting and preserving the national heritage can be achieved through museum programs. A small and well-informed museum leading from the ethnographic present to the archaeological past of the town and region will add information and understanding to an already treasured place. No one can live without a memory to form their identity

As I think we would all agree, the archaeology of Jordan has to be saved, cherished and protected, if Jordan and the Jordanians are going to preserve any evidence of their past, their history, and their development.

Denyse Homès-Fredericq
Belgian Committee of Excavations
in Jordan
Musées Royaux d'Art et d'Histoire
10 Parc du Cinquantenaire
B-1000 Brussels
Belgium

Denyse Homès-Fredericq

Ancient Travellers in Moab and Modern Excavations

Reports of the ancient travellers are always instructive when preparing survey or an archaeological excavation. All of us begin by reading the relations of our predecessors in the regions where we are digging, as they often give precise information on a site and its archaeological remains *in situ,*[1] on the geographical and the geological background,[2] on the fauna and the flora[3] that they have observed, as well as on the anthropology and ethno-archaeology. The habits of the inhabitants of a region, their belonging to one or another tribe, are sometimes mentioned in those accounts[4] and allow a better understanding of the mentality of the modern people, be they citizens or country-men, nomads or semi-nomads. The observations of H. B. Tristram,[5] travelling in the Dhībān region, helped us to better visualise the surroundings of Wādī al-Mūjib. The sketch of N. Glueck, made in 1933 allowed us to observe the archaeological richness of al-Lāhūn village, near the ancient Moabite capital. Although it was only R. Brünnow and A. Domaszewski[6] who mentioned the site of al-Lāhūn during their journey in Moab and M. R. Savignac[7] who observed the direct road between al-Lāhūn[8] and al-Bālū' later on in 1936, their observations were important for us when surveying the region and prompted us to visit the site we are digging now.[9]

The accounts of previous centuries are often completed by drawings showing landscape and scenes of daily life.[10] From the middle of the 19th century, the invention of photographs[11] allowed to observe more precisely the quick changes in house constructions, tools or implements particular to one or the other region, or the evolution of ancient sites.[12] Paintings[13] of previous travellers, which we can admire in museums, also show the impact of the Arab civilisation in Europe for the new discovered lands. Sometimes, in unexpected cities as in Nijmeghen (Netherlands), we find illustrations with oriental inspirations as those of the Dutch artist, P. Gerrits.[14] He brought many drawings, sketches and photographs to the Netherlands, evoking the urban and agricultural daily life seen during his travels in north Jordan between 1906 and 1911.

Motivations for travelling can be various. Some narrations have been given by theologians or historians who wanted to understand the events of the Bible or episodes of the classical authors; others, are provided by picturesque artists, intrepid explorers, sometimes by merchants, tradesmen or even by opportunists.[15] They give information about ancient sites or epigraphic transcriptions.[16] Their style can be scientific or romantic, but their

1 Glueck, N., *Exploration in Eastern Palestine I-IV,* Philadelphia, New Haven 1933, 1935, 1939, 1951 (= AASOR 14, 15, 18-19, 25-28).
2 Bender, F., *Geologie von Jordanien*, Berlin 1968.
3 Tristram, H. B. *The Flora and the Fauna of Palestine*, London 1884.
4 Jaussen, A., *Coutumes des arabes au pays de Moab*, Paris 1908.
5 Tristram, H. B. *The Land of Moab. Travels and Discoveries on the East Side of the Dead Sea and the Jordan*, London 1973.
6 Brünnow, R. and von Domaszewski, *Die Provincia Arabia auf Grund Zweiter in den Jahren 1897 and 1898 unternomenen Reisen und der Berichte früherer Reisender*, Strassburg 1904, 1905, 1909.
7 Savignac, R., Chronique: Sur les pistes de Transjordanie Méridionale, *RB* 45 (1936), p. 241.
8 Al-Lahūn is located in the northern Moābite plateau, 7 km west from Dhībān and 3 km from 'Arā'ir. It is possible to see al-Bālū'a on the southern plateau.
9 Homès-Fredericq, D., *Découvrez Al-Lahun et la Voie Royale. Les fouilles archéologiques belges en Jordanie,* Brussels 1997. See also Homès-Fredericq, D. and Hennessy, J.-B. , *Archaeology of Jordan I.* Bibliography. II. 1-2. Sites and Surveys, Brussels-Leuven 1986, 1989
10 Conder, C.R., *Tent Work in Palestine*, London 1879; Id., *Heth and Moab. Explorations in Syria in 1881 and 1882*, London 1889.
11 Rockett, W.H., The Bonfils Story. A Special Section, *Aramco World Magazine* 34:6 (1983), p.8-31, figs.
12 Compare the Khazna (Petra) drawn in de Laborde, L. - Linant, L., *Journey through Arabia Petraea to Mount Sinai and the Excavated Cityof Petra, the Edom and the Prophecies,* London 1868 and the photographed in Tayler, J., *Petra*, London 1993.
13 Wijdan Ali *et al., On the Banks of the Jordan. British Nineteenth Century Painters,* Amman 1987; Osband, L., *Famous Travellers to the Holy Land. Their Personal Impressions and Reflexions*, London 1989.
14 Jansen, W., Piet Gerrits. Dutch Painter and Proto-Ethnographe in Northern Jordan, *Newsletter IAAYU* 11 (1991), p. 4-6 (P. Gerrits achieved also biblical wall paintings in the Latin church of al-Ḥuṣn, south of Irbid).
15 Trench, R., *Arabian Travellers*, London 1986.
16 Gatier, P.-L., *Inscriptions de la Jordanie. 2. Région Centrale*, (= BAH 114), Paris 1986, p. 17-22.

memories are a precious documentation.

Discovering Jordan during the Last Two Millennia

In his publication *Bibliotheca Geographica Palestinae* (1890),[17] R. Röhricht mentions that between 333 and 1878 AD, more than 3515 "travellers" (pilgrims, missionaries, traders, merchants, poets, painters or explorers) passed through Palestine. They left one or more publications with their personal observations and souvenirs. Two thousand of them visited the region between 1800 and 1878 and more than 5000 publications appeared in this period about the subject. They came for different reasons: politic or diplomatic transactions, scientific aims or personal ones. They include painters as D. Roberts[18] who illustrated so romantically Nabataean Petra with interesting testimonies about lost monuments. It is also the period of the first geographers, topographers and explorers, as M. Jacotin,[19] W. F. Lynch[20] and U. J. Seetzen,[21] all pioneers of modern archaeology. But we must not forget the treasure hunters, the conquerors, the diplomats, the biologists, zoologists, archaeologist, doctors, tailors, who passed through Palestine between 1800-1878. Their narration's are often illustrated or relate the numerous episodes of their travel. Sometimes such journeys were nearly tragic, as for J. Mac Gregor[22] who was attacked by Arabs in the region of Ḥūla. All those travellers had of course various personalities, unequal capacities of observation or interpretation, but they surely have opened the way for modern archaeology.

In R. Röhricht's list the colleagues who surveyed Jordan after 1878, helping to find new archaeological sites are not included, such as N. Glueck who passed on the third of June 1933 and made a quick map of al-Lāhūn,[23] indicating the Bronze age and Nabataean remains, which were better identified through our excavations.

A study about ancient travellers in Jordan has never been done systematically, although we can find some information in the publication of Y. Ben-Arieh, *The Rediscovery of the Holy Land.*[24] Many names are famous for the Hashemite Kingdom. Let us only mention ash-Shaykh Ibrahim, Ibn Abdallah, the Swiss orientalist, better known as J. L. Burckardt, who identified Petra in 1812 for the Association for Promotion of the Discovery of the Interior Parts of Africa. He studied at Göttingen with the same professor as U.J. Seetzen who was the first to explore systematically Jordan and discovered Gadara/Umm Qays, Jarash and other sites. Sponsored by the duke of Saxe-Gotha, his expedition was intended to find antiquities for his protector. Funds and reasons for travelling were thus varied, but both explorers were courageous, with a strong character, preparing their expedition by reading ancient sources (Egyptian, Assyrian, biblical, classical and Islamic texts). Both had the sense of observation, and protected themselves by dressing oriental clothes and speaking Arabic.

The reasons for "travelling" can also be different from period to period. For modern time, we think essentially of map makers and explorers, who have opened the way for excavations in Jordan, revealing many historical sites, which have been identified and examined since the 19th century, when the country was nearly *terra incognita.*[25]

Prehistoric man too liked to "travel", following his herd from place to place, from water point to water point. In biblical times, there were often inter-tribal relationships[26] or war connections allowing different people to meet.

The definition of the French word "*Voyage-voyageur*" (travel, traveller) is derived from the Latin substantive "*Viaticum*" or "money for the travel". It means also "the fact to go from one place to another, sometimes far away", while an "Explorer" or "Explorateur" comes from the Latin verb "*explorare*", "to visit a country, a place to study it carefully" or "someone who is going to the discovery of a country".

A complementary definition is given by D. Baly, when he says: "*the normal tendency is for people to expand as far as the natural limit of its own particular way of life*".[27]

The notion of distance is a quite relative. For a child or for a modern man, the value is very different. Abd al-Rahman Munif [28] explains in his book *Story of a City - A Childhood in Amman,* how he "travelled" in 'Ammān for the first time of his life, the day of the death of King Ghazi. "*Before that day the boundaries of the town, as conceived by the children, had not extended beyond the*

17 Röhricht, R. *Bibliotheca Geographica Palaestina,* Berlin 1890. See also R. Röhricht, *Bibliotheca Geographica Palaestina. Chronologisches Verzeichnis der von 333 bis 1878 Verfassten Literatur über das heilige Land mit dem Versuch einer Kartographie. Verbesserte und Vermehrte Neuausgabe mit einem Vorwort von D.H.K. Amiran,* Jerusalem 1963.

18 Roberts, D., *The Holy Land from Drawings Made on the Spot,* London 1842-49.

19 Jacotin, M., *Carte topographique de l'Egypte et de plusieurs parties des pays limitrophes levée pendant l'expédition de l'armée française,* Paris 1840.

20 Lynch, W.F., *Narrative of the United States' Expedition to the River Jordan and the Dead Sea,* Philadelphia 1849.

21 Seetzen, U.J., *A Brief Account of the Countries Adjoining the Lake of Tiberias, the Jordan and the Dead Sea,* London 1813; Id., *Reisen durch Syrien, Palästina, Phäenicia, die Transjordan Länder,* Arabia Petraea and Unter-Aegypten, Berlin 1859.

22 MacGregor, J., *The Rob Roy on the Jordan,* London 1870.

23 Glueck, N., *op. cit.* 1935, p.48-49, n° 99, pl.10.

24 Ben Arieh, Y., *The Rediscovery of the Holy Land,* Jerusalem - Detroit 1979.

25 Miller, J. M. Ancient Moab Still Largely Unknown, *BA* 60 (1997), p. 196-199.

26 Baly, D., The Pitfalls of Biblical Geography in Relation to Jordan p.123, *SHAJ* III (1985).

27 Baly, D., *op.cit.*, p.123.

28 Abd Al-Rahman Munif, *Story of a City. A Childhood in Amman,* Amman, 1996 (English translation from Arabic version of 1994).

neighbourhoods in which they lived". He tells how his family had left the house for the funerals, and how he stayed alone with his neighbour, a friend of his age. Both were wondering where their parents disappeared. So, they discovered at once that there was another world, known by their parents, probably not far from their own world. They also realised there was something else that just their street. The little boys crossed King Faysal street. Quickly they were completely lost. They became very afraid, as it was the first time they left their home. For adults, to travel presently implicates to drive a car or to take a plane, so that we can move from a few to thousands of kilometres in one day. But the desire to discover what happens in another world, different from the every day life, is surely one of the reasons that push people to travel. Others, more timorous, as some inhabitants of al-Lāhūn, have never crossed the local wadi or seen Dhībān, some 7 km from their village.

Travellers in the Millennia Before Christ

The contrast between the information before and after Christ are enormous, and we have only scarce data for the beginning of history, compared with the thousands of visitors of the two last millennia. Few texts and some archaeological remains allow us to reconstruct the way of travelling in Jordan at that time. It seemed interesting, in this conference on Jordan through the millennia, to investigate also if it was possible to understand the reasons of the travellers leaving their country and discovering the world in the millennia BC, from prehistory till the beginning of the Nabataean period and to investigate which reason pushed them to go from one place to another, and which distances they could cover in one day, from the prehistoric hunters to the Nabataean merchants.

In antiquity, travelling was successively done, first by walking, running or sailing a short distance, or by riding onagers and donkeys in the Early Bronze Age,[29] and camels and horses in the Iron Age.[30] People could travel alone or with a caravan, on a daily distance of five to thirty km, with or without guide. As in modern times, one main road "the King's Highway" seems to have been the principal access, linking Arabia with Syria, but secondary itineraries could of course be followed.

The evidence of travelling in antiquity is quite relative, and difficult to prove because we have nearly no text before this period in the Levant. But even in antiquity, the desire to discover the other regions was strong in the heart of ancient people. If we read Lucianos, his heroes Charon and Hermes want to discover the world. They look for a high place from where they can observe and understand the panorama. They built a huge mountain, piling different mounts one above the other, taking many risks, obtaining an impression of aerial view. They discover the daily life of people, various towns and ancient archaeological sites as Babylon and Sardes and mention lost cities of their time, as "*Ninive already gone and there is not a trace of it now*" says the Greek text.[31]

We will try to focus on examples of the ancient Moab region, because there we are excavating the archaeological site of al-Lāhūn, on the northern plateau of Wādī al-Mūjib (biblical Arnon). When not possible, we will look at other areas, better known than central Jordan, east of the Dead Sea and less investigated than the others. Until recently, Moab was nearly unknown from the archaeological point of view.[32] Many sites are still to be excavated in Moab. For the neighbourhood of al-Lāhūn, the ruins of Mushayrfa, Jumayl, and many others are interesting for different periods. The whole Moabite plateau is very promising, as has been observed by the recent surveys.[33] Biblical narration, as the story of Ruth[34] or the history of King Mesha[35] assume the importance of the region, which was not so different as presently.[36] Al-Lāhūn itself has been well flourishing in various periods.[37] The place has the same advantages of agricultural potential as the other Moabite sites,[38] with water supply by springs and wadis, allowing irrigation, as attested by the water reservoirs in the Early Bronze Age at al-Lāhūn, dams and terracing in the Nabataean and Islamic periods. There was the possibility of dry farming as on the al-Karak plateau, with a good climate and a perfect strategic position.[39] Medieval writers as al-Maqdasī (985) and al-Idrīsī (1154) mention the possibility of talking from one side of the Wādī al-Mūjib plateau to the other, a real advantage in war period. The site dominates the King's Highway, which so often

[29] See the Mesopotamian "standard of Ur" (Woolley, LC., *Ur Excavations. II. The Royal Cemetery,* Oxford 1934, pl.91-92; possibly also in Jordan, see Köhler-Rollefson, I., Gillespie, W., Metzer, M., Hunting, Herding at Neolithic 'Ain Ghazal: Preliminary Report on the Animal Remains from the First Three Seasons (1982-1984), Mss., nd., cited in Rollefson, G. O., pp. 30-32 in *SHAJ* III (1987), Amman: Department of Antiquities.

[30] See the horseman discovered at al-Muqāblayn, near 'Ammān (Harding, G. L., An Iron Age Tomb at Meqabelein, *QDAP* 14 (1950), p. 44-48, pls. 13-17).

[31] Harmon, A. T., *Translation of Lucian, vol. II. Charon, or the Inspectors*, London 1915, p .443.

[32] Miller, J. M., *op. cit.*, 1997, p. 199.

[33] Mattingly, G. L., A New Agenda for Research on Ancient Moab, *BA* 60:4 (1007), p. 214 mentions the most recent surveys in Moab. For first survey in Jordan, see Homès-Fredericq, D. and Hennessy, J.-B. , *Archaeology of Jordan I.* Bibliography, p. 185-241.

[34] Ruth 1:1-5, see also Miller, *op. cit.*, 1997, p.195.

[35] Dearman J. A. ed, *Studies in the Mesha Inscription and Moab*, Atlanta 1989.

[36] Dearman, J. A., Roads and Settlements in Moab, *BA* 60 (1997), p. 205.

[37] Especially in the Early Bronze, the end of the Late Bronze, the Iron Age, the Nabataean, Roman, and Islamic period,. Traces of Prehistoric and Byzantine occupation have also been found at al-Lāhūn.

[38] Miller, op. cit., 1997, p.195.

[39] The steepness of the canyons of Wādī al-Mūjib, nearly inaccessible, is a perfect protection for the inhabitants in war times.

used for military, commercial and trade purposes.[40]

If we have many written sources for the modern period, we have less information concerning the earliest ones; nevertheless Egyptian, Biblical, Moabite, Assyrian, Nabataean, and classical texts inform us about historical periods.[41]

Concerning prehistory, we read the information from the scarce archaeological remains attested. Prehistoric, hunting, man represented on the rock relief's from Kilwa[42] travelled from place to place, to find water, following the animals to kill them. He subsisted, thanks to the nature, taking what he could find and gathering plants, "travelling" for surviving economically. At al-Lāhūn too, he lived in caves and *"abris sous roche"* and realised quickly that he could use the raw material found in the cliffs of Wādī al-Mūjib to shape its implements. He made the same experience, as in the whole Levant, using the silex nodules for his scrapers, knifes and handaxes, which developed till the Early Bronze age, as has been attested by the survey made by G. Rollefson in 1980.[43]

In Prehistory people travelled alone or in small groups. But even in the eighth millennium contacts were established in the Levant and must have been more important than assumed. In the Epipaleolithic, numerous beads from the Mediterranean and the red sea were imported in the al-'Azraq region, used for jewellery and cloth decoration. These distant contacts were probably casual as it is difficult to realise how some products were imported into Jordan from so far away.

More distant contacts are attested in the Prepottery Neolithic,[44] when every one was capable of making his own flint implement; travelling "specialist" came probably to 'Ayn Ghazāl to shape arrows, sickles and knives from special flint types coming from a quarry some 2 km from the village.[45] Proof of long distance contacts were given at 'Ayn Ghazāl around 7250 BC[46]: basalt was introduced from the al-Mafraq region, some 35-40 km NE, to prepare grinding stones, sea-shells were imported from the Red Sea and the Mediterranean shores, asphalt and coral? from the Dead Sea, carnelian from the sandstone formations of Wādī Ramm and obsidian from Anatolia, the principal trade centre.

Around 6200 BC, a new phenomenon appears with the beginning of semi-nomadism: people leave the village of 'Ayn Ghazāl, leading their sheep and goats to the steppe and the desert. Exchanges[47] and contacts are established across the regional boundaries.[48] The larger sites, developing their own techniques, were focus centres for spreading the new technological discoveries. This is attested by identical objects and cultural background.

During the Pottery Neolithic and later on, when early agricultural sites appeared, obsidian from Anatolia and turquoise from the Sinai were found in the Jīlāt and al-'Azraq region, while in Abū Thawwāb, Mediterranean shells were discovered. In Abū Ḥāmid, petrographic analysis has shown that basalt was coming from the Yarmuk valley and Wādī 'Arabah, where the workshops have to be found,[49] as no trace of manufacturing was detected in the Jordan Valley site. Bone tools at Yarmukian sites of Jordan present parallels with coastal sites. All those observations allow to suppose that there were two roads, one by sea (from the Mediterranean) and another by land (east of the Asia-Africa Rift or the northern Syrian plateau, the Anti-Lebanon and the Jordanian uplands.[50]

Different reasons seem to explain those travelling contacts: transhumance, trade, exchange of goods, economic for finding raw material as stones, copper[51] and basalt.[52] For the Early Bronze Age (end of the fourth and third millennium BC) an enigmatic document was found by Dr. E. Borzatti von Lowenstein[53] in the region of Jabal 'Amūd (in southern Jordan in the Wādī Ramm). A large stone of 2.80 m by 1.70 m was carved with some 150 holes and lines of different dimensions. According to the discoverer, it should reproduce a topographical map, where the holes represent in proportion small and larger settlements, while the lines indicate roads, channels and bypasses. He assumes that we have here the earliest intentionally carved map, to give information about the best hunting areas and the roads to follow. He dates the document from 3000-2500 BC. If his interpretation is right, we should have here the most ancient testimony of large scale travelling in prehistory and the first known road in-

40 Dearman, J. A., *op.cit.*, 1997, p.205-213.
41 Van Zyl, A. H., *The Moabites*, Leiden 1980, p. 4-42; Miller, *op.cit.*, 1997, p. 194.
42 Rhothert, H., *Transjordanien, Vorgeschichtliche Forschungen*, Stuttgart 1938; see also rock carvings from Dhuwayla (Bienkowski, P., *Treasures from an Ancient Land. The Art of Jordan*, Gloucestershire 1991, fig.29).
43 Homès-Fredericq, D. and Franken, H., *Pottery and Potters. Past and Present. 7000 Years of Ceramic Art in Jordan*, Tübingen 1986, fig. p.67.
44 Kafafi, Z. - Rollefson, G. O., Le village néolithique d'Ain Ghazal, *Jordanie. Sur les pas des archéologues*, Paris 1997, p. 35-36.
45 Kafafi, Z. - Rollefson, G. O., *op.cit.*, 1997, p. 35.
46 Rollefon, G.O., Local and External Relations in the Levantine PPN Period: 'Ain Ghazal (Jordan) as a Regional Centre, Pp. 29-30 in *SHAJ* III (1987), Amman: Department of Antiquities.
47 Kafafi, Z. - Rollefson, G.O., *op.cit.*, 1997, p. 37.
48 Rollefson, G. O., *op.cit*, 1987, p. 30.
49 Dollfus, G., La vie villageoise dans la vallée du Jourdain ily a 7000-6000 ans, *Jordanie. Sur les pas des archéologues*, Paris 1997, p. 55.
50 Kafafi, Z., The Potttery Neolithic in Jordan in Connection with other Regions, pp. 34 in *SHAJ* III (1987), Amman: Department of Antiquties.
51 Dollfus, G., *op.cit.*, 1997, pp.51.
52 Smith, R. H., Trade in the Life of Pella of the Decapolis, pp.53-54 in *SHAJ* III, Amman: Department of Antiquties.
53 Homès-Fredericq, D., General Introduction to the Theme "Sites and Settlements in Jordan", pp.44-45 in *SHAJ* IV (1994), Amman: Department of Antiquties.

formation, but we cannot be sure, neither of the date, nor the interpretation of the document. The Early Bronze is also the period when large towns appear in the Near East, following the same pattern. The pottery is also similar. If we compare the one of al-Lāhūn with that of Bāb adh-Dhrā', there are so many analogies in shape, drawings and potter's marks that the whole region east of the Dead Sea must have the same economic and cultural contacts.[54] The stamp seal decorations of the pottery corresponds to Levantine sealing[55] and had surely the same value of property as in Mesopotamia, Syria or Palestine. Perhaps some ambulant "seal cutters" were travelling from place to place, as suggested for the Akkadian period (2450-2250 BC), where a "seal cutters set" has been found at Tall Asmar.[56] Once more, we have testimonies of many contacts, but no texts.

For the second and first millennium BC, the information are less hazardous as we have now written records. For Mesopotamia and Anatolia, the Cappadocian tablets (1950-1650 BC)[57] give itineraries about the safest roads to follow on a 1,500 km trip between Assur and Kültepe, mentioning the best places to rest with the caravans. Although we don't have such early sources in Jordan, hieroglypic texts mention, in a later period, the passage of the Egyptian troops in the Jordan valley and the Moab region.

In the Middle and Late Bronze periods many goods were imported from Egypt, Syria and Cyprus: Pella attests of international trade,[58] with its scarabs, alabaster vessels, jars, boxes with carved inlay and fine ceramics. Ramses II (1304-1237 BC) and Ramses III (1198-1166 BC) were the first to mention the country, and they too, although conquerors and warriers, can be considered as "explorers" and "travellers", discovering new countries, describing the Moab region, its towns and roads, creating international contacts by introducing their culture. The stele of Bālū'a[59] is one of the best examples as well as the small scarab seal[60] of al-Lāhūn, with its clumsy hieroglyphs, mentioning Ammon-Re in a reverse order. Both were probably made by local artists, inspired by Palestinian or Egyptian craftsmen. The different archaeological remains in Moab, Edom or the Jordan valley[61] are other testimonies.

In the first millennium, the Bible[62] and Moabite inscriptions[63] mention the political events east and west of the Dead Sea, with their multiple contacts with Palestine and Phoenicia, in this period of international trade-war-contacts in the Levant. Assyrian tablets and reliefs show the interaction between Mesopotamia and Jordan; they give indications about Moab and their Kings, their trade and commerce, their tributes offered to the Assyrian kings.[64] Some cuneiform letters from Kalakh-Nimrud announce Ammonite, Moabite and Edomite delegations with their annual tribute and how they were well received by the Assyrian administration. We can imagine the caravans, loaded with precious good and two long lists enumerate the mutual gifts. This explains also the interaction of those cultures: "lady at the window" from the temples of 'Ammān[65] is an imitation of Levantine or Mesopotamian ivories. Political reasons explain those "travels". The Iron Age I village of al-Lāhūn is a good testimony of these international journeys in the Levant. In the "Pillar house" we find Palestinian influence, in the "Scarab house" Egyptian and in the "Palette house" Phoenician ones, with the cosmetic palette of al-Lāhūn, but also proofs of war are present in the "blocked house".[66]

The Mesha stele suggests also intensive travel in and outside Moab. The Iron Age II fortress of al-Lāhūn[67] built above the Iron I village, was probably designed by an architect who travelled and had seen the granary fortresses of the Negev.[68] The New Year's flask[69] of al-Lāhūn reminds of the international exportation contacts of the Egyptian merchants in the Saïte period in the whole Mediterranean world. The cuneiform tablet of Ṭawīlān,[70] written in Babylonian script and dating probably from the reign of Darius I (or perhaps II) attests the trade between Aramaeans from the Harran region (at the border of Anatolia and Syria) and an Edomite, some one 1000 km from

54 Only minor, local differences exists: at Bāb adh-Dhrā' the clay is purer than in al-Lāhūn where the clay is collected from Wādī al-Lahūn and mixed with crushed shells as temper.

55 Ben-Tor, A., *Cylinder Seals of Third-Millennium Palestine,* Cambridge MA, 1978.

56 Frankfort, H., *Tell Asmar, Khafadje and Khorsabad. Second Preliminary Report of the Iraq Expedition*, Chicago 1933 (= OIC 16), p. 47-48, fig. 30.

57 Garelli, P., *Les Assyriens en Cappadoce*, Paris 1963; Veenhof, K. R., *Aspects of Old Assyrian Trade and its Terminology*, Leiden 1992; Larsen, M. T., *The Old Assyrian City. States and its Colonies*, Copenhagen 1976.

58 Smith, R. H., Trade in the Life of Pella of the Decapolis, pp. 55 in *SHAJ* III (1987) .

59 Biekowski, P., *op.cit.*, 1991, fig. 33.

60 Homès-Fredericq, D., *op.cit.*, 1987, p. 61, fig. 40.

61 Zayadine, F., Une longue histoire commune avec Israël, *Le Monde de la Bible* 46 (1986), p. 19.

62 Van Zyl, *op.cit.*, p.4-29.

63 Van Zyl, *op.cit.*, p.29-36.

64 Waterman, L., *Royal Correspondance of the Assyrian Empire,* Michigan 1930, p.440-441.

65 Zayadine, F., Recent Excavations on the Citadel of Amman, *ADAJ* 18 (1973), p.27-35, pl.22-24.

66 Homès-Fredericq *et al., op. cit.*, 1987, p.53-66, figs.30-40 .

67 Homès-Fredericq *et al., op. cit.,* 1987, p.68-77, fig.56.

68 Cretaz, C., *Les forteresses du Negev à l'époque du Fer: Etat de question*, Jerusalem 1982. (Thesis).

69 Homès-Fredericq, D., Un goulot de bouteille de Nouvel An trouvé à Al-Lahun (Jordanie), *Studia Paolo Naster Oblata*, Leuven 1882, p. 79-90, pl .8-9.

70 Dalley, S., Report on the Babylonian Cuneiform Tablet from Tawilan in Southern Jordan, *Akkadica* 34 (1983), p. 61-62; Id., The Cuneiform Tablet, Bennett, C. M. - Bienkowski, P., *Excavations at Tawilan in Southern Jordan,* Herford 1995, p. 67-68.

there. Some Aramaic tablets from Ma'allanate, kept in the Royal Museums of Art and History[71] in Brussels, confirm this international travelling habit to this Syrian province of Harran. On these documents, coming from the Palace of the Queen and her Son (probably King Assarhaddon), seal impressions show strong artistic Mesopotamian influence: a worshipper adores the altars of the Mesopotamian gods Marduk, Nabu, as well as the goddess Gula seated on her throne, are in typical Assyrian style. Perhaps the Phoenician "traveller" of Sa'īdiyya[72] had met the Harran merchants, dressed as Yerah 'Azar of 'Ammān.[73] Even in the Persian period, when Greek was used as the language to facilitate international trade, proof of travelling existed often with Western Asia, Arabia and the Mediterranean world.[74]

The Nabataeans[75] were of course the most impressive, enterprising and "great travellers" of antiquity. A whole network of roads allowed their merchants to trade from Arabia to Damascus, Egypt, Syria, Greece and Rome, as well as to the Far East, with China and India.[76] This produced an interesting period known by the classical authors,[77] and beautiful monuments mixing oriental and western art.[78]

Their intercontinental trade left its imprint even on isolated places as al-Lāhūn, with its small Nabataean temple.[79] We can easily imagine, the agricultural or nomadic population of the region "travelling" to meet the well protected caravans from Petra. They surely exchanged their local products with the abundant goods of the Nabataean capital such as spices, incense, perfumes, iron, copper, gold, ivory, animals and medicines, near the sancturay of al-Lāhūn.

Conclusions

We can conclude, summarizing the story of the travellers through the millennia, that even in periods we have evidence of "travelling" thanks to the archaeological remains. It began with the first hunters, by foot and in the neighbourhood of their camps, developing to more distant areas by group for transhumance, sometimes to exploit natural resources and to make commerce on a casual basis.

From the second millennium BC on, written records provide less hypothetical information. War and international commerce, probably by caravan, along a distance of ca 30 km a day, are linked with a better road system in the Levant, increasing also economic contacts. But testimonies are still to be found, scattered in texts and found in influences on art, in those times when people did not have the habit of writing their memories. In the Nabataean period, the classical authors admire the intercontinental trade of Petra with Asia, Europe and Egypt. In opposition to those early periods, we have a much better documentation for the two most recent millennia, with 3515 recorded individuals. For the last two centuries only, a real "boom" of 2000 travellers and explorers went to Palestine, opening the way to modern archaeolgy in Jordan.

71 Homes-Fredericq, D., Garelli, P. and Lipinski, E., *Archives d'un Centre Provincial assyrien, conservées aux Musées royaux d'Art et d'Histoire,* Bruxelles 1999 (Forthcoming).

72 Pritchard, J. B., An Eight Century Traveller, *Expedition* 10:2 (1968), p.26-29, 9 figs.

73 Zayadine, F., Statue de Yera 'Azar, *La Voie Royale, 9000 ans d'art au Royaume de Jordanie,* Paris 1986, p.105-106, n°129.

74 Smith, R.H., *op.cit.*, p.55.

75 Wenning, R., *Die Nabatäer - Denkmäler und Geschichte.* Eines Bestandesaufnahme des archäologischen Befundes, Freiburg-Göttingen 1987.

76 Zayadine, F., Caravan Roads between Egypt and Nabatea and the Voyage of Sultan Baibars to Petra in 1276 AD, p. 159 in *SHAJ* II (1985),.

77 Starcky, J., *Petra et les Nabatéens*, aperçu historique; D. Homès-Fredericq, *Inoubliable Petra, le royaume nabatéen au confins du désert,* Bruxelles 1980, p. 12-20.

78 D. Homès-Fredericq, *op.cit.* 1980, figs.7, 11, 16-17; cat. n° 1-214; T. Weber and R. Wenning (eds), *Antike Felsstadt zwischen arabischer Tradition und griechischer Norm*, Mainz am Rhein 1997.

79 D. Homès-Fredericq, *op.cit.* 1987, p. 81-87, figs. 59-64.

David Kennedy
The University of Western Australia
Dept. of Classics and Ancient History
Nedlands, Perth
Western Austalia 6907

David Kennedy

History in Depth: Surface Survey and Aerial Archaeology*

Introduction

Archaeology in Jordan has undergone a revolution in the past twenty years. It is a revolution which has occurred in other countries, too. It comes with its inevitable pain but also its excitement and measurable advances. The revolution is that brought about by a steep increase in knowledge; an increase which is not merely incremental but exponential. Our knowledge has been moved onto a new plane of activity and understanding. The dynamics of this change are to be traced primarily to the series of surface surveys undertaken in recent years. Between them they have permanently altered the way in which we view the human landscape of Jordan over several millennia and have forced a new perspective on how archaeology should proceed from here. Much has been achieved and more is in progress. It is the argument of this paper that there is the opportunity to develop these new advances further still through the systematic employment and integration of Aerial Archaeology as a parallel and complementary tool of surface survey.

The Explosion in Knowledge

The volume of archaeological work in Jordan and the numbers of publications arising has risen steeply in the past generation. The Annual of the Department of Antiquities (ADAJ) has doubled in size in twenty years; the six volumes arising from these conferences (SHAJ) have added several hundred more articles; and the number of books and articles overall relating to Jordan has increased markedly within a generation.

Considerable efforts have been expended on bringing some order to all this new material with the volumes of The Archaeology of Jordan and the important data base of sites, JADIS. A Cultural Resource Management plan has also been developed.

Surveys in Jordan

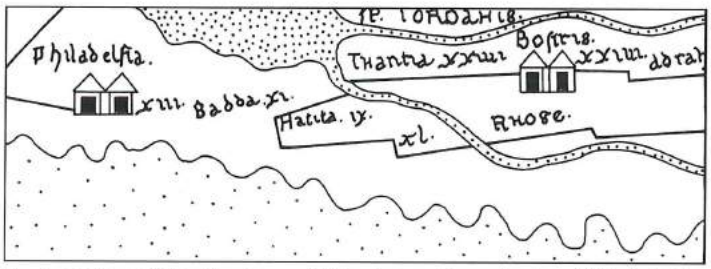
Surface survey is not knew in Jordan although the term might be better reserved for the more recent approaches. Much of what went before was exploration, sometimes systematic but seldom intensive. The earliest modern explorers left vivid accounts of a landscape which was often virtually empty. For example, Robinson Lees in 1893 provides a typical example of the period, a man interested in ancient remains but who passes between 'Ammān and az-Zarqā', az-Zarqā' and al-Mafraq, then on to Buṣra — and reports virtually nothing between these places (Lees 1895). The accounts of such travellers and explorers implied a landscape largely empty of human activity, present and past. The principal places of interest were known but travel between them was represented as if in a vacuum. It was a world curiously reminiscent of that which one encounters in the second century AD account of the Greek writer Pausanias. His report on the places of interest in Greece has been characterised recently in much the same terms as could be applied to the descriptions of most fieldwork in Jordan until a century ago.

"... for [Pausanias], the rural landscape is largely a kind of void that intervenes between each city or sanctuary and its nearest neighbour; a void crossed by the lifeline of the road system ..., which enabled the traveler to pursue a linear course from starting point to destination, with little regard for the lateral and vertical dimensions" (Snodgrass 1992: 77).

The image is one seen, too, in the Peutinger Table, the late Roman map, with its scatter of place-names linked by the lines of roads but between which there seems to be nothing (FIG. 1).

The names of Musil, Conder and Kitchener, Brünnow and von Domaszewski, and Butler and his collaborators in the Princeton Expedition, mark the next stage. Their extensive publications remain landmarks transforming the brief and often superficial contributions of their swiftly moving predecessors. Between them these scholars added many new sites and a mass of detail. More importantly, they made a significant advance in "peopling" the land-

* I am grateful to Prof. David Mattingly for permission to reproduce FIGS. 3 and 5.



1. A section of the Peutinger Table for northern Jordan. Philadelphia ('Ammān) is on the left with Bostra (Bosra eski-Sham) in Syria in the centre and Adraha (Der'aa) on the right. In between, lines with distances marked, provide the only other information. In practise this is a landscape densely packed with sites of all periods, not least the Roman but only this handful of major places is recorded.

scape. Scholars could begin to see the growing evidence for a complex and varied settlement pattern in the landscape of the region. For the Roman period what articulated at least some of these sites was the presence of contemporary roads.

These great journeys of exploration looked both forward and back. They looked back to the work of De Vogüé, Waddington, Buckingham, Bankes, Merrill, Schumacher — dedicated and courageous explorers who had been principally concerned with the remains of Classical Antiquity. These earlier scholars had deliberately searched out the sites of the Roman period and given priority to comment on the great monuments of a civilisation with which they felt themselves familiar by education. The recording of Greek and Latin inscriptions was a priority. The new investigators of the turn of the century were able to explore more leisurely and if they, too, were primarily concerned with the remains of the Graeco-Roman past, they adopted a different approach. Sites were recorded systematically and there was a more sharply defined objective: Brünnow and von Domaszewski were in search of the Roman frontier; the Princeton Expedition looked for the architectural remains which would enable them to place the Graeco-Roman, particularly early Christian, culture of the region in a wider context. But they were also forward-looking in their more systematic approach and willingness to record not just the inscriptions of the Classical past but those in native languages too - Nabataean, Safaitic and Arabic. More importantly, the fuller information produced more densely marked maps - sites were more numerous than supposed and hitherto blank areas on the map were now found to have been settled, too. After the appearance of the volumes of these turn-of-the-century scholars the human landscape of what was to become Jordan was irrevocably altered. And yet, these works, too, had much in common with Pausanias's *Guide to Greece.* It was still the significant sites and overwhelmingly those of the Classical World which were being mapped. Butler and his colleagues make occasional reference to the rural landscape but between sites most comment is reserved for the natural features observed. The world they were revealing was one still largely of towns and forts and they themselves still travelled in many instances along the Roman roads which linked them. Where and how the mass of people lived was unknown and the chronological context of the Classical period not addressed. It seemed almost to exist in a vacuum.

The surveys of Nelson Glueck in 1932 and 1947 mark the next significant development. His method was essentially that of his predecessors — following the established routes of a region and exploration of what local informants had to report. Of course, Glueck added several hundred new sites to the existing corpus of data and he ranged widely across what had by then become Transjordan. More importantly, however, Glueck's interest went beyond the strikingly monumental and it went, too, to other periods. Suddenly the Roman period could be placed within a continuum which included flint sites, Bronze Age towns, Moabite hillforts, Nabataean rural sanctuaries, Islamic castles and Ottoman mills. Faced with often unremarkable architecture and few of the inscriptions so avidly sought by Classical archaeologists, Glueck worked instead with the identification of pottery and the surface artifacts of these cultures, and with the monumental architecture of hitherto neglected periods. Inevitably much of Glueck's work has come in for re-evaluation and revision but the major contribution from his survey will remain his multi-period research from which sprang his theories of development and change through the ages and the extent and nature of cultures as defined through their artifacts.

Glueck recorded more than a thousand sites, mostly unknown, a tremendous achievement, and preserving information often since lost or damaged by subsequent developments. Nevertheless, the total will today seem modest alongside the numbers recorded by archaeologists pursuing a new type of survey.

Archaeological Surface Survey since the 1970s

As is well-known, archaeological survey took on a new character in the 1970s, becoming less extensive in scope but more intensive and systematic.[1] In contrast to Glueck's survey of all what of he called "Eastern Palestine", the new generation of work has focussed on more limited areas. Sites of all kinds and periods are recorded. Where Glueck had devised an outline of settlement his-

[1] S. Thomas Parker's survey of Roman military sites from one end of Jordan to the other in 1976, motivated by a specific research question, is an interesting mixture: in the great tradition of Brünnow and von Domaszewski, but intent on extracting dating evidence from the mundane surface finds which had been of no interest to the German and American scholars 75 years before (Parker 1976). Contrast, my own survey of a very small area two years later (Kennedy 1982).

tory for Transjordan on the basis of 1000+ sites from across the entire country, the new surveys recorded as many sites in small parts of the country. A single example underscores the point: Burton MacDonald's Wādī al-Ḥasā Survey (1988) recorded 1074 sites in an area of c. 600 sq km; only 37 of those had been recorded by Glueck. Despite the inevitable bias which persists in the data — especially amongst the unsystematic surveys — interpretations based on the dramatic increase in quantity can be applied more confidently where the pattern reveals marked differences between periods and sub-divisions.

The systematic surveys by MacDonald both along the Wādī al-Ḥasā and now in the Southern Ghors/ Wādī 'Arabah (1992) are especially noteworthy for their high quality and commendably rapid publication. There have, however, been numerous others in various parts of the country and more are in progress. It has become, in fact, one of the commonest forms of fieldwork in Jordan, putting it in the forefront of such work elsewhere in the eastern Mediterranean (Alcock 1994) — well ahead, for example, of Turkey[2], Syria and Egypt. A far cry from the claim made in 1983 that "... in many countries, especially the Near East and North Africa, excavation is archaeology" (Jones 1985: 1). For Jordan at least, archaeology is in fact now quite likely to be surface survey.

At this point it is appropriate to recollect the significance of archaeological surface survey and how it should, ideally, be conducted. According to a standard current undergraduate textbook:

"Surface survey has a vital place in archaeological work, and one that continues to grow in importance. In modern projects, however, it is usually supplemented (and often preceded) by reconnaissance from the air, one of the most important advances made by archaeology this century" (Renfrew and Bahn 1996: 75).

What is said to be "usual" is in reality *uncommon* outside a handful of countries. The recently published and highly important survey of the Molise Valley in Italy, for example, was carried out without air photographs much less a reconnaissance from the air (Barker 1995). Indeed, aerial archaeology in Italy hardly exists. Conversely, in Britain, where numerous part-time private and full-time professional aerial archaeologists operate, there have been few systematic surface surveys[3]. There the aerial discoveries have been employed instead to construct sophisticated and detailed maps peopling landscapes. In practise there are few countries where even *old* air photographs may be obtained; fewer still where a programme of dedicated reconnaissance may take place as a complementary component of surface survey. This is a misfortune.

Air Photo Interpretation

The role of aerial archaeology needs no detailed exposition. The *JADIS* volume, identifying sites known from various sources lists about 9000. At about the same time as *JADIS* was being compiled, systematic interpretation of 4000 vertical air photographs of western Jordan taken in 1953 identified some 25,000 sites (Kennedy 1997). Site density varies considerably with, unexpectedly perhaps but understandably, the highest concentrations in the more marginal areas of farming rather than in the central regions of human settlement. Archaeological interpretation of this mass of data is in progress (Kennedy 1997; in preparation). FIG. 2a and 2b illustrate the transformation this work can make by reference to one area.

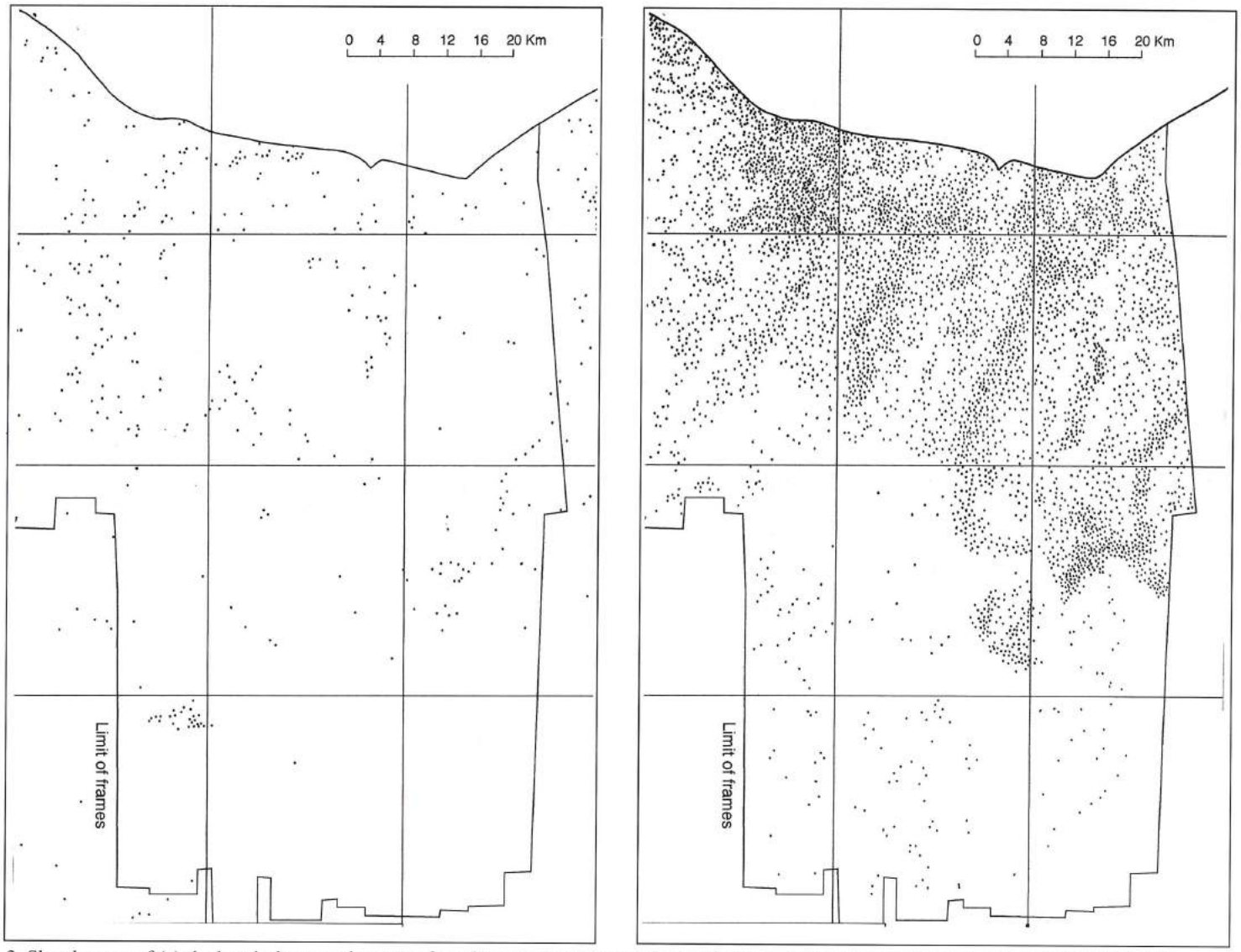
It is too soon to provide detailed results. Analysis, however, is being guided by procedures adopted elsewhere. Once again, the long history of intensive aerial reconnaissance for archaeology in Britain points the way to what may be achieved. One of the best examples, from northern Britain 25 years ago, is highly instructive (Jones and Mattingly 1990: 255-63). The survey area in question is a quite small one — about 1500 sq km — but it overlaps the western end of Hadrian's Wall and one objective was to gauge what impact, if any, was made by the establishment of a Roman military zone cutting through the region. The survey found quite marked differences on either side of Hadrian's Wall, which are surely associated with the existence of the wall itself and different responses to and consequences of it (FIG. 3):

* to the north, site density was 3.77 per sq km; to the south it was 9.7;
* north of the wall none of the farmsteads identified had associated field systems implying stock-raising rather than cultivation; south of it farmsteads with field systems are common;
* north of the wall, farmsteads are almost exclusively circular/ curvilinear; south of it rectangular/ rectilinear becomes the standard;
* north of the wall 20% of farmsteads are set within defensive ditches; south of it only 3% are.

A start can now be made on similar interpretative research in Jordan. As detailed now in Bert de Vries' important first volume on Umm al-Jimāl, the archaeological interpretation of the sites identified on air photos for an area of c. 430 sq km around the town can be highly instructive. 1079 sites were identified, a density of 2.5 per

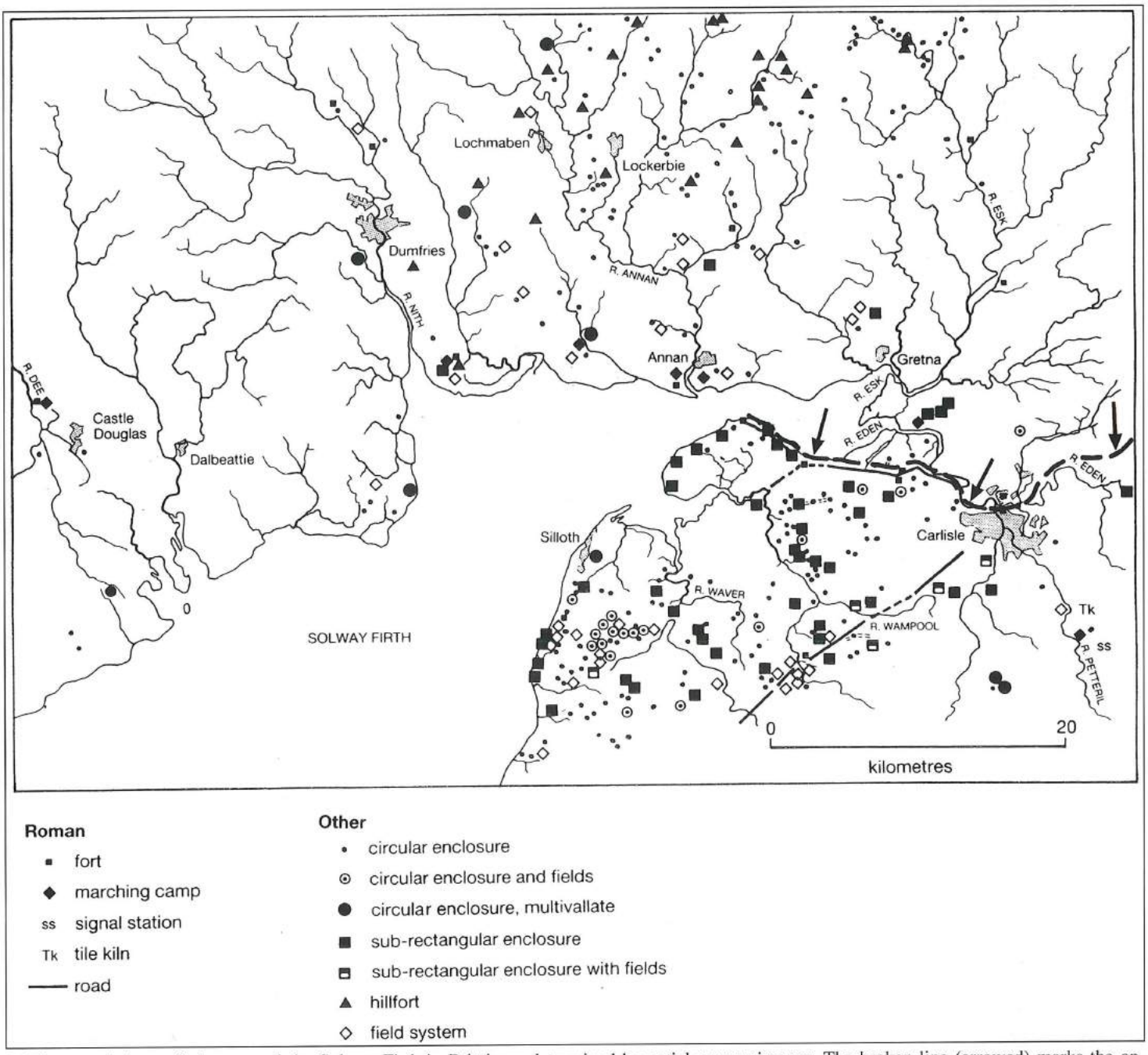
[2] The limited picture for Turkey has improved in recent years as a result of work done along the Euphrates, with systematic surveys within the northern part of the bend of the river around Titris Höyük (Algaze *et al.* 1992; 1994a; 1995a; 1995b) and Kurban Höyük (Wilkinson 1990). Cf. the Tigris-Euphrates survey (Algaze *et al.* 1991; 1994b).

[3] There have been numerous surveys but the concept of field-walking has only been applied systematically to intensive survey around one or a few specific sites.



2. Sketch maps of (a) the basalt desert and steppe of northern Jordan showing the number and distribution of sites as recorded in *JADIS*, (b) the same area with the data recovered through air photo interpretation of the 1953 Hunting Aerial Survey.

sq km (Kennedy 1998a: 51-55, at 54). Although the ground data from surface survey was not available, it was nevertheless possible to "people" the landscape around Jimal and offer suggestions for how that landscape was employed and developed solely on the basis of the air photographs. Particularly interesting was the identification of over 100 farms — perhaps nearer 200 if less secure examples are included (Kennedy 1998a: 67-73). Surface examination at two of these found pottery of the Roman period. A great deal more work is necessary on the ground: excavation at one or more of these farm sites should be a priority and many should be surveyed on the ground and sherded. At a stroke, however, though still hazy and incomplete, our understanding of the rural context of the town of Umm al-Jimāl has been altered significantly (FIG. 4). Placed in a wider context, it is apparent that one of the characteristic features of these farmsteads — the cross-wadi walls, are distinctive to this region around Jimal (Kennedy 1998a: figs 31-33). Analysis of the air photographs for the regions to west, east and south found no such walls. Not even around the small town at Umm al-Quṭṭayn or the fort and settlement at Dayr al-Kahf. The distribution of these farms is markedly densest around the major settlements which in turn are mainly located on the lava. On the other hand they are thin in the immediate vicinity of the towns of Umm al-Jimāl and Umm as-Surab, implying, perhaps, that farming immediately outside the town was in the hands of people who lived in the town. That should be reflected in the character of at least some of the town houses which would have been in part at least working farms. The form of the farms is also distinctive: overwhelming they are curvilinear and derived from a native architectural tradition. A handful, however, generally larger in size, are rectilinear and located on prime sites

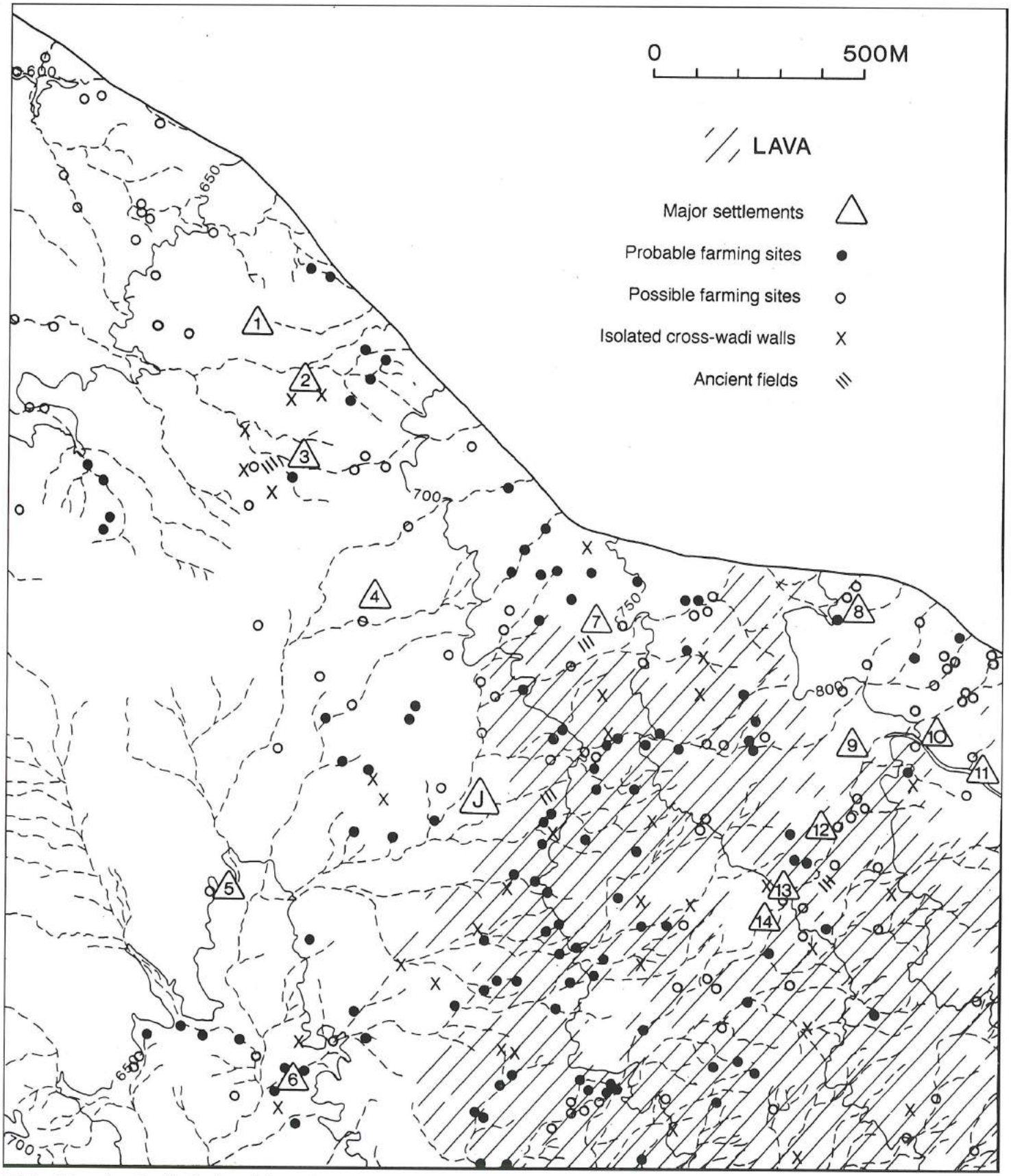


3. The morphology of sites around the Solway Firth in Britain as determined by aerial reconnaissance. The broken line (arrowed) marks the approximate alignment of Hadrian's Wall (commenced c. AD 122) (after Jones and Mattingly 1990: Map 7.25).

(Kennedy 1998a: 72 and 76, fig. 35). Dating evidence from both types of site may yield the explanation or it may be cultural, the work of outsiders with a different tradition of design.

Another site type around al-Jimāl is that of kites (Kennedy 1998a: 74-80; see now Fowden 1999). In contrast to some of the published 1: 50,000 maps for the region further east, the Umm al-Jimāl sheet recorded the traces of only 3. From scrutiny of the air photos, the number was raised to 58, all of them on the lava in the eastern part of the area (Kennedy 1998a: fig. 39). Plainly they had in fact been a common structural type in the region. Closer inspection revealed certain differences from those already studied further east, in particular, there was far greater variety in orientation than in the east where it was rare not to be opening to the east. Around Umm al-Jimāl, 38%, the single largest group, were oriented to the north and two thirds were oriented north or north-east.

Finally, especially interesting was the recognition of how elements of ancient structures continued to influence current inhabitants. Field boundaries work around the curving "heads" of kites and elsewhere the long "tails"



4. Map illustrating the distribution of the major settlements and probable or possible farming sites. Major settlements mentioned in this article: 1. Khirbat Umm as-Surab; J. Umm al-Jimāl (from Kennedy 1998a).

continue to form field walls (Kennedy 1998a: fig. 41). And of course the selection of Umm al-Jimāl, as-Surab and the other larger ancient settlement sites for the principal modern villages was because these places offered not just good natural locations but building material and water storage facilities which could be repaired.

Scrutiny of the air photographs for the Umm al-Jimāl area was one of several such projects undertaken as part of the analysis and interpretation of all the 1953 air photographs. One of those currently in progress has also permitted some ground verification as a follow up. At Gharandal in southern Jordan, excavation by Alan Walmsley on the town site itself will be complemented in future seasons by a surface survey of the vicinity. In 1997 the opportunity was taken first to interpret the relevant air photographs then pursue some of the sites on the ground. The results are instructive. Glueck had identified 5 sites in the area; the JADIS volume lists 14; interpretation of the air photographs identified 50 (Kennedy 1998b). Several of these could not be traced, apparently destroyed by recent quarrying; one proved to be a natural feature and yet another was discovered by accident where nothing had been noted on the air photograph. Most of the other sites were swiftly traced using the photographs as a map. Of those previously known, the photograph provided an immediate geographical context for the site, an indication of extent and some details of internal features. Little of this was known from Glueck's brief written account. As for the new sites, most would certainly have been noted by a surface survey but the air photograph provided an immediate location, context and details. And it did so swiftly and cheaply.

The Wādī al-Ḥasā Survey

The Wādī al-Ḥasā Survey (WHS) has allowed an exercise of a different kind. Here the survey has been completed and published a decade ago and parts of it involved intensive and systematic survey within a large area. The results of the surface survey may be tabulated as follows:

	Number of Sites	Undated Sites	Dated Sites
Western Universe (Transects and purposive)	214	68	146
Central Universe (Purposive)	338	169	169
Eastern Universe (Probabilistic transect, purposive)	522	283	239
TOTALS	1074	520	554

The air photographs were only examined after the survey was published and without reference to it until the interpretation had been completed. In the first full scrutiny of the air photos covering the Western Universe, 187 sites were recorded. Contrasting what the WHS recorded and what was found by the photo interpretation is instructive:

* 48 sites were common to both surveys.
* Many of the sites identified by the WHS but not seen on the photos were either lithic/sherd scatters (26) or sites lacking any visible structure and for which only surface artifacts indicated human activity (eg 12 caves) or sites which were too small to pick up (eg 3 grinding facilities).
* On the other hand, it is instructive that some sites on which the surface surveyors had found no dating evidence, had been identified on the photographs as definite sites.
* In addition the air photo interpretation identified 139 other potential "sites" including 38 outside the transect areas. In some instances the explanation may be that these sites, visible in 1953, have now been destroyed; or they may have been visible but discounted by the WHS as modern; or they may be natural features misidentified by the photo interpreter. Here, a ground check of at least a few would be desirable to determine the explanation(s).

Similar results were obtained from the area of the Central Universe covered by the aṭ-Ṭafīla map (Sheet 3151 IV).

In light of these results it was decided to try an experiment with a run of 5 air photos dealing with the Central Universe on the 'Aina map (Sheet 3151 I). Previously the air survey had been self-denying including only those "sites" felt to be definite. It was now decided to include probable and possible "sites" as well. For this area WHS found 127 sites against 134 on the air photos. Of these, 73 were common to both (though in addition some of the air survey sites refer to more than one WHS site). Of note is our identification of 28 of the sites for which WHS had no dating evidence. It is debatable whether these results indicate that examination of the air photos should be much more inclusive or whether this merely increased identification of dubious sites to an unacceptable level. It should be noted, however, that this section of the study including preparation, interpretation and transcription occupied only 10 hours 20 minutes.

These case studies, each in there own way reveal much about the relative strengths of the surface and air photographic evidence. Much, too, about methodology. More importantly for the larger issues, they demonstrate the value of aerial survey and the way in which it can significantly complement and enhance surface survey. Renfrew and Bahn (above) may have been wrong in claiming aerial survey as a "usual" complement to ground work but the principle that it *should* be is valid. How that may be done is the subject of the final part of this paper.

Aerial Archaeology in the 21st Century

Air photographic interpretation of all the 1953 air photographs covering all but a small part of the entire western

side of Jordan and part of the basalt desert has now taken place (Kennedy 1997). At the very least, it is possible now for every survey undertaken in those parts of Jordan, to obtain a set of crude results of our interpretation of the photos for the area to be surveyed. Potential enquiries should provide a precise definition of the survey area on a photocopy of a scale 1: 50,000. The project from which these results were obtained must now be self-supporting, but preparation of copy photos, distribution maps, description of sites and recommendations by my research assistant are at cost price (see now the web page for details: http://www.arts.uwa.edu.au/classics/archeology/apamea/)

The next active stage of the project should be to carry through a detailed combined surface and air photographic survey of one or more areas. To some extent this has been done for the Southern Ḥawrān Survey and it might be done, retrospectively, for the Umm al-Jimāl area. More useful, would be a new survey area in which ground survey and interpretation of both the 1953 and more recent air photos could proceed in tandem and feed off one another.

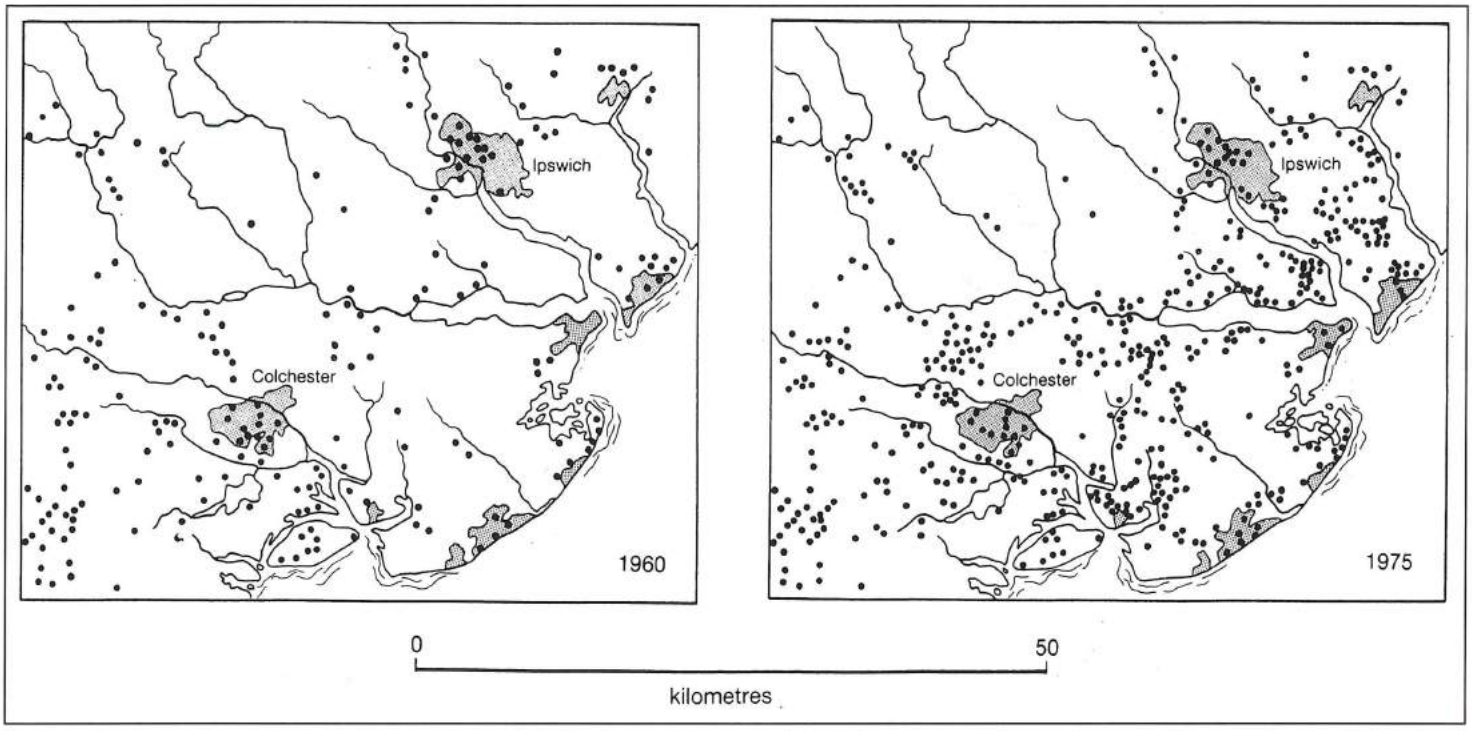
More useful still, would be to bring in a programme of *active* Aerial Archaeology. That is now a possibility. Through the kind support of Prince el-Hassan and the Royal Jordanian Air Force, a season of new flying has just been carried out involving inspection and photography in every part of Jordan. One part of the project was to explore some relatively limited areas intensively. As is well-known, archaeological sites can be revealed from the air which are invisible or undetectable at ground level. To some extent that happens already with the old vertical air photographs. There is the potential, however, to increase the success rate considerably by a programme of dedicated flying in ideal conditions of light and season. Certainly modest sites should be detectable as shadow sites early or late in the day. Some noted on the vertical photographs but showing indistinctly because viewed in the middle of the day, should be clearer. In spring and autumn there is the potential for completely buried sites to be visible as vegetation marks. Almost half a century ago, in his classic study of Aerial Archaeology, John Bradford defined western Turkey as one region of the Middle East in which crop marks should be found. Nothing has been done there but it is possible now to illustrate the point by employing recently declassified satellite photographs of the 1960s taken in different seasons in eastern Turkey (Kennedy 1998b). Further south, in Syria, Poidebard in the 1920s and 1930s noted vegetation marks revealing sites (cf. Kennedy and Riley 1990: 65-7). There is no reason to doubt they may be equally instructive in Jordan in the appropriate places and conditions.

Vegetation marks may be sought profitably even in the desert and steppe areas to reveal, for example, the lines of ancient roads. Crop marks should be detectable in those areas where cultivation has destroyed and hidden surface traces of sites, but the surviving buried remains may cause a differential growth above. Suitable would be much of the region from aṭ-Ṭafila northwards. Especially useful might be a programme of flying over the Jarash Basin. The different types of farming from the uplands of ʻAjlūn to the cereal cultivation towards al-Mafraq could be very revealing. In the longer term context of intensive fieldwork of all types at and around Jarash, the integration of a dedicated aerial survey with a parallel programme of systematic ground survey would be of great potential for a place of rare international cultural importance, a part of our common heritage.

Hopefully, this work will be continued in coming years and ideally it will involve the training of a Jordanian Aerial Archaeologist. Just how profitable such work can be, may be illustrated from an experiment in Britain. There, flying around Colchester as of 1960 had revealed numerous sites. Later, however, the same region was again examined but this time through systematic flying in appropriate conditions. Not only were many more sites discovered but the pattern of sites in the region was changed dramatically. No longer was the pattern related to the valleys — by 1975 there were numerous sites on the high ground as well (FIG. 5).

Epilogue

Like Archaeology in general, Aerial Archaeology must be seen to serve not just the interests of academics but of the wider present and future inhabitants of the countries in which it is conducted. In the present case, the recent flights were engaged in both narrowly academic pursuits and in the task of revealing and "selling" the cultural heritage of Jordan to a wider home and international audience. Jordan has a heritage of great breadth, depth and quality. Relatively little of it is well-known beyond the handful of well-familiar sites. It is undoubtedly necessary to develop Petra and Jarash but there is much more to the archaeology of Jordan. Not just the implications of c. 25,000 sites — or the many more in reality that figure implies — but the scores, hundreds of others of good preservation which should be part of the consciousness of everyone interested in the cultural heritage of Jordan. A step in that direction was taken in the recent flights with the photographing by myself and Dr Robert Bewley of the Air Photographic Unit of the RCAHME of some 200 sites. Sites were selected of every period, type and in every corner of the country, from prehistory to the glories of the Islamic centuries. The examples here are samples of those which will go to illustrate a profusely illustrated book, *Ancient Jordan from the Air*, which will provide air photo, interpretative diagram and short text. The book will be, at different levels, advertisement of Jordan's archaeological treasures, guide book, tourist memento, and academic resource.



5. Maps illustrating the different patterns of site distribution around Colchester in Britain. (a) sites as known from random investigation; (b) the pattern following a period of intensive and systematic flying (from Jones and Mattingly 1990: Map 7.25).

References

Alcock, S. 1994. Breaking Up the Hellenistic World: Survey and Society. Pp.171-190 in I. Morris (ed.), *Classical Greece. Ancient Histories and Modern Archaeologies.* Cambridge.

Algaze, G., Breuninger, R., Lightfoot, C. and Rosenberg, M. 1991. The Tigris-Euphrates archaeological Reconnaissance Project: A Preliminary Report of the 1989-1990 Seasons. *Anatolica* XVII: 175-240.

Algaze, G., Misir, A. and Wilkinson, T. 1992. Sanliurfa Museum/ University of California Excavations and Surveys at Titris Höyük 1991: A Preliminary Report. *Anatolica* 18: 33-60.

Algaze, G. and Misir, A. 1994a. Excavations at Titris Höyük, a Small Mid-Late Third Millennium Urban Center in Southeastern Anatolia, 1992. *XV Kazi Sonuclari Toplantisi*, Ankara: 153-170.

Algaze, G., Breuninger, R. and Knudstad, J. 1994b. The Tigris-Euphrates Archaeological Reconnaissance Project: Final Report of the Birecik and Carchemish Dam Survey Areas. *Anatolica* 20: 1-96.

Algaze, G. and Misir, A. 1995a. Titris Höyük, an early Bronze Age Urban Center in Southeastern Anatolia, 1993. *XVI Kazi Sonuclari Toplantisi,* Ankara: 107-120.

Algaze, G., Goldberg, P., Honca, D., Matney, T., Misir, A., Rosen, A. M., Schlee, D. and Somers, L. 1995b. Titris Höyük, a Small EBA Urban Centre in SE Anatolia. The 1994 Season. *Anatolica* 21: 13-43.

Barker, G. 1996. *A Mediterranean Valley. Landscape Archaeology and Annales History in the Biferno Valley.* Leicester

Fowden, G. 1999. 'Desert kites': Ethnography, Archaeology and Art, in J. Humphrey (ed.), *The Roman and Byzantine Near East,* II. Portsmouth, RI (Journal of Roman Archaeology, Supplementary Series 31), 1999.

Jones, G.D.B. 1985. Introduction. Pp. 1-7 in S. Macready and F. H. Thompson (eds), *Archaeological Survey in Britain and Abroad.* London.

Jones, G.D.B. and Mattingly, D. J. 1990. *An Atlas of Roman Britain.* Oxford.

Kennedy, D. L. 1982. *Archaeological Explorations on the Roman Frontier in North East Jordan.* Oxford: BAR, International Series 132.

___ 1997. Aerial Archaeology in Jordan: Air photography and the Jordanian Hauran. Pp. 77-86 in *SHAJ* VI. Amman.

___ 1998a. The area of Umm el-Jimal: Maps, Air Photographs, and Surface Survey. Pp. 39-90 in B. de Vries (ed.), *Umm al-Jimal. A Frontier Town and its Landscape in Northern Jordan. 1. Fieldwork 1972-1981.* Portsmouth, RI.

___ 1998b. Gharandal Survey 1997: Air Photo Interpretation and Ground Verification. *ADAJ* 42.

___ 1998c. Declassified Satellite Photographs and Archaeology in the Middle East: Case Studies from Turkey. *Antiquity* 72: 553-561.

___ (in prep.) *Remote Sensing for Archaeology in the Middle East.* 3 vols in progress (provisionally scheduled for publication by The British Academy/ Council for British Research in the Levant).

Kennedy, D. L. and Riley, D. N. 1990. *Rome's Desert Frontier*

from the Air. London: Batsford/ Austin, TX: University of Texas Press.

MacDonald, B. 1988. *The Wadi el Hasa Archaeological Survey 1979-1983, West-Central Jordan.* Waterloo, Ont.

___ 1992. *The Southern Ghors and Northeast 'Arabah Archaeological Survey,* (Sheffield Archaeological Monographs 5). Sheffield.

Parker, S. T. 1976. *Romans and Saracens. A History of the Arabian Frontier,* ASOR Dissertation Series 6. Winona Lake, In.

Renfrew, C. and Bahn, P. 1996. *Archaeology. Theories, Methods and Practice*, 2nd ed., London.

Robinson Lees, G. 1895. Across Southern Bashan. *GJ* 5: 1-27.

Snodgrass, A. M. 1992. *An Archaeology of Greece. The Present State and Future Scope of a Discipline.* Berkeley.

Wilkinson, T. J. 1990. *Town and Country in Southeastern Anatolia, vol. I: Settlement and Land Use at Kurban Höyük and Other Sites in the Lower Karababa Basin.* Chicago (The University of Chicago Oriental Institute Publications 109).

Geoffrey A. Clark
Department of Anthropology
Arizona State University
Tempe AZ 85287, U.S.A.

Nancy R. Coinman
Department of Anthropology
Iowa State University,
Ames IA 50011, U.S.A.

Michael P. Neeley
Department of Anthropology
Montana State University,
Bozeman MT 59717, U.S.A.

Geoffrey A. Clark, Nancy R. Coinman and Michael P. Neeley

The Paleolithic of Jordan in the Levantine Context*

Introduction

This chapter aims to present a current view of the paleolithic of Jordan from earliest times through the Epipaleolithic, and to situate it in the broader context of Levantine prehistory. The essay is organized chronologically, beginning with some observations about the logic of inference in the archaeology of 'deep time' — the Lower and Middle Pleistocene. We tackle the Levantine Lower and Middle Paleolithic next, which, for many practical purposes, can be treated together. We then proceed to a discussion of chronological questions pertinent to Lower and Middle Paleolithic systematics, followed by some remarks on the Middle-Upper Paleolithic transition and the modern human origins controversy. As most of you know, the Levant is a focal point for modern human origins research, given the alleged and prolonged coexistence of neandertals and early moderns there. This will be followed by some observations on the Levantine Upper Paleolithic which, historically, has been somewhat neglected vis à vis the Mousterian. We close with some remarks on the conceptual framework of Epipaleolithic research, which has been undergoing considerable re-evaluation in recent years. In all of these early time periods, work in the xeric steppes of Jordan over the past 20 years is changing the picture of paleolithic adaptations in profound ways, based, as it has been, on research in the mesic coastal environments of the northern and central Levant.

The Logic of Inference in the Archaeology of Deep Time

This is archaeology in what Clark (1991) refers to as 'deep time'. Doing archaeology in 'deep time' is by no means a straightforward endeavor since we cannot make all kinds of uniformitarian assumptions about process in contexts removed from the present by tens or even hundreds of millennia. Archaeology was slow to realize this. Over the past 15 years, however, archaeologists are gradually coming to a better understanding of the complex natural and cultural formation processes that have acted in concert to create an ancient archaeopaleontological record. Although we are still in a 'pattern searching' mode, and far from consensus, the important point is that inferences about early archaeology cannot be directly evaluated against construals of pattern in the archaeological record itself. In recent years there has been some recognition of this fact, and a number of workers (e.g., Potts 1988; Gifford-González 1991) have offered protocols designed to make the logic of inference more secure.

One such scheme is that proposed by Richard Potts (1988), an archaeologist at the Smithsonian Institution in Washington, DC. His model is hierarchical and involves three successively more inclusive levels of inference. *First-order inference* constitutes a demonstration that 'sites' actually exist, and that they are at least partly explicable by invoking hominid agency. The existence of sites is established by taphonomic inference whereby the bones and stones are shown to be anomalous concentrations in the paleolandscape that accumulated over a relatively short period of time (most of the 'high resolution' east African sites apparently formed over a minimum of 5-10 years), and that the agents of accumulation can be more or less successfully identified. From the perspective of the late-1990s, these inferences are typically the most

* When DAJ Director General Ghazi Bisheh invited me to present the main lecture on the eighth millennium, I was pleased and flattered that he had thought of me, but also a little puzzled, since most of my work in Jordan has had to do with the Middle, Upper and Epipaleolithic. I subsequently came to appreciate, however, that I was responsible for Jordanian paleolithic archaeology in its entirety. Now that was a pretty tall order, since hominids — probably *Homo erectus* — have been present in the Levant since c. 1.4 million years ago, based on biostratigraphic dating of micromammal assemblages from the site of al-'Ubaydiya/ Ubeidiya, in the northwestern part of the Jordan Rift (Tchernov 1990). Consequently, I prevailed upon two of my former students, Nancy Coinman (who is an Upper Paleolithic specialist) and Michael Neeley (who is interested in Epipaleolithic systematics) to give me a hand. Thankfully, both responded. This essay is the results of that collaborative effort. (G. A. Clark)

secure. Sometimes we can actually show that our 'sites' are sites, and not geological accumulations of artifacts derived from elsewhere.

Second-order inference involves determination of the nature of 'exclusively hominid' activities. Whether hominids hunted or scavenged in order to obtain the bones brought to a site, how much meat or fat might have been extracted from these bones, and when hominids might have had access to carcasses are good examples. Inference here is also grounded in taphonomy (and what Binford [1981] calls 'actualistic' research), although there is as yet little sign of consensus. Whether uniformitarian assumptions about the behavior of present-day, non-human bone accumulators can to extended to their Pleistocene ancestors is, of course, something of an inferential leap. In the end, Potts (1988) recommends evaluating the credibility of second-order inference on a case-by-case basis.

Third-order inference is the most problematic of all. It addresses regional scale process questions relating to how hominids organized their social landscapes. Were they hunting, scavenging, or both? What kinds of constraints operated under what conditions to emphasize one or the other meat procurement system? Who was doing the hunting, scavenging, gathering? Was there food sharing and, if so, what was shared and how was food sharing organized? In addition to the matrifocal unit, what was the composition of the local group? How did it change during the course of an annual round? At the level of generational replacement? What did mating networks look like? Was there adult pair-bonding and, if so, what was the basis for it and how long did it last? What form did kin-based adult co-residence patterns take? Most generally, how can we constrain choice about the forms that early hominid social organization might have taken?

Unlike first- and second-order inference, which are 'site-based', third order inference requires knowledge of regional systems and, given the poor time-space resolution of the Plio-Pleistocene archaeopaleontological record, there are formidable obstacles to subjecting any third-order inference to an empirical test. Consequently, all third-order inference is presently considered unreliable. Several researchers, notably Blumenschine and Potts, have initiated paleolandscape surveys in the hope of identifying the particular topographic and ecological contexts of specific behaviors. This might, in turn, facilitate reconstruction of more complex, social behaviors like food sharing, mate exchange, raw material procurement; day, week and annual ranges; seasonal aggregation and dispersal patterns etc.(Gibbons 1990). Recent work on the paleolithic reflects these concerns.

The Levantine Lower and Middle Paleolithic

The most profound changes in Lower and Middle Paleolithic research over the past two decades have been sweeping conceptual ones, rather than ones arising from surveys or the excavation of single sites. The changes — how to divide up the paleolithic but, more significant, what things are important to look for in attempting to understand early forager adaptations — are partly a consequence of Levantine research, but are mostly due to paradigmatic shifts that have effected the archaeology of early hominids in Europe and America. Major, post-1980 conceptual developments include (1) a de-emphasis on traditional typological systematics (those concerned with the study of retouched stone tools), (2) an emphasis on technology (analysis of the characteristics of the débitage component of lithic assemblages), (3) the rise of archaeotaphonomy (the study of death assemblages), and (4) raw material procurement and processing (esp. in relation to tracking mobility patterns, and in monitoring the spatial extent and temporal duration of site occupations). The advent of thermoluminescence (TL) and electron spin resonance (ESR) dating methods in the middle 1980s has also changed our perceptions of the duration of the early paleolithic stages, and has all but obliterated the conventional boundary between the Lower and the Middle Paleolithic at ca. 100 kyr BP. Levantine research is in the forefront of these developments, since the early paleolithic is exceptionally well-represented there.

Noteworthy Jordanian Lower Paleolithic sites include (1) 28 typologically Lower and Middle Acheulean sites reported by Mujahed Muheisen (1988; 1992), amongst which (2) C-Spring and 'Ayn al-Asad, in the Azraq Basin (Rollefson 1980; 1982; 1983; Copeland 1989; 1991; Hours 1989); (3) Abū Hābil (Muheisen 1988); (4) Fjāja (Rollefson 1981) and (5) Jabal Qalkha Site J401, in the Wādī Ḥismā drainage (Henry 1995; 1997), are more extensively reported. There are also (6) a number of stratified Acheulean open sites exposed in the cutbanks of the Wādī Ḥammah and its tributaries, as reported by the La Trobe University team currently headed by Phil Edwards (Edwards *et al.* 1988; Macumber and Edwards 1997). Early Acheulean tools and fauna have also been recovered from (7) the Dauqara Formation, in the az-Zarqā' Valley north of 'Ammān, although contexts are still somewhat questionable (Copeland and Hours 1988; Parenti *et al.* 1997). Probably most important, because of their potential for future horizontal exposure, are the recent (summer, 1996), spectacular discoveries of open air Acheulean sites with faunas at 'Ayn Sawda/ Soda, in the Azraq depression (Rollefson *et al.* 1997). In terms of isolated finds, Jordan has produced thousands of handaxes, cleavers, and 'Lower Paleolithic-looking' stone artifacts. Most such sites consist of surface finds of heavily wind-abraded bifaces and large, crude flakes and blades associated with deflated land surfaces on interfluves and highland plateaux (e.g., many of the Wādī az-Zarqā'

finds reported by Besançon *et al.* [1984]). Formed on land surfaces that have long since disappeared, they exhibit little in the way of site contextual integrity.

Typological Systematics

Typological systematics were an early casualty of the conceptual changes that took place in paleolithic archaeology during the past 15 years. This approach to the study of the paleolithic arose in France between 1880 and 1920 with the work of pioneers like Gabriel de Mortillet, Denis Peyrony and Henri Breuil, and was brought to its fullest development in the 1950s and 1960s by their intellectual progeny, workers like François Bordes and, in the Levant, Dorothy Garrod, Jean Perrot, Réné Neuville, Jacques Tixier and Francis Hours. It emphasized the study of retouched stone and bone/antler tools to the near exclusion of anything else. The reasoning behind doing this, practically always implicit, was that retouched tool forms were thought to reflect ethnic, linguistic and/or social boundaries of the kinds evident in recent European history (see Clark [1993, 1997] for a deconstruction of the logic of this approach). This culture-historical paradigm, which dominated Old World paleolithic research for more than a century, has, since the early 1980s, come to be viewed as extremely limited in what it can tell us about past human behavior (Binford and Sabloff 1982; Clark and Lindly 1991). Moreover, the logic of treating the formation processes of paleolithic archaeology as if they were analogous to those of history has been called into question (Clark 1993; 1994).

Technological Systematics

Technological studies have tended to gain equal status with, and in some cases to supplant, the traditional emphasis on typology. This is due in part to the loss of faith in the credibility of typological systematics just mentioned, but also to the realization that the débitage component (usually more than 95% of most lithic assemblages) contains information about raw material accessibility, differential transport, patterns of site use, reduction strategies and tool function (e.g., Kuhn 1990; 1991; 1995). These in turn can sometimes be related to, and explained by, changes in generalized mobility strategies. Until fairly recently, with the rise of *chaîne opératoire* approaches (e.g., Boëda 1991; 1993), technology was usually de-emphasized or ignored altogether by European-trained prehistorians, so stringent was their adherence to the typological paradigm. This bias went hand in glove with a tendency to assume that technology and typology covaried in a more or less linear fashion with one another, which has never been shown to be the case (see Marks [e.g., 1983] for a compelling demonstration based on Middle/Upper Paleolithic core reconstructions at the Negev open site of Boker Tachtit). Most paleolithic archaeologists active in Levantine research between 1920 and 1975 were trained in Europe, which tended to look to France, with its strong natural science research tradition, for leadership. Since the mid-1970s, however, French dominance of the field is weakening in the face of increasing numbers of anglo-american trained workers and the rise of indigenous archaeologies, like those in Jordan, characterized by an amalgam of different approaches.

Archaeotaphonomy

The third major trend in recent paleolithic research is the appearance and rapid development of a subfield called archaeotaphonomy. Archaeotaphonomy is the study of the cultural and natural processes that contribute to the formation of an archaeological record and, more specifically, those processes involved in the accumulation of faunal remains, an area long neglected in traditional research designs (e.g., Binford 1981). Most archaeotaphonomic research is very recent (it dates, at the earliest, to the early 1980s), and it has become really visible in the literature only in the past five years (e.g., Stiner 1994). While still in the pattern searching stages, it has already called into question the human contribution to the formation of faunal assemblages at many 'classic' Lower and Middle Paleolithic sites (e.g., Olduvai Gorge in Tanzania, Torralba and Ambrona in Spain, Swanscombe and Hoxne in England, Zhoukoudian in China, Grotta Guattari in Italy, Latamne in Syria, Klasies River Mouth in South Africa, and practically all of the French Middle Paleolithic neandertal 'burial' sites — Le Moustier, La Ferrassie, Le Regourdou etc.). The general effect on paleolithic research has been to sharpen our perception of the complex series of natural processes that contribute to the formation of early archaeological sites, with the result that the human component in many of them can be shown to have been minimal. This in turn has 'dehumanized' the early hominids involved, who increasingly appear to have exhibited a range of scavenging and foraging behaviours analogous in various ways to those of our closest primate relatives, the great apes, certain Old World monkeys (esp. baboons, mandrils), and social carnivores like hyaenas and wolves (e.g., Binford 1985; Blumenschine 1991; Stiner 1994). That faunal remains associated with stone artifacts in these early sites can be attributed mainly to scavenging activities, rather than to human hunting, is a striking conclusion. It marks the demise of the ethnography-based 'man the hunter' model dominant in the anglo-american research traditions since the late 1960s (e.g., Lee and DeVore 1968).

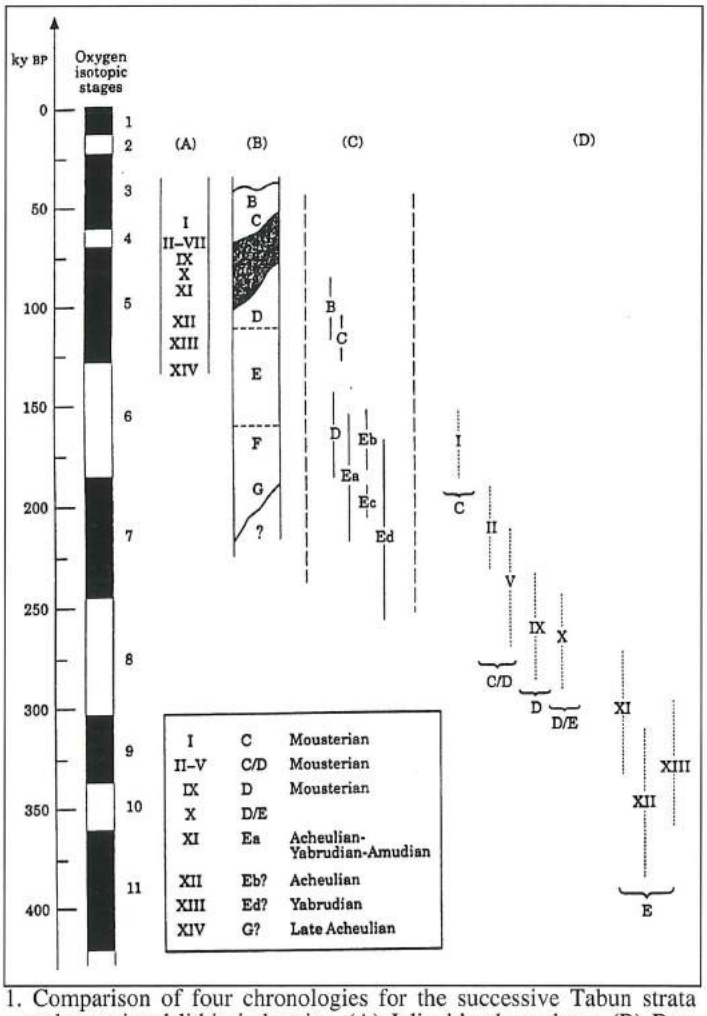
Raw Material Procurement and Processing

As an outgrowth of the new emphasis on technology, pa-

leolithic archaeologists have been paying increased attention to the factors that govern raw material procurement and processing. This research, which originated with Harold Dibble's work in the mid-1980s (e.g., 1984), showed that the conventional Middle Paleolithic artifact types (mainly sidescrapers) were the results of generalized reduction and resharpening sequences conditioned by the shape of the original blank, rather than idealized tool forms held in the minds of their makers, as was widely believed up until that time (e.g., Bordes and de Sonneville-Bordes 1970). Since about 1987, these avenues of research have expanded to include studies of the size and shape characteristics of flakes, exterior scar morphology (which tells us something about the sequence of detachment), platform preparation attributes (an indication of the size of the original blank and how it was detached), cortex percentages and patterning (which indicate when in a reduction sequence a particular flake was detached), breakage, and the factors that govern variation in the reduction of cores (Kuhn 1995; Dibble 1995). Together with archaeotaphonomy, these new studies have shed considerable light on the duration and periodicity of human site use, stability (or lack thereof) of mobility strategies and, on the intrasite level, activity variation (what particular groups of people were doing within sites). Issues relating to the maintenance, renewal and curation of stone tools have been shown to underlie some of the most pronounced differences in the intensity of reduction among Lower and Middle Paleolithic archaeological assemblages.

Chronology

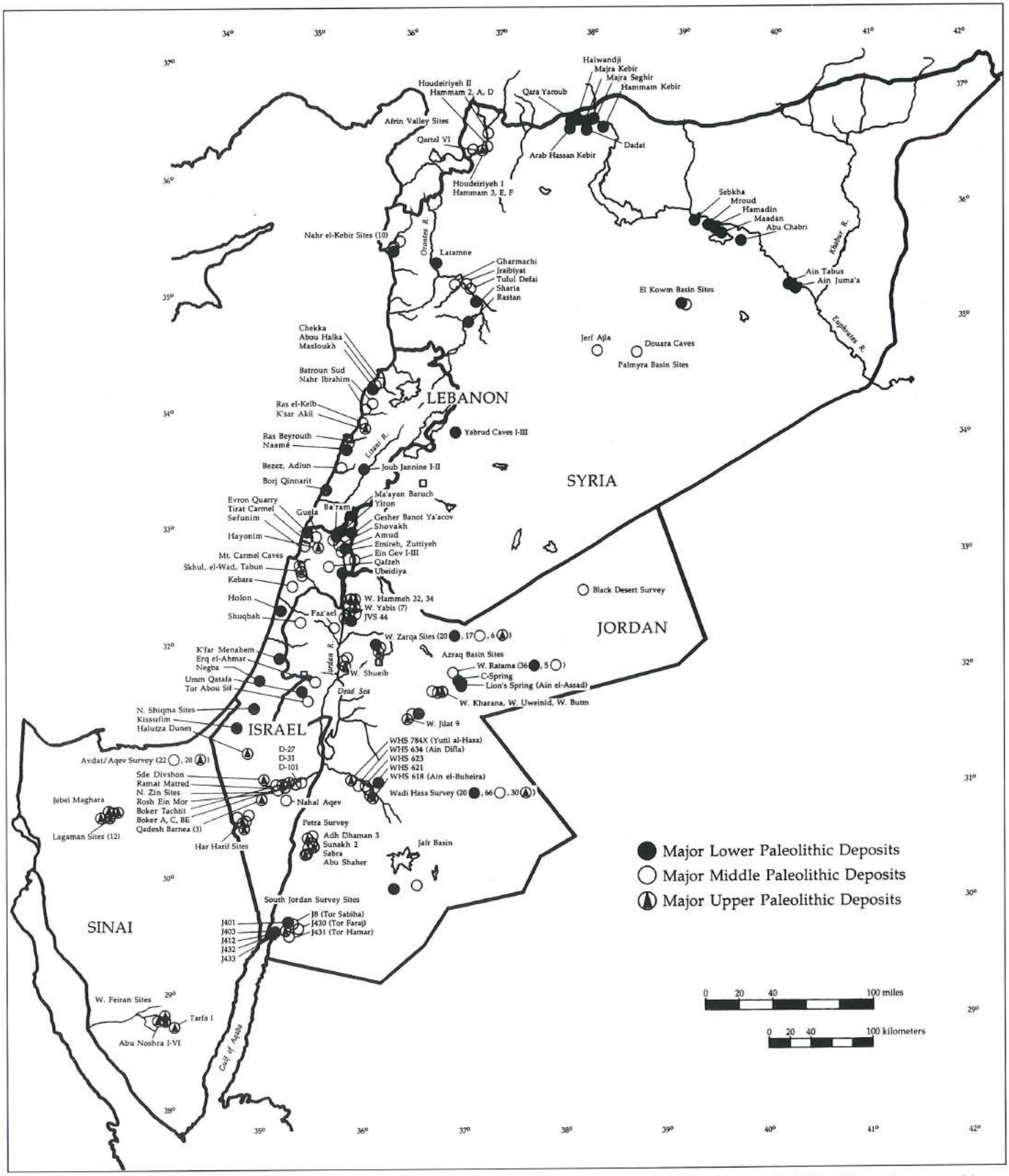
Another major area of radical change has been chronology. Until the mid-1980s, the chronological boundary between the Lower Paleolithic (equated in the Levant with the Acheulean and the Acheulo-Yabrudian — the handaxe industries) and the Middle Paleolithic (the flake and blade-dominated Mousterian) was set by a kind of tacit consensus at ca. 100 kyr BP. Since then, however, the widespread application of TL and ESR dating has more than tripled the time span allotted the Mousterian, and rendered utterly meaningless the conventional chrono-stratigraphic division between the Lower and the Middle Paleolithic. A focus of this research has been Tabun Cave on Mount Carmel, redated no less than four times over the past 16 years (FIG. 1). Handaxe-dominated assemblages can now be shown to have persisted long after 100 kyr BP, and the Mousterian extends well back into the Middle Pleistocene (to at least 250 kyr BP). What is probably the oldest site in the region, 'Ubaydiya, has recently been dated by its micromammal assemblages to 1.4 mya (Tchernov 1990). FIG. 2 shows Lower, Middle and Upper Paleolithic sites that have been restudied, excavated or tested, or re-excavated since the mid-1970s. The



1. Comparison of four chronologies for the successive Tabun strata and associated lithic industries. (A) Jelinek's chronology, (B) Bar-Yosef's chronology, (C) ESR chronology based on a linear uptake model, (D) TL chronology proposed by Mercier *et al.* (1995). Mean TL ages for Jelinek's major units are as follows: I (= Garrod's layer C) = 171 ± 17 kyr BP, II (D/C) = 212 ± 22, V (D/C) = 244 ± 28, IX (D) = 263 ± 27, X (Ea-D) = 270 ± 22, XI (Eb-Ea) = 306 ± 33, XII (Ec?-Eb) = 350 ± 33, and XIII (Ed) = 331 ± 30 (from Mercier *et al.* 1995: 501, 505).

map is noteworthy for the increased tempo of work in Jordan. Prior to the mid-1980s, paleolithic research in the Levant was heavily concentrated in Israel.

Noteworthy Jordanian Middle Paleolithic sites include (1) the Ṭūr Farrāj/ Tor Faraj and Ṭūr Ṣabīḥa rockshelters in Wādī Ḥismā, excavated and extensively reported by Donald Henry (e.g., 1995; 1997); (2) the 'Ayn Difla rockshelter and WHS open site 621, both in the eastern Ḥasā drainage, excavated by the "Wadi Hasa Paleolithic Project" (e.g., Clark *et al.* 1987; 1997; Lindly and Clark 1987); (3) the rockshelter sites of as-Sukhnah and Marazzah South, and the open site of Abū 'Ālūbah, in the eastern foothills of the Jordan Valley north of the Dead Sea (Muheisen 1988), and (4) some recently reported Middle Paleolithic open sites with fauna at 'Ayn Sawda, in the Azraq depression (Rollefson *et al.* 1997). Of the various kinds of Mousterian assemblages defined at the



2. Major Levantine Lower, Middle and Upper Paleolithic sites restudied, excavated, tested or retested since the mid-1970s. Many sites are multi-component. Note the concentration of early sites in Jordan (from Clark *et al.* 1997: 87).

Mughārat aṭ-Ṭābūn type site (Jelinek 1982), by far the most common in Jordan (and in the southern Levant generally) is Tabun D-type elongated levallois Mousterian. Tabun D assemblages are both 'early' and 'late' in the southern Levant, and evidently persisted for hundreds of millennia (Clark *et al.* 1997). Tabun B and C-type industries appear to be relatively rare in the Levantine deserts and steppes (although not completely absent — there is a convincing Tabun B-C assemblage from the eastern Wādī al-Ḥasā at WHS 621 [Clark *et al.* 1987: 23-31]).

Modern Human Origins

Beginning in 1987 and continuing until the present, the Levant has become the major geographical focus of what has come to be known as 'the modern human origins controversy' (Clark and Lindly 1989). Sparked by the implications of the TL and ESR dates from the 'neandertal' sites of Kebara and Tabun, and the 'modern human' sites of Qafzeh and Skhul in Israel (FIGS. 1, 2), the debate centers on two hypotheses offered to describe (and supposedly explain) the transition between archaic and modern humans. The first states that moderns appeared early in the Levant (prior to 100 kyr BP), presumably from Africa, and coexisted there with neandertals, who arrived at a later date (ca. 65 kyr BP). The second states that moderns evolved in the Levant, as elsewhere, from the local archaic *Homo sapiens* stock (TABLE 1). These two perspectives which — in their extreme forms — cannot be reconciled, are sometimes referred to as the 'replacement' and 'continuity' positions (Clark 1992a; 1994). While replacement advocates have claimed that Levantine neandertals are later immigrants from Europe, and are thus unrelated to modern human origins in the Levant (e.g., Bar-Yosef 1994), the weight of the fossil and archaeological evidence, coupled with a much more sophisticated explanatory framework, unequivocally supports the view that modern humans evolved *in situ* in the Levant from their archaic *Homo sapiens* ancestors (Clark and Lindly 1989).

The archaeological aspects of the debate turn on what we might expect would be differences in behaviour and adaptation if in fact two different hominids were occupying the Levant over tens of thousands of years. To argue that the archaeology tells us nothing about adaptation, as some have done, effectively relegates it to a mindless exercise in methodological virtuosity. Differences in adaptation would be expected under all of the replacement scenarios published so far. But when we look for them using the common archaeological monitors of adaptation (i.e., technology, typology, settlement patterns, archaeofaunas etc.), we do not find them. In the Levant, the same kinds of Mousterian assemblages occur at both modern and archaic sites, and the sites themselves are similarly distributed; there is only clinal change in the metrical attributes of lithic technologies; and no differences in raw material procurement, settlement patterns or faunal exploitation are apparent. Typologically identical stone artifacts found at archaic and modern sites exhibit exactly the same kinds of microwear and damage patterns. The essentially 'modern' behaviours in which the Kebara neandertals engaged paint a picture of archaeological continuity that stands in marked contrast to the replacement scenarios proposed by its excavators (Bar-Yosef *et al.* 1992).

There are many issues, questions and problems concerned with the logic of inference in the various aspects of modern human origins research which, unfortunately, we cannot get into here (see Clark and Willermet [1997] for a review of the major conceptual issues). Briefly, though, what we think of as Middle Paleolithic technology almost certainly constituted a range of options very broadly distributed in space and time, held in common by all circum-Mediterranean hominids, and invoked differentially according to context. The challenge of future work is to determine what general contextual factors constrained choice amongst these options. Such factors probably include range and size of and distance to raw materials, forager mobility strategies (conditioned by resource distributions), anticipated tasks, group size and composition, structural pose of the occupants of a site during an annual round and, more generally, duration of site occupation.

The Levantine Upper Paleolithic

The Upper Paleolithic of the Levant is known almost exclusively from its lithic or stone tool assemblages, and, to a lesser degree, from the settlement patterns associated with this time period (c. 40-17 kyr BP). We now know that it only superficially resembles its European counterpart, and does not coincide precisely with it in time. Understanding of the Levantine Upper Paleolithic has also changed dramatically in the decades since pioneers like Dorothy Garrod and Réné Neuville first established an Upper Paleolithic sequence in the 1950s, using the traditional systematics of western Europe. The Upper Paleolithic is no longer perceived as a single, linear evolutionary development emanating from the Levantine Middle Paleolithic. Instead, current interpretations focus on two largely contemporary but different 'cultural traditions' — the Levantine Aurignacian and the Ahmarian (TABLE 2).

Upper Paleolithic research has also undergone important conceptual and methodological changes analogous to those just discussed for the Lower and Middle Paleolithic. These changes include (1) the advent of intensive, systematic regional surveys outside the coastal Mediterranean 'core' areas of the central and northern

TABLE 1. Replacement (no. 1) and continuity (no. 2) hypotheses regarding modern human origins in the Levant, and the major tenets of the extreme versions of each of them (from Clark 1992a: 185-187). Intermediate positions are predicated on the assumption of subspecies (rather than species) differences between 'neandertals' and 'moderns'.

HYPOTHESIS NO. 1

Morphologically modern humans (MMHs) appear early (ca. 90-100 kyr B.P.) in the Levant and co-exist with archaic *Homo sapiens* (AHS) who arrives at a later date (ca. 60 kyr B.P.). AHS eventually 'dies out' and plays no part in modern human origins. Moderns did not evolve from 'Neandertals'.

HYPOTHESIS NO. 2

Moderns evolve in the Levant, as elsewhere, from the local AHS stock. An influx of 'Neandertals' from Europe at ca. 60 kyr B.P. cannot be documented. Local continuity and gene flow across the AHS/MMH transition lead to moderns in the Levant and elsewhere.

REPLACEMENT ADVOCATES

- make a distinction between archaic *Homo sapiens* (AHS) and 'Neandertals'
- postulate a series of adaptive radiations out of Africa, rather than a single, prolonged one
- invoke Cann's rapid mtDNA base substitution rate (2-4%/Mya) to argue for morphologically modern humans (MMHs) evolving in Africa (ca. 300 kyr B.P.)
- ignore grade/clade distinctions
- emphasize cladogenic speciation over anagenic speciation
- invoke 'splitter' taxonomies and dendritic phylogenies
- claim that archaic *Homo sapiens* and *Homo erectus* are replaced throughout their ranges by MMHs between 200-400 kyr B.P.
- claim that there was no admixture between AHS and MMHs (except in Africa, where MMHs evolve from AHS through anagenic speciation)

CONTINUITY ADVOCATES

- do not make a distinction between archaic *Homo sapiens* and 'Neandertals'
- postulate a single, prolonged hominid radiation out of Africa corresponding to the *Homo erectus* grade in human evolution
- invoke Nei's slower mtDNA base substitution rate (0.71%/Mya) to argue for MMHs evolving in Africa ca. 850 kyr B.P.
- emphasize grade/clade distinctions
- emphasize anagenic speciation over cladogenic speciation
- invoke 'lumper' taxonomies and reticulate phylogenies
- claim that MMHs evolved from AHS throughout the range originally colonized by *Homo erectus*
- claim that there was substantial genetic admixture between AHS and MMHs, and that local continuity, rather than replacement, marked the biological transition

TABLE 2. Chronological framework for the Levantine Upper Paleolithic (from Coinman 1998: 39).

Levantine Upper Paleolithic	
Ahmarian	Levantine Aurignacian
Late Ahmarian (c. 20,000 BP)	
*	?
*	*
*	*
*	Levantine Aurignacian
*	(c. 32,000 - c. 26,000 BP?)
*	*
*	*
*	?
*	
Early Ahmarian (c. 38,000 - c. 26,000 BP?)	

Levant, and (2) an increasing emphasis on technological approaches to the study of lithic assemblages that parallels similar developments in early paleolithic research. Surveys in the more marginal, arid regions of the southern and eastern Levant have increasingly emphasized the larger, *regional* scale of paleolithic adaptive systems and the importance of open-air sites in these desert environments. This is in contrast to the historic emphasis on the caves and rockshelters found in the central and northern Levant. The traditional importance placed on tool typologies has shifted to a more behavioral perspective, essential for a better understanding of the technologies that actually structured the production and use of tools within subsistence and settlement systems.

The 'classic' Upper Paleolithic sequence developed by Neuville (1951) and Garrod (1954), with its 'index fossil' tool types and numbered stages, has, since the early 1980s, been replaced by a 'two traditions' model consisting of the Levantine Aurignacian and the Ahmarian. These two 'traditions' are associated, for the most part, with technological and typological differences, although there are disagreements about the behavioral implications and significance of assemblage differences and similarities. Sharp increases in the tempo and volume of Upper Paleolithic research during the last 20 years, especially in Israel and Jordan, have generated much new data and increasingly complex interpretive problems. International conferences in London (1987) and Lyon (1988) focused on efforts to integrate these new data within evolving conceptual frameworks (Bergman and Goring-Morris 1987). The major issue confronting researchers today is whether a 'two traditions' model can adequately accommodate the variability apparent in the archaeological record for these time ranges across the entire Levant. Paradoxically, a major concern is the growing discrepancy between our increasing knowledge of the more recently defined Ahmarian, and the historically-known, but now rarer and more enigmatic Levantine Aurignacian.

The Levantine Aurignacian

At present, there is a growing consensus on the identification, description, and distribution of the more recently identified Ahmarian. In contrast, our knowledge and understanding of the Levantine Aurignacian analytical unit has become less clear as extensive data accumulate from outside the 'core' Mediterranean zone. The Levantine Aurignacian now encompasses significantly greater technological and typological variability than when it was first defined on the basis of cave and rockshelter excavations in Lebanon, Syria, and northern Israel. Exhibiting strong typological affinities with the European Aurignacian, the earlier descriptions of the Levantine Aurignacian featured typical Upper Paleolithic tools, such as endscrapers and burins (esp. 'Aurignacian', carinated and nosed varieties) (Neuville 1934; Garrod 1953; Belfer-Cohen and Bar-Yosef 1981; Belfer-Cohen 1995). In contrast to generalizations about the European variant, core reduction in the Levant focused on the production of flake debitage and tool blanks with low proportions of blades and bladelets. More recently, however, lithic assemblages from the Negev that varied from the Ahmarian have been identified as Levantine Aurignacian and described as having some Aurignacian elements, although they also exhibit a relatively inferior blade technology with large, thick, blades and lack a true bladelet technology (Marks 1976). By the early 1980s the Levantine Aurignacian had been *redefined* on the basis of variability evident in lithic assemblages from outside the Mediterranean coastal area (Marks and Ferring 1988). The geographic distribution represented by these variable Aurignacian assemblages, suggests that the Levantine Aurignacian, as it was *traditionally* defined, might not exist outside the core Mediterranean zone.

The Ahmarian

The Ahmarian is named after the site of 'Irq al-Aḥmar, and was initially identified in Upper Paleolithic levels at sites in the Judean Desert (Neuville 1951; Perrot 1955; Ronen 1976; 1984). Beginning in the late 1960s, it was recognized that Ahmarian assemblages in the Negev and Sinai departed considerably from traditional Aurignacian characteristics and gave rise to a dichotomy between the two Upper Paleolithic 'traditions'. The defining characteristic of the Ahmarian is a well-developed blade technology, dominated by the production of blades and

small bladelet tools, many of which are retouched, backed or pointed (Gilead 1981; 1991; Marks 1981). Traditional Upper Paleolithic tools, such as endscrapers and burins, also occur but are thought to be less common than in Levantine Aurignacian assemblages. The Early Ahmarian, c. 38-30 kyr BP, is generally distinguished by various proportions of pointed blades and bladelets, especially "el-Wad" points, whereas Late Ahmarian assemblages, dated between c. 23-17 kyr BP, lack the larger el-Wad points but are characterized by smaller Ouchtata points with extremely fine, graded retouch. Although archaeological sites with Ahmarian assemblages have been identified in the northern and central Levant (e.g., Ksar Akil XVII-XVI, Qafzeh 9-7), the Ahmarian is most extensively documented in open-air sites in the Negev (Ferring 1977; Marks 1977), in Sinai (Bar-Yosef and Phillips 1977; Phillips 1988), including the Lagaman industry (Gilead and Bar-Yosef 1993), and most recently in Wādī al-Ḥasā of west-central Jordan (Coinman 1993; 1997; 1998; n.d.; Olszewski *et al.* 1990; 1998) (see FIG. 3).

Research in Jordan in the last 20 years has been instrumental in expanding our horizons in respect of regional variability in human adaptations across the Levant, providing new data that bear directly on important issues in Levantine Upper Paleolithic chronology and systematics. While interpretations continue to focus on various dichotomous contrasts (e.g., Levantine Aurignacian vs. Ahmarian; coastal Mediterranean woodlands vs. inland desert/steppe phytogeographic zones; northern rockshelters vs. southern open-air sites), the meaning of these contrasts in the Upper Paleolithic record remains unclear. The Upper Paleolithic in Jordan has highlighted some of the interpretive problems and helped to refine some of our models of adaptation, particularly for inland ecological settings which vary significantly from other areas of the Levant over the course of the last 40 millennia of the Upper Pleistocene (Olszewski and Coinman 1998).

Noteworthy Jordanian Upper Paleolithic sites include the early Ahmarian rockshelter sites of Ṭūr Ḥamār (Coinman and Henry 1995), Ṭūr 'Āyid (Williams 1997), and Jabal Ḥumayma (Kerry 1997) in the Rās an-Naqab region on the southern edge of the Jordanian Plateau. The early Ahmarian has also been documented in Wādī al-Ḥasā at the Ṭūr Sadaf rockshelter (WHNBS 8), along with a transitional Middle/Upper Paleolithic component, and at the Thalab al-Buḥayra open site (EHLPP 2) (Coinman *et al.* 1999). The late Ahmarian has been identified at only two sites in Jordan: the multicomponent rockshelter site of Yutil al-Ḥasā (WHS 784) (Olszewski *et al.* 1990; 1994) and the large open site of 'Ayn al-Buḥayra (WHS 618) (Coinman 1993; Olszewski *et al.* 1998). The eastern basin of Wādī al-Ḥasā has been the focus of recent surveys and excavations by the "Wadi Hasa North Bank Survey (WHNBS)" (Clark *et al.* 1992; 1994) and the "Eastern Hasa Late Pleistocene Project" (EHLPP) (Olszewski and Coinman 1998; Olszewski *et al.* n.d.; Coinman *et al.* 1999).

Chronology

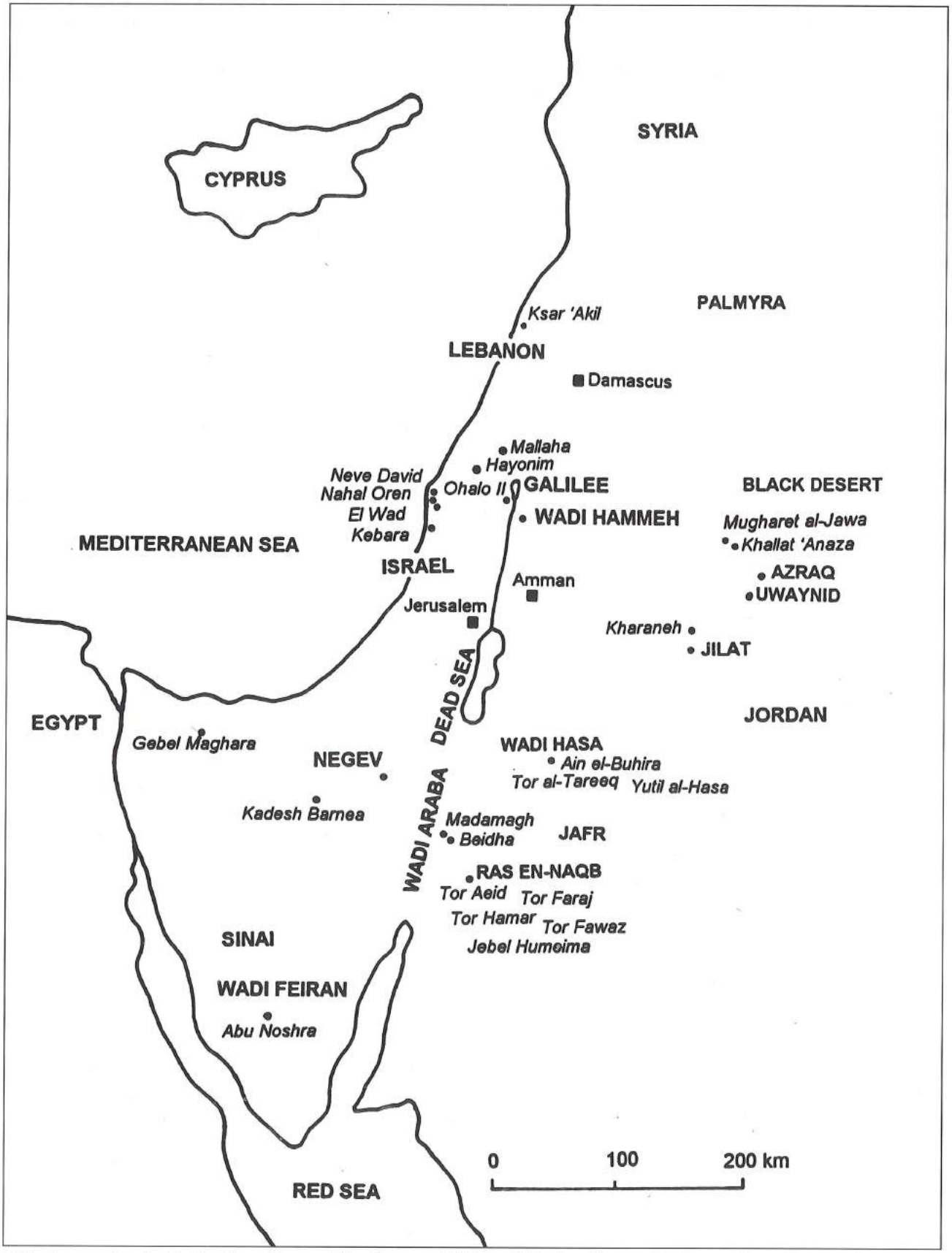
The earliest documented Upper Paleolithic sites in the Levant are associated with the Ahmarian, occurring in the central Negev highlands, in the Sinai Desert and in the Judean Hills, although undated transitional assemblages with Middle Paleolithic and early Ahmarian technological characteristics are reported from Wādī Aghar (J433) in south Jordan (Coinman and Henry 1995) and at Ṭūr Sadaf in Wādī al-Ḥasā, suggesting that the Ahmarian evolves out of local Levantine Levallois Mousterian technologies. In the Negev, the open site of Boker A dates between 38-33 kyr BP (Marks and Ferring 1988), while the Lagaman sites in northern Sinai date between 35-30 kyr BP (Gilead 1991). Early Ahmarian sites in the Qādish Barnia area (N Sinai) date to c. 33 kyr BP (Gilead and Bar-Yosef 1993). In southern Sinai, radiocarbon dates for the Abū Nushra sites range in age from c. 36-29 kyr BP (Phillips 1988).

The latter part of the Ahmarian is known from only a few sites, mainly in Jordan. Late Ahmarian sites in Wādī al-Ḥasā include 'Ayn al-Buḥayra (WHS 618) with dates ranging from c. 25-19 kyr BP (Coinman 1998; n.d.) and Yutil al-Ḥasā (WHS 784), dated to 19 kyr BP (Olszewski 1997).

Levantine Aurignacian sites do not appear to predate 32 kyr BP, and most date after c. 28 kyr BP in Lebanon and Israel. At some sites, Levantine Aurignacian assemblages are stratified above, or are interstratified with, Ahmarian levels (e.g., Qsār 'Aqīl/ K'sar Akil, 'Irq al-Aḥmar, Kabara, Boker BE). The latest known Aurignacian assemblage is at 'Ayn 'Āqib/ Ein Aqev in the central Negev highlands, dated to c. 17 kyr BP (and thus fully contemporary with Epipaleolithic Kebaran assemblages throughout the southern and central Levant).

Settlement Patterns

At present our understanding of the Levantine Upper Paleolithic stems largely from the interpretation of pattern in lithic assemblages, but with on-going surveys and excavations, the data needed to test models of hunter-gatherer settlement patterns has been greatly expanded in recent years. Settlement data in the form of site size and placement, relative to resource distributions are, however, still fairly 'coarse-grained' for the Levantine Upper Paleolithic in general. In recent years, settlement models for the Levantine Upper Paleolithic have been dominated by the 'circulating' model of Marks and Freidel (1977) and Donald Henry's 'transhumance' (e.g.,1994) model, both of which explain important aspects of settlement



3. Map of the Levant showing the locations of some of the Upper and Epipaleolithic sites discussed in the text (from Olszewski and Coinman 1998: 179).

patterns and ecology in the areas where they were developed. Both, however, are too general to explain the potentially diverse mix of adaptive strategies that most likely characterized foragers throughout the approximately 20,000 years of the Upper Paleolithic and across the ecologically diverse landscapes of the Levant. We should expect a range of strategies in terms of settlement mobility and land-use patterns over both the long *and* the short-term, with mobility conceptualized as a dynamic intra-year mix of collecting and foraging systems which are subject to intra- and inter-seasonal shifts in strategy. For the Upper Paleolithic in Wādī al-Ḥasā in west-central Jordan, settlement patterns have been modeled as a set of mobility strategies that responded to fluctuations and changes in the local lake and marsh ecology of Pleistocene Lake Hasa (Olszewski and Coinman 1998). In this model, the late Upper Paleolithic was characterized by logistical residence over multiple seasons. During the winter, foraging from residential bases in the Ḥasā to distant task camps occurred, while during the spring and summer, logistical foraging and collecting from these base-camps might have focused exclusively on the local lake and marsh setting. Late summer and fall would have been periods of movement to residential camps in the highlands and mountains. On-going investigations at Upper Paleolithic sites in the eastern Ḥasā are currently evaluating the adequacy of this model, which should be appropriate to other areas in the Levant that were ecologically similar during the Upper Paleolithic. Lake and marsh environments existed in the southern Sinai, the Azraq and Jafr basins of Jordan, on the shores of ancient Lake Galilee, around Lake Lisan, and in the Palmyra and Damascus basins. Indeed, a large number of Upper Paleolithic sites are associated with lake and marsh environments, although at this point the data are rather uneven across the Upper Paleolithic time range as a whole, and it is unknown to what extent the geographic and topographic distributions known to us at present are representative of the full panoply of Upper Paleolithic land use. However, research in Jordan in the last 20 years has greatly increased our understanding of Upper Paleolithic adaptations and established a significant human presence in inland steppe and desert regions that vary markedly from the Levantine coastal plains upon which traditional Levantine land use models have been based.

The Levantine Epipaleolithic

The history of Epipaleolithic research in the Levant extends back to the 1930s with the work of Bate (1932), Garrod (1932, 1942), Turville-Petre (1932), and Neuville (1934) in the region around Mount Carmel and in the Judean Hills. Like these early excavations, later research tended to be focused on the Mediterranean phytogeographic zone to the west of the Rift Valley (e.g., Bar-Yosef 1970). By the mid-1970s, several large survey and excavation projects had broadened our understanding of Epipaleolithic adaptations in the arid Negev and Sinai Deserts (e.g., Bar-Yosef 1975; 1981; Bar-Yosef and Phillips 1977; Marks 1976; 1977). The prevailing view at the time, and one still held by many scholars, was that observed assemblage differences as determined by the current systematics, were (are) reflections of ethnic identity, resulting in different cultural traditions of tool manufacture.

While developments in the west were advancing rapidly during the 1970s, the eastern Levant remained an enigma. With the exception of a few sites in the south and east (e.g., Madamagh rockshelter, Bayḍā, Ala Safat) reported in a few short articles, very little was known of the Jordanian Epipaleolithic. The little work that had been done was largely descriptive, emphasizing almost exclusively the retouched tools and their relationships to extant collections west of the Rift (e.g., Kirkbride 1958; 1966; Waechter 1948).

Two important factors have affected the development and pace of research on the Epipaleolithic in the eastern Levant. First, the implementation of regional surveys in Jordan during the late 1970s and early 1980s led to an exponential growth in the number of sites known from the period (e.g., Garrard and Price 1975-77; Henry 1982; MacDonald 1982; MacDonald *et al.* 1980; 1982). In many respects, these projects were the intellectual offspring of those conducted in the Sinai and Negev Deserts to the west (Bar-Yosef and Phillips 1977; Marks 1976; 1977; 1983). Second, Epipaleolithic research was also profoundly influenced by conceptual changes regarding (1) the meaning of typological systematics, (2) the new emphasis on technology mentioned above, and (3) the interest in hunter-gatherer mobility and resource procurement behaviours. These conceptual issues have a direct bearing on how we interpret the Epipaleolithic archaeological record and the kinds of information regarded as important for our studies.

Regional Survey

Following on the heels of projects west of the Rift Valley, regional surveys were initiated in Jordan in the late 1970s and early 1980s. Although the Epipaleolithic was by no means the only focus of this research, these projects recorded large numbers of Epipaleolithic sites. The surveys included (1) Donald Henry's work in south Jordan's Wādī Ḥismā and on the edge of the south Jordan plateau (e.g., Henry 1982; 1995), (2) Burton MacDonald's spectacularly successful "Wadi Hasa Survey" (e.g., MacDonald 1988; Clark *et al.* 1987); (3) the work of the University of Sydney team in Wādī al-Ḥammah (e.g., Edwards *et al.* 1988); and the British Institute projects in (4) the Black Desert (e.g., Betts 1988) and in (5)

the Azraq Basin (e.g., Garrard *et al.* 1988). In general, the intent was to understand regional systems of forager adaptation and land use employing data from multiple sites and their environmental settings. With their landscape orientation, these surveys constituted a departure from earlier work, which tended to be very 'site centered' and which resulted in rather particularistic views of forager adaptations founded on supposedly diagnostic 'type sites' and 'type sequences'.

In addition to these regional surveys, which were often followed by test excavations at selected sites, there have also been conceptual changes affecting typology, technology, subsistence, raw material procurement and processing, and mobility strategies, each with the potential to alter and enhance our understanding of Epipaleolithic forager adaptations. In some respects, these changes are more important than the shift to a regional focus, because they affect what constitutes relevant data, which data are considered important to monitor over a range of problem domains and, ultimately, how archaeologists assign meaning to an archaeological record.

The constraints of space preclude listing all the Epipaleolithic sites in Jordan. However, noteworthy sites that have been investigated include (1) Jabal Ḥamra (J201), Jabal Mishraq (J504), Jabal Muhaymi (J520), al-Quwayra (J203), Qā' Salab (J202), Ṭūr Ḥamār (J431), Wādī Judayid (J2), and the Jabal Qalkha sites (J24) in southern Jordan (Henry 1982; 1995); (2) Bayḍā (Byrd 1989; Kirkbride 1966), (3) Kharanah IV and Wādī Jīlāt, al-Azraq, and the Wādī 'Uwaynid sites, also in the Azraq Basin (Muheisen 1985; Garrard *et al.* 1988; Byrd and Garrard 1990); (4) the Wādī al-Ḥammah sites in the northern Jordan Valley (Edwards 1990; Edwards *et al.* 1996), and (5) Ṭabaqa (WHS 895), Ṭūr aṭ-Ṭarīq (WHS 1065) and Yutil al-Ḥasā (WHS 784) in Wādī al-Ḥasā, west-central Jordan (Byrd and Colledge 1991; Olszewski *et al.* 1994; Neeley *et al.* n.d.). These sites encompass the entire temporal span represented by the Jordanian Epipaleolithic, from its earliest phases through the Natufian.

Typological Systematics

One of the key conceptual issues affecting Epipaleolithic research involves the meaning of typological systematics. Historically, these systematics were developed from French models and applied along the Mediterranean coast to describe the range of variation in Epipaleolithic assemblages there according to a suite of techno-typological attributes (e.g., Bar-Yosef 1970). With the increasing tempo of research over the past 20 years, it has become apparent that these systematics, as originally defined, are of limited utility due to a lack of consistency in definitional criteria and in application in the various Levantine regions to which they have been extended, affecting, in turn, the consensus definitions of the basic operational taxonomic units themselves. Thus, the terms 'Kebaran', 'Geometric Kebaran', and to a lesser extent, 'Natufian', mean different things to different workers in different regions of the Levant, with the most common referent being a general slice of time and level of cultural development. To force systematics developed elsewhere on the Jordanian Epipaleolithic is, therefore, likely to be both confusing and inaccurate. In response to the limitations of Mediterranean-based systematics, terms such as 'Qalkhan', 'Madamaghan', and 'Hamran' have been introduced by Donald Henry (e.g., 1995) with special reference to the Epipaleolithic of Jordan (TABLE 3).

In recognition of the ambiguity associated with the classification of Epipaleolithic archaeological materials, Henry (1989a; 1995) has proposed a three-tiered hierarchy of *complex, industry* and *phase/facies*, with the complex being the broadest, most inclusive category, and the phase/facies the narrowest. Based largely on the results of his fieldwork in southern Jordan, two major developmental sequences for the Jordanian Epipaleolithic are identified: (1) the Qalkhan-Madamaghan/Mushabian and (2) the Kebaran-Geometric Kebaran-Natufian. The latter, which clearly has its roots in the coastal region, is comprised of a sequence of regionally defined industries which are sorted into temporally distinct units labeled 'Early', 'Middle', 'Late' and 'Final Hamran'. For the Qalkhan-Madamaghan, Henry proposes an industrial affiliation between the two, with the Madamaghan subsumed under the larger Mushabian complex.

In contrast, other researchers in Jordan have been less willing to adopt or create labels of cultural (complex) affiliation, partly due to the so-far limited intra-regional comparative analyses of their materials with those from Henry's work in south Jordan (e.g., Byrd and Garrard 1990; Byrd 1994; Edwards *et al.* 1988). Instead there has been a tendency to continue to use the 'Kebaran' and 'Geometric Kebaran' labels in a generic sense with regard to chronology rather than in accordance with strict techno-typological definitions. Broad terms like 'Non-Natufian Microlithic', 'Non-Microlithic'; 'Early', 'Middle' and 'Late Epipaleolithic' are also in use. All these refer to very general characteristics and/or temporal periods without any of the connotations associated with Henry's 'industry' and 'complex' labels. Apart from terminology, a more profound question is what do the differences and similarities connoted by these terms mean behaviourally (Neeley and Barton 1994; Barton and Neeley 1996)?

Clearly there are differences in the frequency distributions of Epipaleolithic blank morphologies, modes and placements of retouch (largely differentiated in terms of the microlithic component) but, beyond describing these differences statistically (an activity constrained by our a priori classification schemes), where do

TABLE 3. Epipaleolithic cultural and chronostratigraphic analytical units according to Byrd (1994), Henry (1995) and Goring-Morris (1995).

Kyr	Western Complexes (Byrd 1994)		Eastern Complexes (Jordan) (Byrd 1994)	Eastern Complexes (Jordan) (Henry 1995)		Levantine Complexes (Goring-Morris 1995)	
10	Harifian		Natufian and related industries	Late Natufian		Final Natufian/Harifian/EpiNatufian	
	Natufian					Late Natufian	
11				Early Natufian		Early Natufian	Ramonian
12							
13	Geometric Kebaran	Mushabian	Non-microlithic	? ? Mushabian/ Madamaghan	Geometric Kebaran/ Hamran	Geometric Kebaran	Mushabian
14			Non-Natufian Microlithic	? ?			
15	Kebaran				Kebaran/ Early Hamran	Late Kebaran	
16				Qalkhan			Nizzanan
17					? ? ? ?	Early Kebaran Qalkhan Nebekian	
18							
19				? ? ?		Masraqan	
20	Late/Terminal Upper Paleolithic		Late/Terminal Upper Paleolithic			Late Upper Paleolithic	

we go from here? For purposes of contrast, we can group researchers into two camps: (1) those who view differences as reflections of identity-conscious social units (i.e., ethnicity 'writ small' in the tools — Bar-Yosef [1991]; Henry [1989a; 1995]), and (2) those who view differences as representations of adaptive systems cross-cutting these hypothetical social units, reflecting resource procurement, mobility, use, and discard (i.e., patterns existing above the level of ethnic differences — Binford and Sabloff [1982]; Clark and Lindly [1991]). Untroubled by potential problems with the logic of inference, many workers straddle the line between the two camps. By far the most common approach in the Jordanian Epipaleolithic has been the social identity approach, often identified with Donald Henry (e.g., 1989a). Although it has had some success within the confines of its heavily typological conceptual framework, its ability to answer larger questions of adaptation is very limited. In addition, some of the implicit assumptions about the boundedness of ethnicity are tenuous at best, given our understanding of modern foragers and evolutionary theory, as well as the problems associated with archaeological reconstructions of ethnic groups in deep time (Clark 1989). Instead, explanations of variability in terms of adaptive strategies to changing local environments are favoured, an approach that transcends the various paleolithic stages, and that does not require invoking ethnicity to account for patterned variation.

Technological Systematics

Partly as a reaction to typological excess, there has also been a shift away from the retouched tools as sole sources of data, to a greater emphasis on the organization of technology (Nelson 1991). This can be linked to a realization of the limitations inherent in typological systematics, and to the rise of more inclusive *chaîne opératoire* approaches to understand the process of lithic reduction. By getting a better handle on the decisions and by-products involved in the procurement, manufacture and discard of stone artifacts, technological approaches can further our understanding and interpretation of Epipaleolithic adaptive strategies (e.g., Neeley 1997). Unfortunately, technological approaches have also been used like conventional typologies — to define industrial complexes and to determine ethnic or social affinity amongst assemblages (although, in our view, this practice is questionable for the same reasons enumerated above).

Settlement Patterns

As might be expected from the rise of regional studies in Jordan, there has also been an increase in the study of Epipaleolithic settlement systems. Prior to the shift to a regional perspective, single sites often served as the basis for settlement interpretation. These views tended to be rather rigid, with the early Epipaleolithic characterized by small groups of highly mobile foragers and the late Epipaleolithic (esp. the Natufian) characterized by reduced mobility, larger local groups, the appearance of architecture and cemeteries, and substantially larger settlements. Following Mortensen (1972), Marks and Freidel's (1977) work in the Central Negev Highlands proposed settlement patterns characterized by circulating strategies of residential mobility in the early Epipaleolithic, followed by climatic amelioration and a radiating pattern in the Natufian. A virtue of this model, aside from its empirical basis in a relevant database, is that its implications are readily testable with similar data from other regions. Following the Negev work, Henry (1994; 1995) used an ethnographically-derived transhumance model to characterize Epipaleolithic settlement in the mountainous regions at the south edge of the Jordanian plateau. While general patterns of radiating and circulating mobility resemble the results of the Negev study, the addition of elevation and seasonality variables make this model more fine-grained, yet equally suited to empirical evaluation. Both the Marks and Freidel (1977) and the Henry (1994; 1995) models have been tested with coarse-grained survey data from Wādī al-Ḥasā, yet neither seems to characterize adequately the observed patterns of settlement (Clark 1992b). More recently, Byrd and Garrard (1990), and Olszewski *et al.* (1994) have suggested that the inland lake basin settlement systems might be unique (and likely more stable) than those of the arid highlands. Testing this proposition is a focus of research currently underway in the lower Ḥasā Basin (Olszewski and Coinman 1998). Whatever the outcome of this research, it is pretty clear that Epipaleolithic settlement-subsistence systems in Jordan cannot be characterized by simple, region-wide blanket statements. It would seem that they comprised a mosaic of adaptive strategies, each linked to specific regional topographies and resource distributions. In some contexts, at least, these provided the basis for the emergence of the neolithic, marked by a reorganization of social and land-use strategies associated with earliest agropastoral economies, after about 10,300 years ago.

Procurement and Mobility

Modeling resource procurement and mobility strategies is a comparatively recent (mid-1980s) development in paleolithic archaeology in general, and is an avenue of research not extensively exploited amongst Jordanian Epipaleolithic archaeologists (Neeley 1997). The impetus for this approach can be traced to a series of papers by Lewis Binford (e.g., 1979; 1980) almost 20 years ago, and are currently lumped under the rubric of 'the organization of technology' (Nelson 1991). The focus is on variables like (1) package size, quality of, and distance to

raw material; (2) forager mobility (which varies logistically and on daily, weekly, seasonal, and annual scales, and over the long term — decades, centuries); (3) tool curation (the extent to which shaped stone artifacts are used, recycled and maintained), (4) time stress (often invoked as a reason for the appearance of microlithic technologies), (5) tool design (conditioned by the extent to which tools are made in anticipation of future contingencies, subsequently maintained and reworked, or manufactured on the spot, used and discarded), and (6) reduction strategies (how raw material size, shape and quality affect the production of blanks). Most of the work directed toward identifying and explaining axes of formal variation as they relate to forager procurement and mobility has been carried out in the New World (e.g., Bamforth 1986; 1990), but the approach shows considerable promise in respect of Old World foragers in xeric environments like the Levant, where surveys can recover many aspects of ancient settlement-subsistence systems (Neeley 1997). By focusing on these issues, archaeologists can move beyond the narrow confines of typology and technology to identify and explain the organization of the technological systems by means of which foragers gained their livelihood. An additional advantage is that expectations about behavioural patterns and their archaeological correlates can be generated and tested using existing data, often with unanticipated results (Neeley and Barton 1994; Neeley 1997). These studies emphasize the importance of accounting for sources of variability in lithic assemblages in terms of constraints imposed on mobile foragers faced with the need to solve problems imposed by the uneven spatial and temporal distributions of resources in the environments in which they lived (Jochim 1981). Applications of this approach to the Jordanian Epipaleolithic are still in their infancy (e.g., Henry 1989b; 1995). Although there is usually some acknowledgment of the relative availability of lithic raw materials vis à vis site distributions, it is clear and definite that they were not ubiquitous in the landscape, as had often been assumed by earlier workers.

Concluding Remarks

The years between 1979 and 1985 were a watershed for the development of archaeological research in the Hashemite Kingdom of Jordan (Coinman and Clark 1998). Prior to the late 1970s, almost no archaeological survey had been undertaken in the country, and what few excavations there were focused on the better-known and more visible of Jordan's sites, dating to the Neolithic, Greek, Roman, Nabataean, Byzantine and Islamic periods (Bienkowski 1991). The result was that most of Jordan was effectively unknown archaeologically — even for the later periods of classical antiquity. In marked contrast to work in Israel, the first paleolithic sites were recorded only in the 1960s. The enormous potential of the region for Pleistocene archaeological research went almost completely unrecognized.

The 1970s and early 1980s were also marked by major changes in Levantine archaeology in general, up until that time dominated by research in the mesic coastal environments of Greater Syria. So far as the early time ranges are concerned, perhaps the most important stimulus for change came with the systematic surveys and test excavations in the arid highlands of the central Negev Desert by Anthony Marks and his colleagues (Marks 1976; 1977; 1983). Initiated in the mid-1960s, the work in the central Negev was followed shortly thereafter by surveys and testing programs in other, little-known areas like the Sinai and western Negev (e.g., Bar-Yosef and Phillips 1977; Phillips 1987a; 1987b). As Marks points out in the introduction to the third and last of the *Central Negev Project* volumes (1983: xii), the Negev research not only opened up previously neglected environmental zones (i.e., the xeric steppes, deserts) to Levantine prehistorians, it also carried out systematic surveys at a regional scale, rather than focusing on excavations at single sites, which (in the case of the paleolithic) were typically caves or rockshelters. Open sites had been almost completely ignored (Bar-Yosef 1991; Rosen 1991).

By the mid-1980s, archaeological research in Jordan incorporated new emphases on (1) large, regional, settlement and subsistence systems, (2) on how sites were arrayed in the landscape in relation to one another, and in relation to a succession of changing paleoenvironments and landforms, (3) on site distributions relative to critical resources (e.g., water, flint), and (4) on inter- and intrasite spatial analysis, with the objective of extracting information on forager mobility patterns and activity sets. More than any other single piece of research, the Central Negev Project ushered in a new 'anglo-american' archaeological perspective and, with it, a new generation of archaeologists who have contributed significantly to a better understanding of the ancient prehistory and paleoenvironments of the greater Levant. Much subsequent work in Jordan, including that summarized here, was profoundly influenced by these initial efforts, and by new directions taken by Marks, Phillips, Henry and Bar-Yosef in the xeric regions of the southern Levant.

Acknowledgments

This is Wadi Hasa Paleolithic Project Contribution No. 35, supported by the National Science Foundation, the National Geographic Society, Arizona State University, Iowa State University, and the Chase Bank of Arizona. The support and logistical assistance of the Department of Antiquities of Jordan and the American Center of Oriental Research (Amman) is gratefully acknowledged.

References Cited

Bamforth, D. 1986. Technological Efficiency and Tool Curation. *American Antiquity* 51: 38-50.

——1990. Mobility, Raw Material, and Lithic Procurement in the Central Mojave Desert. *Journal of Anthropological Archaeology* 9: 70-104.

Bar-Yosef, O. 1970. *The Epipaleolithic Cultures of Palestine.* Ph.D thesis, Department of Archaeology, Hebrew University, Jerusalem.

——1975. The Epi-Paleolithic in Palestine and Sinai. Pp. 313-371 in F. Wendorf and A. Marks (eds.), *Problems in Prehistory: North Africa and the Levant.* Dallas: SMU Press.

——1981. The Epi-Paleolithic Complexes in the Southern Levant. Pp. 389-408 in J. Cauvin and P. Sanlaville (eds.), *Préhistoire du Levant.* Paris: Editions du CNRS.

——1991. Stone Tools and Social Context in Levantine Prehistory. Pp. 371-395 in G. Clark (ed.), *Perspectives on the Past.* Philadelphia: University of Pennsylvania Press.

——1994. The Contributions of Southwest Asia to the Study of the Origins of Modern Humans. Pp. 23-66 in M. Nitecki and D. Nitecki (eds.), *Origins of Anatomically Modern Humans.* New York: Plenum.

Bar-Yosef, O. and Phillips, J. (eds.) 1977. *Prehistoric Investigations in Gebel Maghara, Northern Sinai.* Jerusalem: Hebrew University, Monographs of the Institute of Archaeology No. 7.

Bar-Yosef, O. *et al.* 1992. The Excavations in Kebara Cave, Mt. Carmel. *Current Anthropology* 33: 497-550.

Barton, C. M. and Neeley, M. 1996. Phantom Cultures of the Levantine Epipaleolithic. *Antiquity* 70: 139-147.

Bate, D. 1932. A Note on the Fauna of the Athlit Caves. *Journal of the Royal Anthropological Institute of Great Britain and Ireland* 62: 277-279.

Belfer-Cohen, A. 1995. Problems in Defining a Prehistoric Culture: an example from the southern Levant. Pp. 247-259 in M. Otte (ed.), *Nature et Culture.* Liège: ERAUL No. 68.

Belfer-Cohen, A. and Bar-Yosef, O. 1981. The Aurignacian at Hayonim Cave. *Paléorient* 7: 19-42.

Bergman, C. and Goring-Morris, A. N. 1987. Summary of the London Conference on K'sar Akil. *Paléorient* 13: 125-128.

Besançon, J. *et al.* 1984. The Lower and Middle Paleolithic in the Upper Zarqa/Khirbet Samra area of northern Jordan. *ADAJ* 28: 91-142.

Betts, A. 1988. The Black Desert: prehistoric sites and subsistence strategies in eastern Jordan. Pp. 369-391 in A. Garrard and H.-G. Gebel (eds.),*The Prehistory of Jordan.* Oxford: BAR International Series S-396(ii).

Bienkowski, P. 1991. Jordan: Crossroads of the Near East. Pp. 1-30 in P. Bienkowski (ed.), *The Art of Jordan.* Merseyside: National Museums & Galleries.

Binford, L. 1981. *Bones: Ancient Men and Modern Myths.* New York: Academic Press.

——1985. Human Ancestors: changing views of their behavior. *Journal of Anthropological Archaeology* 4: 292-327.

Binford, L. and Sabloff, J. 1982. Paradigms, Systematics and Archaeology. *Journal of Anthropological Research* 38: 137-153.

Blumenschine, R. 1991. Prey Size and Age Models of Prehistoric Hominid Scavenging: test cases from the Serengeti. Pp. 121-147 in M. Stiner (ed.), *Human Predators and Prey Mortality.* Boulder: Westview.

Boëda, E. 1991. Approche de la variabilité des systèmes de production lithique des industries du Paléolithique inférieur et moyen: chronique d'une variabilité attendue. *Techniques et Culture* 17-18: 37-79.

——1993. Le débitage discoïde et le débitage Levallois recurrente centripête. *Bulletin de la Société Préhistorique Française* 90: 392-404.

Bordes, F. and de Sonneville-Bordes, D. 1970. The Significance of Variability in Palaeolithic Assemblages. *World Archaeology* 2: 61-73.

Byrd, B. 1989. *The Natufian Encampment at Beidha: Late Pleistocene Adaptation in the Southern Levant.* Åarhus: Jutland Archaeological Society Publication No. 23.

——1994. Late Quaternary Hunter-Gatherer Complexes in the Levant between 20,000 and 10,000 BP. Pp. 205-226 in O. Bar-Yosef and R. Kra (eds.), *Late Quaternary Chronology and Paleoclimates of the Eastern Mediterranean.* Tucson: Radiocarbon.

Byrd, B. and Colledge, S. 1991. Early Natufian Occupation along the Edge of the Southern Jordanian Steppe. Pp. 265-276 in O. Bar-Yosef and F. Valla (eds.), *The Natufian Culture in the Levant.* Ann Arbor: International Monographs in Prehistory.

Byrd, B. and Garrard, A. 1990. The Last Glacial Maximum in the Jordanian Desert. Pp. 78-96 in C. Gamble and O. Soffer (eds.), *The World at 18,000 BP.* London: Unwin Hyman.

Clark, G. A. 1989. Romancing the Stones: biases, style and lithics at La Riera. Pp. 27-50 in D. Henry and G. Odell (eds.), *Alternative Approaches to Lithic Analysis.* Washington: AP3A No. 1.

——1991. Introduction. Pp. 3-21 in G. Clark (ed.), *Perspectives on the Past.* Philadelphia: University of Pennsylvania Press.

——1992a. Continuity or Replacement? Putting modern human origins in an evolutionary context. Pp. 183-205 in H. Dibble and P. Mellars (eds.), *The Middle Paleolithic: Adaptation, Behavior and Variability.* Philadelphia: University of Pennsylvania Museum.

——1992b. Wadi al-Hasa Palaeolithic Settlement Patterns: Negeb and South Jordan models compared. Pp. 89-96 in *SHAJ* IV. Amman: Department of Antiquities.

——1993. Paradigms in Science and Archaeology. *Journal of Archaeological Research* 1: 203-234.

——1994a. Migration as an Explanatory Concept in Paleolithic Archaeology. *Journal of Archaeological Method and Theory* 1: 305-343.

——1994b. Origine de l'homme: le dialogue de sourds. *La Recherche* 25: 316-321.

——1997a. The Middle-Upper Paleolithic Transition in Europe: an American view. *Norwegian Archaeological Review* 30: 25-53.

——1997b. Through a Glass Darkly: conceptual issues in modern human origins research. Pp. 60-76 in G. Clark and C. Willermet (eds.), *Conceptual Issues in Modern Human Origins Research*. New York: Aldine de Gruyter.

Clark, G. and Lindly, J. 1989a. The Case for Continuity: observations on the biocultural transition in Europe and western Asia. Pp. 626-676 in P. Mellars and C. Stringer (eds.), *The Human Revolution*. Edinburgh: Edinburgh University Press.

——1989b. Modern Human Origins in the Levant and Western Asia: the fossil and archaeological evidence. *American Anthropologist* 91: 962-985.

——1991. Paradigmatic Biases and Paleolithic Research Traditions. *Current Anthropology* 32: 577-587.

Clark, G. *et al.* 1987. Paleolithic Archaeology in the Southern Levant. *ADAJ* 31: 19-78, 547.

——1992. Wadi al-Hasa Paleolithic Project - 1992: preliminary report. *ADAJ* 36: 13-23.

——1994. Survey and Excavation in the Wadi al-Hasa: a preliminary report of the 1993 field season. *ADAJ* 38: 41-55.

——1997. Chronostratigraphic Contexts of Middle Paleolithic Horizons at the Ain Difla Rockshelter (WHS 634), West-Central Jordan. pp. 77-100 in H.-G. Gebel *et al.* (eds.),*The Prehistory of Jordan II: Perspectives from 1997*. Berlin: Ex Oriente.

Clark, G. and Willermet, C. (eds.) 1997. *Conceptual Issues in Modern Human Origins Research*. New York: Aldine de Gruyter.

Coinman, N. R. 1990. *Refiguring the Levantine Upper Paleolithic: a Comparative Examination of Lithic Assemblages from the Southern Levant*. Ph.D dissertation, Arizona State University. Ann Arbor: University Microfilms.

——1993. WHS 618 - Ain el-Buhira: an Upper Paleolithic site in the Wadi Hasa, west-central Jordan. *Paléorient* 19: 17-37.

——1997. Upper Paleolithic of Jordan: evidence from the Wadi el-Hasa and south Jordan. Pp. 209-217 in *SHAJ* VI. Amman: Department of Antiquities.

——1998. The Upper Paleolithic of Jordan. Pp. 39-63 in D. Henry (ed.), *The Prehistoric Archaeology of Jordan*. Oxford: BAR International Series No. 705.

——n.d. The Upper Paleolithic in the Wadi al-Hasa. In N. Coinman (ed.), *The Archaeology of the Wadi al-Hasa, West-Central Jordan, Vol. 2: Excavations in Middle, Upper, and Epipaleolithic Sites*. Tempe: ARP No. 52.

Coinman, N. and Clark, G. 1998. Introduction. Pp. 1-12 in N. Coinman (ed.), *The Archaeology of the Wadi al-Hasa, West-Central Jordan, Vol. 1*. Tempe: ARP No. 50.

Coinman, N. and Henry, D. 1995. The Upper Paleolithic Sites. Pp.133-214 in D. Henry (ed.), *Prehistoric Cultural Ecology and Evolution: Insights from Southern Jordan*. New York: Plenum.

Coinman, N. *et al.* 1999. The Eastern al-Hasa Late Pleistocene Project: preliminary report on the 1998 season. *ADAJ* 43: 9-25.

Copeland, L. 1989a. Analysis of the Paleolithic Artifacts from the Sounding of A. Garrard at C-Spring, 1985 Season. Pp. 325-390 in L. Copeland and F. Hours (eds.), *The Hammer on the Rock*. Oxford: BAR International Series S-540.

——1989b. The Artifacts from the Sounding of D. Kirkbride at Lion's Spring, Azraq, in 1956. Pp.171-212 in L. Copeland and F. Hours (eds.), *The Hammer on the Rock*. Oxford: BAR International Series S-540.

——1991. The late Acheulean Knapping Floor at C-Spring, Azraq Oasis, Jordan. *Levant* 23: 1-6.

——1997. Status, Perspectives and Future Goals in Jordanian Palaeolithic Research. Pp. 183-192 in H.-G. Gebel *et al.* (eds.), *The Prehistory of Jordan II: Perspectives from 1997*. Berlin: Ex Oriente.

Copeland, L. and Hours, F. 1988. The Palaeolithic in North-Central Jordan: an overview of survey results from the Upper Zarqa and Azraq, 1982-1986. Pp. 287-309 in A. Garrard and H.-G. Gebel (eds.), *The Prehistory of Jordan*. Oxford: BAR International Series S-396(ii).

Dibble, H. 1984. Interpreting Typological Variation of Middle Paleolithic Scrapers: function, style, or sequence or reduction? *Journal of Field Archaeology* 11: 431-436.

——1995. Middle Paleolithic Scraper Reduction: background, clarification, and review of the evidence to date. *Journal of Archaeological Method and Theory* 2: 299-368.

Edwards, P. 1990. Kebaran Occupation at the Last Glacial Maximum in Wadi al-Hammeh, Jordan Valley. Pp. 97-118 in C. Gamble and O. Soffer (eds.), *The World at 18,000 BP*. London: Unwin Hyman.

Edwards, P. *et al.* 1988. Late Pleistocene Prehistory in the Wadi el-Hammeh, Jordan Valley. Pp. 525-565 in A. Garrard and H.-G. Gebel (eds.), *The Prehistory of Jordan*. Oxford: BAR International Series S-396(ii).

——1996. The Early Epipaleolithic of Wadi al-Hammeh. *Levant* 28: 115-130.

Ferring, C. 1977. The Late Upper Paleolithic Site of Ein Aqev East. Pp. 81-118 in A. Marks (ed.), *Prehistory and Paleoenvironment in the Central Negev, Israel, Vol. II*. Dallas: Southern Methodist University Press.

Garrard, A. and Price, S. 1975-77. A Survey of Prehistoric Sites in the Azraq Basin, Eastern Jordan. *Paléorient* 3: 109-126.

Garrard, A. *et al.* 1985. Prehistoric Environment and Settlement in the Azraq Basin. *Levant* 18: 5-24.

——1988. Summary of Paleoenvironmental and Prehistoric Investigations in the Azraq Basin. Pp. 311-337 in A. Garrard and H.-G. Gebel (eds.), *The Prehistory of Jordan*. Oxford: BAR International Series S-396(ii).

Garrod, D. 1932. A New Mesolithic Industry: the Natufian of Palestine. *Journal of the Royal Anthropological Institute of Great Britain and Ireland* 62: 257-269.

——1942. Excavations at the Cave of Shukbah, Palestine, 1928. *Proceedings of the Prehistoric Society* 8: 1-20.

——1953. The Relations between Southwest Asia and Europe in the Latter Paleolithic Age. *Journal of World History* 1: 13-38.

——1954. Excavations at Mugharet Kebara, Mount Carmel, 1932: the Aurignacian industry. *Journal of the Royal Anthropological Institute* 85: 141-162.

Gibbons, A. 1990. Paleontology by Bulldozer. *Science* 247: 1407-1409.

Gifford-González, D. 1991. Bones are not Enough: analogues, knowledge and interpretive strategies in zooarchaeology. *Journal of Anthropological Archaeology* 10: 215-254.

Gilead, I. 1981. Upper Paleolithic Tool Assemblages from the Negev and Sinai. Pp. 331-342 in J. Cauvin and P. Sanlaville (eds.), *Préhistoire du Levant*. Paris: Editions du CNRS.

——1991. The Upper Paleolithic Period in the Levant. *Journal of World Prehistory* 5:105-154.

Gilead, I. and Bar-Yosef, O. 1993. Early Upper Paleolithic Sites in the Qadesh Barnea Area, Northeastern Sinai. *Journal of Field Archaeology* 20: 265-280.

Goring-Morris, A. N. 1995. Complex Hunter/Gatherers at the End of the Paleolithic (20,000-10,000 BP). Pp. 141-168 in T. Levy (ed.), *The Archaeology of Society in the Holy Land*. New York: Facts On File.

Henry, D. 1982. The Prehistory of Southern Jordan and Relationships with the Levant. *Journal of Field Archaeology* 9: 417-444.

——1989a. *From Foraging to Agriculture*. Philadelphia: University of Pennsylvania Press.

——1989b. Correlations between Reduction Strategies and Settlement Patterns. Pp. 139-155 in D. Henry and G. Odell (eds.), *Alternative Approaches to Lithic Analysis*. Washington: AP3A No. 1

——1994. *Prehistoric Cultural Ecology in Southern Jordan*. Science 265: 336-341.

——1995. *Prehistoric Cultural Ecology and Evolution*. New York: Plenum.

——1997. Cultural and Geologic Successions of Middle and Upper Paleolithic Deposits in the Jebel Qalkha Area of Southern Jordan. Pp. 69-76 in H.-G. Gebel *et al.* (eds.), *The Prehistory of Jordan II: Perspectives from 1997*. Berlin: Ex Oriente.

Hours, F. 1989. The Paleolithic Industries of Wadi Enoqiyyah, Azraq. Pp.403-450 in L. Copeland and F. Hours (eds.), *The Hammer on the Rock*. Oxford: BAR International Series S-540.

Jelinek, A. 1982. The Tabun Cave and Paleolithic Man in the Levant. *Science* 216: 1369-1375.

Jochim, M. 1981. *Strategies for Survival: Cultural Behavior in an Ecological Context*. New York: Academic Press.

Kerry, K. 1997. Jebel Humeima: a preliminary lithic analysis of an Ahmarian and Levantine Mousterian site in southwest Jordan. Pp. 125-136 in H.-G. Gebel *et al.* (eds.), *The Prehistory of Jordan II: Perspectives from 1997* . Berlin: Ex Oriente.

Kirkbride, D. 1958. A Kebaran Rockshelter in Wadi Madamagh, Near Petra, Jordan. *Journal of the Royal Anthropological Institute of Great Britain and Ireland* 63: 55-58.

——1966. Five Seasons at the Pre-Pottery Neolithic Village of Beidha in Jordan. *PEQ* 98: 8-72.

Kuhn, S. 1990. A Geometric Index of Reduction for Unifacial Stone Tools. *Journal of Archaeological Science* 17: 583-593.

——1991a. Unpacking Reduction: lithic raw material economy in the Mousterian of west-central Italy. *Journal of Anthropological Archaeology* 10: 76-106.

——1991b. New Problems, Old Glasses: methodological implications of an evolutionary paradigm for the study of paleolithic technologies. Pp. 243-257 in G. Clark (ed.), *Perspectives on the Past*. Philadelphia: University of Pennsylvania Press.

——1995. *Mousterian Lithic Technology: an Ecological Perspective*. Princeton: Princeton University Press.

Lee, R. and DeVore, I. (eds.) 1968. *Man the Hunter*. Chicago: Aldine.

Lindly, J. and Clark, G. 1987. A Preliminary Lithic Analysis of the Mousterian Site of Ain Difla (WHS 634) in the Wadi Ali, West-Central Jordan. *Proceedings of the Prehistoric Society* 53: 279-292.

MacDonald, B. 1982. The Wadi al-Hasa Survey 1979 and Previous Archaeological Work in Southern Jordan. *BASOR* 245: 35-52.

——(ed.) 1988. *The Wadi al-Hasa Archaeological Survey (1979-1983), West-Central Jordan*. Waterloo: Wilfrid Laurier University Press.

——(ed.) 1992. *The Southern Ghors and Northeast Arabah Archaeological Survey*. Sheffield: J. R. Collis Publications, Ltd.

MacDonald, B. *et al.* 1980. The Wadi al-Hasa Survey 1979: a preliminary report. *ADAJ* 24: 169-183.

——1982. The Wadi al-Hasa Survey 1981: a preliminary report. *ADAJ* 26: 117-131.

Macumber, P. and Edwards, P. 1997. Preliminary Results from the Acheulian site of Mashari'a 1, and a New Stratigraphic Framework for the Lower Palaeolithic of the East Jordan Valley. Pp. 23-44 in H.-G. Gebel *et al.* (eds.), *The Prehistory of Jordan II: Perspectives from 1997*. Berlin: Ex Oriente.

Marks, A. 1976. Ein Aqev: a late Levantine Upper Paleolithic site in the Nahal Aqev. Pp. 227-292 in A. Marks (ed.), *Prehistory and Paleoenvironments in the Central Negev, Israel, Vol. I*. Dallas: Southern Methodist University Press.

——1977. The Upper Paleolithic Sites of Boker Tachtit and Boker: a preliminary report. Pp. 61-80 in A. Marks (ed.),

Prehistory and Paleoenvironments in the Central Negev, Israel, Vol. II. Dallas: Southern Methodist University Press.

——1981. The Upper Paleolithic of the Negev. Pp. 343-352 in J. Cauvin and P. Sanlaville (eds.), *Préhistoire du Levant.* Paris: Editions du CNRS.

——1983.The Middle-to-Upper Paleolithic Transition in the Levant. *Advances in World Archaeology* 2: 51-98.

——(ed.) 1976, 1977, 1983. *Prehistory and Paleoenvironments in the Central Negev, Israel, Vols. I-III.* Dallas: Southern Methodist University.

Marks, A. and Ferring, C. R. 1988. The Early Upper Paleolithic of the Levant. Pp. 43-72 in J. Hoffecker and C. Wolf (eds.), *The Early Upper Paleolithic: Evidence from Europe and the Near East.* Oxford: BAR International Series No. 437.

Marks, A. and Freidel, D. 1977. Prehistoric Settlement Patterns in the Avdat/Aqev Area. Pp. 131-159 in A. Marks (ed.), *Prehistory and Paleoenvironments in the Central Negev, Israel, Vol. II.* Dallas: Southern Methodist University 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.

Mortenson, P. 1972. Seasonal Camps and Early Villages in the Zagros. Pp. 293-297 in P. Ucko *et al.* (eds.), *Man, Settlement and Urbanism.* London: Duckworth.

Muheisen, M. 1985. l'Epipaléolithique dans le gisement de Kharaneh IV. *Paléorient* 11: 149-160.

——1988. Survey of Prehistoric Cave Sites in the northern Jordan Valley. Pp. 503-523 in A. Garrard and H.-G. Gebel (eds.), *The Prehistory of Jordan.* Oxford: BAR International Series S-396(ii).

——1992. Répartition des sites du Paléolithique Inférieur en Jordanie. Pp. 97-104 in *SHAJ* IV. Amman: Department of Antiquities.

Neeley, M. 1997. *Assigning Meaning to Lithic Variability in the Epipaleolithic of the Southern Levant.* Ph.D Dissertation, Department of Anthropology, Arizona State University. Ann Arbor: University Microfilms.

Neeley, M. and Barton, C. M. 1994. A New Approach to Interpreting Late Pleistocene Microlithic Industries in Southwest Asia. *Antiquity* 68: 275-288.

Neeley, M. *et al.* n.d. Investigations at Tor al-Tareeq: an Epipaleolithic site in the Wadi al-Hasa, Jordan. *Journal of Field Archaeology* 25.

Nelson, M. 1991. The study of Technological Organization. Pp. 57-100 in M. Schiffer (ed.), *Archaeological Method and Theory, Vol. 3.* Tucson: University of Arizona Press.

Neuville, R. 1934. La préhistoire de Palestine. *RB* 43: 237-259.

——1951. *Le Paléolithique et le Mésolithique du Désert de Judée.* Paris: Archives de l'Institut de Paléontologie Humaine, Mémoire No. 24.

Olszewski, D. 1997. From the Late Ahmarian to the Early Natufian: a summary of hunter-gatherer activities at Yutil al-Hasa, west-central Jordan. Pp. 171-182 in H.-G. Gebel *et al.* (eds.),*The Prehistory of Jordan II: Perspectives from 1997.* Berlin: Ex Oriente.

——n.d. The Palaeolithic of Jordan. In R. Adams *et al.* (eds.), *The Archaeology of Jordan.* Sheffield: University of Sheffield Press.

Olszewski, D. and Coinman, D. 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.* Tempe: ARP No. 50.

Olszewski, D. *et al.* 1990. WHS 784x (Yutil al-Hasa): a late Ahmarian site in the Wadi Hasa, west-central Jordan. *Proceedings of the Prehistoric Society* 56: 33-49.

——1994. The 1993 Excavations at Yutil al-Hasa (WHS 784), an Upper-Epipaleolithic Site in West-Central Jordan. *Paléorient* 20: 129-141.

——1998. The Eastern al-Hasa Late Pleistocene Project: a preliminary report on the 1997 Season. *ADAJ* 41: 1-21.

Parenti, F. *et al.* 1997. Early Acheulean Stone Tools and Fossil Faunas from the Dauqara Formation, Upper Zarqa Valley, Jordanian Plateau. Pp. 7-22 in H.-G. Gebel *et al.* (eds.), *The Prehistory of Jordan II: Perspectives from 1997.* Berlin: Ex Oriente.

Perrot, J. 1955. Le paléolithique d'el Quseir et de Masaraq en-Naaj (Palestine). Inventaire de la collection R. Neuville. *Bulletin de la Société Préhistorique Française* 52: 493-506.

Phillips, J. 1987a. Sinai during the Paleolithic: the early periods. Pp. 105-121 in A. Close (ed.), *The Prehistory of Arid North Africa.* Dallas: Southern Methodist University Press.

——1987b. Upper Paleolithic Hunter-Gatherers in the Wadi Feiran, Southern Sinai. Pp. 169-182 in O. Soffer (ed.), *The Pleistocene Old World: Regional Perspectives.* New York: Plenum.

——1988. The Upper Paleolithic of the Wadi Feiran, Southern Sinai. *Paléorient* 14: 183-200.

Potts, R. 1998. *Early Hominid Activities at Olduvai.* New York: Aldine de Gruyter.

Rollefson, G. 1980. The Palaeolithic Industries of Ain el-Assad (Lion's Spring) Near Azraq, Eastern Jordan. *ADAJ* 24: 129-143, 301-309.

——1981. The Late Acheulean Site of Fjaje, Wadi el-Bustan, Southern Jordan. *Paléorient* 7: 5-21.

——1982. Preliminary Report on the 1980 Excavations at Ain el-Assad. *ADAJ* 26: 5-35.

——1983. Two Seasons of Excavation at Ain el-Assad, Eastern Jordan, 1980-81. *BASOR* 252: 25-34.

Rollefson, G. *et al.* 1997. Ain Soda and Ain Qasiya: new late Pleistocene and early Holocene sites in the Azraq Shishan area, eastern Jordan. Pp. 45-58 in H.-G. Gebel *et al.* (eds.),*The Prehistory of Jordan II: Perspectives from 1997.* Berlin: Ex Oriente.

Ronen, A. 1976. The Upper Paleolithic in Northern Israel: Mt. Carmel and Galilee. Pp. 153-186 in *Deuxième Colloque sur la Terminologie de la Préhistoire du Proche-Orient.* Nice:

IXe Congrès International de la Union des Sciences Préhistorique et Protohistorique.

——1984. *Sefunim Prehistoric Sites, Mount Carmel, Israel.* Oxford: BAR International Series S-230 (i,ii).

Rosen, S. 1991. Paradigms and Politics in the Terminal Pleistocene Archaeology of the Levant. Pp. 307-321 in G. Clark (ed.), *Perspectives on the Past.* Philadelphia: University of Pennsylvania Press.

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.* Tempe: ARP No. 50.

Schuldenrein, J. and Clark, G. 1994. Landscape and Prehistoric Chronology of West-Central Jordan. *Geoarchaeology* 9: 31-55.

Stiner, M. 1994. *Honor Among Thieves: a Zooarchaeological Study of Neandertal Ecology.* Princeton: Princeton University Press.

Tchernov, E. 1990. The Age of the Ubeidiya Formation (Jordan Valley, Israel) and the Earliest Hominids in the Levant. Pp. 63-65 in O. Aurenche *et al.* (eds.), *Préhistoire du Levant: Processus des Changements Culturels.* Paris: Editions du CNRS.

Turville-Petre, F. 1932. Excavations in the Mugharet el-Kebara. *Journal of the Royal Anthropological Institute of Great Britain and Ireland* 62: 271-276.

Waechter, J. 1948. The Excavations at Ala Safat, Transjordan. *Journal of the Palestine Oriental Society* 21: 98-103.

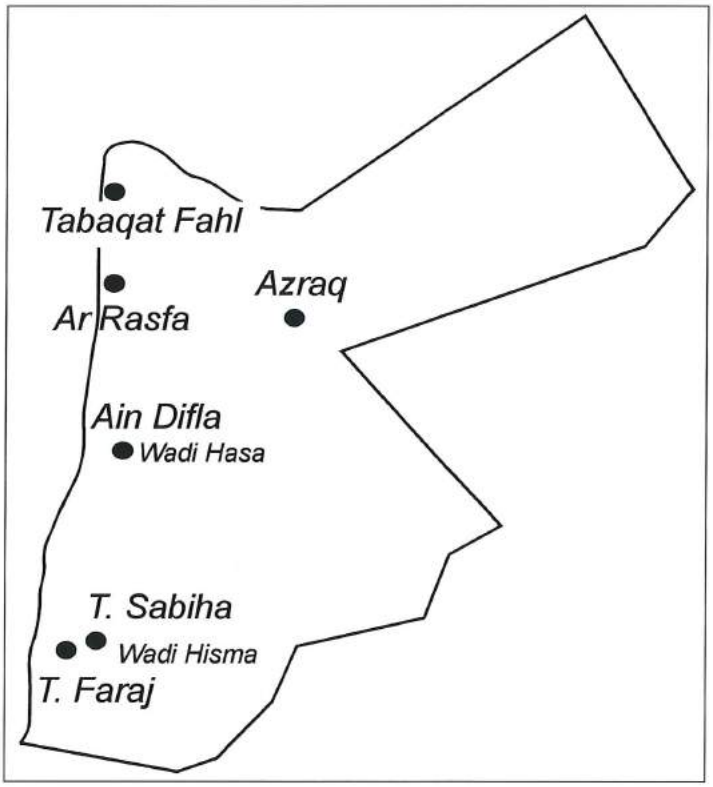
Williams, J. 1997. Tor Aeid: an Upper Paleolithic occupation in southern Jordan. Pp. 137-148 in H.-G. Gebel *et al.* (eds.), *The Prehistory of Jordan II: Perspectives from 1997.* Berlin: Ex Oriente.

Donald O. Henry
The University of Tulsa
600 South College Ave.
Tulsa, Oklahoma
USA

Donald O. Henry

The Middle Paleolithic of Jordan: An Overview

The Middle Paleolithic of Jordan is known from isolated finds and surface scatters of Levantine Mousterian artifacts (e.g., Levallois cores, points, and flakes) all across the country, but artifact assemblages discovered *in situ* are rare (Henry 1998a). Sites have been reported from all but one of the country's broad physiographic units (the Bādiya) and where comprehensive Paleolithic surveys have been undertaken, Levantine Mousterian occurrences account for some 2-30% of the total inventory of sites (Henry 1995; Clark 1992). Although sites and find-spots are widespread and abundant (Zeuner *et al.* 1957; Huckriede and Wiesemann 1968; Bender 1974; Muheisen 1983; MacDonald 1988; 1992; Henry 1998b), as yet only a few have been intensively investigated. In fact, only a few sites have been reported to have buried horizons (FIG. 1). These come from investigations in Ṭabaqat Faḥl (McNicoll *et al.* 1985; Walmsley *et al.* 1993), Wādī Zagh (Shea in press), the al-Azraq Basin (Garrard *et al.* 1987; Rollefson 1983), Wādī al-Ḥasā (Clark *et al.* 1988; Clark *et al.* 1992; Clark *et al.* 1997), and Wādī Ḥismā (Henry 1995; 1997a; 1998a; Henry *et al.* 1996). Of these, only those sites from Wādī al-Ḥasā and Wādī Ḥismā have been studied in any detail. Although only a handful of sites have been intensively researched, these have contributed important evidence for addressing a variety of Levantine Mousterian issues including chronometry, paleoenvironmental reconstruction, artifact variability, and human ecology.



1. Map showing the locations of the major Levantine Mousterian sites in Jordan.

Ṭabaqat Faḥl: Wādī al-Ḥammeh and Wādī al-Ḥimār

Excavations in the the Wādī al-Ḥammeh Conglomerate, a 40m thick Late Pleistocene deposit, found within the Wādī al-Ḥammeh - Wādī al-Ḥimār drainage network has identified an extensive Middle Paleolithic horizon (Walmsley *et al.* 1993). The deposit consists of interfingering red, pebbly clays and pebbly marls, from which Middle Paleolithic artifacts are known to erode. The horizon appears bracketed by an overlying 14C date of ~36k b.p. (on *Melanopsis* shells) and the presumed time-equivalence of the base of the sequence with the adjacent Jordan Valley's inundation by the ancient Lake Lisan ~80kya (Walmsley *et al.* 1993: 174). Sedimentary data indicate that the ancient Wādī al-Ḥammeh contained a large fresh-water spring zone that occupied its lower reaches adjacent to the lake.

In directing the investigation, Edwards observed that artifacts are widely and consistently distributed throughout the deposits, but not nucleated in discrete sites (Walmsley *et al.* 1993:174). Given this depositional context, he initiated a sampling strategy in which pits were dug into unambiguous exposures of the clay beds at successive in-

tervals along an outcrop. This strategy resulted in the identification of twelve sites and the previously investigated site of WH 35 was reexamined. The series falls within a 30m elevational belt resting between -96 and -126m msl.

Although the distances between the test excavations are not reported, the artifact distribution appears widespread and nearly ubiquitous. This might result from post-depositional erosion and scatter, but if so, the noted fresh edges on the specimens imply that they were not transported over long distances. Alternatively, the widespread artifact distribution may be related to numerous episodes of partially overlapping encampments. Such a palimpsest of occupations would be nearly impossible to detect without large exposures of paleo-surfaces. In contrast to this general pattern, one site (WH 41), shows a concentration of artifacts in the form of a narrow, clustered band of sharp flakes and blades (Walmsley *et al.* 1993:175). Perhaps not coincidentally, WH 41 also differs from the other sites in its stratigraphic position.

The preliminary report of the investigation does not provide detailed or quantitative accounts of the artifact inventories of the sites, nor industrial designations. Edwards mentions, however, that there seems to be broad uniformity in the configurations of the assemblages, that he associates with the Levantine Mousterian, and he notes the presence of unidirectional Levallois point cores, Levallois points, flakes, bladelets, burins, scrapers and shatter debris (Walmsley *et al.* 1993:175).

Wādī Zagh: ar-Raṣfa

Another site located in northwestern Jordan is ar-Raṣfa, an open-air occupation located north of the Wādī Zagh at an elevation of ca. -37mbsl (Shea, in press). In the Late Pleistocene, the site would have been perched on a bluff overlooking ancient Lake Lisan. The initial testing of the site not only confirmed *in situ* Levantine Mousterian artifacts in a stratified context, constellations of refitted artifacts show the occupations to be in primary context. In his analysis of the artifacts, Shea (in press) cautiously suggests an Early Levantine Mousterian age for the assemblage, although he also notes a lack of agreement in certain seriation indices. Overall, the assemblage would appear to have been tied more to flake than blade/point production. Given the proximity to Cenomanian chert outcrops and the abundance of primary flaking evidence, the site may have served as a collection point for raw material in addition to a game lookout.

North Central Jordan Survey

Numerous Middle Paleolithic artifacts were recorded in a geoarchaeological investigation of the depositional sequences of several wadi systems in north central Jordan: the valleys of the Upper az-Zarqā' near as-Sukhna and its main tributary, Wādī aḍ-Ḍulayl, and three wadis (Rattama, al-Buṭm, and al-Kharrāna) that drain into the al-'Azraq Basin. (Besançon *et al.* 1984; Besançon and Hours 1983; Copeland and Hours 1988; 1989). Within the Upper az-Zarqā' study area, Levallois flakes and cores were found associated with a second terrace (the Khirbat as-Samrā' formation) consisting of gravels and fine sediments some of which are aeolian. In the al-'Azraq Basin area, Middle Paleolithic flakes were found *in situ* above Wādī Rattama within a terrace composed of fine gravels and silts. The artifacts are thought to represent two phases, both falling early within the last pluvial (Copeland and Hours 1988).

Al-'Azraq Investigations

Middle Paleolithic artifacts associated with the springs of the al-'Azraq Basin have been reported by several researchers (Zeuner *et al.* 1957; Garrard *et al.* 1987; Copeland and Hours 1988; 1989; Rollefson 1983; Rollefson *et al.* 1997), but definitive *in situ* finds have been especially elusive. During the excavation of a canal in 1956, Lower and Middle Paleolithic artifacts were reported at C Spring by the Barker-Harza Company (1958). The site was subsequently visited by Frank Zeuner and Diana Kirkbride, but controlled excavations were not undertaken until Garrard *et al.* (1987). Copeland (1989), in her analysis of the artifacts from the C Spring excavation, notes that while the Levallois cores of Levels P and Q could signal a Middle Paleolithic horizon they are likely Late Acheulean. Recent finds at another al-'Azraq spring locality, 'Ayn Soda, may also indicate a Middle Paleolithic presence in the basin (Rollefson *et al.*1997).

Al-Jafr Investigations

Huckriede and Wiesemann (1968) reported Middle Paleolithic sites and isolated finds in the al-Jafr Basin, but in the absence of detailed analysis of *in situ* finds, it is hard to know what to make of their claims. They mention the presence of Levalloiso-Mousterian artifacts in association with ancient Lake Jafr and also with the dry lake bed that appeared subsequent to its desiccation. Most of the artifact descriptions, however, focus on material recovered from an even later interval which they also attribute to the Middle Paleolithic and term the *Matakhium*. Thought to be post-Lisan in age, they viewed the *Matakhium* as evidence for the very late survival of the Middle Paleolithic. This seems rather far-fetched, and would so even in 1968, as we know the Middle-Upper Paleolithic transition in the Levant to have occurred ~40-50kya. The brief descriptions and illustrations of the *Matakhium* show an industry dominated by thick blades with predominantly unfacetted platforms that were struck from opposed platform cores; attributes that bear little resemblance to those of well studied Mousterian as-

semblages recovered from elsewhere in the Levant.

Wādī al-Ḥasā

Following an initial survey by MacDonald (1988), two sites ('Ayn Difla - WHS 621 and WHS 634) were intensively investigated by Clark (Clark *et al.* 1987; Lindly and Clark 1987; Clark *et al.* 1993; Clark *et al.* 1997).

'Ayn Difla, a collapsed rockshelter, consists of a small remnant of a high (12m) terrace and possibly a lower middle terrace of Wādī 'Alī (a tributary of Wādī al-Ḥasā). The deposit consists of five units. The two uppermost units post-date the occupation of the shelter and have acted to partially preserve the underlying units. Unit 3, consisting of roof spall, mass wasted boulders, and brecciated matrix, contains isolated artifacts and appears to represent the ancient collapse of the interior of the shelter. Units 4 and 5 represent alluvial deposits that are thought to be associated with the high and/or middle terrace. The chronometry of the deposit (established from a TL and 8 ESR assays) suggests a human presence in the shelter within an interval stretching from ~90-180kya, i.e., Oxygen Isotope stages 5 and late 6 (Clark *et al.* 1997). Although not within the shelter deposit, tufa from a nearby extinct spring area located at the same elevation as the high terrace also has yielded a Th/U date of ~141kya.

Pollen recovered from the 'Ayn Difla deposit is not well preserved, yet two studies point to steppic conditions (Lindly and Clark 1987; Clark *et al.* 1988; Clark *et al.* 1997). The second, more comprehensive study, suggests the presence of less marginal conditions than initially suspected, however. In this study, the setting appears to have been a cool steppe dominated by shrubs (Chenopodiaceae, Tubliflorae, Artemesia, and Cruciferae) and grasses. Trees apparently were present only as minor, localized elements occurring along drainages and in other better watered locations. The faunal remains recovered from the deposit also are consistent with the environmental reconstruction of a cool steppe (Lindly and Clark 1987). With only thirteen diagnostic elements, the assemblage is dominated by equids (*Equus hemionus/assinus, Equus sp.* indet.), but goat (*Capra sp.* indet.) and gazelle (*Gazella sp.* indet.) are also present. Given the apparent age of the deposit, one would expect a much more mesic setting in that pluvial conditions have generally been registered for the interval elsewhere in the Levant. The pollen and faunal data also seem inconsistent with evidence for spring activity near the site.

Artifacts found within the deposit are confined to chipped stone specimens of which 19,165 were recovered (Clark *et al.* 1997). Although intra-site spatial and stratigraphic comparisons have not been reported, comparison of the artifact inventories by excavation season (i.e., 1984, 1986, 1992) shows little variability.

As a whole the assemblage is characterized by the production of elongated, narrow based Levallois points, from both bi-directional (68%) and unidirectional cores, and a relatively high blade index (ILam = 41.8). The mean length:width ratio of the points is 3.2 (Lindly and Clark 1987). These technotypological signatures are consistent with its D-type Levantine Mousterian placement (Lindly and Clark 1987; Clark *et al.* 1997). Levallois points account for >61% of the tool-kit and, in a pilot study, show a high incidence of microwear and polish (Lindly and Clark 1987); a pattern recognized for points from other Levantine Mousterian sites (Shea 1995). Beyond points the tool-kit is dominated by burins, naturally backed knives, notches, and denticulates.

Although evidence of the various segments of a complete reduction sequence are present at 'Ayn Difla, the relatively low proportions of cortical elements and cores imply that the initial steps of decortification and core shaping were undertaken elsewhere in the site or at off-site locations. The high degree of exhaustion of cores and the low proportion of tools to debris and debitage indicate that the site was intensively occupied. This contention finds further support in a variety of other assemblage attributes thought to denote occupational permanence (Potter 1993).

Moreover, some twenty small hearths and two pits represent other lines of evidence pointing to the extended use of the shelter.

Site WHS 621

The site, located on the ancient shoreline of Lake Hasa, consists of a large, ~4000 m^2 surface scatter of Levantine Mousterian artifacts (Clark *et al.* 1988). The artifacts display little patination and fresh, unrolled edges and appear to be eroding from lacustrine marls. Although test excavations recovered material to a depth of 30cm, the site is not thought to be *in situ* in the restricted sense of the term (Clark *et al.* 1988). But even in a slightly derived context and with evidence of minor Upper Paleolithic and Chalcolithic components, it is viewed as an essentially unmixed Mousterian campsite (or series of campsites).

Over 6,000 artifacts, collected from the surface, make up the assemblage as reported (Clark *et al.* 1988; Potter 1993; 1995). Technologically, the assemblage exhibits a high proportion of blade production in association with a high faceting index. Moderately high proportions of Levallois points are present. Although these are not described, their length:width proportions coupled with the high faceting index for the assemblage indicates that they are probably broad-based forms. In their review of the technological and metric indices of the assemblage, Clark *et al.* (1988) note various ambiguities in attempting to place it within the Tabun sequence and, in turn, question the usefulness of the indices as chronological indicators. In a subsequent study, however, Potter (1993; 1995) refers

to WHS 621 as a Type-B assemblage.

Although primary elements account for >26% of the debitage, Clark *et al.* (1988) point to the paucity of specimens totally covered with cortex and suggest that cores were likely to have undergone initial shaping off-site. The presence of a substantial proportion of Levallois flakes, accompanied by moderate numbers of disk and Levallois flake cores, indicates that Levallois flake production formed a significant part of the technology, in tandem with point production.

The tool-kit is dominated by "miscellaneous" specimens which account for >25% of the tools. The unusually high representation of this type may stem from the deflated context of the assemblage and the attendant edge nibbling or "camel retouch" to which surface artifacts are subjected. Levallois points, notches, truncated/backed pieces, denticulates, endscrapers, and perforators round out the tool-kit.

In his analysis of WHS 621, Potter (1993;1995) thinks the assemblage represents relatively ephemeral encampments in comparison with the more intensively occupied 'Ayn Difla rockshelter. While several of the assemblage characteristics seem consistent with his conclusions, others appear unfounded. For example, greater tool-kit diversity and more intensive retouch are generally tied to lower levels of mobility and higher residential permanence, not the other way round (Henry 1992; 1995; Dibble 1988).

Aside from the lithic artifacts, 28 identifiable faunal elements were reported. Those identified to species include *Bos primigenius, Equus caballus*, and *Equus hemionus/asinus*. Clark *et al.* (1988), however, caution that the bones most likely accumulated naturally and merely represent "background fauna" of a marshy, lakeshore environment on the edge of a grassland steppe.

Wādī Ḥismā

Investigations of the northern and western flanks of Wādī Ḥismā in southern Jordan have revealed several sites containing Levantine Mousterian horizons (Henry 1982;1988; 1992; 1994; 1995; 1997; 1998a; Henry *et al.* 1996; Olson 1997). Although numerous "find spots" representing sparse surface scatters of artifacts have been recorded in most of the areas undergoing intensive survey, only eight sites have yielded evidence of *in situ* Levantine Mousterian occupations that are in primary context. All but the high elevation (1,300 masl) site of Ṭor Ṣabīḥa, fronting the Ma'ān Plateau, are clustered in the Jabal Qalkha area some 20-25km away and at lower elevations (900-1000 masl). And all but one of these (Site J447) are tied to caves, rockshelters, or shallow overhanging cliffs. Only two of the sites (Ṭor Faraj "Farrāj", and Ṭor Ṣabīḥa) have been investigated in detail (Henry 1995; 1998a; Henry *et al.* 1996). The others represent recent discoveries (J444 and J447) or recently exposed Middle Paleolithic horizons underlying Upper Paleolithic components (J403, J412, J431, J432).

Regional Geology and Paleoenvironment

Within the area, Levantine Mousterian occupations are found in aeolian sand deposits that appear to have accumulated under dry steppic conditions, although cooler and more moist than those of today. The Ṭor Ṣabīḥa, deposit produced a poor pollen assemblage dominated by grasses and Chenopodiaceae (type *Noaea*), an indicator of relatively warm conditions, along with low percentages of alder, elm, and pine (Emery-Barbier 1995). The presence of the halophytic plants (Frankeniaceae) indicates at least a limited occurrence of a wet saline setting near the site. The apparent abundance of grasses and even modest arboreal component, coupled with evidence for a wet ground setting, indicate greater available moisture than today. Although poorly preserved, faunal remains also indicate a steppe environment and include the bones of *Bos*, equids, gazelle, and ostrich eggshell fragments.

Environmental indicators from the deposit of Ṭor Faraj consist primarily of phytoliths (Rosen 1995; n.d.) that represent grasses, sedges, reeds, rushes, and palm. The grasses are predominantly C3 varieties, a group linked to cool, moist environments. Although the phytoliths confirm the presence of standing water near the site and thus imply a more moist setting than exists for the area today, the overall environment was undoubtedly arid given the accumulation of over 4m of drift sand within the shelter. Levantine Mousterian horizons are also found within aeolian red sand layers at five other sites in the Jabal Qalkha area (Henry 1997; 1998).

Chronometry

A broad chronometry has been established for the Levantine Mousterian horizons of Ṭor Faraj and Ṭor Ṣabīḥa, in the form of amino acid racemization (AAR), thorium/uranium (Th/U), and thermoluminesence (TL) determinations. AAR determinations for ostrich eggshell fragments from Ṭor Faraj and Ṭor Ṣabīḥa, yielded identical results (69.9±6 kya), yet Th/U determinations on the same samples produced ambiguous dates (Henry and Miller 1992; Henry 1995). Two of these samples provided dates that are clearly too young (28.9±3.9 and 31±5 kya), while the third furnished a date in agreement (62.4±14) with its AAR counterpart from Ṭor Faraj. Recently acquired TL dates from Ṭor Faraj, corrected for the dosimetry of the deposit, suggest a younger age than do the AAR and Th/U dates (Valladas 1996 pers. comm.). The combined dates from the three techniques (excluding the two implausible ones) show a range from ~ 44-69kya and a mean age of ~55kya for Ṭor Faraj.

Artifacts, Technotypology, Inter- and Intrasite Patterns

The Mousterian assemblages of the Ḥismā appear to share a technological focus on the production of broad based Levallois points. Points typically account for ~40-50% of the tool-kit. The points were struck from cores that had been predominantly shaped through unidirectional, convergent preparation. The production of broad-based points from cores shaped by unidirectional, convergent removals is quite similar to that described for the B-type assemblages of Kebara (Meignen 1995). But refitting at Ṭor Faraj also shows us that unidirectional preparation was progressively replaced by bidirectional preparation as the working faces of cores were reduced through successive point removals and that bidirectional preparation became the norm for cores-on-flakes (*Nahr Ibrahim*). Therefore, the directionality of scar patterns is likely a more sensitive indicator of core exhaustion and chert availability than temporal placement.

Similarly, the proportions of points and blades in assemblages are likely to be more strongly tied to environmental settings than time. Not only do the arid zone assemblages of B-type show much higher point and blade proportions, so do D-type assemblages. The greater point production in the arid zone was likely tied to an emphasis on hunting. Increased point production, in turn, would have resulted in more elongated by-products from preparatory removals. Blades also offer a distinct selective advantage over flakes in an environment requiring high mobility levels because of their greater edge production efficiency (Henry 1987; 1995).

Summary and Conclusions

Although only a few Middle Paleolithic sites in Jordan have been researched intensively, they show a potential for making significant contributions to the solution of regional and even global problems. Evidence obtained from the sites offers a means of: (1) evaluating the integrity of the Tabun sequence at a regional scale, (2) assessing the accuracy of the paleoclimatic reconstructions coeval with the Middle Paleolithic, and (3) examining the technotypological parameters used in the definition of Middle Paleolithic taxonomic units. Inter- and intrasite patterns identified in the context of Jordanian sites also have refined our understanding of Middle Paleolithic settlement - procurement strategies and behavioral organization.

Regional Applicability of the Tabun Sequence

On the basis of the technotypological seriation recognized at Tabun, the placement of the assemblages from 'Ayn Difla (D-type) and Ṭor Faraj/Ṭor Ṣabīḥa, (B-type) is generally consistent with the chronometry of these assemblages. 'Ayn Difla (dated by ESR, TL, and Th/U) yields a broad, but early dating range of ~90-180kya and is in general agreement with the ~80-270kya range for other D-type assemblages dated by similar techniques. Ṭor Faraj and Ṭor Ṣabīḥa, (dated by AAR, TL, and Th/U) present a tighter and much later temporal sweep of ~48-69kya that is in close agreement with the Kebara TL dates of ~ 45-66kya (Bar-Yosef 1994:36-37), but considerably later than the Tabun B ESR dates of~ 97kya (EU) or ~121kya (LU). Although the ambiguities of Levantine Mousterian chronometry are far from resolved, the Jordanian sites of 'Ayn Difla, Ṭor Faraj, and Ṭor Ṣabīḥa, indicate that D-type assemblages are earlier than B-type on a regional scale. Moreover, the dates from Ṭor Faraj and Ṭor Ṣabīḥa, furnish additional support for placing B-type assemblages within an interval stretching from ~ 44-70kya.

The assemblages from Wādī Ḥismā and Wādī al-Ḥasā share some other technotypological features that fail to fit the Tabun succession, however. The proportions of blades and points in the Jordanian assemblages are quite high and exceed comparative values for most Levantine Mousterian assemblages, especially B-type assemblages. Tabun IX (D-type) is an exception to this pattern, yet this could be a consequence of selective introduction of blades into the cave, since there is little evidence that they were manufactured there (Jelinek 1982b). In that point and blade indices for the assemblages of the arid zone tend to be significantly higher than those of the Mediterranean zone regardless of time-frame (Henry 1995), it would appear that such features are not time-sensitive and thus perhaps not very useful seriation devices on a region-wide scale. Similarly, the linkage between directionality in the preparation of core faces and the sizes of the faces, as observed at Ṭor Faraj, indicates that the relative proportion of unidirectional and bidirectional preparation is more of a function of core exhaustion than chronology. Of course, these observations need verification at additional sites, especially in the arid zone.

Paleoenvironmental Succession

Paleoenvironmental evidence from the Jordanian sites, however, is not in strict agreement with our prevailing notions of the climatic succession during the Levantine Mousterian. Pollen from the 'Ayn Difla deposit points to steppic conditions, whereas pollen, geologic, and faunal data linked to D-type Levantine Mousterian deposits elsewhere indicate a moist, even pluvial climate. The apparent spring activity near 'Ayn Difla thought to be synchronous with the occupation of the shelter also is hard to reconcile with the pollen data that is indicative of dry conditions.

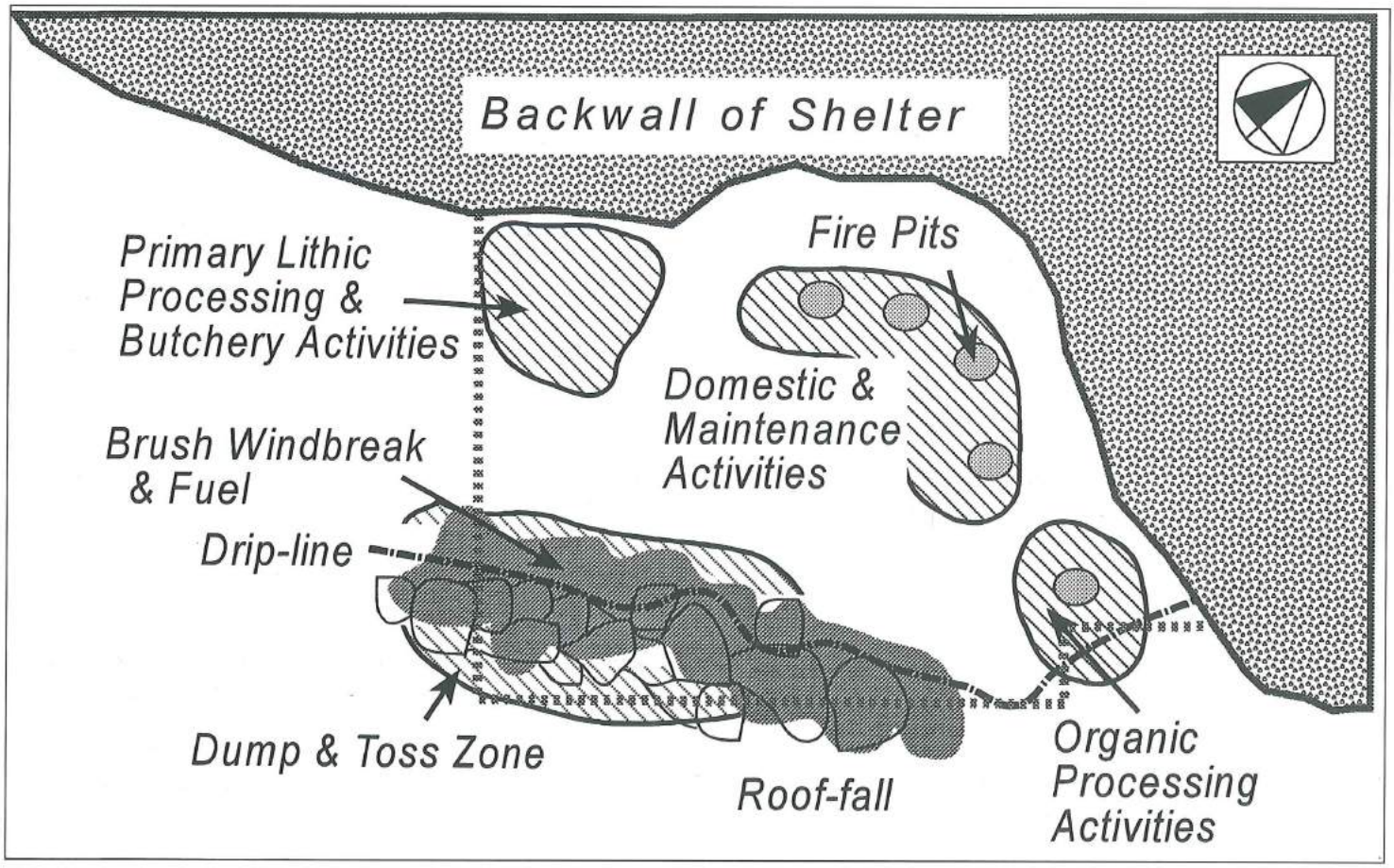
Sedimentary, pollen, and phytolith data from Ṭor Faraj and Ṭor Ṣabīḥa, also indicate steppic conditions. Although more moist than today's setting, in which rainfall ranges from <50 to <200mm annually, the environment of the Wādī Ḥismā ~48-69kya was likely arid as evidenced

by the accumulation of thick deposits of drift sand containing Levantine Mousterian horizons. This apparent late Levantine Mousterian arid episode is consistent with much of the regional evidence, especially the geologic sequences recorded by Goldberg (1981; 1986) in the southern Levant, but fails to mesh with Weinstein-Evron's (1988) pollen results from Lake Huleh in the northern Jordan Valley. The lack of agreement in region-wide comparisons of environmental evidence may stem from the lag-times along latitudinal gradients that occur within the Levant during episodes of climatic change (Henry 1983; 1989; Baruch and Bottema 1991; Baruch 1994). Also, as Clark *et al.* (1997) stress, west-east environmental gradients are poorly understood. This is largely because we have had few points of reference from which to model paleoclimatic reconstructions. Data from the Jordanian sites are thus hugely important in filling this void.

Inter- and Intra-site Patterns

Attribute studies of the assemblages from Wādī al-Ḥasā (Potter 1993) and Wādī Ḥismā (Henry 1995) indicate that the Middle Paleolithic occupants of the sites followed settlement-procurement strategies that involved different levels of mobility and lengths of residence. While on a general level, this is consistent with the findings of Marks (1981; Marks and Friedel 1977) in the central Negev, neither the Ḥasā or Ḥismā data suggests the kind of long-term, nearly permanent residence pattern posited for the Negev. Given the differences in environmental settings and time-frames, this perhaps should not be surprising.

The settlement-procurement pattern defined for the Ḥismā, in fact, complements the Negev model. Based upon B-type assemblages, it appears to fill the void that accompanied the emergence of arid conditions and erosion in the Negev. Unlike the Early Levantine Mousterian pattern of the Negev in which pluvial conditions supported nearly permanent, logistically supported base-camps, the drier, but elevationally ameliorated conditions of Late Levantine Mousterian times in southern Jordan prompted a different settlement-procurement strategy. This strategy, essentially representing a composite of that proposed for the Middle and Upper Paleolithic of the Negev, encompassed *both* longterm, logistically organized base-camps and opportunistically supported ephemeral camps. These were seasonally and elevationally structured within a pattern of transhumance. The Jordanian



2. Plan of Floor II of Ṭor Faraj showing the distinct distributions of cores and Levallois points related to different activity areas. The shaded contours denote the densities of chert chips.

evidence is thus important in supporting claims that Middle Paleolithic settlement patterns in the Levant were diverse and complex, as they are among modern foragers.

Intra-site studies undertaken at Ṭor Ṣabīḥa, and Ṭor Faraj reinforce the reconstruction of the inter-site patterns. The spatial distributions of various artifact categories at Ṭor Ṣabīḥa, conform to the expected overlapping, simply organized, and single locus artifact concentration of an ephemeral campsite. In contrast, the artifact distribution at Ṭor Faraj shows a much more complex site structure with domestic area containing numerous hearths and wide-range of activity modes (sleeping, cooking, food-preparation, and maintenance activities) as well as other spatially segregated activities tied to lithic manufacturing and butchery (FIG. 2). When coupled with the inter-site evidence, these findings challenge long-held notions that Middle Paleolithic organizational strategies were limited to simple, opportunistic, expedient, and routinized behaviors.

This review of the Jordanian Middle Paleolithic shows that we have just begun to realize the ultimate potential for Jordanian sites to contribute to the solution of Middle Paleolithic problems.

References

Baker Jr., M., Inc. and Harza Engineering Company. 1958. *Princess Alia Project: Definite Plan Report.* Hashemite Kingdom of Jordan Development Board, Amman.

Baruch, U. 1994. The Late Quaternary Pollen Record of the Near East. Pp. 103-120 in O. Bar-Yosef and R. Kra (eds.), *Late Quaternary Chronology and Paleoenvironments of the Eastern Mediterranean.* Braun-Brumfeld, Inc, Ann Arbor.

Baruch, U. and Bottema, N. 1991. Palynological Evidence for Climatic Changes in the Levant ca. 17,000-9,000 B.P. Pp.11-20 in O. Bar-Yosef and F. R. Valla (eds), *The Natufian Culture in the Levant.* International Monographs in Prehistory, Ann Arbor.

Bar Yosef, O. 1994. The Contributions of Southwest Asia to the Study of the Origin of Modern Humans. Pp. 23-66 in M.H. Nitecki and D.V. Nitecki (eds), *Origins of Anatomically Modern Humans.* Plenum Press, New York.

Bender, F. 1974. *Geology of Jordan.* Gerbruden Borntaeger, Berlin.

Besançon, J., Copeland, L., Hours, F. Macaire, J. and Sanlaville P. 1984. The Lower and Middle Palaeolithic of the Upper Zarqa and Khirbet Samra Area of Northern Jordan, 1982-1983 Survey Results. *ADAJ*, 28: 91-141.

Besançon, J. and Hours, F. 1983. Prehistory and Geomorphology in Northern Jordan: a Preliminary Outline. Pp. 59-66 in *SHAJ* II. Amman: Department of Antiquities of Jordan.

Clark, G. 1992. Continuity or Replacement? Putting Modern Human Origins in an Evolutionary Context. Pp. 183-205 in H. Dibble and P. Mellars (eds), *The Middle Paleolithic: Adaptation, Behavior and Variability.* University of Pennsylvania Museum, Philadelphia.

Clark, G., Lindly, J., Donaldson, M. Garrard, A. Coinman, N. Schuldenrein, J., Fish, S. and Olszewski, D. 1987. Paleolithic Archaeology in the Southern Levant. *ADAJ* 31: 19-78, 547.

Clark, G., Neeley, M. MacDonald, B., Schuldenrein, J. and 'Amr, K. 1992. Wādī al-Ḥasa Paleolithic Project-1992: A Preliminary Report. *ADAJ* 36: 13-23.

Clark, G.,Olszewski, D., Schildenrein, J., Rida, N. and Eighmey, J. 1993. Survey and Excavation in the Wādī al-Ḥasa: a Preliminary Report of the 1993 Season. *ADAJ* 37.

Clark, G., Schuldenrein, J., Donaldson, M., Schwarcz, H., Rink, W. and Fish, S. 1997. Chronostratigraphic Contexts of Middle Paleolithic Horizons at the 'Ayn Difla Rockshelter (WHS 634), West-Central Jordan in H. Gebel, G. Rollefson, and Z. Kafafi (eds), *The Prehistory of Jordan II: Perspectives from 1996.* Ex Orient, Studies in Early Near Eastern Production, Subsistence, and Environment 4, Berlin.

Clark, G. A., Lindly, J., Donaldson, M., Garrard, A., Coinman, N., Schuldenrein, J., Fish, S. and Olszewski, D. 1988. Excavations at Middle, Upper and Epipalaeolithic sites in the Wadi al-Hasa, west- central Jordan. Pp. 209-285 in A. N. Garrard and H. C. Gebel, (eds), *The Prehistory of Jordan,* British Archaeological Reports, Oxford.

Copeland, L.1989. Surface Finds from 'Site C' and Other Sheshan Spring Sites. Pp. 305-318 in L. Copeland and F. Hours, (eds), *The Hammer on the Rock.* BAR International Series 540 (ii), Oxford.

Copeland, L. and Hours, F. 1988. The Paleolithic in North Central Jordan: An Overview of Survey Results from the Upper Zarqa and Azraq 1982-1986. Pp. 287-309 in A. Garrard and H. Gebel (eds), *The Prehistory of Jordan: The State of Research in 1986.* BAR International Series 396 (i), Oxford.

___ 1989. *The Hammer on the Rock: Studies in the Early Palaeolithic of Azraq, Jordan.* BAR International Series 540 (ii), Oxford.

Dibble, H. L. 1988. Typological Aspects of Reduction and Intensity of Utilization of Lithic Resources in the French Mousterian. Pp. 181-198 in H. L. Dibble and A. Montet-White (eds), *Upper Pleistocene Prehistory of Western Eurasia.* The University Museum, University of Pennsylvania.

Emery-Barbier, A. 1995. Pollen Analysis: Environmental and Climatic Implications. Pp. 375-384 in D. O. Henry (ed.), *Prehistoric Cultural Ecology and Evolution: Insights from Southern Jordan.* Plenum Publishing Corporation, New York.

Garrard, A., Betts, A., Byrd, B. and Hunt, C. 1987. Prehistoric Environment and Settlement in the 'Azraq Basin: An interim report on the 1985 excavation season. *Levant* 19: 5-25.

Goldberg, P. 1981. Late Quaternary Stratigraphy of Israel: An Eclectic View. Pp. 55-66 in J. Cauvin and P. Sanlaville (eds), *Prehistoire du Levant.* CNRS, Paris.

___ 1986. Late Quaternary Environmental History of the Southern Levant. *Geoarchaeology* 1: 225-244.

Henry, D. O. 1982. The Prehistory of Southern Jordan and Relationships with the Levant. *Journal of Field Archaeology* 9(4): 417-444.

___ 1983. Adaptive Evolution within the Epipaleolithic of the Near East. Pp. 99-160 in F. Wendorf and A. E. Close (eds), *Advances in World Archaeology*. Academic Press, London.

___ 1987. Climatic Change, Settlement Mobility, and Technological Evolution during the Paleolithic. *Israel Journal of Earth Sciences* 36: 121-129.

___ 1988. Summary of Prehistoric and Paleoenvironmental Research in the northern Hisma. In A. N. Garrard and H. G. Gebel (eds), *The Prehistory of Jordan. The State of Research in 1986.* British Archaeologic Research International Series 396(i), Oxford.

___ 1989. Correlations between Reduction Strategies and Settlement Patterns. Pp. 106-113 in D. Henry and G. Odell (eds), *Alternative Approaches to Lithic Analysis.* American Anthropological Association. Archeological Research Series Number 1, Washington, D. C.

___ 1992. Transhumance during the Late Levantine Mousterian. Pp. 143-162 in H. Dibble and P. Mellars (eds), *The Middle Paleolithic: Adaptation, Behavior, and Variability*. The University Museum, University of Pennsylvania, University Museum Monograph 72, Philadelphia.

___ 1994. Prehistoric Cultural Ecology in Southern Jordan. *Science* 265: 336-341.

___ 1995. (ed.) *Prehistoric Cultural Ecology and Evolution: Insights from Southern Jordan*. New York: Plenum Publishing Corporation.

___ 1997. Cultural and Geologic Successions of Middle and Upper Paleolithic Deposits in the Jebel Qalkha Area of Southern Jordan. In H. Gebel, G. Rollefson, and Z. Kafafi (eds), *The Prehistory of Jordan II: Perspectives from 1996.* Ex Orient, Studies in Early Near Eastern Production, Subsistence, and Environment 4, Berlin.

___ 1998a. The Middle Paleolithic of Jordan. Pp. 23-38 in D. O. Henry, (ed.), *The Prehistoric Archeology of Jordan*. BAR International Series 705, Archaeopress, Oxford.

___ 1998b. Survey of Prehistoric Sites, Wadi Araba, Southern Jordan, June 1998 Field Session (Grant # 5999-97). Report to the National Geographic Society.

Henry, D. O. and Miller, G. H. 1992. The Implications of Amino Acid Racemization Dates of Levantine Mousterian Deposits in Southern Jordan. *Paleorient* 18(2): 45-52.

Henry, D., Hall, S.Hietala, H, Demidenko, Y., Usik, V., Rosen, A. and Thomas, P. 1996. Middle Paleolithic Behavioral Organization: 1993 Excavation of Tor Faraj, Southern Jordan. *Journal of Field Archaeology* 23 (1): 31-53.

Huckriede, R. and Wiesemann, G. 1968. Der Jungpleistozane pluvial-see von El Jafr und weitere daten zum Quatar Jordaniens. *Geologica* et *Palaeontologica* 2: 73-95.

Jelinek, A. 1982a. The Middle Paleolithic in the Southern Levant with Comments on the Appearance of Modern Homo Sapiens. Pp. 57-101 in A. Ronen (ed.), *The Transition from the Lower to the Middle Paleolithic and the Origin of Modern Man*. BAR International Series 151, Oxford.

___ 1982b. The Tabun Cave and Paleolithic Man in the Levant. *Science* 216: 1369-1375.

Lindly, J. and Clark, G. 1987. A Preliminary Lithic Analysis of the Mousterian Site of Ayn Difla (WHS Site 364) in the Wadi Ali, West-Central Jordan. *Proceedings of the Prehistoric Society* 53: 279-292.

MacDonald, B. 1988. *The Wadi el Hasa Archaeological Survey 1979-1983, West-Central Jordan.* Wilfrid Laurier University Press, Waterloo.

—— 1992. Settlement Patterns along the Southern Flank of Wadi al-Hasa: Evidence from "The Wadi al-Hasa Archaeological Survey". Pp. 73-76 in *SHAJ* IV. Department of Antiquities, Amman.

Marks, A. 1981. The Middle Paleolithic of the Negev, Israel. Pp. 287-298 in J. Cauvin and P. Sanlaville (eds), *Prehistoire du Levant.* CNRS, Paris.

Marks, A. and Friedel, D. 1977. Prehistoric Settlement Patterns in the Avdat/Aqev Area. Pp. 131-158 in A. E. Marks (ed.), *Prehistory and Paleoenvironments in the Central Negev, Israel, Vol. II.* Department of Anthropology, Southern Methodist University, Dallas.

McNicoll, A., Ball, W., Basset, S., Edward, P., Petves, D., Potts, T., Randle, L., Villiers, L. and Watson, P. 1985. Preliminary Report on the University of Sydney's Fifth Season of Excavation at Pella in Jordan. *ADAJ* 28.

Meignen, L. 1995. Levallois Lithic Production Systems in the Middle Paleolithic of the Near East: The Case of the Unidirectional Method. Pp. 361-380 in H. Dibble and O. Bar-Yosef (eds), *The Definition and Interpretation of Levallois Technology.* Prehistory Press, Monographs in World Archaeology No. 23, Madison.

Muheisen, M. 1983. *La prehistoire en Jordanie. Recherches sur l'epipaleolithique. L'example du gisement de Kharaneh IV.* Bordeaux, University of Bordeau I: Unpublished Doctoral Thesis, 3eme cycle.

Olson, A. 1997. An Initial Technotypological Analysis of J447, an Open-air Levantine Mousterian Site in Southern Jordan. In H. Gebel, G. Rollefson and Z. Kafafi (eds), *The Prehistory of Jordan II: Perspectives from 1996.* Ex Orient, Studies in Early Near Eastern Production, Subsistence, and Environment 4, Berlin.

Potter, J. 1993. *Middle Paleolithic Assemblage and Settlement Variability in West-Central Jordan.* Tempe, Arizona, Arizona State University Anthropological Research Papers No.45.

___ 1995. Lithic Technology and Settlement Pattern Variability within the Levantine Mousterian: a Comparison of Sites WHS 621 and WHS 634 from Wadi al-Hasa. Pp. 497-504 *SHAJ* V. Amman: Department of Antiquities.

Rollefson, G. 1983. Two seasons of excavations at Ain el-Assad

near Azraq. *BASOR* 252: 25-34.

Rollefson, G., Schnurenberger, D., Quintero, L., Watson, R. and Low, R. 1997. 'Ain soda and 'Ain Qasira: New Later Pleistocene and Early Holocene Sites in the Azraq Shishan Area, Eastern Jordan. In H. Gebel, Z. Kafafi and G. Rollefson (eds), *Prehistory of Jordan II, Perspectives from 1996.* Ex Orient, Studies in Early Near Eastern Production, Subsistence, and Environment 4, Berlin.

Rosen, A. M. 1995. Preliminary Analysis of Phytoliths from Prehistoric Sites in Southern Jordan. Pp. 399-404 in D. Henry (ed.), *Prehistoric Cultural Ecology and Evolution: Insights from Southern Jordan.* Plenum Press, New York.

Shea, J. 1995. Behavioral Factors Affecting the Production of Levallios Points in the Levantine Mousterian. Pp. 279-292 in H. Dibble and O. Bar-Yosef (eds), *The Definition and Interpretation of Levallois Technology.* Prehistory Press, Monographs in World Archaeology No. 23, Madison.

—— In press. Ar Rasfa, a Levantine Mousterian Site from Northwest Jordan: A Preliminary Rreport. *Paleorient.*

Walmsley, A., Macumber, P., Edwards, P., Bourke, S. and Watson, P. 1993. The Eleventh and Twelfth Seasons of Excavations at Pella (Tabaqat Fahl) 1989-1990. *ADAJ* 27.

Weinstein-Evron, M. 1988. Middle Paleolithic Sequence from the Hula Valley, Israel. Pp. 207-222 in M. Otte (ed.), *L'Homme de Neandertal*, Vol. 2. Service de Prehistoire Universite de Liège, Liège.

Zeuner, F. E., Kirkbride, D. and Park, B. 1957. Stone Age Exploration in Jordan, 1. *PEQ* 89: 17-54.

J. Brett Hill
Department of Anthropology
Arizona State University
Tempe, AZ 85287-2402
USA

J. Brett Hill

The Role of Environmental Degradation in Long Term Settlement Trends in Wādī al-Ḥasa, West-Central Jordan

Introduction

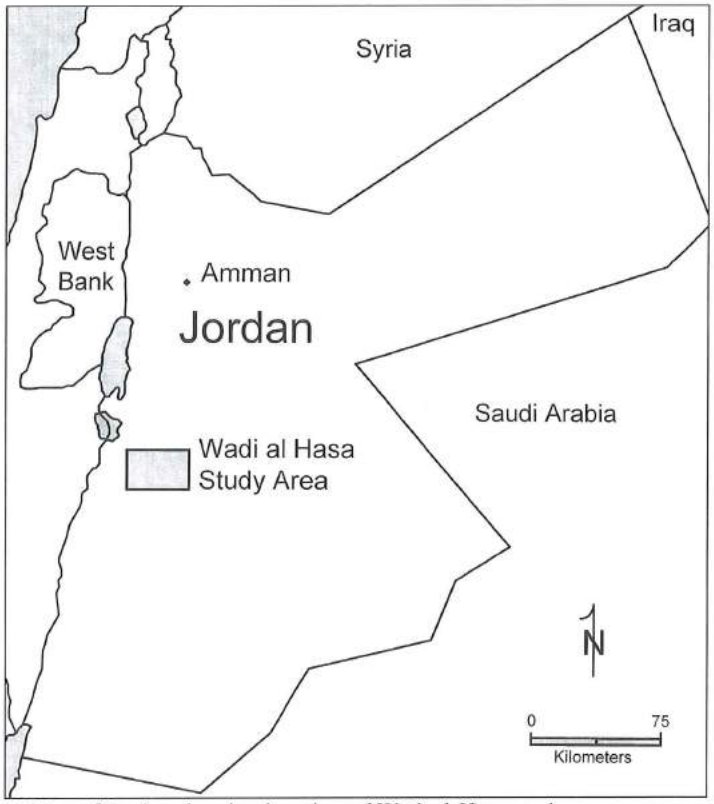
Long term human impact on the environment is a subject of considerable interest to archaeologists in the Near East (Bintliff 1982; Bottema 1990; Falconer and Fall 1995; Le Hourou 1981; Naveh and Dan 1973). In the present study I use archaeological and geographic data to evaluate hypotheses of human induced environmental degradation in the vicinity of archaeological sites along Wādī al-Ḥasa, Jordan.

Wādī al-Ḥasa is one of the largest drainage systems and only perennial watercourses in the southern Levant. It is located in west-central Jordan and flows from south-east to north-west draining from the Transjordanian Plateau into Wādī 'Arabah and the Dead Sea (Donahue and Beynon 1988; Schuldenrein and Clark 1994) (FIG. 1).

The Wādī al-Ḥasa and its environs have long been of importance to human populations. Throughout the Holocene the Wādī has been the location of critical permanent water sources, as well as one of a few easily passable routes from Wādī 'Arabah, and the Negev to the west, up to the Transjordanian Plateau, and trade routes to the east.

Archaeological survey has revealed the locations of more than 1400 sites ranging in age from the Middle Paleolithic to the Late Ottoman period along the wadi (Clark *et al.* 1992; 1994 and MacDonald 1988). The present analysis will focus on sites discovered on the survey of the south bank (MacDonald 1988), dating from the Pottery Neolithic through the Ottoman periods. These periods cover the time range during which people lived in settled communities and practiced agriculture and pastoralism. It is these activities that are typically thought to have posed the greatest threat to the natural environment during pre-industrial times.

The principle causes of anthropogenic environmental degradation in upland regions of the Near East are the removal of vegetative ground cover and disturbance of the structure of the topsoil or a horizon. This results from the harvesting trees and shrubs for fuel in various pyrotechnologies, and the introduction of domestic animals and plowing. These factors are thought to have augmented erosion by a combination of: 1) increasing the impact of rainsplash through the removal of ground cover, 2) inhibiting infiltration and increasing the velocity of surface runoff through soil compaction, and 3) causing positive feedback to these processes by removal of soil nutrients, and the introduction of goats and sheep, that together reduce the ability of vegetative ground cover to be restored.



1. Map of Jordan showing location of Wādī al-Ḥasa study area.

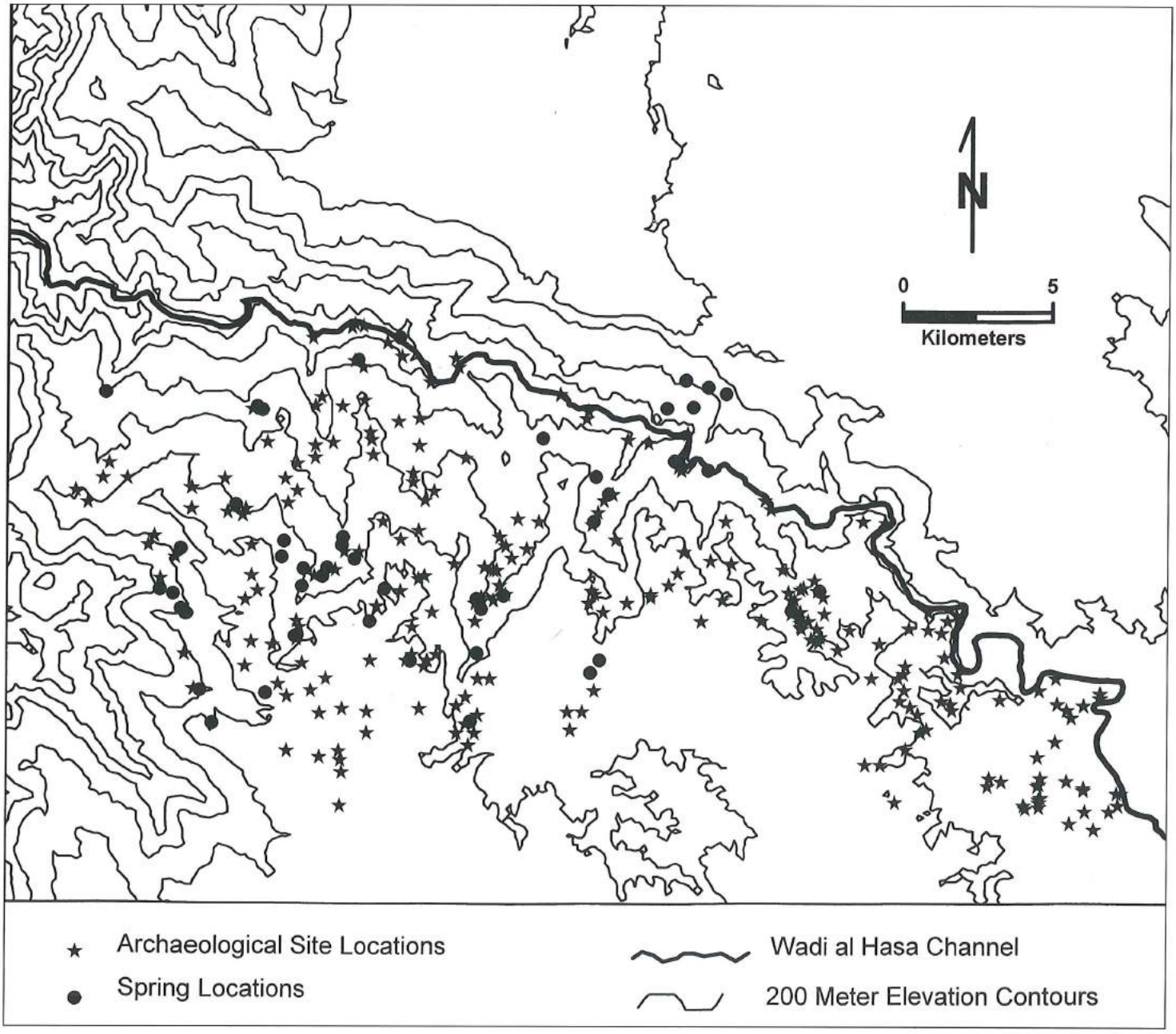
In this analysis I address the spatial implications of diminishing local soil resources. I reason that, if the residents of Wādī al-Ḥasa have consistently degraded their environment through subsistence farming and pastoral ac-

tivities, then the location of those activities would necessarily shift through time as resources were depleted. This situation may be stated in straightforward spatial terms. Significant degradation of local subsistence resources should lead to spatial segregation of site locations between one period and the next.

Analysis

My sources for archaeological information are the published tables of survey data provided by MacDonald (1988). Using these tables I compiled a MapInfo database of 341 sites dating to the appropriate periods (FIG. 2). My grounds for including a site were that the recorders interpreted it as indicative of local habitation or subsistence activity (e.g. village, farm, structures, etc.). I excluded anything that seemed indicative of other types of activity (e.g. tower, cemetery, fort, etc.). In a few cases I also excluded late-period site components comprised of only a few sherds (i.e. 1-3). Multi-component sites were recorded as a separate site for each period in order that they would be counted as near neighbors in statistical evaluations of between-period locations.

The first stage of analysis consisted of a series of spatial statistical evaluations of the site locations to determine whether there was between-period spatial segragation. I performed Nearest Neighbor, and Hodder and Okell's A



2. Map of Wādī al-Ḥasa study area.

statistics. These calculations indicated that significant segregation was present in most between-period distributions.

I used Kintigh's (Kintigh 1992) *NEIG* module in the *Archanal* package to perform nearest neighbor statistics on all 341 sites grouped by period. The nearest-neighbor coefficient provided by this analysis is a ratio of the actual average distance between the nearest neighbors among a set of points, and the expected average distance if the same number of points were randomly distributed (Kintigh 1990; Whallon 1974). The relevant results of the nearest-neighbor analysis on sites by period are shown in Table 1. Because of uncertainty about the exact area and boundary of the survey from which these data were collected, as well as general advice about the use of nearest-neighbor statistics (Kintigh 1990), the coefficients are only meaningful in a relative sense. Therefore, I chose to compare the between-type coefficients from temporally adjacent periods with the within-type coefficients from each period.

The results of this analysis indicate that in most cases (7 out of 9) between-period nearest-neighbor coefficients are greater than within-period coefficients. The exceptions are between periods Nabataean/Roman - Roman, and between Byzantine - Islamic. It is worth noting that the Nabataean/Roman, Roman and Byzantine periods were times of significant political change in this area but were each only 2 to 3 centuries long, compared to as much as 1 to 2 millennia for some of the other periods. Breaking them up into three periods may not reflect the time required to inflict significant damage on soil resources and necessitate relocation.

A student's t-test on the means of within-period versus between-period nearest-neighbor coefficients yields a probability of only 0.06. This indicates that, on the whole, there has been an unusual degree of between-period segregation over the last 8,000 years in Wādī al-Ḥasa. It says little, however, about the significance of any particular transition in settlement patterns.

The second statistic that I present here is Hodder and Okell's A, which is a measure of association or segregation between all points of any given type (Hodder and Okell 1978), and is recognized as particularly useful for identifying spatial segregation (Kintigh 1990). The A statistic is defined by Kintigh (1990: 174) as:

> "... the product of the two mean intratype distances divided by the square of the mean intertype distance. A value of about 1.0 indicates that distributions of the two types are spatially intermingled:...Values less than 1.0 indicate spatial segregation:.."

I used the *HOA* module in the *Archanal* package (Kintigh 1992), which allows for a Monte Carlo simulation using a large number of random runs to provide for a more realistic evaluation of the results. The between-period A statistics are provided in TABLE 2, along with the results

TABLE 1.

Nearest Neighbor Statistics

W/in Per	NN W/in Per	Btwn Per	NN Btwn Per
1	0.92	2&1	1.61
2	0.51	3&2	2.02
3	0.78	4&3	1.11
4	0.54	5&4	1.16
5	0.91	6&5	1.03
6	0.76	7&6	0.64
7	0.72	8&7	2.23
8	0.70	9&8	0.68
9	0.74	10&9	0.96

Key to Period Names
1= Neolithic
2= Chalcolithic
3= Early Bronze Age
4= Mid/Late Bronze Age
5= Iron Age
6= Hellenistic/Nabatean
7= Roman
8= Byzantine
9= Islamic
10= Ottoman

T-test Results

	Mean	Std.Dev.	t	df
NN_W/IN	0.73	0.14		
NN_BTWN	1.27	0.56	-2.65	8

p= 0.029

TABLE 2.

Hodder and Okell's A with 100 Random Runs			
Btwn Per	HOA	Ran. Mean	Std.Dev.
2&1	0.26	1.05	0.28
3&2	0.49	0.99	0.09
4&3	0.44	0.99	0.16
5&4	0.71	0.99	0.14
6&5	0.82	1.00	0.02
7&6	0.81	1.00	0.04
8&7	0.54	1.00	0.05
9&8	1.00	1.00	0.04
10&9	0.61	0.99	0.05

of 100 random runs. These statistics indicate largely the same segregation that was shown by the nearest neighbor calculations with the exception that they indicate the Hellenistic/Nabatean - Nabataean/Roman transition is only 1 standard error below the mean of 100 random runs, and hence may not be very significant. It is worth noting that these were also periods of relatively short duration as those noted above. The use of the Monte Carlo simulation allows for the interpretation of each particular transition with respect to random possibilities and indicates that individually, 6-7 out of 9 cases are unusually segregated, suggesting a significant rearrangement of settlements between specific periods.

Overall, the hypothesis of between-period segregation is convincingly supported by these statistical analyses. These results indicate that there have been numerous transition periods during which settlement patterns were significantly altered and people relocated to a different part of Wādī al-Ḥasa. They also indicate that, throughout the duration of agro-pastoralist subsistence activity in Wādī al-Ḥasa, there has been a significant tendency to periodically relocate to completely different areas. Yet there is not a clear indication of movement to or from any particular part of Wādī al-Ḥasa. Movement appears to be back and forth between the upper, middle and lower regions. This may be due to currently unknown aspects of a changing hydrology for example, or it may reflect the length of time required for key environmental conditions, such as soil, to recover. Interestingly, a Kmeans test of all site locations in Wādī al-Ḥasa indicates no clustering at all, suggesting that in the long term any area has had equal likelihood of being inhabited.

Conclusion

The results of the analyses conducted here support the hypothesis that a degraded local environment has long been a factor in the settlement strategies of Wādī al-Ḥasa inhabitants. The consistent segregation between sites from temporally adjacent periods indicates an unusual motivation to relocate periodically. Unlike the relatively low-relief bottomlands of the Jordan Valley, Wādī al-Ḥasa does not contain *tall* sites typical of long enduring occupations at a favorable location. Rather this area is typified by a large number of more ephemeral sites. These data are consistent with the idea that a thin and easily erodable soil was regularly diminished by the activities of de-vegetation, plowing, and trampling common to agriculturalists and pastoralists. The back and forth occupation and abandonment of portions of Wādī al-Ḥasa is certainly suggestive of a response to changing environmental conditions, but it is still equivocal with respect to the cause of environmental change.

As noted above, it may be that occilating climatic conditions rendered different parts of the Wādī arable at different times. While climatic variability could, and probably did, affect the hydrologic regime, it seems unlikely that the degree of variability occurring during the Holocene would have had a rapid and dramatic effect on soil development. The back and forth movement may have been related to the time necessary for the quality of soils to recover from a degraded state. The length of time necessary for such a recovery is still uncertain and remains an area in which archaeological research can be of use in the larger debate over human environmental impact.

Future directions for research on human/landscape relationships in Wādī al-Ḥasa must include more analysis of the geomorphological contexts of habitation and subsistence production sites. These analyses will be enhanced particularly by focusing on the qualities of soil productivity and erodability in the areas used in different periods, as well as the relationships to other resources such as water and transportation. The spatial statistical modeling discussed here indicates that the use of formal quatitative methods can be of considerable value in helping us develop our understanding of past human impacts on the environment.

References Cited

Bintliff, J. L. and van Zeist, W. 1982. *Paleoclimates, Paleoenvironments and Human Communities in the Eastern Mediterranean Region in Later Prehistory*. Oxford: British Archaeological Reports, International Series 133.

Bottema, S., Enjes-Nieborg, G. and van Zeist ,W. (eds), 1990. *Man's Role in the Shaping of the Eastern Mediterranean Landscape*. Rotterdam: Balkema.

Clark, G. A., Neeley, M., MacDonald, B., Schuldenrein, J. and 'Amr, K. 1992. Wādī al-Ḥasa Paleolithic Project - 1992: Preliminary Report. *ADAJ* 36: 13-23.

Clark, G. A., Olszewski, D., Schuldenrein, J., Rida, N. and Eighmey, J. 1994. Survey and Excavation in the Wādī al-Ḥasa: A Preliminary Report of the 1993 Season. *ADAJ* 38: 41-55.

Donahue, J. and D. Beynon, E. 1988. Geologic History of the Wādī el Hasa Survey Area. Pp. 26-40 in B. MacDonald *et al., The Wadi el Hasa Archaeological Survey 1979-1983, West-Central Jordan.* Waterloo: Wilfred Laurier University Press.

Falconer, S. E. and Fall, P. L. 1995. Human Impacts on the Environment During the Rise and Collapse of Civilization in the Eastern Mediterranean. Pp. 84-101 in D. W. Steadman and J. I. Mead (eds), *Late Quaternary Environments and Deep History: A Tribute to Paul S Martin.* Vol. 3. Hot Springs: The Mammoth Site of Hot Springs, South Dakota, Inc. Scientific Papers.

Hodder, I and Okell, E. 1978. A New Method for Assessing the Association Between Distributions of Points in Archaeology. Pp. 97-107 in I. Hodder (ed.), *Simulation Studies in Archaeology.* Cambridge: Cambridge University Press.

Kintigh, K. W. 1990. Intrasite Spatial Analysis: A Commentary on Major Methods. Pp. 165-200 in A. Voorrips (ed.), *Mathematics and Information Science in Archaeology: A Flexible Framework.* Studies in Modern Archaeology. Bonn: Holos.

___ 1992. *Tools for Quantitative Archaeology.* Tempe.

Le Hourou, H. N. 1981. Impact of Man and His Animals on Mediterranean Vegetation. Pp. 479-521 in DiCastri and Hooney (eds), *Mediterranean Type Ecosystems.* Berlin: Springer-Verlag.

MacDonald, B. 1988. *The Wadi el Hasa Archaeological Survey 1979-1983, West-Central Jordan.* Waterloo, Ontario: Wilfred Laurier University Press.

Naveh, Z. and Dan, J. 1973. The Human Degradation of Mediterranean Landscapes in Israel. Pp. 373-389 in F. D. Castri and H. A. Mooney (eds.), *Mediterranean Type Ecosystems: Origin and Structure.* Springer: Verlag.

Schuldenrein, J. and G. Clark, A. G. 1994. Landscape and Prehistoric Chronology of West-Central Jordan. *Geoarchaeology* 9(1): 31-55.

Whallon, R. 1974. Spatial Analysis of Occupation Floors II: The Application of Nearest Neighbor Analysis. *American Antiquity* 39: 16-34.

Phillip C. Edwards
Department of Archaeology
La Trobe University
Bundoora 3083
Victoria
Australia

Phillip C. Edwards

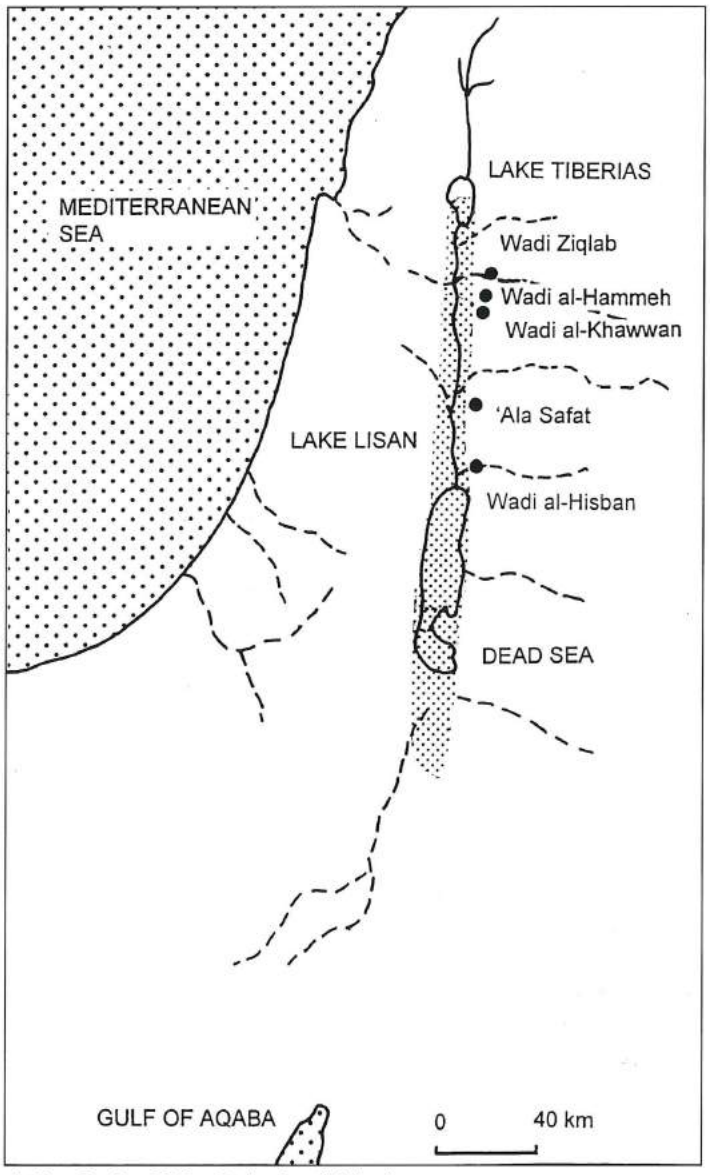
Nine Millennia by Lake Lisan: The Epipalaeolithic in the East Jordan Valley Between 20,000 and 11,000 Years Ago

Introduction: The Lakesiders

The Jordan Valley is a major physiographic feature which forms the distinctive western border to Jordan, impressive to all travellers from whichever direction it is approached. During the Late Pleistocene epoch the Valley was filled with a long, narrow lake which stretched between Lake Tiberias in the north and the Dead Sea in the south, and so formed an even more conspicuous boundary. Therefore, the sites which bordered the lake in the Epipalaeolithic period, probably up till about 11,000 b.p. (Begin *et al.* 1985; Macumber and Head 1991; Neev and Hall 1977) were in a sense some of the more isolated in Jordan, being located at a remote 'end' of the country separated from the west by a significant barrier.

Lake Lisan, as it is named, is thought to have been variously saline to brackish throughout its lifespan (Horowitz 1979:149-150). It probably did not of itself hold a special allure for human settlement, at least in the southern reaches. The principal attraction to its eastern margin lay rather in the chain of springs that rise in Late Cretaceous to Eocene limestones along the foot of the eastern Valley (Bender 1974). In several of the tributary wadis which flow into the eastern valley, aquifer systems deposited thick bodies of alluvial sediment which in turn have preserved sites and vestiges of the ancient people attracted to the water resources.

Over the past two decades the researches of Phillip Macumber, John Head and myself have uncovered a series of Epipalaeolithic sites spanning the period 20,000 to 11,000 b.p. in three of these spring zones: Wādī al-Ḥammeh, Wādī al-Khawwān, and Wādī Ḥisbān (FIG. 1). Together with a number of additional sites such as Ṭabaqat al-Būma in Wādī Ziqlāb (Banning *et al.* 1990) and the Natufian site of 'Ala Safat (Waechter 1948), a rockshelter overlooking the valley situated near the Ardha Triangle, they form the principal body of evidence for the Epipalaeolithic period in the central-eastern Jordan Valley.



1. East Jordan Valley Epipalaeolithic sites.

These eastern valley sites are buried deep within wadi terrace sediments, a situation which differs from the context of many Jordanian Epipalaeolithic sites, and confers on the eastern valley sites particular characteristics. For

example, sites tend to be strewn on buried land surfaces, often approachable only in the cliff sections of wadis. In certain cases terrace aggradation has been relatively fast compared to sedimentation in many areas on the Jordanian Plateau, allowing the preservation of cultural materials representing relatively short occupations, though possibly representing repeated visits made over decades or centuries.

The dozen excavated Epipalaeolithic sites now available allow us to begin to discern an archaeological signature for the eastern valley Epipalaeolithic. Technologically, the flaked stone industries were fashioned along wadi courses choked with abundant cobbles of alluvial chert, producing a profligate attitude to raw material, involving minimal use of materials and little effort expended in core rejuvenation. Typologically, the group proves distinctive compared to surrounding sites at all points of the compass. And structurally, the sites are instructive with respect to regional trends towards earliest sedentism at the end of the Pleistocene. The Early and Middle Epipalaeolithic sites represent a highly mobile settlement system, with little effort directed to architectural construction, ground stone tools for cereal processing, and a general lack of elaborate cultural inventories including art pieces or imported resources. The Early Natufian period represents a dramatic intensification of all of these aspects. Taken together with evidence from the western side of the Jordan Valley, the east valley evidence stands distinct from the group of sites to the north, bordering Lake Tiberias, and in the Western Galilee. There, the moister environment saw some pre-Natufian settlement intensification, evident in such sites as Ohalo II (Nadel 1990), Ein Gev I (Bar-Yosef 1970: 109-111) and Neve David (Kaufman 1987). Since the supply of freshwater was not itself a limiting factor at the eastern valley spring sites, it may be that the more mesic northern habitat supported a richer and more broadly accessible suite of botanical and faunal resources than the eastern flank to the south, more conducive to early attempts at food storage, and a more circumscribed settlement pattern.

The following sections précis the major sites of concern under the headings of Early, Middle and Late Epipalaeolithic periods. These parts in turn comprise sections summarising, where applicable, data on site location, palaeoenvironment, chronology, subsistence and cultural affinities.

The Early Epipalaeolithic (ca. 20,000 - 15,000 b.p.)

Site Characteristics and Contexts

The five early Epipalaeolithic sites are all located in Wādī al-Ḥammeh where they were deposited in a marginal flood plain adjacent to the edge of Lake Lisan, deposited by the antecedents of the present hot-water spring in Wādī al-Ḥammeh (Edwards *et al.* 1996; Macumber and Head 1991).

Wādī al-Ḥammeh 26 (dated 19,500 ± 600 b.p., TABLE 1) is contained in a dark clay band preserved in cliff section. Clusters of lithics, bone fragments and charcoal fragments coincide to form a peak cluster approximately two metres long and thirty centimetres thick (Edwards 1990: Fig. 5.4), indicating the remnants of a hearth and its associated debris. Prey species included a wide variety of terrestrial fauna.

Excavations at Wādī al-Ḥammeh 33 (19,500 ± 600 b.p.) were limited to a 'spade test', located fifty metres down-valley from Wādī al-Ḥammeh 26, in the same Black Clay deposit. A small amount of matrix was extracted and sieved, yielding a high density sample of lithics and establishing the presence of faunal remains, including a *Cervus elaphus* (Red Deer) phalanx (Edwards 1987: 104-107). The material here appears to be a lateral extension of the artefact layer intercepted by the WH 26 excavations.

Wādī al-Ḥammeh 52 (dated 19, 480 ± 500 b.p.) is located immediately adjacent to the al-Lisān beach deposit at the mouth of Wādī al-Ḥammeh. Small numbers of flaked chert pieces were dispersed in approximately equal numbers through all excavated spots, in addition to hundreds of burnt limestone pebbles and fragments and several bone fragments.

Wādī al-Ḥammeh 31, sealed by a Melanopsis shell band dated to 16,740 b.p., stratigraphically overlies Wādī al-Ḥammeh 52. Here a dense cluster of unabraded lithics was excavated, restricted to a band no more than a metre wide. Wādī al-Ḥammeh 51 (dated 16, 820 ± 340 b.p.) is located directly opposite the previous two sites, in cliff section on the north bank of Wādī al-Ḥammeh. Like Wādī al-Ḥammeh 31, the site consisted of a dense, circumscribed cluster of flaked stone, occurring in a narrow band no more than a metre long.

Chronology

All of the Wādī al-Ḥammeh sites were radiocarbon-dated conventionally, Wādī al-Ḥammeh 26 on wood charcoal, and the others on the *Melanopsis praemorsa* molluscs that inhabit the springs. All dates are in good agreement with the stratigraphic position of the sites (Macumber and Head 1991). The earliest two sites are Wādī al-Ḥammeh 26 and 52 at 19,500 b.p., near the Late Glacial Maximum, which are among the earliest dated Kebaran sites and so their cultural affinities are of considerable importance. Wādī al-Ḥammeh 31 and Wādī al-Ḥammeh 51 both date to ca. 16, 750 b.p.

Fellner (1995: 21-23, 46) rejects the Wādī al-Ḥammeh 26 date because it is a single determination, and because his analysis of retouched tool type frequencies grouped Wādī al-Ḥammeh 26 with the Central Jordan Valley Late

TABLE 1. Radiocarbon determinations for East Jordan Valley Epipalaeolithic sites. Questionable dates are indicated in italics followed by '?'.

Site	Date (b.p. uncalibrated)	Laboratory Code	Sample type
Early Epipalaeolithic			
Wadi Hammeh 26	19,500 ± 600	SUA-2101	Charcoal
Wadi Hammeh 52	19,480 ± 500	ANU-4653	Melanopsis
Wadi Hammeh 51	16,820 ± 3 40	ANU-8471	Melanopsis
Wadi Hammeh 31	>16,740 ± 220	ANU-4654	Melanopsis
Middle Epipalaeolithic			
Wadi Hammeh 50,			
Spot 1: 1-3	14,500 ± 100	ANU-8472	Melanopsis
Spot 1: 8-9	15, 390 ± 180	ANU-8473	Melanopsis
Spot 1: 12-14	15, 180 ± 140	ANU-8474	Melanopsis
Spot 3: 5-8	14,490 ± 120	ANU-8475	Melanopsis
Spot 3: 12-15	15,340 ± 170	ANU-8476	Melanopsis
Wadi Hisban 2	14,052 ± 94	Wk-7005	Charcoal (AMS)
Wadi Hisban 2	*11,560 ± 250?*	ANU-8469b	Burnt bone (apatite)
Wadi Hisban 2	*9,490 ± 220?*	ANU-8469a	Burnt bone (collagen)
Wadi Hisban 5,			
Spot 1: 1.7	693 ± 58?	Wk-7006	Charcoal (AMS)
Spot 1:1.9	9,196 ± 77?	Wk-7007	Charcoal (AMS)
Spot 1:1.10	12,890 ± 95	Wk-7008	Charcoal (AMS)
Spot 1:1.11	*9,200 ± 350 ?*	ANU-9404	Burnt bone (apatite)
Tabaqat al-Buma			
Area B, Locus 7	14,850 ± 160	TO-991	Bone (collagen)
Area B, Locus 7	13,110 ± 130	TO-989	Bone (collagen)
Area E34, Locus 15	12, 660 ± 430	TO-2116	Bone (collagen)
Area B, Locus 7	11,170 ± 100	TO-987	Bone (collagen)
Late Epipalaeolithic			
Wadi Hammeh 27			
XX D 8. 1	11,920 ± 150	OxA-393	Humic acids from seeds (AM
XX D 8. 1	11,950 ± 160	OxA-507	Charred seeds (AMS)
XX D 8. 1	12,200 ± 160	OxA-394	Charred seeds (AMS)
Plateau top,			
1 metre above site	11,100 ± 120-	ANU-5818	Melanopsis
XX F	*9,350 ± 380?*	ANU-6550	Charcoal
Wadi Hisban 6			
Square A: 2.1	*Modern?*	Wk-7009	Charcoal (AMS)
Square B: 4.1	*Modern?*	Wk-7010	Charcoal (AMS)
Square A: 4.3	*5,740 ± 220?*	ANU-9406	Burnt bone (collagen)
Square A: 4.3	12,950 ± 140	ANU-9407	Xeropicta vestalis
Wadi Khawwan 2	11,620 ± 240	ANU-8470	Melanopsis

Kebaran group. I disagree with this assessment on several grounds. Firstly, the Wādī al-Ḥammeh 26 date was obtained from a sample comprising over 100 grams of wood and shrub charcoal fragments which were the remnants of a hearth, interwoven with a great mass of flaked stone and fauna. The site is clearly well-stratified, and separated from overlying and underlying sites by several metres of sediments. Secondly, the 19,500 b.p. date is one of a regular progression of dates in the Plateau sequence located directly underneath Wādī al-Ḥammeh 26 (Edwards and Macumber 1995), beginning with 35,300 b.p. at altitude 102.3 metres below sea level (b.s.l.), continuing with five dates between 30,000 and 28,000 at altitude 96.1 metres b.s.l., then Wādī al-Ḥammeh 26 with 19,500 b.p. at 89.2 metres b.s.l., followed by 12,000 -11,900 b.p. for Wādī al-Ḥammeh 27 at altitude 83.5 metres b.s.l., and capped by an 11,000 b.p. date directly above the Natufian site. Moreover, the base of the sterile travertine cap overlying Wādī al-Ḥammeh 26 and below Wādī al-Ḥammeh 27 is dated at 14,970 b.p. at its eastern end within the very period to which, according to Fellner, Wādī al-Ḥammeh 26 should date; and a date from a point several metres east of Wādī al-Ḥammeh 26 at nearly the same level is dated 20,870 ± 280 b.p. (Macumber and Head 1991). Further, Wādī al-Ḥammeh 50 is securely dated between 15,500-14,500 b.p. (TABLE 1) and looks nothing like Wādī al-Ḥammeh 26 typologically. When we consider that the typological scheme for the development of the Kebaran has been based overwhelmingly on undated and even unstratified sites, and remember the typological variability that recent, dated Epipalaeolithic sites have exhibited, it behoves us to give precedence to dated and stratified local sequences above monolithic, unilinear typological schemes proposed for the same local regions.

Palaeoenvironment

The Late Glacial Maximum was a relatively cold and arid period in the southern Levant (Baruch and Bottema 1991: 16), highlighting the importance of Mediterranean forest refugia in the spring-fed valleys such as Wādī al-Ḥammeh, draining into Lake Lisan at the arid peak. The suite of botanical remains from Wādī al-Ḥammeh 26 (Willcox 1992: 254) includes the trees and shrubs oak, almond, pistachio, hawthorn, buckthorn and hackberry (Edwards 1990).

Subsistence

Besides the possibility that edible fruits and nuts from the previously mentioned trees were utilized, subsistence data come from the suite of faunal remains in Wādī al-Ḥammeh 26. These include a diversified diet with a preponderance of gazelle and sheep/ goat, pig, fox, cat, hare, quail, partridge, tortoise and crab. Wādī al-Ḥammeh 33 also produced Red deer remains.

Assemblage Characteristics

The Early Epipalaeolithic sites exhibit technological and typological cohesiveness and continuity, although considerable functional variability in terms of tool-type frequencies. The plentiful chert cobbles littering the wadis were used as cores. The technique was to detach a cortical flake to form the platform, then to spall a few blades from the face, leaving much of the core's original cortex present. Few cores were intensively utilised and there are correspondingly few core rejuvenation products. Typologically the period is characterised by very gracile, straight backed bladelets. They are mostly obliquely truncated in the case of Wādī al-Ḥammeh 26. Wādī al-Ḥammeh 52 however, located just over 600 metres away has no microliths at all, only a few scrapers and burins. Wādī al-Ḥammeh 31 has a small number of straight backed bladelets, and includes a couple of elongate proto-trapezes.

The Middle Epipalaeolithic (ca. 15,000 - 13,000 b.p.)

Site Characteristics and Contexts

Two sites in Wādī Ḥisbān (Edwards *et al.* 1999), one in Wādī al-Ḥammeh (Wādī al-Ḥammeh 50), and perhaps one in Wādī Ziqlāb (Ṭabaqat al-Būma) constitute the Middle Epipalaeolithic series. The Wādī Ḥisbān trio are located as a sequence of superimposed sites along the wadi's north bank (FIG. 1), in a broad alluvial fan deposit on the Jordan Valley floor. During their occupation, the sites would have overlooked Lake Lisan, lying about two kilometres to the west. The lowermost site Wādī Ḥisbān 2 consists of a rich band, some 30 centimetres thick, extending in outcrop ten metres laterally along the wadi terrace. Lithics and burnt animal bone are present at densities of 135,000 lithic fragments/ m^3.

Wādī Ḥisbān 5, which overlies Wādī Ḥisbān 2, is visible as a thin, distinct band of material outcropping in the wadi bank over 45 m in length. Two excavation pits were positioned twenty metres apart in order to intercept this rich horizon, in which chert artefacts and burnt animal bone fragments reach a peak of abundance. Several rebuilt versions of a stone hearth were found both above and below this layer.

Wādī al-Ḥammeh 50 (dated c. 15,500 - 14, 500 b.p.) is embedded in a residual dome of calcareous silts about 250 m downstream from Wādī al-Ḥammeh 26. Abundant burnt limestone cobbles and trace amounts of fauna were retrieved throughout the deposits in addition to flaked chert artefacts. Cultural material was concentrated within a broad band c. 2.5 m thick, and extending 5 m horizontally between pits.

Ṭabaqat al-Būma is an apparently mixed site, located in colluvial sediments on the southwestern terrace of a small tributary of Wādī Ziqlāb (Banning *et al.* 1990; 1996).

Chronology

Apart from Wādī al-Ḥammeh 50, well-dated from date sequences in two pits at 15,400 - 14,500 b.p., the business of obtaining a reliable radiocarbon chronology for the eastern valley Middle Epipalaeolithic has proved difficult. At this stage, the best estimate for Wādī Ḥisbān 2 is the date of 14,052 ± 94 b.p. (TABLE 1) obtained from charcoal fragments sorted and retrieved from a flotation sample by archaeobotanist Susan Colledge. The two dates obtained from burnt bone: 11,560 ± 250 (on apatite) and 9,490 ± 220 b.p. (on collagen) are too recent, indicating that the bone has become remineralised. In fact, all bone dates we have obtained, including those from Wādī Ḥisbān 5 and Wādī al-Ḥammeh 27 (below) have been aberrantly late. It is worth noting that the dates from Unit 3 of Ṭabaqat al-Būma which range between 15,000 and 12,000 b.p. were also derived from bone collagen. Wādī Jilat 6, Upper Phase, located near al-'Azraq, is so far the best-dated Triangle industry site at ca. 16-15,000 b.p. (Garrard and Byrd 1992). It is possible that the Triangle Phase lasted until 14,000 b.p. in Wādī Ḥisbān, although the odds of the overlying Wādī Ḥisbān 5 dating somewhere in the 14-13,000 interval, renders it desirable to obtain additional dates before this possibility is accepted.

The earliest date for Wādī Ḥisbān 5, however (12,890 ± 95), dates after 13,000 b.p. This may be accurate, though the date overlaps with the earliest ones for the Natufian site Wādī Ḥisbān 6, and with the earliest dates for the Natufian in general. Other dates run on the minute charcoal fragments retrieved from the flotation tank charcoal (9,196 ± 77, 693 ± 58), and stratified a few centimetres above the 12,890 date, are clearly too late. Wādī Ḥisbān 5 is eroding from the top of the terrace, and the problem seems to be the vertical movement of small charcoal particles. Perhaps some later charcoal was also present in the earliest Wādī Ḥisbān 2 and Wādī Ḥisbān 5 charcoal samples. The burnt bone sample (9,200 ± 350 b.p.) has also suffered remineralisation. *Melanopsis* samples await dating, which may resolve the uncertainty, as described below.

Palaeoenvironment and Subsistence

The Middle Epipalaeolithic sites have yielded little direct evidence for reconstructing palaeoenvironment, except from sedimentilogical evidence, which indicates the continuation from the Early Epipalaeolithic of local moist environments, for example in the case of Wādī al-Ḥammeh 50 embedded in spring-deposited calcareous silts. Few diagnostic faunal elements occur in these sites also. In Wādī Ḥisbān 2 and 5 there are a great many broken, burnt unidentifiable fragments, but few diagnostic bone elements, which include those of gazelle and Freshwater crab (*Potamon potamon*).

Assemblage Characteristics

Wādī Ḥisbān 5 is similar to Wādī Ḥisbān 2 with regard to core production. The few larger tools, consisting mainly of endscrapers and burins, are also similar. However the microlithic component signals a major departure, featuring long, gracile backed bladelets with either one or both ends obliquely truncated. The 'tiny triangles' have now disappeared, along with any substantial use of microburin technique. In the cases where both ends are truncated—a long, gracile trapeze, or 'proto-trapeze' (Bar-Yosef 1970: 218) is formed. In addition to the flaked stone, a small incised pebble with a grooved waist was discovered. No shift to geometric production occurs in Wādī al-Ḥammeh 50. Instead, this site takes a different turn. Apart from one fragmentary backed bladelet, the other retouched bladelets are all points, formed by bilateral backing and semi-steep retouch. Apparently sites like Wādī al-Ḥammeh 50 dating c. 15,000 b.p. are unknown.

Ṭabaqat al-Būma is difficult to assess, given its mixed nature. Obliquely-truncated backed bladelets predominate, but the assemblage also contains lesser numbers of micropoints and various retouched bladelets (Banning *et al.* 1990: 62). Straight-backed types are represented in illustration.

The Late Epipalaeolithic: Natufian Sites Large and Small (ca. 12,000-11,000 b.p.)

Site Characteristics and Contexts

The Natufian period in the east Jordan Valley, represented by four sites, signals a major change in local settlement patterns. Larger sites with architectural elaboration and more variable artefact repertoires now emerge. Smaller open sites persist, but they differ from those of preceding periods in sharing additional elements of the more varied assemblages of the large 'base-camp' settlement, Wādī al-Ḥammeh 27 (Edwards 1991).

About 2,000 m^2 of Wādī al-Ḥammeh 27 is extant, but at least this quantity again has eroded from the top of the high ridge on which it lies, implying an original size of at least a half hectare. Wādī al-Ḥammeh 27 has several superimposed constructional phases featuring oval limestone huts, associated with various stone features such as hearths, platforms and post-holes, with human burials underlying these.

Only two kilometres away to the south-west lies the small site of Wādī Khawwan 1 (Edwards *et al.* 1998), buried near the top of a thick, spring-deposited travertine overlooking the Jordan Valley. Markedly different to Wādī al-Ḥammeh 27, this consists of only a thin band of artefacts, without architectural features.

Travelling south, the next site is the cave of 'Ala Safat, which holds the distinction of being the first Epipalaeolithic site excavated and reported in the east Jordan

Valley (Waechter 1948). Within the shelter a stone hearth associated with Natufian lithics was discovered.

The final site is Wādī Ḥisbān 6, the uppermost of the Wādī Ḥisbān trio of sites. Littering the top of the terrace, numerous burnt and multi-coloured pieces of chert debitage were found scattered within 600-800 square metres. Excavations uncovered three hearths consisting of groups of burnt pebbles (Edwards *et al.* 1999). Around and below these were distributed lithics of Natufian type animal bone fragments, and other artefacts.

Chronology

Wādī al-Ḥammeh 27 is securely dated within the Early Natufian, at ca.12,000 b.p., by three dates taken from charred seeds lying on the upper phase floor. However, an attempt to date charcoal from the lowermost levels of the site in Structure 1 resulted in the anomalously late date of 9,350 b.p. (TABLE 1). Wādī Khawwan 1 is not yet dated, though a sample of *Melanopsis* from a locality across a shallow gully in the same travertine cap gave a date of 11,620 b.p., which is at present the best approximation for the site.

A date from the terrestrial gastropod *Xeropicta vestalis* yielded a date of 12,950 ± 140 b.p. for the middle layers of Wādī Ḥisbān 6. This determination is early, even for an Early Natufian site, however determinations of a similar antiquity have been found from widely-spaced Natufian sites, for example 12,950 b.p. for the basal layer at Mughārat al-Wād (Weinstein-Evron 1991), 12,800 - 12,100 b.p. for the Wādī Judayid (J2) site (Henry 1995:321) and 12,900 - 12,100 b.p. for Bayḍa (Byrd 1989:26). A radiocarbon determination was run on the collagen fraction of burnt bone from Locus 4.3, yielding a determination of 5,740 ± 220 b.p. (ANU-9406), once again far too recent. Two AMS dates from charcoal are modern, probably having filtered down from recent hearths built over the site.

A series of *Melanopsis* samples from the Wādī Ḥisbān sites, Wādī Khawwan 2, and the deepest deposits of Wādī al-Ḥammeh 27 await analysis, and these should assist in resolving dating ambiguities. The freshwater gastropod *Melanopsis praemorsa* inhabits freshwater springs and slow-moving water bodies, and is therefore readily incorporated into the types of sediments that contain archaeological sites. The molluscs congregate in colonies and so die in large enough numbers to make their retrieval convenient. Because they exist in fluviatile conditions only, their presence in the tops of the Wādī al-Ḥammeh and Wādī Ḥisbān terraces now perched high above the watertable, guarantees the samples' contemporaneity with the deposition of those sediments.

Palaeoenvironment and Subsistence

All the open-air Natufian sites are embedded in the uppermost deposits of terraces, which were subsequently incised to a new base level after the fall in level of Lake Lisan. In Wādī al-Ḥammeh, this occurred at 11,000 b.p., when the erosion was profound enough to sculpt the landscape into a series of steep ridges and cliffs high above the deep, narrow wadis. In all the wadi systems described here, and several others along the eastern valley, the uppermost terrace sediments are terminal Pleistocene, marking the disappearance of Lake Lisan and the creation of a dramatically different, fertile and utilisable Jordan Valley floor.

Wādī al-Ḥammeh 27 yielded a broad suite of faunal remains, including aurochs, *Equus*, Red deer, Fallow deer, Roe deer, pig, sheep/ goat, wolf, cat, fox, tortoise, crab and a variety of birds. Plant remains comprised nineteen taxa, including wild barley (*Hordeum spontaneum*), a goat-face grass (*Aegilops*), pistachio, lentil and several 'weeds' which inhabit disturbed ground (Colledge 1994:160-161). Additionally, Frances McLaren (pers. comm. 1998) has recently discovered evidence for emmer residues on the ends of Wādī al-Ḥammeh 27 basalt pestles. The other sites are much more restricted in subsistence remains: Wādī Khawwan 1 yielded a small number of gazelle and crab remains.

Assemblage Characteristics

Wādī al-Ḥammeh 27 possesses a rich and varied repertoire of artefacts in chert, limestone, basalt, animal bone, ochre and shell. The flaked stone industry (over 421,000 pieces) features small cores, sometimes heat-treated, from which short flakes were produced, as well as larger cores used to produce tranchet axes, picks, large scrapers, retouched flake and blades, and a great variety of burins: dihedral, on truncation, and on natural surfaces. The smaller bladelet tools are dominated by Helwan lunates and Helwan bladelets. Hundreds of the latter bear silica sheen on their working edges. Remains of 275 artefacts made from imported basalt occur, which include mortars, pestles, querns, grindstones, shaft straighteners, hammerstones, plates and bowls - some of the latter extremely diminutive in size (Edwards 1991). The locally abundant but less resistant limestone was used less frequently to perform these utilitarian functions (91 specimens). But limestone, and occasionally siltstone, was most important as the medium in which incised representations were carved. These range from the very large (three incised slabs installed as part of a wall) to small plaques and fragments, covered with a variety of geometric designs. Animal bone was utilised to fashion many tools: sickle hafts whittled into a variety of shapes and sizes (47 specimens), bone points (56), and a smaller number of needles and spatulas. Bone was also used to make a variety of pendants and beads (40 specimens). Gazelle phalanges were preferred to fashion perforated beads (also 40

cases). A small number of animal and bird representations were portrayed in all media: basalt, limestone and bone (Edwards n.d.).

The smaller sites lack the artefactual abundance and variety of Wādī al-Ḥammeh 27, yet they contain echoes of it. Wādī Khawwān 1 yielded, in addition to flaked stone and fauna, a few specimens of basalt, decorated limestone, ochre, imported *Dentalium* shells and a modified human tooth (Edwards *et al.* 1998).

Wādī Ḥisbān 6 knappers utilised a range of coloured cherts, and occasionally quartzite. As at Wādī al-Ḥammeh 27, there is evidence for heat-treatment of cores. Retouched artefacts include a single scraper, a few backed lunates, a triangle, a trapeze, backed and straight-truncated bladelets, and a few obliquely-truncated bladelets. There were additionally *Dentalium* shells, ochre, and a small, roughly-hewn limestone bowl. Noticeably, the large flaked stone tool kit comprising axes, picks, large scrapers and large burins are always absent at the smaller sites which lack architecture.

Is the East Jordan Valley Epipalaeolithic a Distinctive Cultural Variant?

The Early Epipalaeolithic in the east Jordan Valley resembles the northern Palestinian Epipalaeolithic more than it does the major Jordanian Epipalaeolithic regions of the al-'Azraq Basin and Rās an-Naqab, located to the east and south respectively. Even then it differs distinctly from the surrounding regions in its narrow conformity to assemblages of gracile, straight-backed and obliquely-truncated bladelets, the occasional proto-trapeze, and general lack of microburin technique. The Wādī al-Ḥammeh sites lack arched backed bladelets, micropoints, Falita Points, and La Mouillah points, which occur in surrounding sites such as Ohalo II (Nadel 1990: 53-56; Nadel and Hershkovitz 1991), Uwaynid 14 and 18 (Byrd 1988), Kharaneh IV (Muheisen 1983) the Wādī Fazael group of sites (Goring-Morris 1980), Urkan-e-Rubb (Hovers and Marder 1991) and Ṭor aṭ-Ṭariq in Wādī al-Ḥasa (Neeley *et al.* 1998).

Byrd (1998:71) raises the important issue of whether Wādī al-Ḥammeh appears typologically restricted because of small assemblage sizes. Wādī al-Ḥammeh does exhibit considerable functional variability: one site possesses mostly backed bladelets, another scrapers and burins, and another pointed bladelets. The issue is more a question of the *sites* being small, not the samples, which are quite large in a proportional sense. This is because sample size is reckoned in relation to the target population under investigation, and in two cases (WH 31 and WH 51) almost the entire site was excavated, giving a sample approaching 100 %. Perhaps 50% of WH 26 was excavated, and in the case of Wādī al-Ḥammeh 50, four cubic metres were excavated from a site area totalling 25-50 m^2. A profitable study could indeed be made of the relation between assemblage size and variability. Still, when we consider that eight Early and Middle Epipalaeolithic sites in Wādī al-Ḥammeh and Wādī Ḥisbān have been excavated, represented by tens of thousands of lithics, it seems likely that arched backed bladelets or other types are really absent, rather than present but never found.

With the onset of the Middle Epipalaeolithic, we see an intriguing enhancement of assemblage variability and typological instability. There are, for example, the pointed bladelets of Wādī al-Ḥammeh 50, and the approximately coeval Triangle industry of Wādī Ḥisbān 2, which is followed by the markedly different Geometric Kebaran of Wādī Ḥisbān 5. Wādī Ḥisbān 2 is similar to sites as widely separated as Jilat 6, Upper Phase (Byrd 1989) and Ein Gev IV (Bar-Yosef 1970: 126-130). Wādī Ḥisbān 5 may herald the appearance of an early facies of the Geometric Kebaran, given that a proto-trapeze phase is suspected to precede the sites with shorter, wider trapeze-rectangles. To distinguish whether this is a regional or temporal variation (Bar-Yosef 1981: Kaufman 1988) will await a more secure dating of Wādī Ḥisbān 5.

Steps Toward Sedentism: Settlement Patterns from 20,000 to 11, 000 years ago

The Wādī al-Ḥammeh sites present a remarkable contrast to the 'mega-sites' of the al-'Azraq Basin. The former were deposited relatively quickly, and covered by sediment relatively quickly. Some of them may correspond to single visits and others to repeated occupations made over many years. On the other hand, the 'Azraq mega-sites accreted over millennia, with some intervening sediment likely deflated, resulting in packed concentrations of artefacts. Therefore, the rich assemblages which accrued reflect a conflation of long-term cultural activities, whereas the Valley terrace sites reflect comparatively short-term accumulations. A remarkable contrast then emerges between the pattern of small, ephemeral and widely-spread camp placement within a general locale in Wādī al-Ḥammeh, and the specific re-occupation of a series of specific points in the eastern desert.

The Wādī al-Ḥammeh pattern continues throughout the Middle Epipalaeolithic. In the Late Epipalaeolithic, it is replaced by a system of large Early Natufian base-camps exhibiting greatly increased architectural elaboration and site stability, as well as the small, ephemeral sites. The latter, however, now share in the novel artefactual richness of the larger Natufian sites, and also in their attestation of long-distance exchange links. The small sites may represent camps occupied in the course of radial foraging trips from the larger home bases, or alternatively occupied during periods of extended, seasonal absence from these larger sites.

Naturally, all the eastern valley sites are by definition

lowland ones. In light of several current models of Epipalaeolithic mobility and transhumance, a final issue requires attention: how far did the lakesiders roam, and where did they go? The logical thought is that they ascended the nearby Jordanian Plateau to the east. In summer the Jordan Valley is oppressively hot, and while the springs persist in flowing, the vegetational cover is largely burnt off. When we consider that the Mediterranean forest and its resources lay only a few kilometres away in temperatures up to 8 degrees cooler, the answer seems obvious. However, we are at this stage hampered in our efforts at reconstruction by an almost complete lacuna in evidence for the uplands, and the site-rich alluvial fans of the Jordan Valley are unlikely to be matched by corresponding sequences in the highlands. However, Ṭabaqat al-Būma, located at ca. 200 m a.s.l. on a natural route to the eastrn plateau, and nestled in hills reaching 400 m, provides the confirmation that Epipalaeolithic groups did, as expected, forage into the highlands.

It seems significant though that, unlike other regions, not a single marine mollusc or imported item has been recovered from any of the eastern valley Early and Middle Epipalaeolithic sites, suggesting that Lake Lisan presented a barrier to western contacts. On the other hand, *Dentalium* shells suddenly occur in all the Natufian ones. These, together with the imported basalt, and a shared symbolic repertoire between Wādī al-Ḥammeh 27 and 'Ayn Mallāḥa, indicate expanded contacts in the Late Epipalaeolithic.

Acknowledgments

Thanks go to colleagues Phil Macumber, John Head, Sue Colledge and Andy Garrard for participating in this work; to Basil Hennessy and Tony McNicoll for beginning it; to the people of Ṭabaqat Faḥl and ar-Rawḍa for their hospitality during our stays, and to the then Directors of the Department of Antiquities for their support, especially to Dr Ghazi Bisheh.

References

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

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

Bar-Yosef, O. 1981. The Epi-Palaeolithic Complexes in the Southern Levant. Pp. 398-408 in J. Cauvin and P. Sanlaville (eds), *Préhistoire du Levant.* Actes du Colloque International C.N.R.S. no. 598, C.N.R.S. Paris.

—— 1970. *The Epi-Palaeolithic Cultures of Palestine.* Unpublished Ph.D. thesis, Hebrew University. Jerusalem.

Baruch, U. and Bottema, S. 1991. Palynological Evidence for Climatic Changes in the Levant c. 17,000 - 9,000 B.P. Pp. 11-20 in O. Bar-Yosef and F.R. Valla (eds), *The Natufian Culture in the Levant.* International Monographs in Prehistory, Ann Arbor.

Begin, Z.B., Broecker, W., Buchbinder, B., Druckman, Y., Kaufman, A., Margaritz, M. and Neev, D. 1985. Dead Sea and Lake al-Lisan Levels in the Last 30,000 years. *Geological Survey of Israel Report.* 29/85.

Bender, F. 1974. *The Geology of Jordan.* Gebrüder Borntraeger. Berlin

Byrd, B. F. 1989. *The Natufian Encampment at Baya: Late Pleistocene Adaptation in the Southern Levant.* Moesgård: Jutland Archaeological Society.

——1988. Late Pleistocene Settlement Diversity in the Azraq Basin. *Paléorient* 14/2: 257 - 264.

Colledge, S. 1994. *Plant Exploitation on Epipalaeolithic and Early Neolithic sites in the Levant.* Unpublished Ph.D. thesis, University of Sheffield. Sheffield.

Edwards, P. C. (ed.). n.d. *Wadi al-Hammeh 27: an Early Natufian Settlement at Pella in Jordan*, (in preparation).

Edwards, P. C. 1991. Wadi al-Hammeh 27: an Early Natufian site at Pella, Jordan. Pp. 123-148 in O. Bar-Yosef and F. R. Valla (eds), *The Natufian Culture in the Levant.* Ann Arbor: International Monographs in Prehistory.

——1990. Kebaran occupation at the Last Glacial Maximum in Wadi al-Hammeh, Jordan Valley. Pp. 97 - 118 in C. Gamble and O. Soffer (eds), *The World at 18, 000 BP. Volume 2. Low Latitudes.* Unwin Hyman. London.

——1987. Late *Pleistocene Occupation in Wadi al-Hammeh, Jordan Valley.* Unpublished Ph.D. thesis. University of Sydney, Sydney.

Edwards, P. C., Head, M. J. and Macumber, P. G. 1999. An Epi-Palaeolithic Sequence from Wādī Ḥisbān in the East Jordan Valley. *ADAJ* 43 : 27-48.

Edwards, P. C., Macumber, P. G. and Green, M. K. 1998. Investigations into the Early Prehistory of the East Jordan Valley: Results of the 1993/1994 La Trobe University Survey and Excavation Season. *ADAJ* 42:15-39.

Edwards, P. C., Macumber, P. G. and Head, M. J. 1996. The Early Epipalaeolithic of Wadi al-Hammeh. *Levant* 28: 117-132.

Edwards, P. C. and Macumber, P. G. 1995. The Last Half Million Years at Pella. Pp. 1-14 in S. Bourke and J-P. Descoeudres (eds), *Trade, Contact and the Movement of Peoples in the Eastern Mediterranean.* Mediterranean Archaeology Supplement 3. Sydney.

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

Garrard, A. N. and Byrd, B. F. 1992. New dimensions to the EpiPalaeolithic of the Wadi el-Jilat in Central Jordan. *Paléorient* 18: 47-62.

Goring-Morris, A. N. 1987. *At the Edge: Terminal Pleistocene Hunter-Gatherers in the Negev and Sinai.* Oxford: BAR In-

ternational Series 361 (i).

——1980. *Late Quaternary Sites in Wadi Fazael, Lower Jordan Valley.* M.A. thesis, Hebrew University. Jerusaelm.

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

Horowitz, A. 1979. *The Quaternary of Israel.* New York: Academic Press.

Hovers, E. and Marder, O. 1991. Typo-Chronology and Absolute Dating of the Kebaran Complex: Implications from the Second Season of Excavation at Urkan E-Rub II A. *Journal of the Israel Prehistoric Society* 24: 34-58.

Kaufman, D. 1988. New Radiocarbon Dates for the Geometric Kebaran. *Paléorient* 14/1: 107-109.

——1987. Excavations at the Geometric Kebaran Site of Neve David, Israel: a Preliminary Report. *Quartär* 27/38: 189-199.

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

Muheisen, M. 1983. *La Préhistoire en Jordanie. Recherches sur l'Epipaléolithique. L'Exemple du gisement de Kharaneh* IV. Unpublished Ph.D. thesis, University of Bordeaux. Bordeaux.

Nadel, D. 1990. Ohalo II - A Preliminary Report. *Journal of the Israel Prehistoric* Society 23:48-59.

Neeley, M. P. , Peterson, J. D., Clark, G. A., Fish, S.K. and Glass, M. 1998. Investigations at Tor al-Tareeq: an Epipaleolithic Site in the Wadi el-Hasa, Jordan. *Journal of Field Archaeology* 25/3: 295-317.

Waechter, J. 1948. Excavations at 'Ala Safat, Transjordan. *Journal of the Palestine Oriental Society* 21: 98-103.

Weinstein-Evron, M. 1991. New Radiocarbon Dates of the Early Natufian of el-Wad Cave, Mt. Carmel, Israel. *Paléorient* 17: 95-98.

Willcox, G. 1992. Preliminary Report on Plant Remains from Pella. Pp. 253-256 and end paper 11 in A. W. McNicoll, *et al.* Pella in Jordan 2: the Second Interim Report of the Joint University of Sydney and College of Wooster Excavations at Pella 1982 - 1985. 11. *Mediterranean Archaeology* Supplement 2, Sydney.

Gary Rollefson
Peabody Museum
Harvard Univesity
Boston Mass.
USA

Gary Rollefson

Jordan in the Seventh and Sixth Millennia BC

Introduction

If the results of recent intensive surveys in several of the major wadi systems in Jordan can be held to be reliably representative, the landscape was only very sparsely dotted with permanent or semipermanent settlements during the ninth and early eigth millennia b.c.[1] Numerous small bands of hunter-foragers probably continued to range across the plateaus, along the wadis, and into the steppe and desert as they had for thousands of years before. Despite the emergence of agriculture by the end of the ninth millennium, Pre-Pottery Neolithic A (PPNA) farming groups were rare in the southern Levant. In Jordan we know them only from small findspots as widespread as 'Irāq ad-Dubb in northern Jordan (Kuijt *et al.* 1991) to Dhrā' (Kuijt and Muheisen 1998) and Ṣabra (Gebel 1988) in the south.[2] Overall, population probably had not changed appreciably for thousands of years.

But a new threshold lay just over the temporal horizon, and major changes were underway by the end of the eigth millennium. New techniques of lithic manufacture, heralded by the efficient naviform core-and-blade method (Wilke and Quintero 1994), signaled the birth of the Pre-Pottery Neolithic (PPNB) period, which was to witness major transformations in architecture, subsistence economy, religion, and technology. These developments, in turn, led to relatively rapid population growth in the entire southern Levantine region, and Jordan was to celebrate a major cultural florescence throughout the seventh millennium.

But population growth, while spurring on significant advances in sociocultural and economic terms, also had its downside. By then end of the seventh millennium, sustained and severe demands on local resources had upset the delicate ecological systems, and a serious realignment of population distribution and economic undertaking characterized the ensuing sixth millennium. Jordan and its neighbors began a long environmental recovery, and the people reorganized their relationships both locally and regionally. Small, quiet rural villages interacted with pastoral groups who shepherded their flocks of sheep and goats on a round from the highlands to the steppe and desert and back again. The excitement - and dangers - of the seventh millennium had passed, and a slow rebuilding that set the foundations for the emergence of the Bronze Age was underway.

The Mid- to Late Eigth Millennium

The beginning of the PPNB transformations was unremarkable in terms of its immediate consequences. So far, the Early PPNB period (7,600 - 7250 b.c.) has been identified at only two locations in Jordan: at one temporary settlement in Wādī Jilāt in the eastern steppe (Baird 1994; Garrard *et al.* 1994) and at another in Wādī al-Ḥasa (Rollefson 1996).[3] Except for the appearance of new lithic techniques and arrowhead types, lifestyles seem to have changed little, and population remained scanty in Jordan.

But changes became accentuated and increasingly cumulative with the emergence of the Middle PPNB (MPPNB 7,250 - 6,500 b.c.). In contrast to the exaggerated interruptions between settlements in the PPNA and EPPNB, it appears that every wadi system supported at least one MPPNB farming village.[4] and several settlements could be found in some of the longer drainages. By the end of the eigth millennium, MPPNB farmers were exploiting the entire length of the country from Wādī al-

[1] All temporal references are cited as uncalibrated dates, reflected by the use of lowercase "b.c.".

[2] Ẓahrat adh-Dhrā' 2, a new permanent settlement probably from the 10th-ninth millennia, has recently been located near al-Mazra'a, not far from Dhrā' (P. Edwards and S. Falconer, pers. comm.).

[3] See Kuijt 1997 for a different perspective on the EPPNB.

[4] For example, aṣ-Ṣifiya in the Wādī al-Mūjib (Mahasneh 1997); al-Basīṭ in Wādī Mūsā (Fino 1997); Khirbat al-Ḥammām (Rollefson and Kafafī 1985) and Site 892 (MacDonald *et al.* 1983: 316) in the Wādī al-Ḥasa; Wādī Shu'ayb (Simmons *et al.* 1989); Abu Ṣuwwān (Simmons *et al.* 1988) and Kharaysin (Edwards and Thorpe 1986) in Wādī Jarash; ar-Rāhib in Wādī al-Yābis (Palumbo 1992: 33-35); etc.

Yarmūk to southern end of the Wādī 'Arabah.

The Seventh Millennium - The Middle PPNB

The seventh millennium witnessed what may be described as the "Classic Neolithic" period, including both the greater part of the MPPNB as well as the Late PPNB (LPPNB, 6,500 - 6,000 b.c.). Most of the information from the MPPNB comes from Bayḍa in the Greater Petra region (e.g. Kirkbride 1966; Byrd 1994) and from 'Ayn Ghazāl (e.g., Rollefson *et al.* 1992; Rollefson 1998a), but new excavations at al-Ghawīr I, at the mouth of the Wādī Faynān, are providing important new data concerning developments in a semiarid zone peripheral to the "core area" of the Jordanian highlands (Simmons and Najjar 1999).

Architecture

In the earliest part of the MPPNB, the residents of Bayḍa continued the use of semisubterranean circular houses; the clustering of rooms suggests that the family structure may have included extended, and perhaps even polygamous, families. But elsewhere, even from the onset of the MPPNB, houses were rectangular and built on the surface; the small size (less than 50 m^2) and isolation indicates that the inhabitants were independent nuclear families (Rollefson 1997). Population density in all of the MPPNB settlements investigated so far appears to have been relatively high, since houses were built closely together. Absolute population is difficult to estimate in view of the small areas sampled by excavations, but figures probably ranged from less than a hundred at al-Ghuwayr I (less than a hectare in extent) to several hundred at 'Ayn Ghazāl (perhaps five hectares in the MPPNB).

Subsistence Economy

One reason for the rapid increase in the number of MPPNB settlements is probably related to a more secure subsistence base. The full range of domesticated and cultivated plants (cereals, legumes, fibers) was inherited from earlier times (e.g., Neef 1997), as was the reliance on hunting a broad range of wild animals. But a new alternative was the increasing dependence on goats, which had become fully domesticated by the end of the period (Köhler-Rollefson 1997), and which accounted for half of the meat in the diet early in the period (Köhler-Rollefson *et al.* 1988). It is likely that goats were pastured in the vicinity of the settlements.

Ritual

Small baked clay animal and human figurines played a role in the daily life of the people of Jordan. Imbued with spiritual powers by shamans, they probably served the general public as talismans and as purveyors of good luck and magic (Rollefson n.d. a; Schmandt-Besserat 1997).

Burial practices reveal an ancestry reaching back into the 10th through eigth millennia, but in the MPPNB they also indicate a burgeoning development of social inequality. Evidence from a long-used house at 'Ayn Ghazāl shows that it is likely that one person per generation was buried beneath the floor of the houses, although what happened to the rest of the family remains unclear (Rollefson n.d. a). Some people, perhaps newcomers to the settlement and without any relatives in the community, were discarded in trash deposits, as were most infants under the age of ca. 15 months; several infants, however, appear to have been used as foundation deposits or in other ceremonial aspects (Rollefson *et al.* 1992).

Although the selection criteria for subfloor burial remain obscure (both males and females of a wide range of ages were found), it seems probable that they were part of a widespread ancestor cult that appears to have its roots in the PPNA and perhaps even the Natufian periods. All of the subfloor burials were decapitated; sometimes the skulls were simply buried apart from the rest of the skeleton, but often the skulls received special attention. In some cases the cranium was decorated with red or black pigment (Rollefson 1983; 1986; Rollefson *et al.* 1998), although others were modeled with lime plaster to recreate the face of the departed ancestor (Griffin *et al.* 1998). After a number of generations had passed, the skulls were buried outside the dwelling, replaced with the heads of more recent ancestors.

The greatest extension of the ancestor cult lies in the lime plaster statuary recovered from 'Ayn Ghazāl, Jericho, and Nahal Hemar (Rollefson 1983; 1986; Bar-Yosef and Alon 1988; Schmandt-Besserat 1998; Grissom n.d.; Tubb and Grissom 1995). While the decorated and modeled skulls represented real, known ancestors, the statuary likely portrayed mythical founders of the social and kinship groups in the settlements. It is probable that the statuary was on permanent display in some building(s), but so far no such cult building is known from the MPPNB period.

The Seventh Millennium - The Late PPNB

By the middle of the seventh millennium the landscape had begun to change dramatically. It seems that the land around the settlements in the Jordan Valley and Palestine could no longer support farming families, and settlements that had existed for hundreds of years were abandoned, their populations dispersed into the countryside and up onto the Jordanian plateau (Rollefson 1987; 1989). The migration of new people into the Jordanian countryside placed new pressures on local resources, and although new settlements such as Baṣṭa (e.g., Nissen *et al.* 1987; 1991), 'Ayn Jammām (Waheeb and Fino 1997), and 'Ayn Jahjah (Banning 1998) were founded, older villages continued in use, and new exploitation strategies were nec-

essary.

The Growth of Towns

One of the most notable developments of the LPPNB was the enormous growth of settlements, evidently a "bold experiment" to deal with a rapidly growing regional population. 'Ayn Ghazāl, Wādī Shu'ayb, and Baṣṭa reached 14-15 hectares, and other sites (aṣ-Ṣifiya, 'Ayn Jammām) exceeded 10 has. Architecture reflected some of the necessary accommodations to the new population sizes: two-story houses that could have housed several families (probably as extended family units, pooling their labor and resources) were commonplace at Baṣṭa and 'Ayn Ghazāl[5] (Nissen *et al.* 1991; Rollefson and Kafafi 1996). Smaller sites were also founded, including Ba'ja, curiously situated in a "naturally fortified" setting to the north of Bayḍa (Gebel and Bienert 1997).

The means to support the LPPNB settlements, both large and small, necessarily entailed some alterations of older food production methods. Habitats of wild animals had been destroyed around the settlements by over-exploitation of wood, farming, and grazing, and the amount of food obtained from hunting declined sharply. Domesticated sheep were adopted in partial compensation (e.g., Wasse 1997; Becker 1991: 64), and increased attention was paid to cattle and pigs.

One of the problems that faced the large population centers was the competition for land for farming and grazing, and one way to resolve the dilemma was to move the ovicaprids into the steppe and desert, where seasonal vegetation was available during the agricultural growing season (Köhler-Rollefson 1988; 1992).[6] The temporary site of al-Azraq 31 provided some tantalizing but nonetheless elusive suggestions that sheep/goat herders were visiting the al-Azraq pools during the rainy season (Baird *et al.* 1992). Several probable goat horn cores from new excavations at nearby Bawwāb al-Ghazāl appear to substantiate the view that nomadic pastoralism began during the LPPNB (Rollefson *et al.* 1999; Quintero *et al.* n.d.).

Ritual

Burial practices appear to have departed in a substantial way from MPPNB norms. Excavations at LPPNB Baṣṭa, 'Ayn Jammām, aṣ-Ṣifiya, and 'Ayn Ghazāl have produced numerous, mostly intact skeletons, and the instances of decapitated inhumations are rare or absent altogether (Berner and Schultz 1997; Waheeb, pers. comm.; Mahasneh, pers. comm.; e.g. Rollefson and Kafafi 1997). This suggests a considerable decrease in the importance of the ancestor cult; at least, if the ancestor cult were still in effect, it seems that it was being practiced in a very different manner.

Furthermore, no known plastered skulls are known from the LPPNB, in Jordan or anywhere else in the Levant.

On a higher level of abstraction, there is also no evidence of the continued production of lime plaster statuary that may have "glorified" ancestor veneration into the mythical realm in the MPPNB period. Possibly linked with a growing problem of competition between lineages for productive farmland and pasturage, the centrifugal effects of kinship fealty may have been downplayed in favor of stronger centripetal community identity (Rollefson n.d. b). This, at least, may explain the appearance of the striking cult buildings at 'Ayn Ghazāl.

The cult buildings appear to have taken three distinctive shapes,[7] including small apsidal buildings, circular "shrines", and larger, two-room rectangular "temples" (Rollefson 1998b). It is unfortunate that so far no other examples of any of these structural types have been found outside of 'Ayn Ghazāl, but this may be an artifact of sampling bias, or it may reflect the central importance of 'Ayn Ghazāl in the sociopolitical organization of north-central Jordan in the LPPNB (Rollefson n.d. b).

Regardless of the uniqueness of the 'Ayn Ghazāl evidence, the absence of any overt symbolism that could be related to specific kinship groups seems to be critically important. The presence of a single, highly stylized and undifferentiated anthropomorphic column in the wall of one of the LPPNB "temples" might be taken to indicate a generalized spiritual depiction, replacing the more specifically oriented representations of the MPPNB statuary.

The Sixth Millennium: The PPNC

The LPPNB centralizing "bold experiment" lasted about 500 years, but in the very long run it proved to be flawed in its design. Packing large numbers into megasites ultimately aggravated the problem of overexploitation, and the farming techniques of the time could not manage to sustain the protracted drain on local soil conservation and fertility.

By 6,000 b.c. the towns of Jordan were being depopulated, and 'Ayn Ghazāl, for example, perhaps lost more than half of its peak number of inhabitants. The same fate appears to have affected Wādī Shu'ayb, and perhaps aṣ-Ṣifiya and 'Ayn Jammām, although other meg-

[5] "Two-story" buildings existed at Bayḍa in Levels II-III, although there is some question of the age of these layers (Rollefson n.d. a); in any event, the lower "story" was probably a basement and not a normal living area. There is a good possibility that proper two-story dwellings may have occurred as early as the MPPNB at al-Ghawīr I (Simmons and Najjar 1999: 4).

[6] See Byrd 1992 for his views that nomadic pastoralism began when foraging groups in the steppe and desert adopted sheep and goats as an alternative to earlier hunting and gathering traditions.

[7] The circular "shrines" may be evolutionary descendants of the apsidal buildings (Rollefson and Kafafi 1996).

asites (such as Basṭa) and smaller settlements (Ba'ja) were evidently abandoned altogether within a short time of the turn of the millennium.[8]

While sheep and goats may have been taken into the steppe and desert for seasonal grazing and browsing by the middle of the LPPNB period, pastoral nomadism may have been fully established by the PPNC period. This is suggested by the existence of two building types at 'Ayn Ghazāl. In addition to one-room houses with work areas in the adjacent courtyards, there was also a section of the site where semisubterranean storage bunkers (corridor buildings[9]) were constructed atop LPPNB plaster floors. The former buildings appear to have been the residences of full-time farming families who stayed at 'Ayn Ghazāl all year round, while the latter type was used by relatives who were only part-time residents. These people were possibly relatives of the farming families who took the sheep and goats away from the settlement during the rainy season, returning to 'Ayn Ghazāl after the harvest (Rollefson and Köhler-Rollefson 1993; Köhler-Rollefson 1992).

Ritual activity is poorly known for the PPNC period. Small clay animal figurines are relatively at PPNC 'Ayn Ghazāl, but this may be a reflection of the smaller population in comparison to the MPPNB and LPPNB heyday of the settlement. If Levels II-III from Bayḍa do date to the early sixth millennium (see Footnote 9), then there is good evidence for some public structures that may have served in some ritual capacity (Byrd 1994: 656-657). Human burials occurred in courtyards and in abandoned corridor buildings, and skulls were invariably left intact with the rest of the body. Secondary burials, perhaps brought back to 'Ayn Ghazāl from considerable distances, were relatively numerous, and often various elements of pig skeletons were included in the burial pits.

The Sixth Millennium: The Pottery Neolithic

Well-fired pottery was produced as early as the MPPNB (Rollefson and Simmons 1985: 44), but industrial production of ceramics did not take place until near the middle of the sixth millennium b.c. There is good evidence from 'Ayn Ghazāl that the emergence of the Yarmoukian tradition was a local development from PPNC roots and not an import of techniques from outside the region (Rollefson *et al.* 1992: 459-460; Rollefson 1993). The Yarmoukian tradition characterizes most of Jordan, but a partially contemporaneous tradition of pottery manufacture (perhaps somewhat later than the Yarmoukian) – the Pottery Neolithic A – also appeared in Jordan, possibly introduced into the country from west of the Jordan Valley (Kafafi 1998: 131). PNA pottery is exclusively present at Khirbat adh-Dharīḥ and Dhrā', and it is also found mixed with predominantly Yarmoukian pottery at 'Ayn Ghazāl and Wādī Shu'ayb. Unmixed Yarmoukian assemblages were recovered from Jabel Abū Thawwāb and 'Ayn Rāḥūb (Kafafi 1988; 1989), and Yarmoukian sherds have recently been reported from Tall Jahjah (Banning, pers. comm.).

Except for the pottery styles, there was little difference in the daily lifestyle of the two late sixth millennium traditions. Some established villages, such as 'Ayn Ghazāl and Wādī Shu'ayb, continued to be occupied, although population size and density of these sites was at its lowest since their original founding more than 2,000 years earlier. Many newer villages were founded, all of them small in areal extent and thus in the number of inhabitants. Both rectangular "long-house" and rounded buildings were constructed. Generally, hearths were located outside of the buildings, not inside, and courtyard "kitchen" structures and open-sided *'arīsha* shaded work areas were common (cf. Kafafi and Rollefson 1995; Kafafi 1988).

The subsistence economy was segregated into full-time farmers, who lived in permanent settlements with locally pastured cattle and pigs, and full-time pastoral nomads with their sheep and goats, who interacted with the villages on a seasonal basis.

Ritual activity for the late sixth millennium is poorly documented. Clay animal figurines maintained a long history of use, and grotesque "cowrie-eye" human figurines appear to have been associated with maternal health and possibly fertility. Human burials are very rare, known in Jordan only from a multiple interment at Wādī Shu'ayb (Simmons *et al.* 1989).

As the sixth millennium came to a close, some of the long-established farming settlements closed down. The fields around 'Ayn Ghazāl, for example – still the location of a strong spring that issued copious amounts of sweet water – could no longer support even a miniscule permanent farming population; the only evidence of human presence were stone foundation rings of temporary circular tents (ancestors of Bedouin tents), used by pastoralists who stopped to take advantage of the water and the vegetation of the abandoned slopes and plateaus around the former town (Rollefson and Kafafi 1994).

Other, newer villages continued in use through the early part of the fifth millennium, slowly setting the foundation for the emergence of the Chalcolithic period and the return to some of the former population densities of the seventh millennium.

---

[8] The small (>1 hectare) LPPNB site of 'Ayn Jahjah, in Wādī Ziqlāb, may have withstood the stresses of the late seventh and early sixth millennia; at least, the same site was inhabited åin the ensuing ceramic Neolithic period (E. Banning, pers. comm.).

[9] There is a striking resemblance between the PPNC corridor buildings at 'Ayn Ghazāl and the "two-story corridor buildings" at Bayḍa. Kirkbride considered that the Bayḍa structures dated to the PPNB period based on some radiocarbon dates, but there is some question as to the reliability of those samples. See Rollefson 1998a: 116.

Bibliography

Baird, D. 1994. Chipped Stone Production Technology from the Azraq Project Neolithic Sites. Pp. 525-542 in H. Gebel and S. Kozlowski (eds), *Neolithic Chipped Stone Industries of the Fertile Crescent.* Berlin: ex oriente.

Baird, D., Garrard, A., Martin, L. and Wright, K. 1992. Prehistoric Environment and Settlement in the Azraq Basin: An Interim Report on the 1988 Season. *Levant* 24: 1-31.

Banning, E. 1998. The Neolithic Period. *Near Eastern Archaeology* 61(4): 188-237.

Bar-Yosef, O. and Alon, D. 1988. The Excavations. *'Atiqot* 18: 1-30.

Becker, C. 1991. The Analysis of Mammalian Bones from Basṭa, A Pre-Pottery Neolithic Site in Jordan: Problems and Potential. *Paléorient* 17(1): 59-75.

Berner, M. and Schultz, M. 1997. The Physical Anthropology of the Late PPNB Population of Basṭa. *Neo-Lithics* 2/97: 7.

Byrd, B. 1992. The Dispersal of Food Production Across the Levant. Pp. 49-61 in A. Gebauer and T. Price (eds), *Transitions to Agriculture in Prehistory.* Madison: Prehistory Press.

___ 1994. Public and Private, Domestic and Corporate: The Emergence of the Southwest Asian Village. *American Antiquity* 59(4): 639-666.

Edwards, P. and Thorpe, S. 1986. Surface Lithic Finds from Kharaysin, Jordan. *Paléorient* 12(2): 85-87.

Fino, N. 1997. Al-Baseet, a New LPPNB Site Found in Wādī Musa, Southern Jordan. *Neo-Lithics* 3/97: 13-14.

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.

Gebel, H.G. 1988. Late Epipaleolithic - Aceramic Neolithic Sites in the Petra Area. Pp. 67-100 in A. Garrard and H. Gebel (eds), *The Prehistory of Jordan.* British Archaeological Reports-Int. Ser. 396. Oxford: B.A.R.

Gebel, H.G.K. and Bienert, H.-D. 1997. Ba'ja: Hidden in the Petra Mountains. Preliminary Results of the 1997 Investigations. Pp. 221-262 in H.G.K. Gebel, Z. Kafafi and G. Rollefson (eds), *Prehistory of Jordan II. Perspectives from 1997.* Berlin: ex oriente.

Griffin, P., Grissom, C., and Rollefson, G. 1998. Three Late Eighth Millennium Plastered Faces from 'Ain Ghazāl, Jordan. *Paléorient* 24(1): 59-70.

Grissom, C.A. n.d. Neolithic Statues from 'Ain Ghazal: Construction and Form. *AJA* (in press).

Kafafi, Z. 1988. Jabel Abū Thawwāb: A Pottery Neolithic Village in Jordan. In A. Garrard and H. G. Gebel (eds), *The Prehistory of Jordan. The State of Research in 1986.* British Archaeological Reports 396: 451-471. Oxford: B.A.R.

___1989. Late Neolithic I Pottery from 'Ain er-Raḥūb, Jordan. *ZDPV* 105: 1-17.

___1998. The Late Neolithic in Jordan. Pp.127-138 in D. Henry (ed), *The Prehistoric Archaeology of Jordan.* British Archaeological Reports, Int. Ser. 705. Oxford: B.A.R.

Kafafi, Z. and Rollefson, G. 1995. The 1994 excavations at 'Ayn Ghazāl: Preliminary Report. *ADAJ* 39: 13-29.

Kirkbride, D. 1966. Five Seasons at the Pre-Pottery Neolithic Village of Beidha in Jordan. *PEQ*: 8-72.

Köhler-Rollefson, I. 1988. The Aftermath of the Levantine Neolithic Revolution in Light of Ecologic and Ethnographic Evidence. *Paléorient* 14(1): 87-93.

___1992. A Model for the Development of Nomadic Pastoralism on the Transjordanian Plateau. Pp.11-18 in O. Bar-Yosef and A. Khazanov (eds), *Pastoralism in the Levant.* Madison: Prehistory Press.

___1997. Proto-Élevage, Pathologies and Pastoralism: a Post-Mortem on Goat Domestication. Pp. 557-565 in H.G. Gebel, Z. Kafafi and G. Rollefson (eds), *The Prehistory of Jordan II. Perspectives from 1997.* Berlin: ex oriente.

Köhler-Rollefson, I., Gillespie, W. and Metzger, M. 1988. The Fauna from Neolithic 'Ain Ghazal. Pp. 423-430 in A. Garrard and H. Gebel (eds), *The Prehistory of Jordan.* British Archaeological Reports, Int. Ser. 396. Oxford: B.A.R.

Kuijt, I. 1997. Trying to Fit Round Houses into Square Holes: Reexamining the Timing of the South-Central Levantine Pre-Pottery Neolithic A and Pre-Pottery Neolithic B Transition. Pp. 193-202 in H.G. Gebel, Z. Kafafi and G.O. Rollefson (eds), *The Prehistory of Jordan II. Perspectives from 1997.* Berlin: ex oriente.

Kuijt, I., Mabry, J. and Palumbo, G. 1991 Early Neolithic Use of Upland Areas of Wādī el-Yabis: Preliminary Evidence from the Excavations of 'Iraq ed-Dubb, Jordan. *Paléorient* 17(1): 99-108.

Kuijt, I. and Mahasneh, H. 1998. The Early Neolithic Occupation of Dhrā', Jordan: Implications for the Jordan Valley as a Social, Economic and Ritual Focus. *Journal of Field Archaeology* 25: 153-161.

MacDonald, B., Rollefson, G., Banning, E., Byrd, B. and D'Anibele, C. 1983. Wādī al-Ḥasa Survey 1982: Preliminary Report. *ADAJ* 27: 311-323.

Mahasneh, H. 1997. As-Sifiya: A Pre-Pottery Neolithic B Site in the Wādī el-Mujib, Jordan. Pp. 203-214 in H.G. Gebel, Z. Kafafi and G. Rollefson (eds), *The Prehistory of Jordan II. Perspectives from 1997.* Berlin: ex oriente.

Neef, R. 1997. Status and Perspectives of Archaeobotanical Research in Jordan. Pp. 601-609 in H. G. K. Gebel, Z. Kafafi and G. Rollefson (eds), *Prehistory of Jor-*

dan II. Perspectives from 1997. Berlin: ex oriente.

Nissen, H., Muheisen, M. and Gebel, H. G. 1987. Report on the First Two Seasons of Excavation at Basṭa (1986-1987). *ADAJ* 31:79-119.

——1991. Report on the Excavations at Basṭa 1988. *ADAJ* 35: 13-40.

Palumbo, G. 1992. The 1990 Wādī el-Yabis Survey Project and Soundings at Khirbet Umm el-Hedamus. *ADAJ* 36: 25-41.

Quintero, L., Wilke, P. and Rollefson, G. n.d. Highland Towns and Desert Settlements: Origins of Nomadic Pastoralism in the Jordanian Neolithic. In H. G. K. Gebel and R. Neef (eds), *Central Settlements in Neolithic Jordan.* Berlin: ex oriente (in press).

Rollefson, G. 1983. Ritual and Ceremony at Neolithic Ain Ghazāl (Jordan). *Paléorient* 9/2: 29-38.

——1986. Neolithic 'Ain Ghazal (Jordan): Ritual and Ceremony II. *Paléorient* 12/1: 45-52.

——1987. Local and Regional Relations in the Levantine PPN Period: 'Ain Ghazal, Jordan, as a Regional Center. Pp. 29-32 in *SHAJ III* .

——1989. The Late Aceramic Neolithic of the Levant: A Synthesis. *Paléorient* 15(1): 168-173.

——1993. The Origins of the Yarmoukian at 'Ain Ghazal. *Paléorient* 19(1): 91-100.

——1996. Abu Hudhud (WHS 1008): An EPPNB Settlement in the Wadi el-Hasa, Southern Jordan. Pp. 159-160 in S. Kozlowski and H. G. Gebel (eds), *Neolithic Chipped Stone Industries of the Fertile Crescent and Their Contemporaries in Adjacent Regions.* Berlin: ex oriente.

——1997. Changes in Architecture and Social Organization at 'Ain Ghazal. Pp. 287-307 in H.G. Gebel, Z. Kafafi and G. Rollefson (eds), *The Prehistory of Jordan II.* Perspectives from 1997. Berlin: ex oriente.

——1998a. The Aceramic Neolithic of Jordan. Pp. 102-126 in D. Henry (ed.), *The Prehistoric Archaeology of Jordan.* British Archaeological Reports, Int. Ser. 705. Oxford: B.A.R.

——1998b Neolithic 'Ain Ghazal: Ritual and Ceremony III. *Paléorient* 24/1: 43-58.

——n.d. a. Ritual and Social Structure at Neolithic 'Ayn Ghazāl. In I. Kuijt (ed.), *Life In Neolithic Farming Communities: Social Organization, Identity, and Differentiation.* Cambridge: Cambridge University Press (in press).

——n.d. b. LPPNB Social Organization: Tribes or Chiefdoms? In H. G. K. Gebel and R. Neef (eds), *Central Settlements in Neolithic Jordan.* Berlin: ex oriente (in press).

Rollefson, G. and Kafafi, Z. 1985. Khirbet Hammam: A PPNB Village in the Wadi el-Hasa, Southern Jordan. *BASOR* 258: 63-69.

——1994. The 1993 Season at 'Ain Ghazal: Preliminary Report. *ADAJ* 38: 11-32.

——1996. The 1995 Season at 'Ain Ghazal: Preliminary Report. *ADAJ* 40: 11-28.

——1997. The 1996 Season at 'Ayn Ghazāl: Preliminary Report. *ADAJ* 41: 27-48.

Rollefson, G. and Köhler-Rollefson, I. 1993. PPNC Adaptations in the First Half of the Sixth Millennium bc. *Paléorient* 19(1): 33-42.

Rollefson, G., Quintero, L. and Wilke, P. 1999. Bawwāb al-Ghazāl: Preliminary Report on the 1998 Testing Season. *Neo-Lithics* 1/99: 2-4.

Rollefson, G., Schmandt-Besserat, D. and Rose, J. 1998. A Decorated Skull from MPPNB 'Ain Ghazal. *Paléorient* 24/2: 99-104.

Rollefson, G. and Simmons, A. 1985.The Early Neolithic Village of 'Ain Ghazal, Jordan: Preliminary Report on the 1983 Season. *BASOR* 23: 35-52.

Rollefson, G., Simmons, A. and Kafafi, Z. 1992. Neolithic Cultures at 'Ain Ghazal, Jordan. *Journal of Field Archaeology* 19(4): 443-470.

Schmandt-Besserat, D. 1997. Animal Symbols at 'Ain Ghazal. *Expedition* 39(1): 48-58.

——1998. 'Ain Ghazal "Monumental" Figures. *BASOR* 310: 1-17.

Simmons, A., Kafafi, Z., Rollefson, G. and Moyer, K. 1989. Test Excavations at Wādī Shu'ayb, a Major Neolithic Settlement in Central Jordan. *ADAJ* 33: 27-42.

Simmons, A. and Najjar, M. 1999. Preliminary Field Report of the 1998-1999 Excavations at Ghwair I, A Pre-Pottery Neolithic B Community in the Wādī Faynān Region of Southern Jordan. *Neo-Lithics* 1/99: 4-6.

Simmons, A., Olszewski, D. and Kafafi, Z. 1988. Abu Suwwan Briefly Revisited: Additional Notes on a Large Neolithic Site Near Jerash, Jordan. *ADAJ* 32: 15-25.

Tubb, K. and Grissom, C. 1995. 'Ain Ghazal: A Comparative Study of the 1983 and 1985 Statuary Caches. Pp. 437-447 in *SHAJ V.* Amman.

Waheeb, M. and Fino, N. 1997. 'Ayn el-Jammām: A Neolithic Site Near Ras en-Naqb, Southern Jordan. Pp. 215-219 in H.G. Gebel, Z. Kafafi and G. Rollefson (eds), *The Prehistory of Jordan II. Perspectives from 1997.* Berlin: ex oriente.

Wasse, A. 1997. Preliminary Results of an Analysis of Sheep and Goat Bones from 'Ain Ghazal, Jordan. Pp. 575-592 in H. G. Gebel, Z. Kafafi and G. O. Rollefson (eds), *The Prehistory of Jordan II. Perspectives from 1997.* Berlin: ex oriente.

Wilke, P. and Quintero, L. 1994. Naviform Core-and-Blade Technology: Assemblage Character as Determined by Replicative Experiments. Pp. 33-60 in H. G. Gebel and S. K. Kozlowski (eds.), *Neolithic Chipped Stone Industries of the Fertile Crescent.* Berlin: ex oriente.

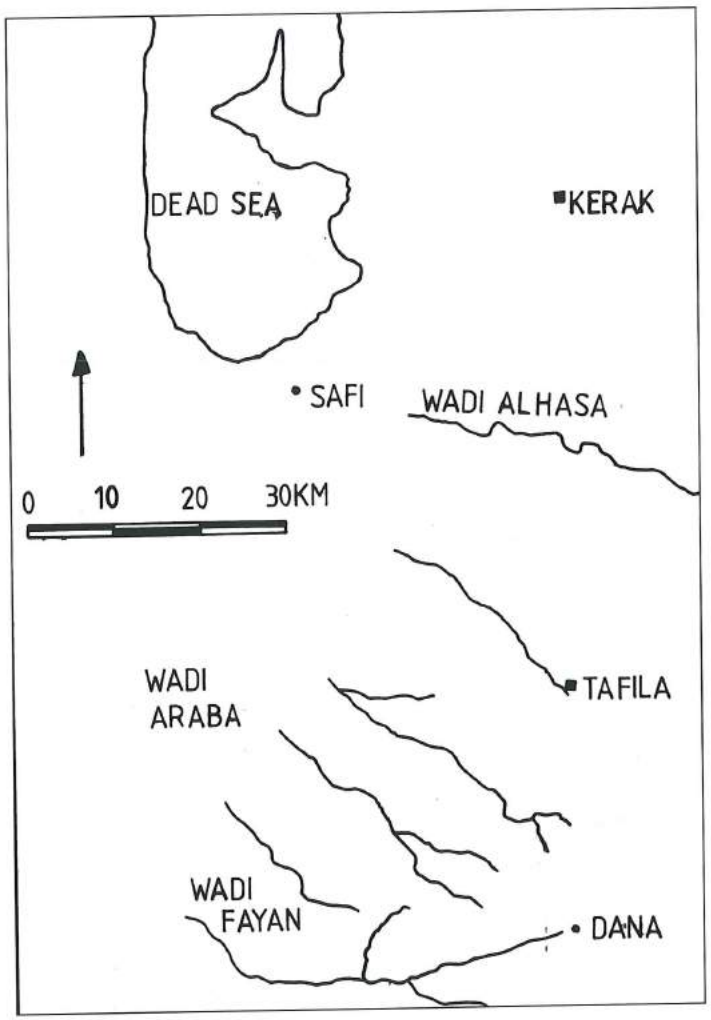
Mohammad Najjar
Department of Antiquities
Amman - Jordan

Mohammad Najjar

Towards a Commonly Accepted Chronological Framework of the Pre-Pottery Neolithic B Period in Jordan

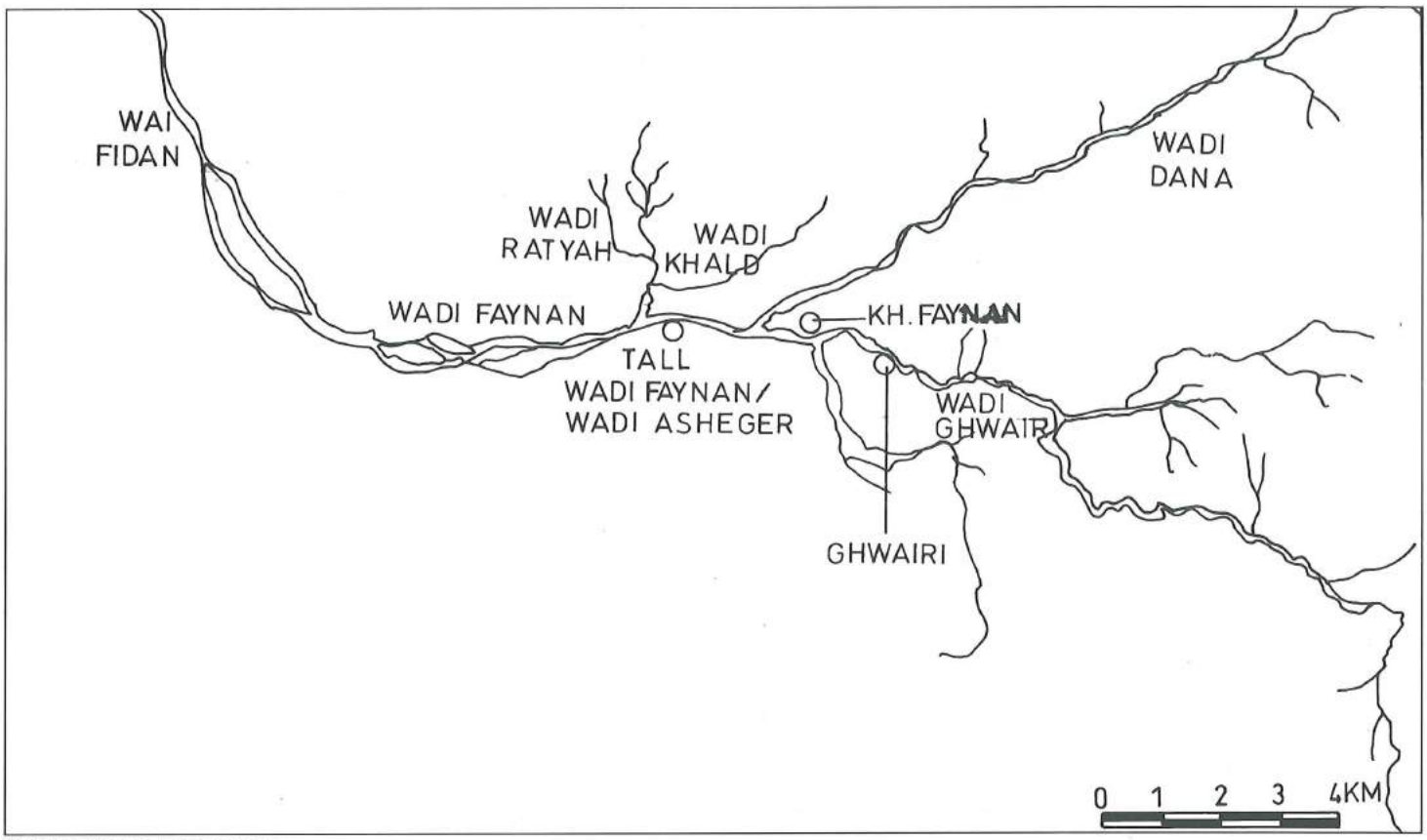
Introduction

Faynān is located at the eastern border of Wādī 'Arabah, some 60km to the south of the southern edge of the Dead Sea (FIG. 1). The wadi system, which is known as Wādī Faynān starts in the area of ash-Shawbak with two main tributaries, namely Wādī Ḍānā and Wādī Ghuwayr. After the confluence of these two wadis at Khirbat Faynān—the main archaeological site in the area known as Funun in Biblical times and Pinon in the Roman/Byzantine period—the wadi flows under the name of Wādī Faynān till it reaches 'Ayn al-Faydān. From this point it runs under the name of Wādī Faydān till its final water discharge in Wādī 'Arabah. So the same wadi system runs under different names from the Jordanian plateau in the east to Wādī 'Arabah in the west for a little more than 32km. Other tributaries to the wadi are Wādī Ushayqar, Wādī Khālid, Wādī Ratyah and a dozen small nameless wadis (FIG. 2). The onset of the wadi is situated at about 1400m. above sea level, then the wadi streams down sharply to about 250m. above sea level at the point when it emerges from the plateau at Khirbat Faynān. The big difference in the altitude plus the low temperature and relatively high precipitation in the form of snow and rain in the winter and early spring makes the wadi and its flood plain vulnerable to severe and dangerous flash floods at the aforementioned times (FIG. 3). During the rest of the year the wadi is completely dry except for tiny streams at certain stretches supported by underground water springs. At the upper flow of the wadi, juniper and oak trees cover the slopes to the bottom, but some 18km. to the west the sandy edges of the wadi are covered with acacia and tamarix (FIG. 4). The ancient inhabitants were drawn to the wadi by the accessibility provided by it. The distance between Ḍānā and Khirbat Faynān does not exceed 12km. That makes it the shortest natural trail from the Jordanian Plateau to Wādī 'Arabah and from there to the Negeb and the Mediterranean Sea. Furthermore, people were attracted by the availability of water sources and cultivable land. The establishment of the earliest settlements in the area at the edges of the wadi gave them a good access to the water and the agricultural land at the upper flow of the wadi, and to the water and hunting land at the lower flow.



1. Wādī Faynān in southern Jordan.

Starting from the eighth millennium BC, the presence of the copper ores has become the main focus of human



2. Wādi Faynān water system.



3. The flash floods in winter time.



4. Sand dunes at the lower flow of the wadi.

activities in the area. Copper ores in the form of "green stones" (malachite and copper silicates) were collected and redistributed in the eastern Mediterranean. These stones were found in the course of archaeological excavations at many Pre-Pottery Neolithic sites such as Jericho, Bayḍā, Ghuwayr, 'Ayn Ghazāl, Basṭa and several other sites like Tall Ramad, Munḥaṭa, Nahal Oren, Abū Ghosh, Nahal Hemar, and Nahal Issaron. Jewellery and cosmetic powders were manufactured of these "green stones". The results of a joint Jordanian-German (Department of Antiquities of Jordan and the German Mining Museum Bochum) archaeometallurgical project confirmed that the source of all these Neolithic stones and almost all the Chalcolithic copper artefacts was the copper ore deposit enclosed in the Middle and Upper Cambrian White Sandstone of 'Arabah and more precisely Faynān (Hauptmann *et al.* 1989). With the progression of know-how at the end of the fourth and the beginning of the third millennium the lower ore-bearing deposit (The Dolomite-Limestone-Shale Unit) both in Faynān and Timnā' have become the main source of copper ores (Najjar *et al.* 1990). Copper ore mining in the area continued, with some lapses, through the Bronze (Wright *et al.* 1998) and Iron Ages (Fritz 1994), the Roman/ Byzantine periods

and the Islamic era. The latest archaeological evidence for copper mining and production came from an Ayyubid-Mamluk village in the fourteenth century AD.

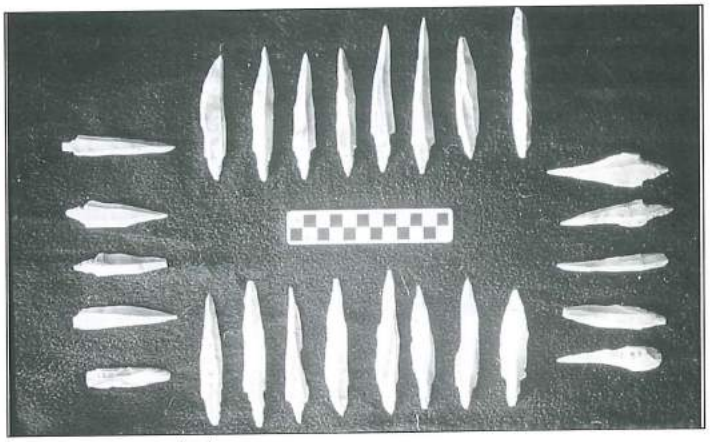
The Site

So far, four sites representing the Pre-Pottery Neolithic B period have been located along the wadi. The largest site, which has been under excavation since 1993, is known as Wādī Ghuwair I. What started as probe trenches aiming at the archaeometallurgical investigation of the site in 1993 (jointly with the German Mining Museum) is becoming now a project in its own right. The site is now under the excavation by a team from the Department of Antiquities of Jordan and the University of Nevada Las Vegas, headed by the author and by Dr. Alan Simmons from UNLV. The site is about one hectare in area, subdivided into two natural terraces. The PPNB site is located at the upper terrace while the lower terrace is covered by Roman water installations. Seven areas have been investigated so far. The earliest evidence of occupation was found at the eastern edge of the site—where one Khiamian point was discovered. Although many interesting artefacts were found at the site, including arrow heads (FIG. 5), blades, chisels, hammers, ground stones, stone and terracotta figurines and even some Pre-Pottery Neolithic B pottery sherds, the most extraordinary thing about the site is the state of preservation of its architecture . Some of the walls are still standing to the height of a little more than three meters. The rooms of the earliest levels have beaten earth floors, while the rooms of the second architectural phase have plastered floors and walls. The preliminary analysis of the architecture shows that the houses were two-story buildings with the ground floor used for storage and the first floor for living. These residential units were modified through their long history from big 10x10m houses in the first phase into smaller 5x5m rooms in the second. These rooms from the second phase were converted into very small 1x1.5m storage spaces during the third architectural phase. One big 4x4m sub-rectangular room with niches in its western and southern walls and plastered floor and walls was uncovered (FIG. 6).

Nine C-14 calibrated dates obtained from the site confirmed that it was occupied at the end of the ninth millennium and during the first half of the eighth millennium BC.

The other three sites are located at Wādī al-Faydān. (Raikes 1980: 43) identified two of them. In 1989 probe trenches were excavated under the direction of Russel Adams to establish the chronological sequence (Adams 1991: 183). The excavated materials from both sites have demonstrated that both of them are contemporary or slightly later than Ghuwair I.

The surveying team of "Jebel Hamrat Fidan Project" located the fourth site in 1998. This site can be interpreted as the eastern extension of "Wadi Faydan I".



5. Chipped stone industry.



6. The special-use room in Area 1.

Chronology

Three of the aforementioned C-14 dates were obtained in 1993 and six additional ones in 1996 (TABLE 1).

The time range for these dates in calibrated BC years is 8484-7309 according to different calibration techniques with different degrees of confidence. From the original nine C-14 uncalibrated radiocarbon dates, the sum total of calibrated dates equals 70. This means that for us (chronologically in calibrated BC years) to compare our site with other PPNB sites in Jordan, we have the choice to pick any of these 70 different values and use it for our interpretation of the archaeological data. In other words objectivity will be next to zero especially if we consider that the situation is almost the same for every other site in Jordan.

Nevertheless working with reliable groups of radiocarbon dates from Jordan is essential for establishing the chronology of prehistoric village cultures. Sites that permit us to obtain dates from successive cultural levels, preferably from sealed architectural layers, make our task easier and the chronological results more reliable. But we

TABLE 1.

Corr. C14 date	Lab. Number	Calibr. BC 1	Calibr. BC 2
8528±89	Hd 17221-17359	7575-7485	7840-7825 7700-7420
8627±46	Hd 17220-17550	7690-7660 7635-7540	7865-7815 7705-7530
8659±178	DRI 3254, SFN 20	7904-7756 7744-7537	8035-7411 7399-7377 7368-7309
8754±52	DRI 3256, SFN 13	7907-7839 7827-7700	7929-7592
8755±311	DRI 3255, SFN 4	8087-7480 7459-7439	8484-7033
8806±52	DRI 3251, SFN 18	7940-7880 7812-7711	8007-7693 7661-7636
8812±61	HD 17219-17541	7950-7870 7815-7705	8015-7670 7670-7620
8880±117	DRI 3252, SFN 19	8031-7880 7812-7711	8083-7592
9027±116	DRI 3253, SFN 9	8324-8317 8187-8161 8134-7940	8345-8297 8273-7881 7810-7711

must bear in mind that in using the scores of C-14 dates available from Jordan that these are not of equal quality. In the early days of radiocarbon dating, today's recognised standards of pre-treatment and other procedures were not uniformly accepted nor applied. But this is just one aspect of the problem. The second aspect is the large size requirement (the conventional procedures require large samples of 40-200g or long counting times with gas proportional counters), usually limits the material to wood and raises the question "how long before use was that particular tree felled" or "are we dealing with inner or outer growth rings" or for instance "was the wood cut for this building or was it pulled out from an ancient building in the area", which was a common practice in antiquity caused by the scarcity of wood as building material in the area. However, with the advancement of dating techniques, especially Atomic Mass Spectrometry (AMS), precision of ± 80 years can be obtained from a 1mg sample of carbon after only one hour of counting time.

Another aspect of the same problem is that, as demonstrated in many studies, difference in quality cannot be blamed only on the early methods of age determination. For radiocarbon age to be equivalent to the actual or calendar age, several assumptions must hold. Some of them are associated with the physical conditions of the samples and how they are obtained and analysed. These assumptions can be summarised as follows:

1) The radiocarbon activity of the carbon reservoir is known and has remained essentially the same over the radiocarbon time scale;
2) the half-life of the carbon is accurately known;
3) carbon isotope ratios in the sample have not been contaminated by any external factors since the death of the organism;
4) and last, but not least, the assumption that the natural levels of radiocarbon activity and stable carbon isotope abundances can be measured to appropriate levels of accuracy and precision, and correction can be made for isotope fractionation.

The conclusion is a chronostratigraphical analysis and a relative chronology based on the seriation of the assemblages of the material culture in good accordance with the radiometric data is the best combination to establish a chronological framework for the PPNB period in Jordan, and unless we have all these elements combined, it is much safer to use the radiocarbon age to establish a rel-

ative chronology for comparing different sites.

Bibliography

Adams, R. B. 1991. Archaeological Notes. The Wadi Fidan Project, Jordan, 1989. *Levant* 23: 181-183.

Fritz, V. 1994. Vorbericht über die Grabungen in Barqa el-Hetiye im Gebiet von Fenan, Wadi el-'Araba (Jordanien) 1990. *ZDPV* 110(2): 125-150.

Hauptmann, A., Pernicka, E. and Wagner, G. 1989. The Earliest Periods of Copper Metallurgy in Feinan/Jordan. Pp. 119-136 in *Archaometallurgie der Alten Welt/Old World Archaeometallurgy. Der Anschnitt*, Beiheft 7. Bochum.

Najjar, M., Abu Dayyya, A., Suleiman, E., Weisgerber, G. and Hauptmann, A. 1990. Tell Wadi Feinan, the First Pottery Neolithic Tell in South Jordan. *ADAJ* 34: 27-56.

Raikes T. D. 1980. Notes on some Neolithic and Later Sites in the Wadi Araba and the Dead Sea Valley. *Levant* 12: 40-60.

Wright, K., Najjar, M. *et al.* 1998. The Wadi Faynan Fourth and Third Millennia Project, 1997: Report on the First Season of Test Excavations at Wadi Faynan 100. *Levant* 30: 33-60.

Hans-Dieter Bienert
German Protestant Institute of Archaeology
in Amman
Amman - Jordan

Hans-Dieter Bienert

The Pre-Pottery Neolithic B (PPNB) of Jordan: A First Step Towards Proto-Urbanism?

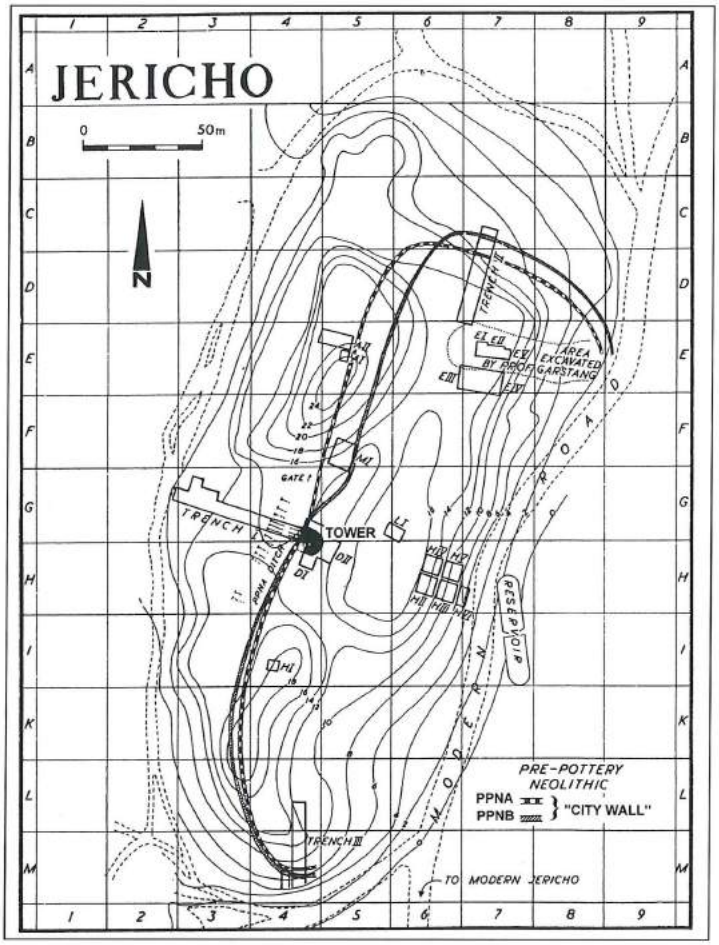
The extraordinary and outstanding cultural development which can be witnessed in the Late Pre-Pottery Neolithic B (LPPNB) in Jordan (second half of the seventh millenium BC) has been a focus of research in Jordan in the past two decades (Rollefson 1997a; 1997b; 1998; Rollefson et al. 1984; 1985; 1992; Nissen 1990; Nissen *et al.* 1987; 1991; Gebel *et al.* 1988; Simmons *et al.* 1989; Najjar 1994; Mahasneh 1996; 1997a; 1997b; Gebel, Bienert *et al.* 1997; Waheeb and Fino 1997; Bienert and Gebel 1998; Fino 1998a; 1998b; Simmons and Najjar 1998). A number of large settlements, up to 14 ha in size, have been located in the mountainous area running in north-south direction west of the Jordan Rift Valley. The size of the settlements, their architecture and artifacts initiated discussions on the terminology of how to define and name this type of settlement. This raises the question of whether a first step of development towards early urbanism can be seen in the LPPNB.

It was Kathleen Kenyon who first used the term "town" (Kenyon 1952: 73; 1957: 23; 1960: 98; see also Hachmann 1994: 38-39, 46) to describe the architectural and cultural features which she observed in the Pre-Pottery layers during her excavations on Tall as-Sulṭān (Jericho), Palestine (FIG. 1). In layers, dating to the Pre-Pottery Neolithic A (8,500-7,500 BC) a massive tower-like structure was found standing to a height of 8.25m and its diameter measured 9m at the base and 7m at the top (FIGS. 2 and 3). Inside the tower a passage and a stone staircase of which 20 steps were preserved provided access to the top of the tower (Kenyon 1957: 68-69; 1960: 93; Kenyon and Holland 1981: 19-20, pls. 5-11; Bar-Yosef 1992: 15-17, Fig. 2.1). Kenyon also excavated close to the tower's large walls (FIGS. 2 and 4), which — she believed — functioned as a "town wall" protecting the settlement (Kenyon and Holland 1981: 19). In front of the tower, which was erected behind the wall, unusual for a fortification purpose, Kenyon excavated a ditch which was "...cut into the solid rock, to a depth of c. 2 m., with a steep inner side and a more gradual outer one. Its maximum depth is 2.10 m. below the inner lip, and its over-all width 8.75 m" (Kenyon and Holland 1981: 26, Pl. 16b). While the tower had no continuation in the following PPNB (7,500-6,000 BC), a so-called "town wall" also existed in that period (Kenyon 1960: 91; Kenyon and Holland 1981: Fig. 2, Pl. 6). It can be understood why Kenyon was convinced of having found remains of a large fortification system (Kenyon 1960: 98, 100).

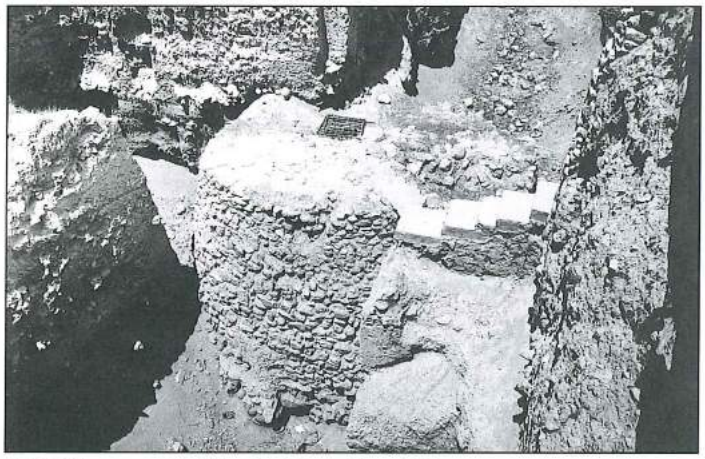


1. Map indicating sites mentioned in the text.

However, research undertaken by other scholars, points to a different interpretation of the walls running mainly along the western part of both the PPNA and PPNB settlement of Jericho (Bar-Yosef 1986; Hachmann 1994: 66-73; Herzog 1997: 20). In their understanding of the archaeological data these walls functioned as a protection against flash floods, as they were erected on the sloping western side which must have suffered from fre-



2. Plan of the PPNA/PPNB settlement at Tall as-Sulṭān / Jericho (after Kenyon and Holland 1981: Fig. 2).



3. PPNA tower at Tall as-Sulṭān in Trench I.



4. View of the PPNA so-called "city wall" in Trench I (after Kenyon and Holland 1981: Pl. 4).

quent inundation by the near-by wadi stream and/or retaining walls — at least during the PPNB — or to prepare a proper place on the steep slope for further settlement activities (Hachmann 1994: 72).

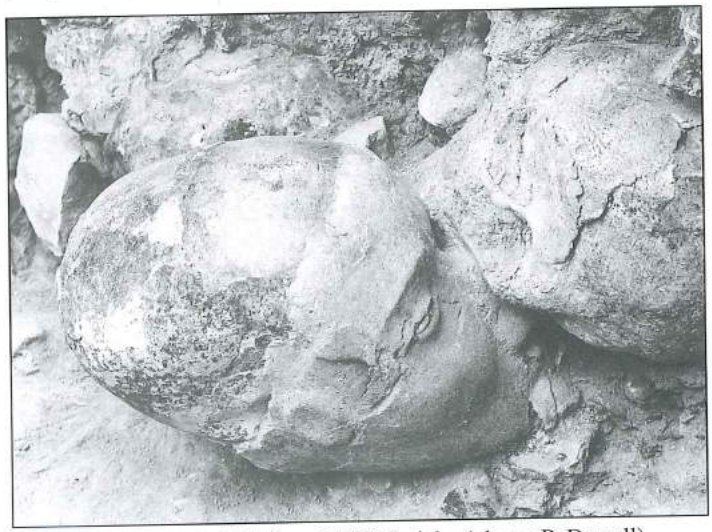
There is still much debate related to the interpretation of the function of the tower, although most scholars now believe that it did not function as a fortification element. Its place inside the wall as well as the narrow staircase do not support any interpretation as a fortification (Bar-Yosef 1986; Hachmann 1994: 68-69; Herzog 1997: 20). It is more likely that it served as a raised podium for ritual cer-

emonies. Far later, tower-like structures could find analogies in raised rounded platforms in the Bronze Age cities of Khirbat az-Zayraqūn (Mittmann 1994) and Megiddo (Ben-Tor 1992: 103, Fig. 4.17, Pl. 19).

Despite the change in interpretation of the excavation results at Jericho, the size of the architecture and its monumentality "... indicate an impressive degree of communal and operative social organization" (Herzog 1997: 20). Also, if the tower functioned as a ritual structure, the walls and adjacent structures might also have been incorporated within this. The amount of work and time which was invested in building the structures is considerable (Bar-Yosef 1992: 16-17). The planning and building of such monuments indicates organizational structures, such as the division of labour and social hierarchies due to the manpower and scheduling. In addition, taking into consideration the elaborate burial customs such as plastered skulls (FIG. 5), which were found at Jericho (Bienert 1991: 10-11, Figs. 2-3) it can be discussed whether these elements anticipate some development elaborately shown in later urban centres. The size of PPN Jericho is estimated at approximately 2.5 hectares and Bar-Yosef estimates the population of the settlement to have been 375 to 1000 inhabitants (Bar-Yosef 1992: 16).

At the Middle PPNB (7,250-6,500 BC) site of Bayḍā (Kirkbride 1966a; 1966b; 1967; 1968a; 1968b) in southern Jordan (FIGS. 1 and 6), remains of a wall — far less massive than at Tall as-Sulṭān — were detected by Diane Kirkbride (Kirkbride 1968a: 92-93, Figs. 1-2, Pl. XXVA). Here too, it seems that the wall was built not as a fortification but as a protection of the site against wadi floods.

Since the excavations at Tall as-Sulṭān (1952-1958) and Bayḍā (1958-1967, 1983) a number of mostly large pre-pottery Neolithic settlements ('Ayn Ghazāl, Wādī



5. Plastered skull (D 112) from PPNB Jericho (photo: P. Dorrell).



6. Overview of the Middle PPNB settlement of Bayḍā.

Shu'ayb, aṣ-Ṣifiya, al-Basīṭ, 'Ayn Jammām) most of them dating to the PPNB and in particular its latest phase — the LPPNB — have been discovered, surveyed and partly excavated. The large size of these settlements — some reaching up to 14 hectares, their elaborate architecture as well as the rich material culture, again initiated the discussion on whether traces of first steps towards early urbanism could already be seen in the LPPNB. Besides the large sites, also smaller settlements (e.g. Ghwayr I, Ba'ja) existed, showing, as it seems from the archaeological record, a similar architectural and — probably — social complexity as the large ones (Simmons and Najjar 1998; Gebel, Bienert *et al.* 1997).

Before looking further into the archaeological context, it is necessary to briefly list what are generally considered as elements defining urbanism and/or city. Definitions are numerous and, in the archaeological literature, the terms 'village', 'town', 'city' are often used interchangeably (Simmons 1995: 119; Frick 1997: 14). The following elements, however, have to be considered when defining a city (see Frick 1997):[1]

- permanent and compact — densely built up areas — settlement;
- particular (hierarchical) relationship to its surroundings (villages): creating a centre and its surroundings;
- populated by a comparable large number of people who show labour division, social ranking and the existence of specialized social groups (priesthood and other "specialists");
- existence of large communal buildings (temples, storage facilities, fortifications);
- production and regulation of agricultural surplus, as "the capacity to extract and invest this surplus was a principal function of cities and their administrative officials" (Frick: 1997: 15).

The interdependence between a city and its sur-

[1] For further discussions concerning the development of urbanism and the terminology see e.g.: Falconer 1987 and contributions in Ucko *et al.* (eds.) 1972 and Aufrecht *et al.* (eds.) 1997.

rounding (normally unwalled) villages was generally organized as a two-level hierarchical system, consisting of a centre (city) and the periphery (villages). Later it developed into a three-tier system, in which a central city administrated an area which consisted of several town and village components (Frick 1997: 15, Figs. 1-2). The structured relationship between the different settlement types, in the sense of the formation of a hierarchical settlement system, was also a precondition for urbanization. The first "true" cities (Frick 1997: 16) were established in Mesopotamia (e.g. Ḥabūba Kabīra, Uruk) in the early Bronze Age, around the end of the fourth millennium BC and in Palestine (e.g. Jericho, Bāb adh-Dhrā', Megiddo) towards the end of the Early Bronze Age I, around 3000 BC. Even if the PPNB settlements were larger than those, they differed from those cities, as they did not — as it seems — form the centre of a settlement system and they also seem to lack certain other required elements, such as a recognizable hierarchical social complexity of its inhabitants. However, this latter assumption may change due to new archaeological evidence.

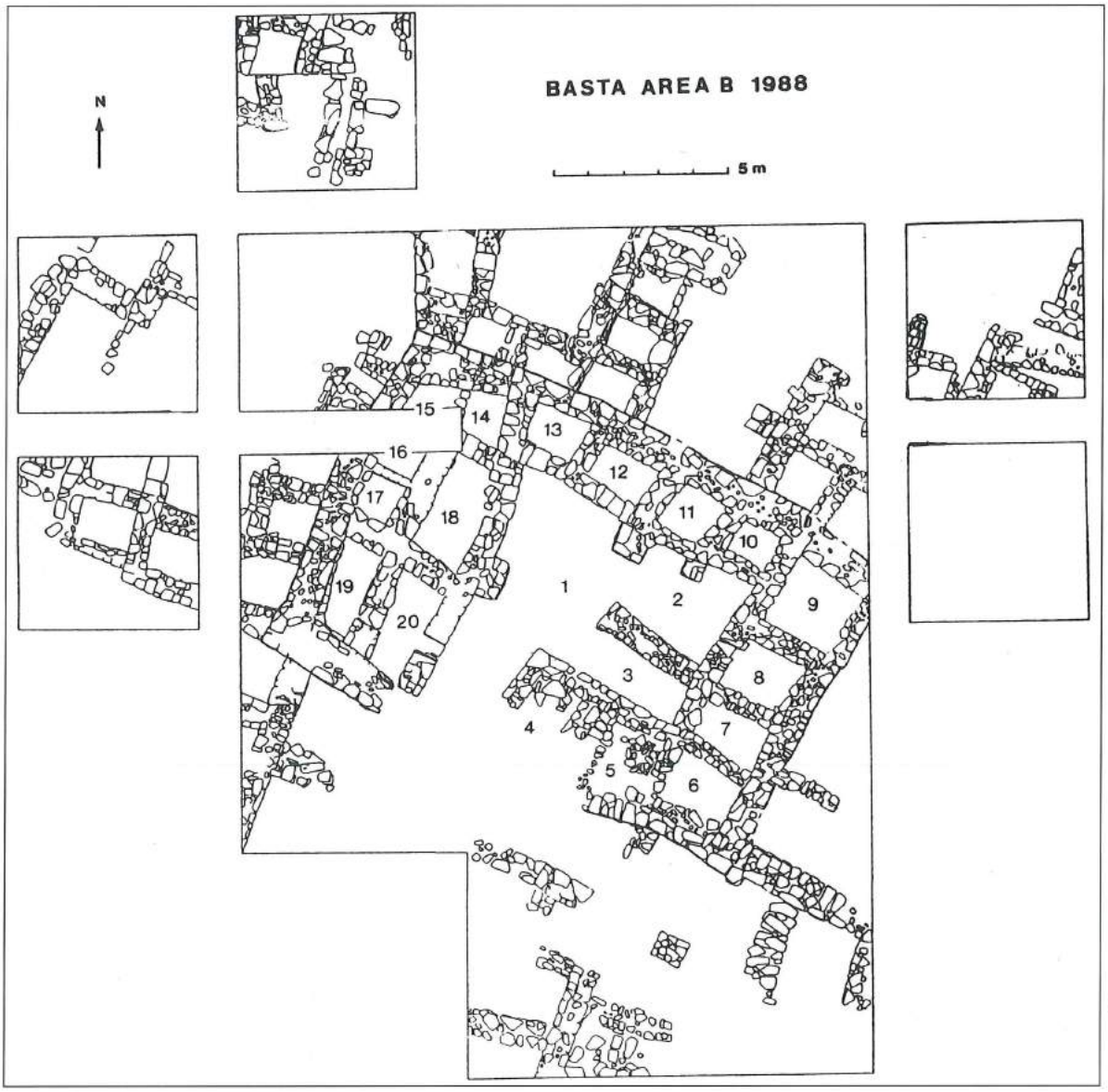
Nevertheless, the large PPNB settlements were not ordinary villages. Frick suggests the term "protourban settlements" (Frick 1997: 15), which might still focus too strongly on the term 'urban'. The large PPNB settlements are called 'megasites' (see e.g. Gebel 1997: 1; Rollefson 1997c: 227) or 'central settlements'.[2] Rollefson also uses the term "site giganticism" (Rollefson 1997c: 241). However, while this terminology certainly stresses the large dimensions of the PPNB sites it does not take into consideration the other outstanding cultural achievements which can be witnessed in that period, as there are the special buildings, a great variety of interesting burial customs and a rich material cultural. So, correctly avoiding the use of terms like 'urbanism' or 'cities', we can nevertheless see elements which seem to anticipate some elements which can be found later in cities and which clearly differentiate those settlements from pure accumulations of houses or farms.

So it might be that beside the large PPNB settlements in Jordan, such as 'Ayn Ghazāl, Baṣṭa and aṣ-Ṣifiya, smaller ones — hamlets, small villages — might have existed in the vicinity of those sites. Then the large sites could have — at least partly — functioned as centres for the smaller ones. The settlement topography — at the present state of research — shows that smaller villages are far more common in western Palestine and small sites in the eastern steppe/desert, while the large sites can be found all along the north-south axis of the Jordanian highlands (Rollefson 1998: 110). Rollefson also suggests that the collapse of "dispersed small villages and hamlets in the countryside" during the mid-seventh millennium BC in the central and southern Levant caused a great deal of population movement which resulted in the sudden expansion or foundation of the known huge LPPNB sites (Rollefson 1989). Further and thorough research (e.g. vicinity surveys) could provide detailed information on whether there is a two tier settlement pattern or regional differences in the size of settlement (see also Simmons 1995: 120).

Not much can be said about the number of people who lived at the large PPNB sites as in most cases only small parts of the settlements have been excavated. At 'Ayn Ghazāl approximately one percent of the possible settlement area of 15 hectares has been excavated (Rollefson 1997c: 241). Population estimates range from 500 people at the beginning of the MPPNB occupation to more than 1000 people in the LPPNB (Rollefson 1998: 110, 114). Despite the small area excavated, 'Ayn Ghazāl is the only PPNB site where detailed studies on the internal patterning and the subsistence economy have been undertaken.

Most striking are the architectural achievements in the LPPNB in Jordan. While houses during the MPPNB had large and open rooms for — most likely — one family, the number of rooms of the dwellings in the LPPNB not only increased rapidly while the size of the rooms decreased, but the concept of dwellings changed (Rollefson and Köhler-Rollefson 1992; Rollefson 1998: 111). Large, probably multi-family (clan?) compounds were built, as attested e.g. at the LPPNB site of Baṣṭa (FIG. 7), where a large compound, building unit I, consisted of 20 rooms, where the central room seems to have functioned as a larger (roofed or unroofed) courtyard. While the whole unit covered an area of 150m^2, single rooms varied between 1.5 x 1.5 and 3 x 2m (Nissen *et al.* 1991: 15-16, Fig. 1). The agglutination of rooms to larger units is also reflected at a number of other sites, such as aṣ-Ṣifiya (FIGS. 8 and 9) in Wādī al-Mūjib (Mahasneh 1996; 1997a; 1997b; Bienert and Mahasneh 1998), Ghwayr I (Najjar 1992; Simmons and Najjar 1998; 1999), 'Ayn Jammām (Abu Dayyeh *et al.* 1993; Gebel 1993; Waheeb 1996; Waheeb and Fino 1997) and Ba'ja (FIGS. 10 and 11) (Bienert and Gebel 1997a; 1997b; 1998; Gebel and Bienert 1997a; 1997b; Gebel, Bienert *et al.* 1997). Recent work for waste-water pipelines in Wādī Mūsā revealed architectural remains of another large LPPNB site — al-Basīṭ — with similar architectural features (FIG. 12). Due to the restricted area excavated no building units could yet be unearthed. Besides the extension of building, evidence

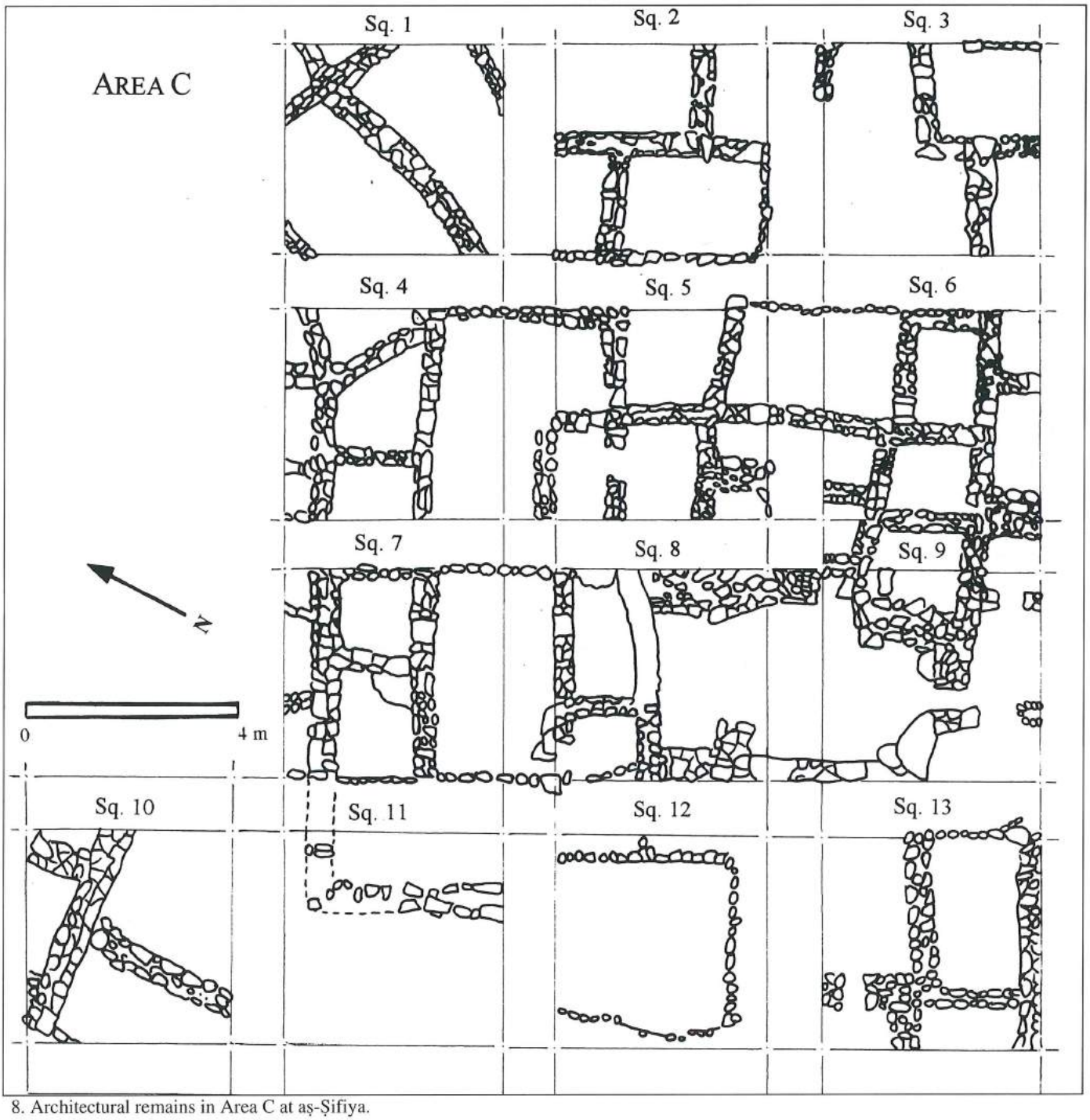
[2] In July 1997 an international symposium on that topic "Central Settlements in Neolithic Jordan" was jointly organized by the German Protestant Institute of Archaeology in Amman and ex oriente e.V., Berlin (Germany). Preliminary reports on that symposium are published in: *Neo-Lithics* (Newsletter of Southwest Asian Lithics Research) 2/97 and *Occident & Orient* (Newsletter of the German Protestant Institute of Archaeology in Amman) 2, 2, 1997:10-11.



7. Excavated architecture in Area B at Basṭa (after Nissen *et al.* 1991: Fig. 1).

for the first two-storied building could be detected at 'Ayn Ghazāl (Rollefson 1998:111-112), Basṭa (Gebel, personal communication), aṣ-Ṣifiya (Mahasneh, personal communication), Ba'ja (Bienert and Gebel 1998: 82; Gebel, Bienert *et al.* 1997: 240-242, Fig. 7) and Ghwayr I (Simmons, personal communication).

The large size of buildings and the formation of building units, are not the only spectacular elements in the architectural remains uncovered in LPPNB sites. There is also archaeological evidence for communal buildings being used for activities such as ritual performances. At 'Ayn Ghazāl, Rollefson defined two different types: (a) cultic shrines and (b) temples (Rollefson 1998: 113-114). In the north field an LPPNB building (FIG. 13) with four detectable building phases is described as a cultic shrine (Kafafi and Rollefson 1997: 237-238, Fig. 2; Rollefson 1998: 113). In its latest phase it consisted of a circular room of ca. 2.5m in diameter with a large central hole in the floor. Below the floor, four stone-lined channels of yet unknown purpose lead also pair-wise from the hole towards the exterior walls (Kafafi and Rollefson 1997: 237). Furthermore, "... repeated reflooring efforts conform to ritual reflooring of MPPNB houses following subfloor burial ..." leading to the conclusions that this building served some non-domestic purpose (Kafafi and Rollefson 1997: 238). A building described by Rollefson as a temple is situated in the north field at 'Ayn Ghazāl. Here a rectangular building of 4 x 5m consisted of a single room in which an "altar-like platform" and an associated "line of three 'standing stones'" are features which — according to Rollefson (Rollefson 1998: 114; see also Rollefson 1997d: 292, 294, Fig. 5, Pl. 1b) identify this building as a temple. At 'Ayn Ghazāl, the construction of special structures continued into the succeeding PPNC (6,000-5,500 BC),

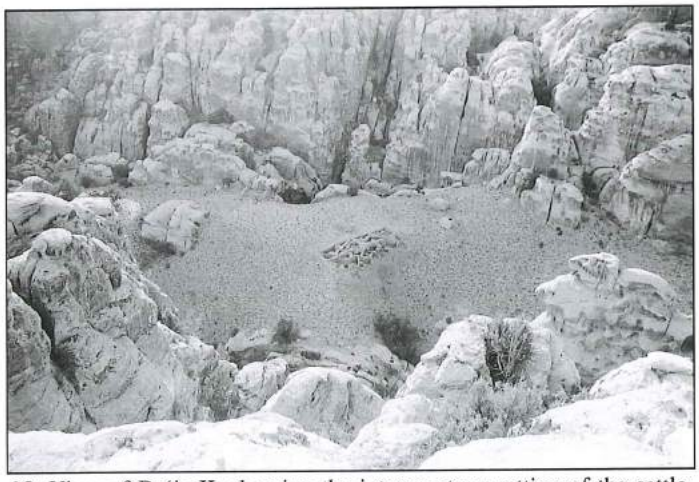


8. Architectural remains in Area C at aṣ-Ṣifiya.

where — also in the east field according to Rollefson — a temple existed (FIG. 14) (Rollefson 1997d: 294, 297-298, Fig. 7; 1998: 117). The preserved part of that building consists of a room of 3.5 x 6.5m, possibly adjacent to a western, now destroyed second room. To the east of the preserved room a small chamber — possibly used as a storage room — was attached. The fully preserved and excavated room is described by Rollefson (1998: 117) as follows: "Inside the room and against the middle of the eastern wall was an altar nearly 2 m long, consisting of two large limestone slabs ... that had been set atop three pairs of shaped rectangular 'standing stones', ... In front (west) of the altar was a floor hearth of white (lime?) plaster surrounded by seven limestone slabs ... Adjacent to the center of the northern wall was a small ... square cubicle made of limestone slabs set onto the clay floor ... In the wall separating the eastern and damaged western room ... was a 1 m wide doorway walled by the thin screen of a single row of stones on the south that quickly ... made a right-angle turn to the north, effectively blocking off all



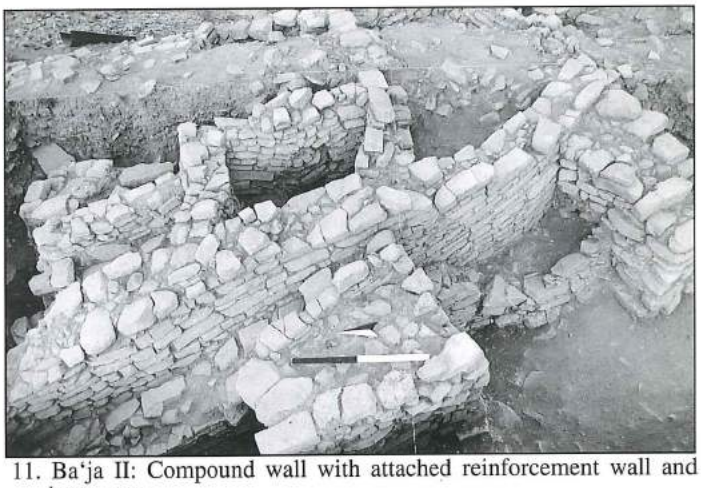
9. View of architecture in Area B at aṣ-Ṣifiya.



10. View of Ba'ja II, showing the intramontane setting of the settlement area with excavations in Area C.

possibility of viewing activity in the east room. The situation implies an example of a 'Holy of Holies' much more ancient than ever before conceived" (see also Rollefson 1997d: 297-298).

Other, outstanding features of the PPNC period at 'Ayn Ghazāl pointing to communal planning activities and efforts are the so-called 'walled street' and the 'great wall' (FIG. 15). The 'walled street' in the central field is a passage about 2.5m wide, bordered on the north and south sides by a wall. It climbed up westwards in a series of



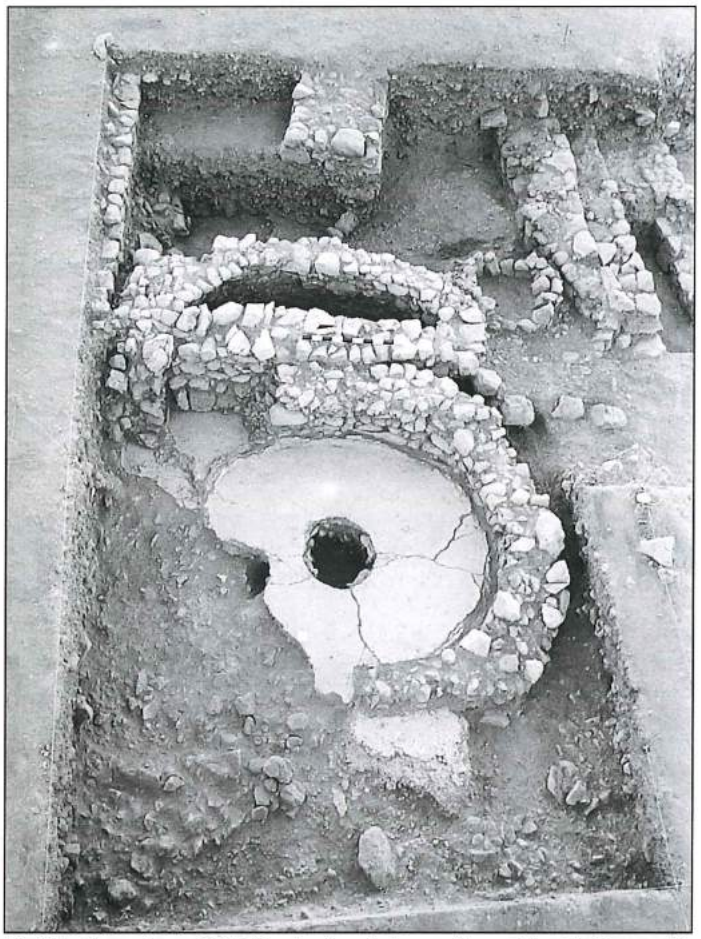
11. Ba'ja II: Compound wall with attached reinforcement wall and buttresses.



12. Architectural remains at al-Basīṭ (photo: K. 'Amr).

steps which have been built of limestone slabs (Rollefson 1997d: 298, see also Kafafi and Rollefson 1997: Fig. 5). It was still in use in the Yarmoukian period (5,500-4,500 BC). The 'great wall' is also situated in the central field. The 1.4m wide wall — probably used as a compound wall — was exposed during the excavations on a length of 11m (Rollefson 1997d: 298). Both of these structures demonstrate again that there must have existed some kind of overall settlement planning at 'Ayn Ghazāl which points to the fact that not only communal efforts were undertaken for communal projects but also site management was practiced.

Other special buildings used for communal activities, such as rituals have been detected at other PPNB sites in Jordan. At Ghwayr I the excavators unearthed a room — room I in area I (FIG. 16), roughly 4 x 4m, with several niches, a plastered bench, and wall installations which might have functioned as vents (Simmons and Najjar 1998: 94-95; 1999). Another special room was found within the LPPNB occupation at 'Ayn Jammām. The room incorporated a free-standing pillar, small niches in the wall, one bearing remains of a goat skull, and a subfloor burial (Waheeb and Fino 1997: Pl. 1c-d).

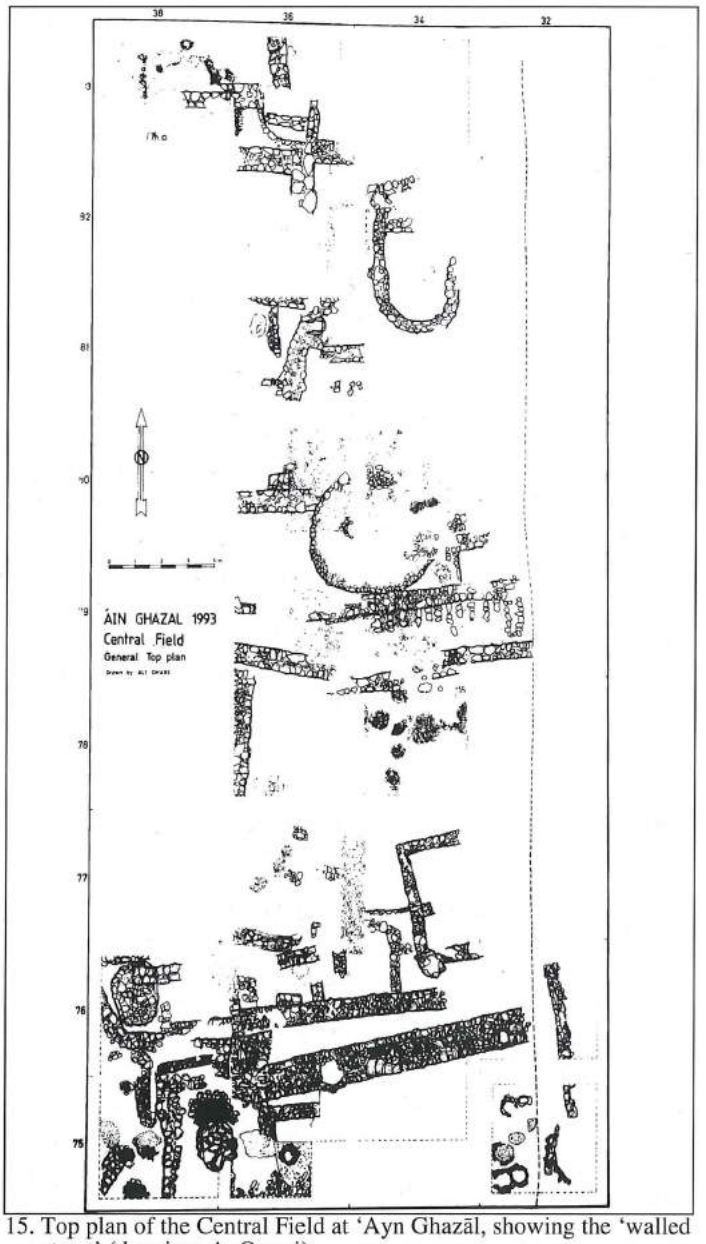


13. The four-phase LPPNB circular shrine at 'Ayn Ghazāl (photo: Y. Zoubi).



14. The PPNC temple or communal building at 'Ayn Ghazāl. Remains of an earlier LPPNB house can be seen in the foreground (photo: B. Degedeh and Y. Zoubi).

Besides the extraordinary architectural features, the burial customs and art objects form another important part of the PPNB culture found in Jordan. Apart from primary burials at different sites secondary burials, especially human skull burials, occurred (Bienert 1991). The PPNB skull cult is best attested for at 'Ayn Ghazāl,



15. Top plan of the Central Field at 'Ayn Ghazāl, showing the 'walled street' (drawing: A. Omari).

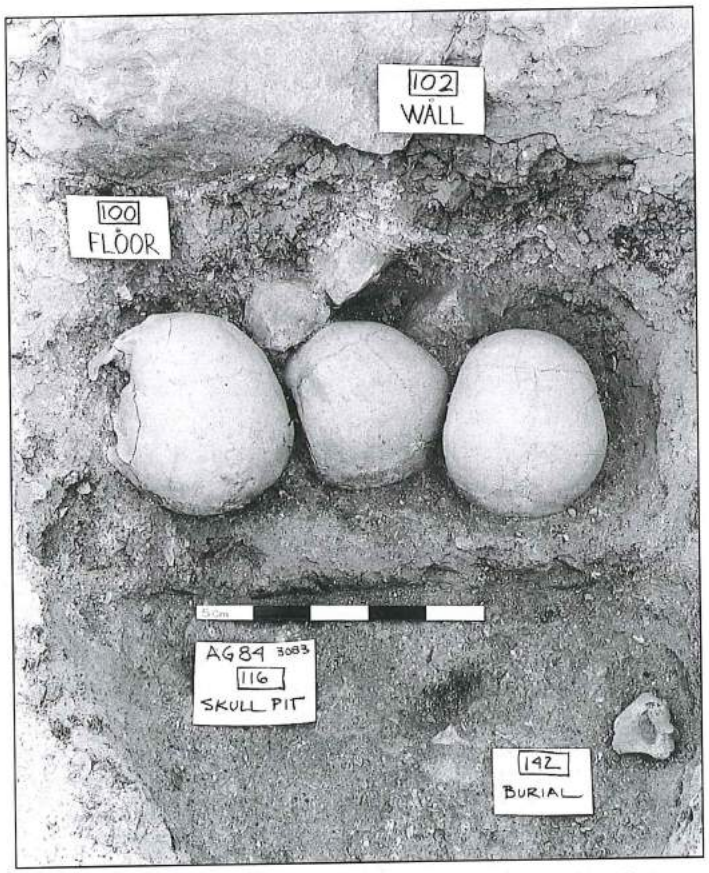


16. View of the Room 1 complex in excavation Area I at Ghwayr I.

where different caches of skulls, some bearing three (FIG. 17) or even four skulls, were found (Rollefson 1986: 50, Pl. II:6). Separated buried skulls and/or headless skeletons were also excavated at Baṣṭa (Nissen *et al.* 1991:17-19), Bayḍā (Kirkbride 1962: 11; 1966b: 23-24; 1968b: 272), aṣ-Ṣifiya (Mahasneh: pers. communication) and Ghwayr I (Simmons: pers. communication).

A special feature within skull burials of the PPNB is the plastering of certain skulls. Best known are the plastered skulls from Tall as-Sulṭān/Jericho (Bienert 1991: 10-12; in press). Most of the ten plastered skulls were found by Kenyon below room floors. In each case the plaster was modelled into a human face. The eyes were indicated by bivalve or cowrie shells. The top and back of the skulls were never plastered. They may have had a cover made out of a different material, which was not preserved. Only one of the Jericho skulls had its mandible still attached to the skull. The sex of the skulls is still debated (see Bienert 1991: 11). The custom of plastering skulls has also been observed at sites outside Palestine, as at Tall Ramad in Syria (Bienert 1991: 13, 15, Figs. 7-9) and at 'Ayn Ghazāl in Jordan. At 'Ayn Ghazāl four adult skulls, deposited together in a shallow outdoor pit, were found in 1983. Two of these skulls bore plaster with traces of black pigment in the right eye-socket (Rollefson 1983: 35, Pls. IV.1-2). A further, partly damaged plastered skull of an adult male was found in 1988 (FIG. 18) (Rollefson *et al.* 1989:23; Simmons *et al.* 1990).

The most remarkable elements of Neolithic art are lime plaster statues (FIGS. 19 and 20) which have been recovered at 'Ayn Ghazāl in 1983 and 1985 (Walker Tubb and Grissom 1995; Grissom 1996; 2000; Schmandt-Besserat 1998).[3] The group of 25/26 statues — 13 full-figure statues and 12 busts — which was excavated in 1983 is stratigraphically older than the later one (Rollefson 1998: 109).[4] They are dated according to radiocarbon analysis to 8,660 ± 80 bp and 8,700 ± 80 bp (Rollefson 1998: 109). The cache which was found in 1985 was badly damaged by bulldozer work and only large fragments of 10 to 11 statues were recovered of which seven — 2



17. A subfloor cache of three human skulls in the corner of a room (photo: C. Blair).



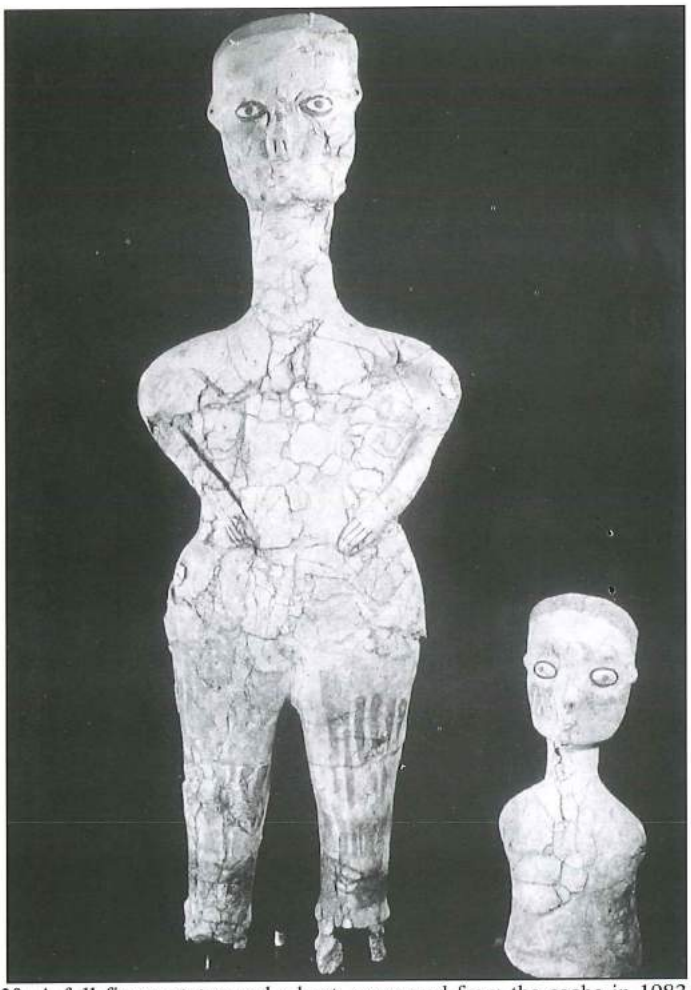
18. The damaged plastered skull found at 'Ayn Ghazāl in 1988 (photo: H. W.).



19. View of the 'Ayn Ghazāl statue cache of 1983 *in situ* (photo: H. Cowherd).

[3] Similar remains of statues were found only at Tall as-Sulṭān, see e. g. Schmandt-Besserat 1998: 8-10.

[4] The statues of 1983 are restored at the Institute of Archaeology in London and at the British Museum.



20. A full-figure statue and a bust, recovered from the cache in 1983 (photo: P. Dorrell and S. Laidlaw).

full-figure statues, 2 busts and 3 two-headed busts — have been restored at the Smithsonian Institute in Washington D.C.[5] Associated charcoal which is according to Rollefson stratigraphically older than theses statues dates to 8,520 ± 110 bp and therefore provides a *terminus ante quem* (Rollefson 1998: 109).

The statues vary in size and the tallest full-figure one reaches ca. 100cm, while the tallest bust measures 46cm in height (Grissom 1996: 71). As they vary in size they also vary in weight: the heaviest full-figure statue weighed nearly 18kg (Grissom 1996: 71). The statues and busts were made of water resistant plaster which consisted of calcium carbonate (89-90%), clay and quartz (Grissom 1996: 71; see also Walker Tubb and Grissom 1995: 438). The statues were made by modelling wet plaster on a reed or rush core, which served as a frame for them (Walker Tubb and Grissom 1995: 439, Fig. 3; see specially Grissom 2000). A black mastic was used to delineate eyes and irises/pupils. On some of the statues slight remains of paint are visible. The statues and busts may also have been covered by additional material — e.g. clothes, hats, hair — as indicated on the surface of some of them.

Both caches "... were interred in pits specially dug for them ..." in abandoned houses of the settlement (Rollefson 1983: 30; Walker Tubb and Grissom 1995: 441-444; Schmandt-Besserat 1998: 14). The statues were also placed in their respective pits with much care suggesting ceremonial burial (Rollefson 1983: 30-32; 1986: 45-46). Interpretations of the statues vary. The most common one relates the plastered skulls as well as the statues to an ancestor cult (Kenyon 1956: 186; 1957: 84-85; Bienert 1991: 20; 1995: 79; in press). Skulls, *as pars pro toto*, symbolised the deceased members of a family or a clan whose 'power' and 'wisdom' should be preserved for the well-being of the respective family, clan or even the whole inhabitants of the settlement. This became certainly quite important in an situation when the society had changed from a mobile hunter-gatherer way of life to a society depending on agriculture and animal husbandry. The design and production of the above reflects a communal effort and some kind of communal ritual.

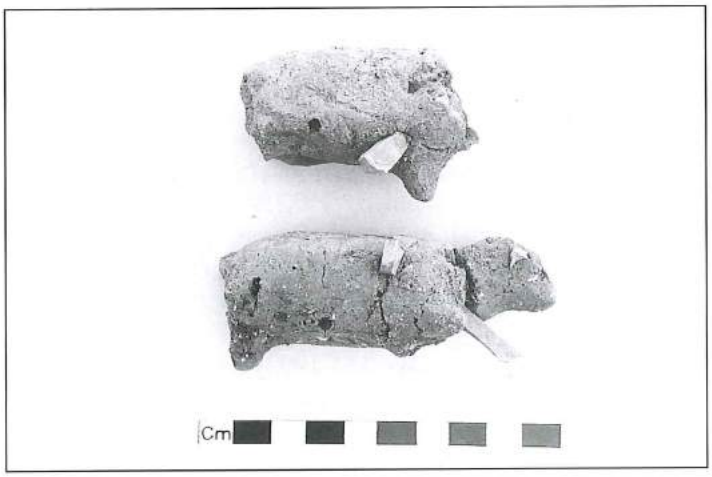
While the statues were part of ritual activities on a communal level, human and animal figurines (FIGS. 21 and 22) made of clay and which are found at most PPNB sites, were most likely used for ritual activities on a more personal level (Rollefson and Bienert 1994). Until now no figurines have been found at Ba'ja and al-Basīṭ and while they have been rather rare at Bayḍā, Ghwayr I, Wādī Shu'ayb, 'Ayn Jamman and Basṭa they have been recovered in greater quantities at 'Ayn Ghazāl (FIGS. 21-22) (McAdam 1997; Rollefson 1998: 109, 113; Bienert: in press) and at aṣ-Ṣifiya (Mahasneh and Bienert 1999).

The settlement size, the architectural remains, the burial customs and the material cultural of the above mentioned PPNB sites, especially within the LPPNB demonstrate a complexity and richness which has not been seen before and which has an almost sudden end within the PPNC. These elements certainly required an organizational concept beyond ordinary villages. The archaeological evidence shows that settlement planning, complex building units, communal buildings, social stratification, social and ritual/cultic activities must have often been practiced and often on a communal rather than on a family level. So a development can be witnessed which resembles elements of later proto-urban settlements. However, these elements did not continue into more complex systems, which would have finally led to urban societies; they did not survive into the following periods of the Neolithic and Chalcolithic (Nissen: pers. communication). These terms like "proto-urban" or "urban" have to be used

[5] For detailed information on both caches, their discovery, chemical analysis of the plaster, etc. see Walker Tubb and Grissom 1995; Grissom 1996; Schmandt-Besserat 1998.



21. Animal figurines, mainly depicting aurochs, from a cache found at 'Ayn Ghazāl (photo: C. Blair).



22. Two cattle figurines from 'Ayn Ghazāl. The flint baldelets in the bodies indicate 'ritual killing' (photo: C. Blair).

very cautiously and the latter one should be avoided totally.

Acknowledgments

I would like to thank Prof. Dr. Alan Simmons (Department of Anthropology and Ethnic Studies, University of Nevada, Las Vegas, U.S.A.), Dr. Bill Finlayson (Centre for British Research in the Levant - Amman, Jordan) and Mrs. Alison McQuitty M.A. (Centre for British Research in the Levant - Amman, Jordan) for their valuable comments and reading the English text. I also would like to thank Prof. Dr. Zeidan Kafafi (Yarmouk University) and Prof. Dr. Gary O. Rollefson ('Ain Ghazal Research Institute at Wembach, Germany) for kindly providing photographs of the 'Ayn Ghazāl excavations.

Bibliography

Abu Dayyeh, A. S., Aslan, Z., Palumbo, G., Shwemat, M. and Waheeb, M. 1993. The Cultural Resources Management Project in Jordan. Cultural Resource Impact Assessments and CRM Projects in 1992-1993. *ADAJ* 37: 85-86.

Aufrecht, W. E., Mirau, N. A. and Gauley, S. W. (eds.) 1997.

Urbanism in Antiquity. From Mesopotamia to Crete. Sheffield.

Bar-Yosef, O. 1986. The walls of Jericho: An alternative interpretation. *Current Anthropology* 27: 157-162.

——1992. The Neolithic Period. Pp. 10-39 in A. Ben-Tor (ed.), *The Archaeology of Ancient Israel*. New Haven and London: Yale University Press.

Ben-Tor, A. 1992. The Early Bronze Age. Pp. 81-125 in A. Ben-Tor (ed.), *The Archaeology of Ancient Israel*. New Haven and London: Yale University Press.

Bienert, H.-D. 1991. Skull Cult in the Prehistoric Near East. *Journal of Prehistoric Religion* 5: 9-23.

——1995. The Human Image in the Natufian and Aceramic Neolithic Period of the Middle East. Pp. 75-103 in W. H. Waldren, J. A. Ensenyat and R. C. Kennard (eds.), *Ritual, Rites and Religion in Prehistory*. IIIrd Deya International Conference in Prehistory. Oxford: Tempus Reparatum - BAR Int. Ser. 611(i).

——in press. *Kult und Religion*. Eine Studie anhand von Fundmaterial epipaläolithischer und frühneolithischer Gesellschaften/Kulturen Südwestasiens (12.-6. Jt. v. u. Z.). Berlin.

Bienert, H.-D. and Gebel, H. G. K 1997a. Ba'ja - Investigations into One of the Earliest Settlements in Jordan. *Occident & Orient* 2,1: 13-14.

——1997b. Ba'ja - Early Neolithic Settlers in the Petra Mountains. *Occident & Orient* 2,2: 2-4.

——1998. Archaeological Excavations at Late PPNB Ba'ja. Preliminary Report on the 1997 Season. *ADAJ* 42: 75-90.

Bienert, H.-D. and Mahasneh, H. M. 1998. Es-Sifiya - eine Siedlung des frühen Neolithikums in Südjordanien. Pp. 9-21 in U. Hübner, E. A. Knauf and R. Wenning (eds.), *Nach Petra und ins Königreich der Nabatäer*. Notizen von Reisegefährten. Für Manfred Lindner zum 80. Geburtstag. Bodenheim.

Falconer, S. E. 1987. *Heartland of Villages: Reconsidering Early Urbanism in the Southern Levant*. Ann Arbor.

Fino, N. 1998a. Al-Basit Neolithic Site, Southern Jordan. *ADAJ* 42: 103-111.

——1998b. Al-Basset, A Newly Discovered PPNB Site in Wadi Musa. *Occident & Orient* 3,1: 22.

Frick, F. S. 1997: Cities. Pp. 14-19 in E. M. Meyers (ed.), *The Oxford Encyclopedia of Archaeology in the Near East*, Vol. 1. New York and Oxford: Oxford University Press.

Gebel, H. G. 1993. *Neolithic 'Ain Jamam, Near Ras an-Naqb*. Observations on the Site Preservation Since 1986 and Field Operation in September 1992. Unpublished report to the Department of Antiquities of Jordan. Amman.

——1997. Preface. *Neo-Lithics* 2: 1-2.

Gebel, H. G. K. and Bienert, H.-D. 1997a. Excavating Ba'ja, Greater Petra Area, Southern Jordan. *Neo-Lithics* 1: 9-11.

——1997b. The 1997 Season at Ba'ja, Southern Jordan. *Neo-Lithics* 3: 14-18.

Gebel, H. G. K., Bienert H.-D with contributions by T. Krämer, B. Müller-Neuhof, R. Neef, J. Timm and K. Wright 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.

Gebel, H. G., Muheisen, M., Nissen, H. J., Qadi, N. and Starck, J. M. 1988. Preliminary Report on the First Season of Excavations at the Late Aceramic Neolithic Site of Basta. Pp. 101-134 in A. N. Garrard and H. G. Gebel (eds.), *The Prehistory of Jordan. The State of Research in 1986*. Oxford: BAR Int. Ser. 396(i).

Grissom, C. A. 1996. Conservation of Neolithic Lime Plaster Statues from 'Ain Ghazal. Pp. 70-75 in A. Roy and P. Smith (eds.), *Archaeological Conservation and its Consequences*. Reprints of the Contributions to the Copenhagen Congress, 26-30 August 1996. London.

——2000. Neolithic Statues from 'Ain Ghazal: Construction and Form. *AJA* 104: 25-45.

Hachmann, R. 1994. Die 'Befestigungen' des akeramischen Jericho. *Baghdader Mitteilungen* 25: 19-74.

Herzog, Z. 1997. *Archaeology of the City. Urban Planning in Ancient Israel and its Social Implications*. Tel Aviv.

Hovers, E. 1993. Basta. Pp. 149-152 in E. Stern (ed.), *The New Encyclopedia of Archaeological Excavations in the Holy Land*, Vol. 1. Jerusalem.

Kafafi, Z. and Rollefson, Z. 1997. Excavations at Neolithic 'Ayn Ghazal, 1993-1994. Pp. 235-240 in *SHAJ* VI. Amman.

Kenyon, K. M. 1952. Excavations at Jericho, 1952. *PEQ* 84: 62-80.

——1956. Jericho and its Setting in Near Eastern History. *Antiquity* 30: 184-197.

——1957. *Digging up Jericho*. London.

——1960. Excavations at Jericho, 1957-1960. *PEQ* 92: 88-108.

Kenyon, K. M. and Holland, T. A. (eds.) 1981: *Excavations at Jericho*, Vol. III. London.

Kirkbride, D. 1962. Excavation at the Pre-Pottery Neolithic Village at Seyl Aqlat, Beidha. *ADAJ* 6/7: 7-12.

——1966a. Beidha. An Early Neolithic Village in Jordan. *Archaeology* 19: 199-207.

——1966b. Five Seasons at the Pre-Pottery Neolithic Village of Beidha in Jordan. A Summary. *PEQ* 98: 8-72.

——1967. Beidha 1965: An Interim Report. *PEQ* 99: 5-13.

——1968a. Beidha 1967: An Interim Report. *PEQ* 100: 88-96.

——1968b. Beidha: Early Neolithic Village Life South of the Dead Sea. *Antiquity* 42: 263-274.

Lindner, M. 1989. Ba'ja. Pp. 184-190 in D. Homès-Fredericq and J. B. Hennessy (eds), *Archaeology of Jordan*. II.1 Field Reports, Surveys & Sites A-K. Leuven.

——1996. 9000 Jahre Siedlungsgeschichte der Ba'ja-Region in Jordanien - ein Forschungsgebiet der Naturhistorischen Gesellschaft Nürnberg. *Das Altertum* 41: 245-278.

McAdam, E. 1997. The Figurines from the 1982-5 Seasons of Excavations at Ain Ghazal. *Levant* 39: 115-145.

Mahasneh, H. M. 1996. Es-Sifiya: A Pre-Pottery Neolithic B

Site in Wadi El-Mujib, Jordan. *Dirasat* 23,1: 135-151.

——1997a. A PPNB Settlement at as-Sifiyya in Wadi al-Mujib. Pp. 227-234 in *SHAJ* VI. Amman.

——1997b. Es-Sifiya: A Pre-Pottery Neolithic B Site in the Wadi el-Mujib, Jordan. Pp. 203-214 in H. G. K. Gebel, Z. Kafafi and G. O. Rollefson (eds.), *The Prehistory of Jordan II. Perspectives from 1997*. Berlin.

Mahasneh, H. M. and Bienert, H.-D. 1999. Anthropomorphic Figurines from the Early Neolithic Site of es-Sifiye (Jordan). *ZDPV* 115,2: 109-126.

Mittmann, S. 1994. Hirbet ez-Zeraqon. Eine Stadt der frühen Bronzezeit in Nordjordanien. *Archäologie in Deutschland* 2: 10-15.

Najjar, M. 1992. Tell Wadi Feinan/Wadi Araba: A New Pottery Neolithic Site from Jordan. Pp. 19-28 in S. Kerner (ed.), *The Near East in Antiquity*, Vol. III. Amman.

——1994. Ghwair I, A Neolithic Site in Wadi Feinan. Pp. 75-85 in S. Kerner (ed.), *The Near East in Antiquity*, Vol. IV. Amman.

Nissen, H. J. 1990. Basta: Excavations of 1986-89. Pp. 87-94 in S. Kerner (ed.), *The Near East in Antiquity*, Vol. I. Amman.

Nissen, H. J., Muheisen, M., Gebel, H. G., Becker, C., Neef, R., Pachur, H.-J., Qadi, N. and Schultz, M. 1987. Report on the First two Seasons of Excavations at Basta (1986-1987). *ADAJ* 31: 79-119.

Nissen, H. J., Muheisen, M., and Gebel, H. G. with contributions by C. Becker, B. D. Hermansen, W. Karasneh, N. Qadi, M. Schultz and A. Scherer 1991. Report on the Excavations at Basta 1988. *ADAJ* 35: 13-40.

Rollefson, G. O. 1983. Ritual and Ceremony at Neolithic 'Ain Ghazal (Jordan). *Paléorient* 9: 29-38.

——1984. 'Ain Ghazal: An Early Neolithic Community in Highland Jordan, Near Amman. *BASOR* 255: 3-13.

——1986. Neolithic 'Ain Ghazal (Jordan): Ritual and Ceremony, II. *Paléorient* 12: 45-52.

——1989. The Aceramic Neolithic of the Southern Levant: The View from 'Ain Ghazal. *Paléorient* 15,1: 135-140.

——1997a. 'Ain Ghazal. Pp. 36-38 in E. M. Meyers (ed.), *The Oxford Encyclopedia of Archaeology in the Near East*, Vol. 1. New York and Oxford.

——1997b. Architectural Evidence at Neolithic Wadi Shu'eib. *Occident & Orient* 2,1: 4.

——1997c. Neolithic 'Ayn Ghazal in its Landscape. Pp. 241-244 in *SHAJ* VI. Amman.

——1997d. Changes in Architecture and Social Organization at 'Ain Ghazal. Pp. 287-307 in H. G. K. Gebel, Z. Kafafi and G. O. Rollefson (eds.), *The Prehistory of Jordan, II. Perspectives from 1997*. Berlin.

——1998. The Aceramic Neolithic of Jordan. Pp. 102-126 in D. O. Henry (ed.), *The Prehistory of Jordan*. BAR International Series 705. Oxford.

Rollefson, G. O. and Bienert, H.-D. 1994. Aufstieg und Fall der Stadt 'Ain Ghazal. *Bild der Wissenschaft* 4: 18-22.

Rollefson, G. O., Banning, E., Byrd, B., Kafafi, Z., Köhler, I., Petocz, D., Rolston, S. and Villiers, L. 1984. The Pre-Pottery Neolithic B Village of Ain Ghazal (Jordan) - Preliminary Report of the 1982 Excavation Season. *Mitteilungen der Deutschen Orient-Gesellschaft zu Berlin* 116: 139-183.

Rollefson, G. O., Kafafi, Z. and Simmons, A. H. 1989. The 1988 Season at 'Ain Ghazal, a Preliminary Report. *ADAJ* 33: 9-26.

Rollefson, G. O. and Köhler-Rollefson, I. 1992. Early Neolithic Exploitation Patterns in the Levant: Cultural Impact on the Environment. *Population and Environment* 13: 243-254.

Rollefson, G. O., Simmons, A. H., Donaldson, M. L., Gillespie, W., Kafafi, Z., Köhler-Rollefson, I., McAdam, E., Rolston, S. L. and Tubb, M. K. 1985. Excavation at the Pre-Pottery Neolithic B Village of 'Ain Ghazal (Jordan), 1983. *Mitteilungen der Deutschen Orient-Gesellschaft zu Berlin* 117: 69-134.

Rollefson, G. O., Simmons, A. H., Kafafi, Z. 1992. Neolithic Cultures at 'Ain Ghazal, Jordan. *Journal of Field Archaeology* 19,4: 443-470.

Schmandt-Besserat, D. 1998. 'Ain Ghazal "Monumental" Figures. *BASOR* 310: 1-17.

Simmons, A. H. 1995. Town Planning in the Neolithic - is 'Ayn Ghazal "Normal?". Pp. 119-122 in *SHAJ* V. Amman.

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.

——1999. Ghwair I, An Exceptionally Well Preserved Pre-Pottery Neolithic B Community in Wadi Feinan. *Occident & Orient* 4,1&2: 30-32.

Simmons, A. H., Kafafi, Z., Rollefson, G. O. and Moyer, K. 1989. Test Excavations at Wadi Shu'eib, A Major Neolithic Settlement in Central Jordan. *ADAJ* 33: 27-41.

Simmons, A. H., Boulton, A., Butler, C. R., Kafafi, Z. and Rollefson, G. O. 1990. A Plastered Human Skull from Neolithic 'Ain Ghazal, Jordan. *Journal of Field Archaeology* 17: 107-110.

Ucko, P. J., Tringham, R. and Dimbleby, G. W. (eds.) 1972. *Man, Settlement and Urbanism*. London.

Waheeb, M. 1996. Archaeological Excavation at Ras an-Naqab-'Aqaba Road Alignment: Preliminary Report (1995). *ADAJ* 40: 339-348.

Waheeb, M. and Fino, N. 1997. 'Ayn el-Jammam: A Neolithic Site Near Ras en-Naqb, Southern Jordan. Pp. 215-219 in H. G. K. Gebel, Z. Kafafi and G. O. Rollefson (eds.), *The Prehistory of Jordan, II. Perspectives from 1997*. Berlin.

Walker Tubb, K. and Grissom, C. A. 1995. 'Ayn Ghazal: A Comparative Study of the 1983 and 1985 Statuary Caches. Pp. 437-447 in *SHAJ* V. Amman.

Hamzeh M. Mahasneh
Department of Archaeology
Mu'tah University
Karak - Jordan

Hamzeh M. Mahasneh

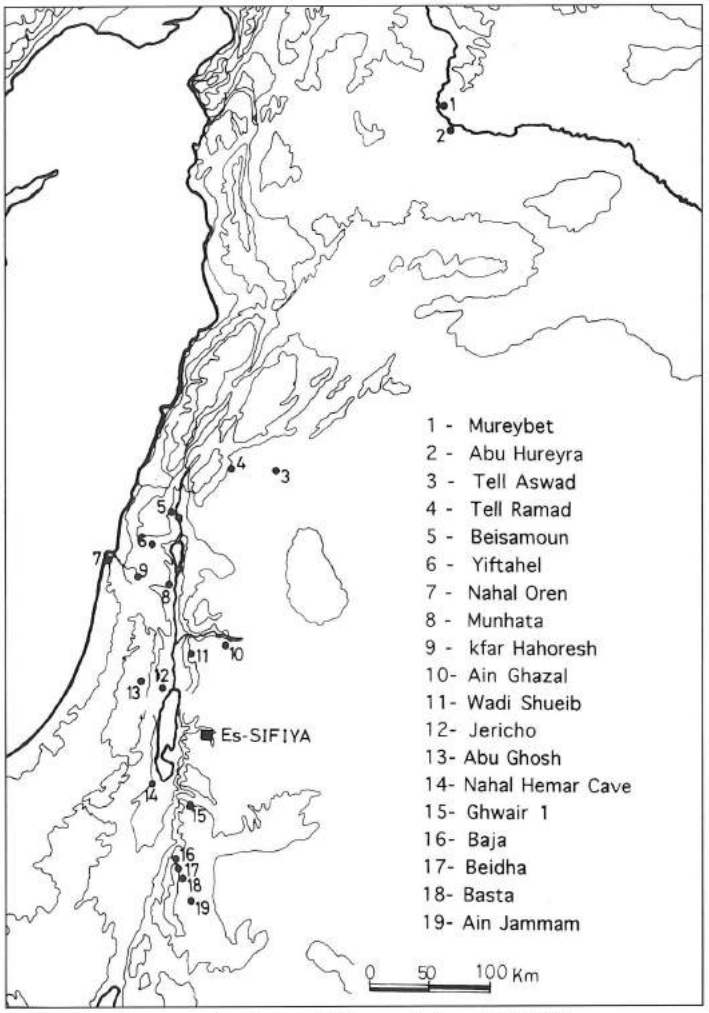
The Neolithic Burial Practices in Wādī al-Mūjib during the Seventh Millennium BC

Introduction

The Levant is one of the richest areas in the Ancient World with evidence for prehistoric burial customs. Among these, the hundreds of graves from the Late PPNB period reflect a wide variety of ritual traditions and practices (Mahasneh 1989: 214-215).

Aṣ-Ṣifiya, whose burials are under discussion in this paper, is situated on the northern bank of Wādī al-Mūjib (FIG. 1) on a cone-shaped terrace adjacent to a fertile floodplain and a series of water springs running all year round. The present site, which was discovered in 1993 through agricultural activities implemented by the landlord, measures ca. 120 dunums with its apex about 12m above the valley floor, at 230m above sea level. Due to the continuous destruction of the site surface, four intensive seasons of excavations from 1994 to 1997 were conducted and directed by the author (Mahasneh 1996; 1997a; 1997b; 1998) and under the auspices of Mu'tah University. These excavations have sampled an area of 550m^2. In a 3.5m deep stratigraphy of cultural deposits near the upper slopes of the site, two building phases were distinguished. Both are dated to the LPPNB, which is fully confirmed through radiometric dating to the seventh millennium BC (7930) (± ISGS-3279; Delta 13C:25.2).

The investigated area revealed a series of closely spaced stone building-units. Each contains a central room flanked with small quadrangular and oblong rooms furnished with plaster floors. There was a remarkable consistency in the internal plan of the dwellings through time. The bulk of the uncovered material culture (architecture, chipped and ground stone industry and the burial customs) show strong similarities to the remains from other early Neolithic sites recorded in southern Jordan, such as Baṣṭa (Nissen 1990: 87-94; Nissen *et al.* 1987: 79-120; 1991: 13- 40; Gebel 1988: 90-95; Gebel and Starck 1985:90; Gebel *et al.* 1988: 101-134), 'Ayn Jammam (Gebel 1992: 1-6; Bisheh *et al.* 1993: 121-122; Waheeb 1996: 340-344), Ghwair 1 (Najjar 1992: 19-29; 1994: 75-86; Najjar *et al.* 1990: 27-30), Ba'ja (Gebel and Bienert 1997a: 9-11; 1997b: 14-18; Bienert and Gebel 1997: 13-14; Gebel *et al.* 1998: 215-250) and the later levels of Bayḍa (Kirkbride 1960; 1962; 1966; 1967; 1968; 1978).



1. Geographic map showing aṣ-Ṣifiya and other PPNB Sites.

The Human Remains

The archaeological excavations in the Levant during the past few decades have extended insights into structures of the early Neolithic human societies. The site of aṣ-Ṣifiya, with its rich sample of burials and skeletons, contributes

to these insights. It offers the finding of single and group burials, as well as primary and secondary children, adolescents and adults burials in a variety of contracted and flexed positions. Grave goods were found associated with these burials. Some skulls are separated from the post-cranial bones. The human bones were found quite fragmentary in some burials; another aspect of bad preservation is the calcareous incrustations on the bones that, with rare exceptions, did not allow the taking of precise measurements. For that reason, a precise morphological study is very difficult. However, the dental remains await a proper study after a thorough cleaning process.

The human skeleton materials reported here include twelve burials with fifteen individuals (see TABLE 1). All of these burials were uncovered within the living area of the site and came from Area B (Squares B2, B7 and B8) and Area C (Squares C6, C10, C11, C12 and C13). The burials in Area B were very well preserved compared to those of Area C, which suffered great disturbances from bulldozer impacts.

Burial no. 1: one of the sub-floor or channel-like substructures of aṣ-Ṣifiya used for drainage purposes. It penetrates beneath the walls and floors of several rooms and heads toward the slope of the site. The length of this channel is 19m. The main part of the channel is located in Sq. B7, in which a human skeleton of 25 years old with the head oriented southwards was found (FIG. 2). The skull was in place and well preserved. The extremities were flexed. The body was laid on its right side, the lower extremities appear to be bent towards the front with the hands placed between the knees. The body is less com-



2. Substructure (channel like) burial, almost complete.

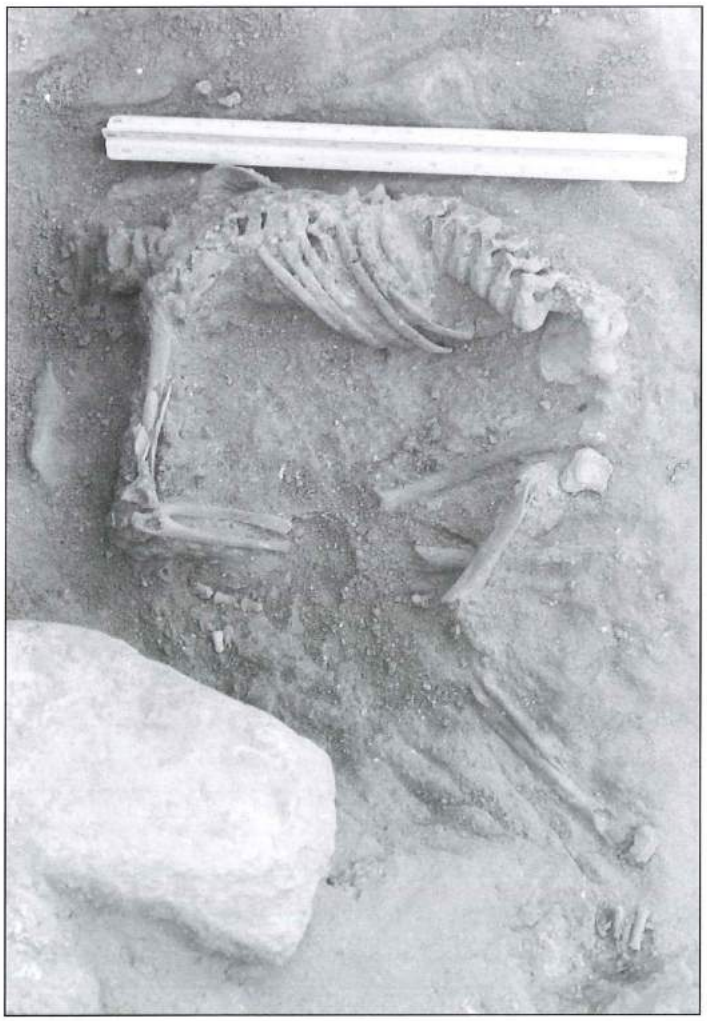
Table 1. Distribution of burials and burial goods at aṣ-Ṣifiya.

Burial No	Square Locus	Skeletal Remains	Sex, Age	Burial Goods
1	B7,12	Complete	Unknown,c.25yrs.	3pendants,5 beads
2	B8,7	Without skull	Unknown ,c. 5-7yrs.	No
3	B8,8	Without skull	Female, c. 35yrs.	4beads
4	B8,9	Double burial without skulls	Unknown, Unknown	1 pendant / palette, 10 beads, 1 flint nodule polisher
5	C6,13	Complete	Male, c. 16 yrs.	1 pendant, 4 beads, 2 ring fragm.
6	C12,8	Complete	Female, 30-35 yrs.	4beads, 2 pendants
7	C12,10	Without skull	Female, 20-25 yrs.	4 pendants, 2 beads, 1 shell
8	C10,6	Without skull	Male, 35 yrs.	No
9	B2,14	Skull	Unknown, over 40 yrs.	1 basalt polisher
10	C13,10	Three skulls	Unknown , unknown	No
11	C11,8	Skull	Male,30-40 yrs	No
12	C10,7	Skull	Male, c. 24 yrs	No

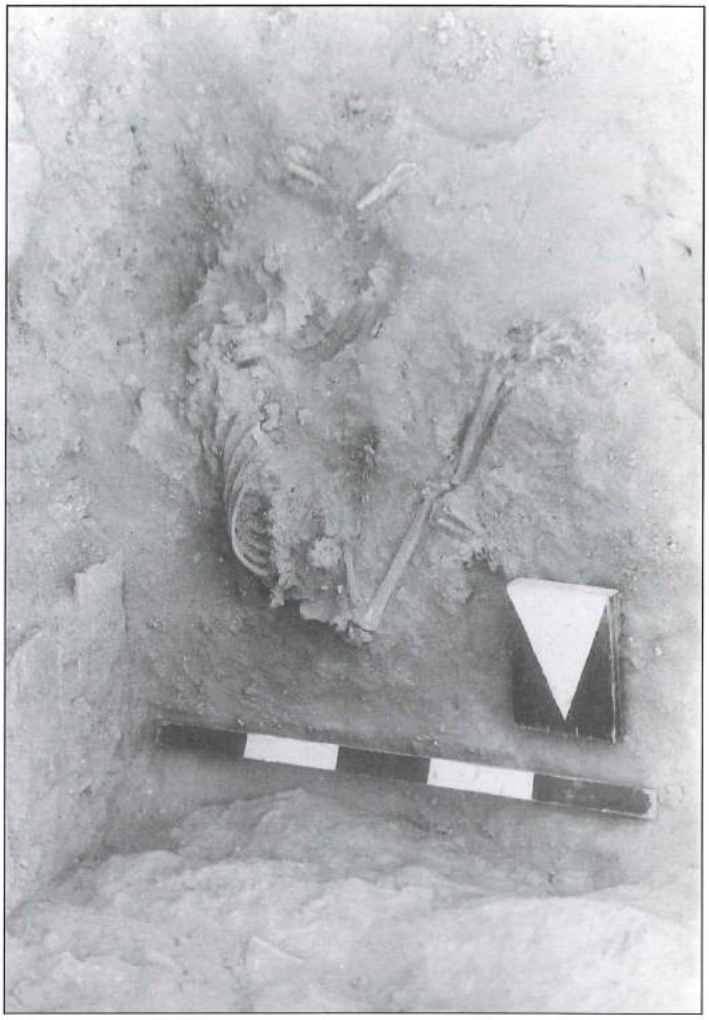
plete, but the ribs are, and the pelvis had been disturbed. Therefore, it is difficult to determine the sex. The channel substructure was not wide enough to accommodate the dead, so it was widened before deposition in order to accommodate the corpse. We believe that the channels or the sub-floor structures of aṣ-Ṣifiya were used as burial grounds, while the structures of the upper phase were not in full use. A similar burial practice was recorded from Baṣṭa (Nissen 1990: 89; Nissen *et al.* 1991: 17).

Burial no. 2: was found in Sq. B8, and represents an infant (FIG. 3) who died in the age range of 5 to 7 years. The skeleton is well preserved but the skull is missing. The body was laid on its right side, the extremities were stretched and bent to the front.

Burial no. 3: is a skeleton of a young female in a flexed position found in Sq. B8 (FIG. 4), she died at around 35 years old. A large stone was positioned on top of the lower part of the deceased, apparently causing considerable damage to the bones of the lower extremities as well as the left arm; the skull had been detached.



3. An infant burial with the skull missing.



4. An adult burial with the skull missing.

Burial no. 4: the remains of two adults were found in a single burial pit in Sq. B8 (FIG. 5). Both are in flexed positions and the skulls are missing. Both skeletons were heavily disturbed. Most of the bones were fragmentary and scattered randomly all over the burial pit. Some of the bones were missing, and most of the bones present were broken. The missing elements of both skeletons may indicate loss during transport from the location of death to aṣ-Ṣifiya for the final burial. The human remains in this burial were associated with the rib of a non-domestic animal (Bos). Such a burial practice was previously documented in a PPNB context of Kefar Hahoresh (Goring-Morris 1991: 83), probably related to ritual beliefs.

The stratigraphical evidence in Area B indicates that the unoccupied and the ruined buildings of aṣ-Ṣifiya village were used as a burial ground (after the main room in Sq. B8 was abandoned). It is probable that the human remains of this burial were buried in the rubble or the fill that had been accumulated over the floor of the main

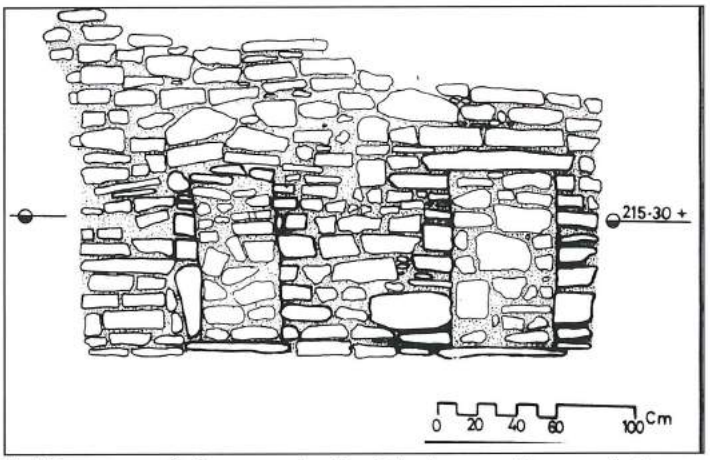


5. Two adults buried together, their skeletal remains are disarticulated.

room in Sq. B8, mainly adjacent to the eastern wall of this room. In this wall there are two small doorways leading into two small rooms flanked by the main room on the eastern side. These two doorways (FIGS. 6 and 7) were sealed off by small rectangular stones in order to prepare the burial place.

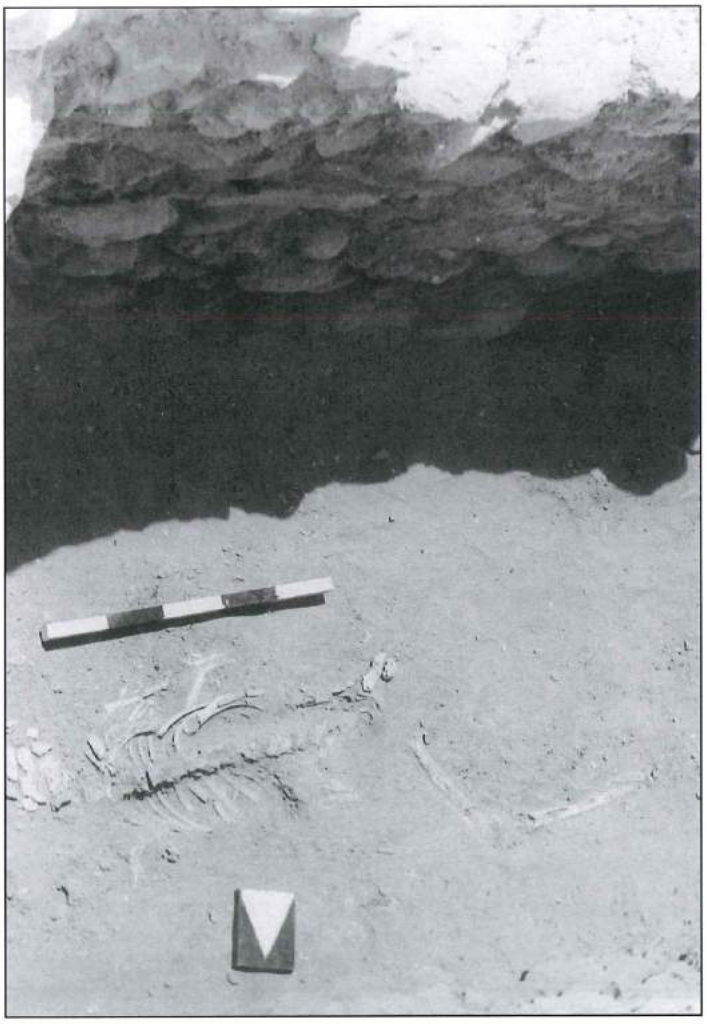


6. Photograph of two small doorways leading into two small rooms that were sealed off.



7. The two small doorways leading into two small rooms that were sealed off.

Burial no. 5: was found less that 1.3m below the surface, on a plastered floor in a small room in Sq. C6. The body (FIG. 8) was on its right side in a semi-stretched position. The burial orientation is east-west. The poor preservation



8. An adult burial lying on the right side.

of the bones and the presence of the sediments on top of the individual resulted in serious crushing and destruction of the bones. Evidence in tooth eruption and numerous unfused bone sections indicate that this individual was an adolescent around 16 years old.

Burial no. 6: the remains of a male older than 30 years were found in a burial pit in a house courtyard in Sq. C12 (FIG. 9). The body was laid down in a tightly contracted position on its right side with its backbone extremely bent. The skull was intact like the rest of the skeleton, but the bones are in poor preservation due to bulldozing impacts. One of the elbows rests between the legs while the other rests below the right leg. The hands (disturbed) may have been placed in front of the face, typical for a Late PPNB burial.

Burial no.7: was found in a shallow pit in Sq. C12 (FIG. 10). The body was laid down in a tightly contracted position on its left side, with its backbone extremely bent. One of the elbows rests on the right leg, and the other between the contracted legs. The skull is missing, and the pelvis indicates that this skeleton belongs to a female beyond the age of 20 years.



9. An adult burial in crouched position.



10. An adult burial in crouched position with the skull missing.

Burial no. 8: the recovered portion of this burial consists of the entire lower body. This burial is situated in a pit in a house courtyard in Sq. C10. It is in a flexed position and resting on its right side (FIG. 11). The preliminary infield measurements of the greater sciatic notch and the subpubic angle indicate a male individual of ca. 35 years.

The human remains of the aṣ-Ṣifiya burials nos. 2, 3, 4, 7 and 8 lack the skulls (see TABLE 1). The burial practice of exhuming the skulls from the skeletons was very common in this period and was recorded at the most important PPNB sites, such as Baṣṭa (Nissen *et al.* 1987:95), Bayḍa and Jericho (Kirkbride 1960: 40), 'Ayn Ghazāl (Rollefson *et al.* 1989: 23), Wādī Shu'ayb (Simmons *et al.* 1989: 38), Abū Ghosh (Perrot 1967: 267), Baysamūn (Ferembach and Lechevallier 1973: 224; Bar-Yosef 1992: 25), Nahal Oren (Noy *et al.* 1973: 79), Hacilar (Mellaart 1970: 6) and Catal Huyuk (Mellaart 1964: 64).



11. An adult burial, the skull is missing and the upper limbs are badly disturbed.



12. A subfloor skull burial associated with a basalt stone polisher.

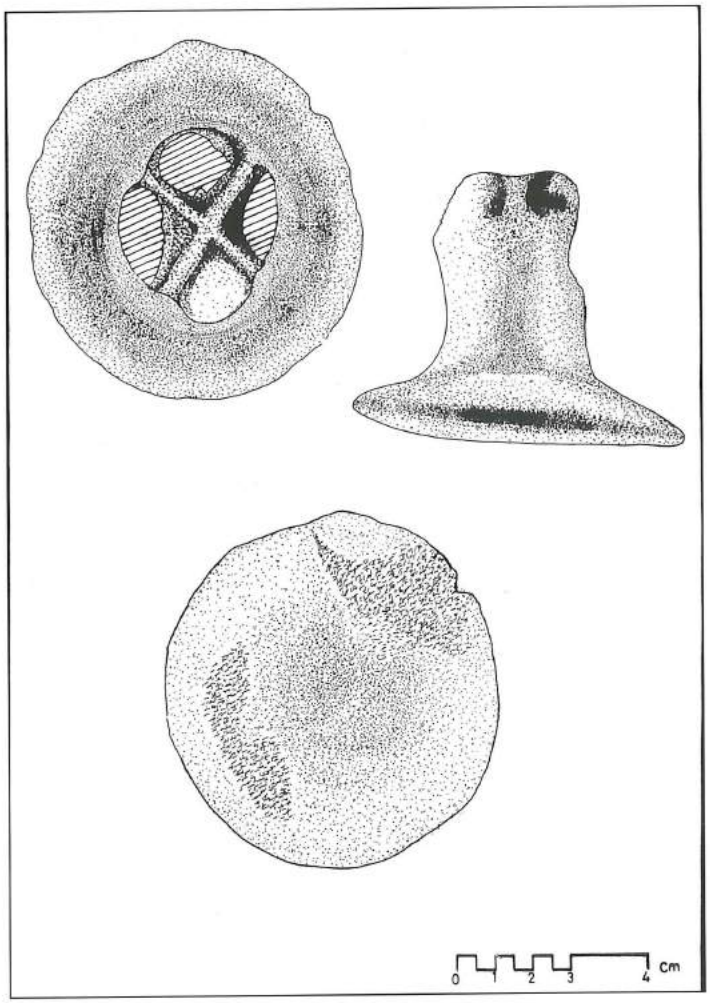
Skull Burials

Four skull burials with six skulls were uncovered at aṣ-Ṣifiya. It is likely that the headless burials of aṣ-Ṣifiya were the source of these skull deposits. This is not only the case of aṣ-Ṣifiya skull burial, the headless burials discovered at most of the PPNB sites are probably the complementary skeletal remains of the skulls.

Burial no.9: is a sub-floor skull burial, deposited in a shallow pit surrounded by a small stone circle and coated with soft soil. It had also been covered with a hard layer of white plaster related to the upper phase of the structure. The skull was placed near the junction of the western wall and the plastered floor of the main room of Sq. B2 (FIG. 12). No mandible or cervical vertebrae were found attached to the skull, the skull age is over 40 years. A stone polisher with handle was recovered inside the burial pit and associated with this skull. This tool is made of locally available fine-grained basalt (FIG. 13). It has a strange form, the top is rounded and subdivided by two crossed grooves into four rounded knobs, creating a tetrafoil design. A clear waist is present in the middle. The disc base of this tool shows striations on its working surface which indicates that it was used in a circular manner, where traces of red stain are preserved. This stone tool has to do with the profession of the dead. It has parallels recorded from the sites of Bayḍa (Kirkbride 1966: fig. 7.2) and Abū Sālim in Negeb (Marks and Scott 1976: fig. 12).

Burial no.10: is a cache of three adult skulls, deposited together in a shallow pit beneath a room floor in Sq. C13 (FIG. 14). Two skulls are facing down while the third cranium is badly damaged. No mandibles were found attached to these skulls and none of them showed any evidence of surface treatment. A similar cache was reported from 'Ayn Ghazāl (Rollefson 1983: pl. IV.1; Rollefson and Simmons 1986: 152, fig. 12).

Skull burials without mandibles similar to those of aṣ-Ṣifiya Burial 10 were recorded at the sites of 'Ayn Ghazāl, Baṣṭa, Jericho, Nahal Hemar Cave, Tall Ramad, Cayonu and Hacilar (Bienert 1991: 19).



13. Basalt polisher with handle.



14. A cache of three adult skulls with no mandibles.

Burial no. 11: is an isolated skull found in a shallow pit in Sq. C11 (FIG. 15). The skull is badly damaged due to a large stone resting directly on top of it. After the stone removal, all the parts of the skull were exposed including the mandible and the cervical vertebrae. This skull belonged to a male individual of 30-40 years.

Burial no. 12: during the excavation, the skull of this burial emerged in a protected setting, in a vertical posture against a stone wall facing south. The skull is deposited in a shallow pit below a plaster floor in Sq. C10 (FIG. 16). An interesting feature was the presence of a still-open metopic suture in this skull, which proves that it belonged to an individual aged no more than 24 years. The mandible and the cervical vertebrae are still attached to this skull.

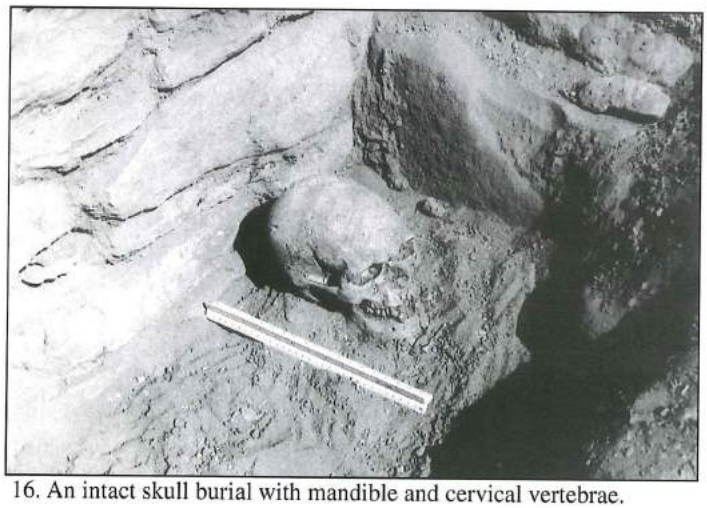
Similar skulls with the mandible and sometimes with the cervical vertebrae attached, were reported at the sites of 'Ujrat al-Mehed in southern Sinai (Hershkovitz *et al.* 1994: 62), Abū Ghosh, Jericho, Baṣṭa, Catal Huyuk, Cayonu and Hacilar (Bienert: 1991: 19).

Burying the skull separately from the skeleton is a practice that occurs in the Ancient Near East as early as the Natufian period (Bienert 1991: 9; 1995: 76; Cauvin 1972: 27; Mellaart 1975: 37). Detached skulls were found at the sites of Hayonim Cave (Bar-Yosef and Goren 1973: 53, fig. 3) and 'Ayn Mallāḥa (Anati 1963: 173; Perrot 1960: 18; 1996b: fig. 7; Fiedel 1979: 124) in Palestine. Perrot (1966b: 445) believes that decapitation at 'Ayn Mallāḥa took place through mechanical cutting directly after death, because the mandible and the first two cervical vertebrae were still attached.

The practice of retaining separated skull burial continued into the Aceramic Neolithic period (Kenyon and Holland 1981: 9, 287, pl.36). However, in the Aceramic Neolithic period, the importance was placed on the common custom of detaching the heads from the bodies and keeping them in a separate place (Schick 1988: 31; Kenyon 1957: 60; 1979: 35). Kenyon through her excavations at Jericho uncovered two groups of human skulls under the floors of building structures, dated to the PPNA period (Kenyon and Holland 1981: 53, 287, pl. 36). A group of skull burials dated to the PPNA was reported at Murayb'āt in the Euphrates Valley. Here three skulls were placed near the junction of the wall with a floor of a



15. A skull burial with mandible and cervical vertebrae.



16. An intact skull burial with mandible and cervical vertebrae.

house, covered with a hard layer of clay (Van Loon 1966: 213; 1968: 275, pl. 5A; Cauvin 1978: 127, fig. 13; Ozbek 1976: 161).

Preserved skull burials with no evidence of surface treatment, similar to those found at aṣ-Ṣifiya, were reported from many PPNB sites in the Ancient Near East. Kenyon (1954: 4; 1956a: 186) discovered human skulls buried under the floors of several houses. Several isolated skulls were recorded at Baysamūn (Ferembach and Lechevallier 1973: 224). A group of skulls deposited together in a shallow pit was discovered at 'Ayn Ghazāl (Rollefson and Simmons 1985: 48, fig. 8; 1986: 153, fig. 12). Skull burials were also uncovered at the sites of Tall Abū Hurayra (Moore 1975: 61; 1978: 167), Tall Murayb'āt (Cauvin 1974: 49), Tall Aswad (de Contenson 1972: 79), Hacilar (Mellaart 1961: 74), Catal Huyuk (Mellaart 1962: 51) and at the site of Cayonu where seventy skulls were found buried in one of the buildings identified later as the "skull building" (Schirmer 1988: 140).

The excavation of aṣ-Ṣifiya did not yield any plastered skulls. None of the discovered skulls showed any evidence of surface treatment. However, in some sites of the PPNB period, skull burial was conducted in different forms and became one of the main cultural characteristic of the period (Bienert 1991: 10; 1995: 78; Mellaart 1975: 61; Cauvin 1972: 6-64; 1978: 128-132; Singh 1974: 44; Bar-Yosef 1992: 25). Ten skulls coated with plaster were uncovered at Jericho beneath house floors (Kenyon 1956b: pl. 21; Strouhl 1973: 231). The plaster was modeled into a human face. Kenyon (1959: 5) described these plastered skulls as the earliest known portraits in the direct line of ancestry of modern art. One of these skulls still had the mandible attached (Kurth and Rohrer-Ertle 1981: 436). Two plastered skulls were found at Baysamūn (Ferembach and Lechevallier 1973: 224). Three caches of plastered skulls were found at Tall Ramad (de Contenson 1967: fig. 18; 1971: 281; 1985: fig. 2-8; de Contenson and Van Liere 1966: 170; Cauvin 1972: 58). The excavations at 'Ayn Ghazāl in the summer of 1988 uncovered a plastered skull, similar to the Jericho examples (Simmons *et al.* 1990: 107).

Kenyon (1956a: 186), Strouhal (1973: 244), Cauvin (1978: 133) and Pecontal-Lambert (1988: 22) believe that the plastered skull burial is connected with the practice of ritual ancestor worship, with the skull symbolising the deceased member of a family. However, Yakar and Hershkovitz (1988: 63) in addition suggest that this burial practice indicates for sedenterism and land ownership.

Bienert (1991: 17) believes that the skull excarnation prior to the burial, a process during which both mandibles and the cervical vertebrae were removed or got absent, could have been achieved in two ways. First, the skull became disconnected from the mandible after the corpse was buried for a while, and then the skull was exhumed and reburied in a separate location leaving behind the mandible attached to the skeleton. Examples of headless human burials that had the mandible were recorded at the sites of Abū Ghosh (Lechevallier 1976: fig. 47), Jericho (Kenyon and Holland 1981: 286; Cornwall 1981: 397), 'Ayn Ghazāl (Rollefson and Simmons 1988: pl. 4), Baṣṭa, Catal Huyuk, Cayonu and Hacilar (Bienert 1991: 19). Second,

the corpse may have been exposed outside the settlement, in a protected place where no wild animals can affect the body, and that insects and worms excarnated the corpse. Then the skull was retrieved for secondary burial in the settlement.

Burial Goods

The burials of aṣ-Ṣifiya are associated with artefacts and ornaments. It is important to note here that the provision of burial goods does not show any rules. The adornments of the adorned skeletons were found on all parts of the body, of both males and females of all ages (see TABLE 1), and they were placed on the dead at the time of burial. Such as in the case of individual beads, ornaments generally are not represented as e.g. necklaces but as possible sewn-on-objects. Burials were not necessarily furnished with goods.

The main raw material used for ornaments was shell of marine molluscs from the Red Sea and the Mediterranean, shaft and tubular bones, fossils, coral, flints, soft limestone, unbaked clay and various non-local minerals which appeared in limited quantities and were identified as greenstone (malachite), turquoise and blackish minerals.

Forty-five pieces of ornaments made of various materials were recorded with aṣ-Ṣifiya burials and identified as beads and pendants (TABLE 2). The definition of these objects as beads or pendants is based on the nomenclature proposed by Beck (1928: 11), beads are perforated along the axis and pendants are perforated at one end. Beads are relatively small objects while pendants are bigger. The ornaments of aṣ-Ṣifiya burials can be divided according to their natural material into three groups:

1. Sea Shell Beads and Pendants

A number of shells of different marine molluscs were encountered, pierced and unpierced. Their natural habitat is known: they are from the Red or the Mediterranean Seas, both of which are within comfortable reach of aṣ-Ṣifiya.

The most commonly used marine mollusc was small *Conidae* followed by *Nerita sp.*, *Cowrie*, mother-of-pearl and *Dentalia* shells. Burial no. 6 was accompanied with four small Conidae of various sizes. They have been pecked and abraded to produce fairly flat beads (FIG. 17: 1 -4). Parallels to these shell beads were recorded from Baṣṭa (Gebel 1988: fig. 11 no. 9; Gebel *et al.* 1988: fig. 14 nos. 2-4; Nissen *et al.* 1987: fig. 14 nos. 4-5). Also an unperforated *Conus* bead and a broken ring made of *Conus* shell (FIG. 17: 5-6) were found associated with burial no. 5.

A row of fine polished *Nerita sp.* shells (FIG. 17: 7-9) was found in the area of the left wrist of the dead in burial no. 5. They have their apexes abraded which created holes probably allowing for mounting them on strings. Examples similar to *Nerita sp.* shell beads were recorded from Baṣṭa (Gebel 1988: fig. 11 no. 12; Gebel *et al.* 1988: 116), Bayḍa (Kirkbride 1960: fig. 2a) and at Abū Nukhaylah, a desert site in southern Jordan (Kirkbride 1978: 7).

Two *Cowrie* shells (FIG. 17: 10-11) were found associated with burial no. 7. Their toothed parts have the interstice on the ventral side of the shell. Parallels were recorded from Bayḍa (Kirkbride 1966: pl. 16-b) and Baṣṭa (Nissen *et al.* 1987: fig. 18 nos. 1-2).

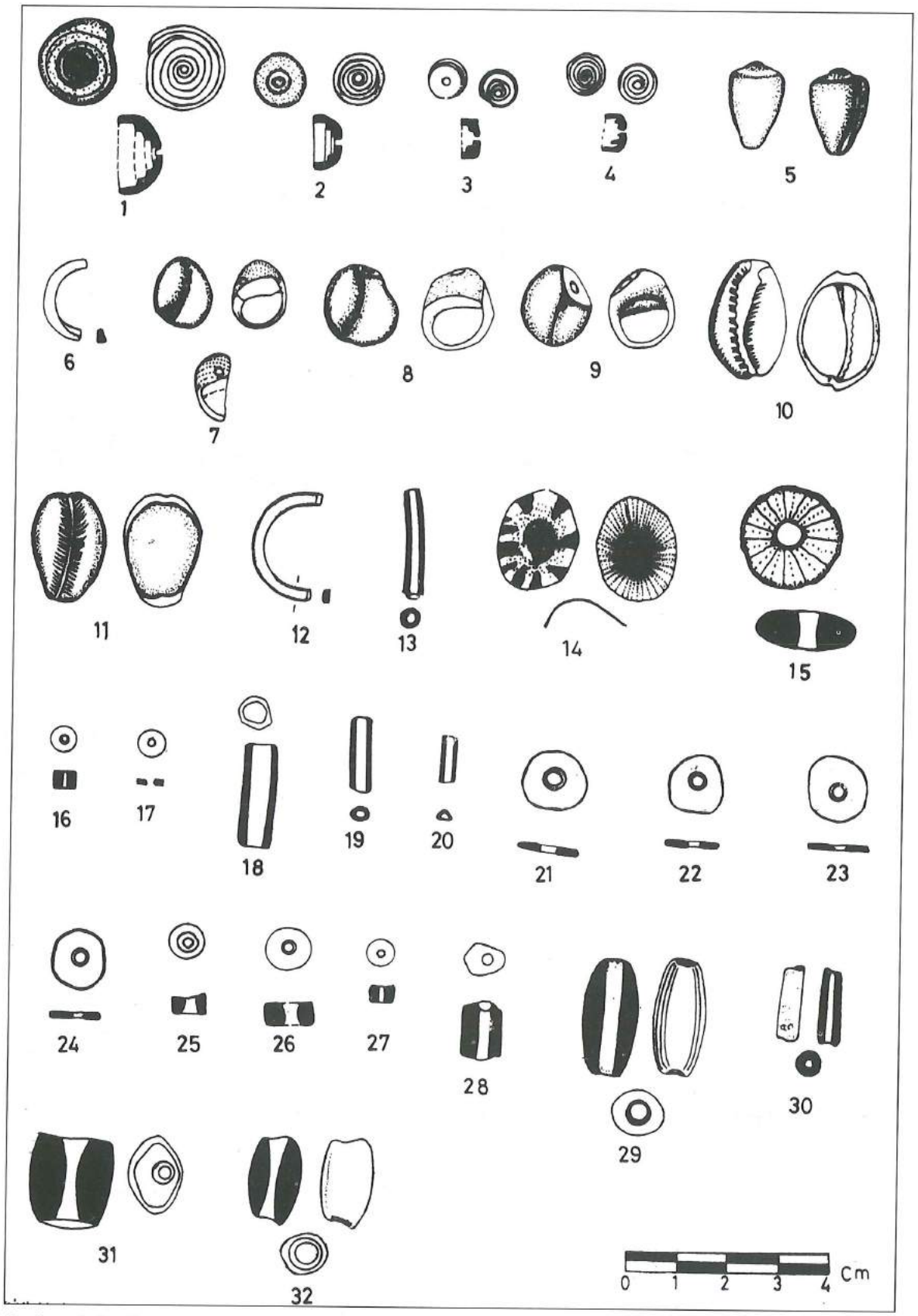
The mother-of-pearl was carefully worked for the use of pendants and rings. A small triangular mother-of-pearl pendant (FIG. 18: 5) and a use-polished broken ring (FIG. 17: 12) were found associated with burial no. 5. Similar to these mother -of- pearl ornaments were reported at Baṣṭa (Gebel *et al.* 1988: fig. 14 no. 5; Nissen *et al.* 1991: fig. 5 nos. 6-7). We have to add here that unworked lumps of mother-of-pearl were found at the excavated areas of aṣ-Ṣifiya.

A use-polished dentalium bead (FIG. 17: 13) was found with burial no. 3. It has parallels uncovered at Bayḍa (Kirkbride 1966: fig. 5:11). A small unperforated *Cellana radiata* shell (FIG. 17: 14) was found associated with burial no. 7.

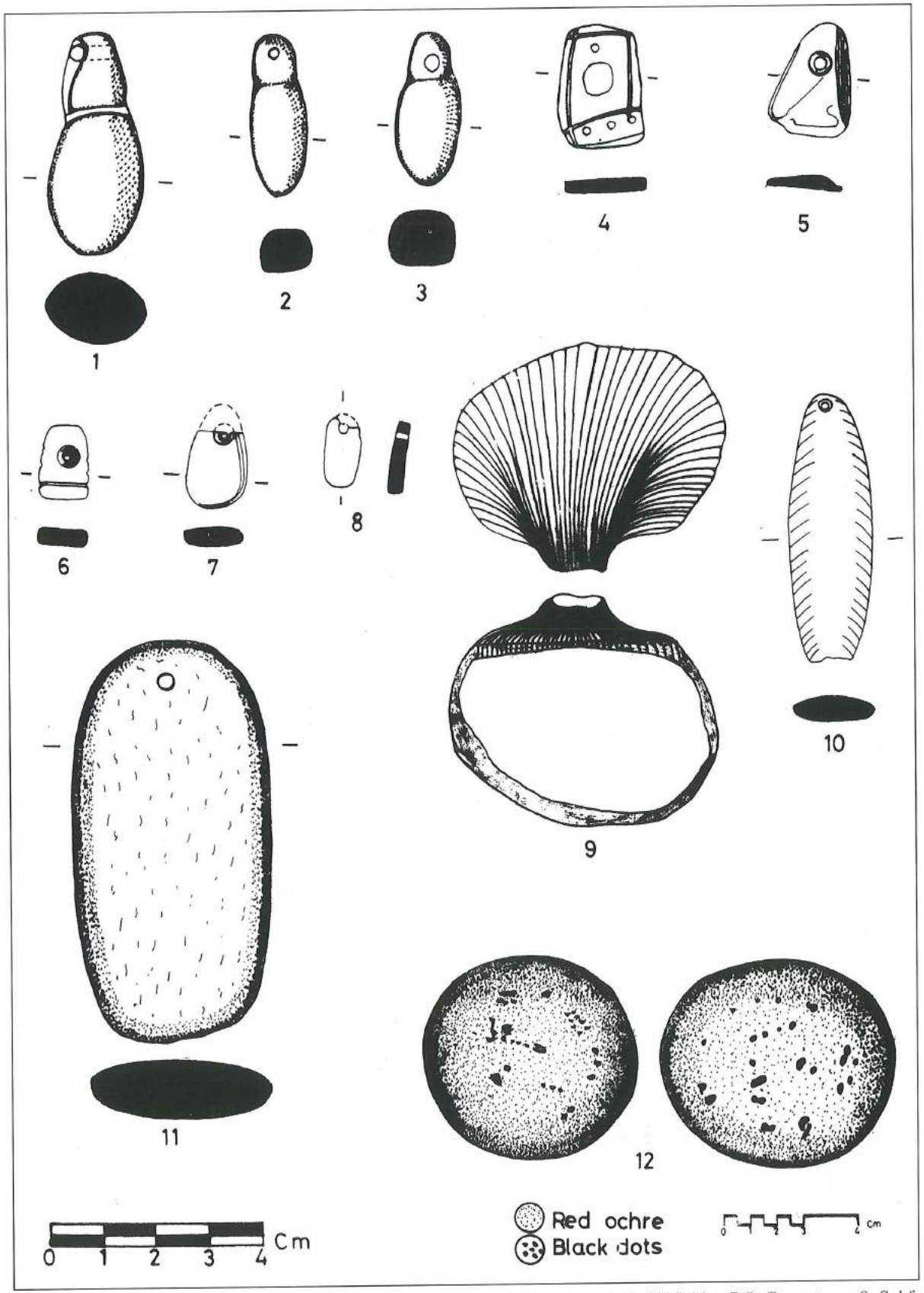
Beside the sea shell ornaments of aṣ-Ṣifiya's burials, shell fossils were used to adorn these burials too. Three use-polished pendants of *Tridachna* sub-fossil from the cliffs along the northern area of the Red Sea (FIG. 18: 1-3) were found associated with burial no. 1. They vary in shape and size, the upper narrow part of each pendant is separated by a groove from the lower bean-shaped part. An oblique channel of a biconical perforation is conducted in the upper narrow parts of these pendants. This artefact type seems to be recorded at aṣ-Ṣifiya the first time. A large sub-fossil of *Anadara sp.* (FIG. 18: 9) was found associated with burial no. 7, the apex was chipped off and provided the perforation in order to be used as a pendant. In burial no. 3, a fossil from the *Echinoidea* family (FIG. 17: 15) was found, naturally perforated and used as a bead. Two small cylindrical beads made of Red Sea coral were found associated with burial no. 4, the first one (FIG. 17: 16) has a biconical drilling, while the second one (FIG. 17: 17) has a non-conical drilling.

2. Bone Beads

Seven bone beads were used as ornaments to adorn the dead of aṣ-Ṣifiya. A bone bead made from an unidentified tubular bone (FIG. 17: 18) was found associated with burial no. 1. Two other tubular bone beads were found with burial no. 3. One is burnt, highly polished and has an oval section (FIG. 17: 19), while the other has a triangular section with the cutting facets still visible (FIG. 17: 20). Associated with burial no. 1, four small use-polished polygonal flat bone beads were found (FIG. 17: 21-24). They have central monoconical perforations; the outer fractures probably result from perforation due to the thin section of the beads. These beads have counterparts at Bayḍa (Kirk-



17. Beads: 1-4. Perforated Conidae; 5. Unperforated *Conidae*; 6. *Conidae* ring; 7-9. Perforated *Neriate sp.*; 10-11. Cowries; 12. Mother-of-pearl ring; 13. *Dentalium*; 14. *Cellana Radiata* shell; 15. Fossil from the *Echinoidea* family with natural perforation; 16-17. Coral from the Red Sea; 18-20. Tubular bones; 21-24. Polygonal flat bones; 25. Greenstone; 26-30. Fine grained limestone; 31-32. Fine grained mineral.



18. Pendants: 1-3. Subfossil *Tridachna* from the Red Sea; 4. Limestone; 5. Mother-of-pearl; 6. Oil Schist; 7-8. Greenstone; 9. Subfossil *Anadera sp.*; 10. Flint; 11. Clay; 12. Polisher made of flint nodule.

bride 1966: pl. 17-A), Basṭa (Nissen *et al.* 1987: fig. 18: 32-35) and 'Ayn Ghazāl (Rollefson 1986: 51).

3. Mineral Beads and Pendants

Eight stone beads and five stone pendants were found associated with aṣ-Ṣifiya's burials. In burial no. 6, two pendants made of soft limestone and flint were found: The soft limestone pendant/palette (FIG. 18: 4) has a rectangular shape, decorated with an incised frame along the edges of all sides, divided again into a quadrangular larger and a rectangular smaller part. In the quadrangular part an incised circle and a biconical perforation were placed, the rectangular part has three biconical drillings. The flint pendant (FIG. 18: 10) is a unique piece of an elongated polished honey-colored flint with biconical drilling. The long edges are slightly convex and retouches damaged the end of this pendant.

Three small pendants were found in burial no. 7. The pendant (FIG. 18: 6) is made of a material rich with bitumen and highly fossiliferous chalky-marl (oil schist). In the upper part of the pendant, there is a biconical drilling and three preserved incisions or grooves nearby on the narrow side. The two greenstone pendants are fragmentary, only the lower parts were found (FIG. 18: 7-8). They are broken at their perforations, the smaller piece shows a uniconical drilling while the larger one has a biconical drilling.

In burial no. 4, a perforated pendant or palette made of unbaked clay was found (FIG. 18: 11). The material disintegrates easily in water, only one side of the pendant is preserved. This piece imitates reddish sandstone palettes known from southern Jordanian Late PPNB sites such as Basṭa (Gebel 1988: fig. 11 no. 15). In the same burial a polisher was found (FIG. 18: 12). This polishing tool is an almost perfectly spherical flint nodule bearing on all surfaces the stain of red ochre, intensive ochre patches and stripes are attested, burnishing traces and unidentified blackish dots are irregularly distributed on the surface.

Burial no. 4 is the richest in stone beads. Eight beads of different materials were found; a green cylindrical use-polished bead with biconical drilling (FIG. 17: 25); turquoise cylindrical use-polished bead with biconical drilling (FIG. 17: 26); a fine-grained limestone use-polished flattish bead (FIG. 17: 27), which is polygonal in section and irregular multi-faceted on the exterior were created as a result of abrading technique; a fine-grained elongated greyish limestone use-polished bead (FIG. 17: 28), with an irregular section, rounded edges and bidirectional drilling; a fine-grained elongated pinkish limestone bead with biconvex longitudinal section and bidirectional drilling (FIG. 17: 29); a burnt limestone tubular bead with parallel-sided longitudinal section (FIG. 17: 30), it has an irregular surface probably from fire contact; two blackish fine-grained mineral use-polished beads with narrow and broad biconvex longitudinal sections and biconical drillings (FIG. 17: 31-32).

The greenstone beads and pendants which are among the burial stone beads, have similar counterparts reported at the major PPNB sites dated to the seventh millennium BC, such as Basṭa (Gebel *et al.* 1988: fig. 14; Nissen *et al.* 1987: fig. 18 nos. 23-30), Bayḍa (Kirkbride 1966: fig. 5 nos. 5-8; 1968: 271), 'Ayn Ghazāl (Rollefson 1984: 10, fig. 3; Rollefson and Simmons 1986: Table 10), Jabal Na'ja in the Black Desert (Betts 1985; Garrard *et al.* 1987), Nahal Issaron (Goring-Morris and Gopher 1983: 156-157), Nahal Hemar Cave (Bar-Yosef 1985; Bar-Yosef and Alon 1988: pl. 6), Jericho (Wheeler 1983: 786-787; Talbot 1983: 790, figs. 360-361), Abū Ghosh (Lechevallier 1978: 82), Munḥaṭa (Perrot 1964: fig. 5 no. 14), Nahal Oren (Noy *et al.* 1973: 88, fig. 7 no. 17) and Tall Ramad (de Contenson 1971: 283).

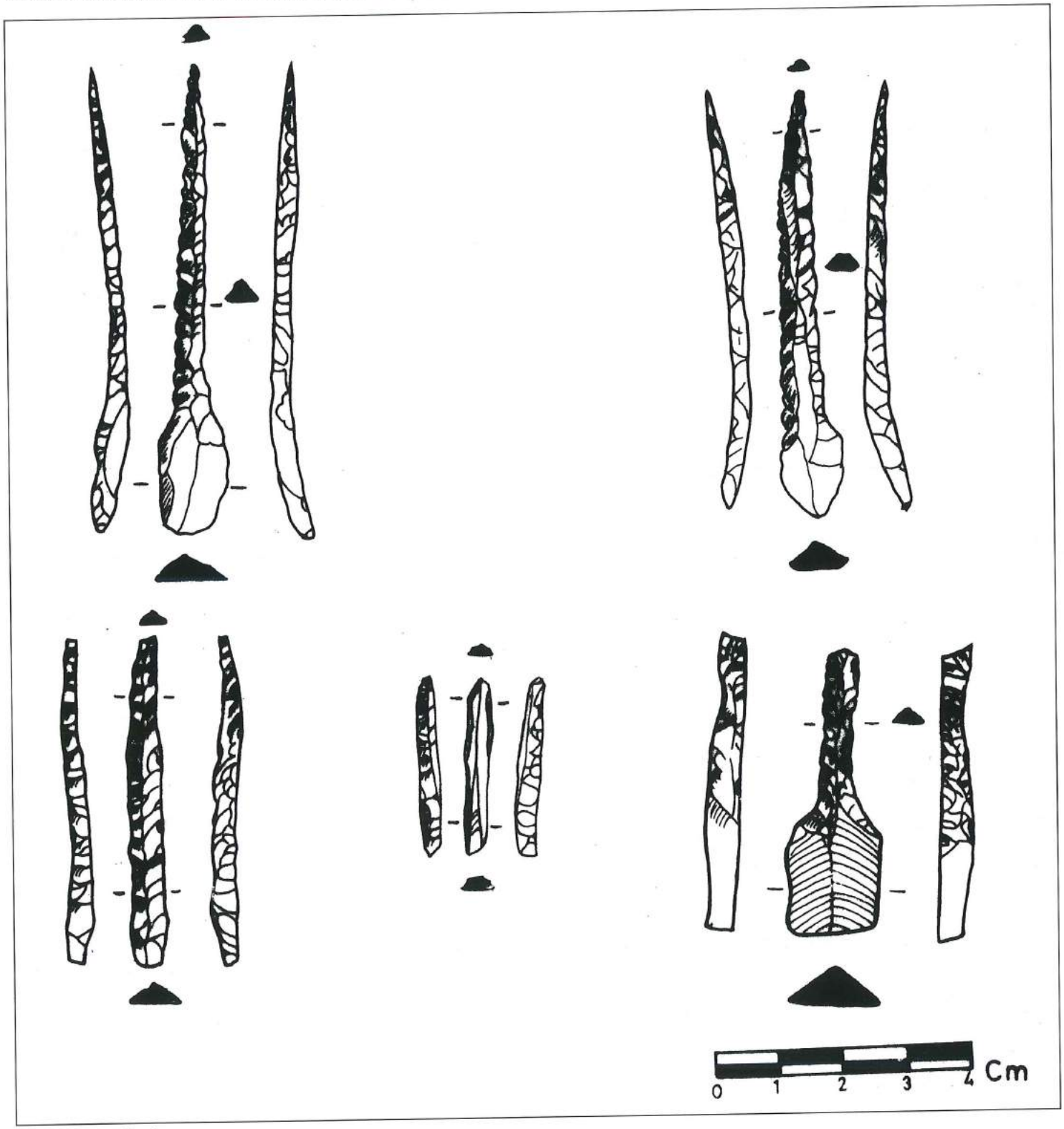
No study has been published yet on the use of green minerals. However, a first assessment to criteria has been made by A. Hauptmann to identify the various sources (forthcoming final publication of Basṭa, Volume 1). J. Mellaart (1975: 65) had assumed that Syria represents the main source of green minerals, but J. Muhly (1973: 208-210) believes that it is impossible to determine the precise source of the material from which the archaeological finds were made. In general terms, the green minerals may be connected with copper bearing strata. These are found at specific areas in the southern Levant, at Wādī Faynān and Timnā' (Hauptmann 1991: 399; Rollefson *et al.* 1989: 15).

The copper bearing green minerals closest to aṣ-Ṣifiya are at 175km distance, in Wādī Faynān. In the closest seventh millennium BC sites, D. Kirkbride (1966: 53) through her excavations at Bayḍa, recorded lumps of greenstone minerals. This site also revealed evidence of bead manufacture on an industrial scale. Large numbers of beads at different stages of production were discovered at some structures of Stratum II. These structures were defined by Kirkbride (1966: 24) as workshops specialised in bead production.

The fact that the greenstone items are found in settlements at 175km distance from the original source, clearly prove long distance trade contacts with the extreme south Wādī 'Arabah. Garfinkel (1987: 79) believes that, since the distribution of exotic minerals in an excellent source of information on both communications between prehistoric settlements and on stratification of the social organization, only manufactured items have been recorded in the previously mentioned settlements. He thinks that they give a hint that the produced greenstone items were traded throughout the Levant as finished goods rather than as lumps of raw material.

Bar-Yosef (1985: 12) stated that no archaeological evidence has been found that the greenstone beads were manufactured on any of the Neolithic sites excavated in

the southern Levant. However, the excavations at Yiftahel (Garfinkel 1987: 80), Basṭa (Nissen *et al.* 1991: 26) and aṣ-Ṣifiya revealed clear evidence that lumps of raw greenstone material were imported and processed there into ornaments and other items. Unfinished products also occur at aṣ-Ṣifiya fair amount of greenstone lumps was uncovered associated with crumbs, splinters and unfinished items. The presence of a group of elongated fine flint borers or drills (FIG. 19) may have served these industrial activities.



19. Elongated flint borers.

These drills were made on blades and abruptly retouched from ventral along the main ridge of the blade; no retouching is seen on the ventral sides. These drills have delicate sections. The tip of a complete drill may range from 30-40mm in length, and by means of biconic drilling techniques (drilling from both sides of the bead or the pendant) it may make a hole some 70mm long. The tips are 2-3mm, wide, and so may drill particularly narrow holes. Points are broken or blunted as a result of use, and sections are trapezoid or triangular.

The long borers are common in the southern Levantine LPPNB tool kits and seem to be absent in LPPNB tool kits of the northern Levant (Gopher 1994: 488). We have them attested at Bayḍa (Mortensen 1970: type B10, fig. 23 a-b; Kirkbride 1966: fig. 12 no. 3), Baṣṭa (Gebel *et al.* 1988: fig. 11 no. 10; Nissen *et al.* 1987: fig. 11 no. 4), Sites A-D in Wādī Fidān (Raikes 1980: 44 and fig. 7), Nahal Issaron in the southern Negeb (Goring-Morris and Gopher 1983: fig. 5 nos. 1-2), Jericho (Crowfoot-Payne 1983: fig. 321 no. 10), and Yiftahel (Garfinkel 1987a: 87 and 1987b: 209).

Conclusion

The late Epi-palaeolithic Natufian communities seem to have partially concentrated the burials close to or within their camp areas (al-Wad, Hayonim and Eynan). Watkins (1992: 68) believes that the burials of the Natufian period were not strictly associated with houses but with the village and the community. Recently the burials of 'Aynān were reinterpreted in this context and are no longer believed to have been made below the floor of the house or in the abandoned house (Perrot *et al.* 1988).

In the Neolithic period, the dead as well as detached skulls were associated with the house; they began to be found on or under the floors of the houses. From the PPNB period we are familiar with this practice of burying the dead close to the house, on or under floors or in reserved spaces within a room. The skulls which have been separated from the rest of the skeletons, were placed in a house when it was being finally abandoned and obliterated. H. Gebel (pers. comm.) believes that a substantial part of the undisturbed complete burials are burials in the house ruins of abandoned settlement parts, including the channels underneath and even on top of ruined walls or inside walls (e.g. one baby burial at Baṣṭa); intramural skull deposits may have resulted from disturbed burials, e.g. through later burials, accidental exposures, etc. from which only the skulls were removed and reburied in a protected setting, while the postcranial bones were left and got astray in the layers.

The burial pattern at aṣ-Ṣifiya confirms to a wider pan-Levantine Pre-Pottery Neolithic mortuary cult that emphasized sub-floor burials and decapitation. Throughout the life of the Neolithic settlement, the inhabitants of aṣ-Ṣifiya buried their dead in shallow pits beneath the floors of their houses or in the yards outside or in the rubble of the collapsed and deserted houses. Aṣ-Ṣifiya shows that primary and secondary individual and group interments in flexed positions, either with or without skulls which could be deposited alone or in groups, were practiced.

The intact burials indicate primary burials, and were best preserved. However, the scattered disarticulated bones might indicate the existence of secondary skull burials, and were found in a poor condition of preservation. Some evidence hints that some corpses were buried or exposed in protected settings until the flesh had deteriorated. The skulls were often then detached and buried separately while the remaining bones were carelessly reburied. Both burial principles, primary and secondary, were not practiced only at aṣ-Ṣifiya, they are evident during the PPNB period in the Levant. Hershkovitz and Gopher (1993: 18-20) concluded that 20-50% of the Neolithic burials were secondary. In Jericho, out of 491 individuals uncovered, 63% were primary and 37% secondary burials, Kurth and Rohrer-Ertl (1981: 434) believe that all the individuals found within Jericho were first interred in primary burials, but later exhumed from their graves, the skulls detached and the remains reburied. The detached skulls were put in special places, usually beneath the floors of dwellings.

Rollefson (1986: 45-51) has shown that the PPNB of 'Ayn Ghazāl opened only a small area of the burial pit in order to reach the skull and rebury it elsewhere, the rest of the skeleton remaining untouched. This is also evident at Yiftahel and Jericho. This behavior seems understandable since only the skull removal was of interest. Hershkovitz and Gopher (1993: 20) suggest that since most burials, primary and secondary, were associated with floors, either in dwellings or courtyards, it would seem strange that the Neolithic people would open plastered floors or courtyards to remove the skeletons in order to rebury them under another-or even the same-floor.

The burials of aṣ-Ṣifiya were discovered in various positions, of which the most characteristic is the flexed position, with the dead lying on the side. The variation in posture confirmed that in Neolithic aṣ-Ṣifiya no one type of burial posture was practiced. Most of the undisturbed burials had skeletons with flexed extremities, sometimes even distorted from their original burial position. The bodies in all cases were laid on their left or right sides. The lower extremities appear bent towards the head with hands placed close to the hips. Sometimes the burial is too fragmentary and partially disturbed to determine the position of the skeleton, and that is evidenced in the case of burial no. 4.

Only a few of the houses of aṣ-Ṣifiya have burials beneath their floors. If burials of the descendants of a single family were found beneath successive houses, this could be an indication that ownership of dwellings and the plot on which they stood was maintained within the same fami-

ly from one generation to the next. However, given the duration of house occupation, the number of burials appears very small.

The grave-site phenomenon in the PPNB period can be attributed to an extended occupation, or to the repeated use of the same site over the years. This is evident from the replastering of dwelling floors, modifications in architecture, wall repairs and locations of graves in abandoned structures. The longer the site was occupied, the greater the chance that at least some of the occupants would die and be buried within the living areas as was the custom.

None of the burials of aṣ-Ṣifiya were found outside the living area of the site, although no burials and almost no scattered human bones were found in Area A. All the uncovered burials were found in Areas B and C. The burial layers are generally shallow in both Areas and this led to poor skeletal preservation. All of the uncovered burials are attributed to the later phase of occupation at the site. Only remnants and scattered patches of poor quality architecture and plastered floors could be traced. It became obvious that several burials had been destroyed by the bulldozing of the overlying layers. From all evidence, we can postulate that there are more burials in both Areas B and C.

Considering the size of the area of excavations (550m^2), the total number of 15 individuals revealed at the site of as-Sifyia is comparable with quantitative distributions in other PPNB sites in the Levant.

Aṣ-Ṣifiya burials were accompanied with grave goods, rounded, oval and cylindrical beads, pendants and rings were cut from greenstone, yellow and red limestone, flint, fossils and sea shells. Many of these exotic materials are presented in their raw form and as processed artefacts. This suggests that aṣ-Ṣifiya was part of the trade network which flourished during the seventh millennium BC through the Rift while manufacturing was conducted at the site. The intensive presence of the green minerals and Red Sea shells was due to the proximity to the sources.

The uncovered burial goods of aṣ-Ṣifiya emphasize that the occupants of the site practiced a wider range of crafts which resulted in making delicate beads, rings and pendants. All these ornaments were distinctive in form and in some cases were made of scarce raw materials. It seems reasonable to expect that the goods were made by part-time, particularly skilled specialists in workshops, in which the various working stages (cutting, polishing and boring) were conducted.

Finally, the main aspects of the aṣ-Ṣifiya burials hint to common inherited ideology with other Levantine Neolithic groups. First, the burials are associated with dwellings. Second, children and adult skulls were removed for secondary burials, the exhumation and reburial occurred before or after the initial burial. Third, offerings and burial goods are found with the dead.

Acknowledgments

Through the permission of the Department of Antiquities of Jordan, we deeply appreciate the continuous collaboration and encouraging interest of Dr. Ghazi Bisheh, then Director General of the Department of Antiquities. We are also grateful to the President of Mu'tah University, H.E. Prof. Eid Dahiyat for the generous financial support he gave the project. I am deeply indebted to my colleague H. G. Gebel who has been most instrumental and supportive through the visits he made to our excavation. His encouragement and constructive comments are highly appreciated.

Table 2. Aṣ-Ṣifiya, Areas B-C: inventories/ associated finds of Burials 1, 3, 4, 5, 6, 7 and 9.

Burial (Square, Locus)	**Artefact type/Raw Material**	**Description incl. Measurements**
Burial 1 (B7, Locus 12)		
FIG. 18:1	pendant (subfossil Tridacna, from Red Sea)	use-polished pendant with a perforation, its upper narrow part separated by a groove from the lower bean-shaped part, oblique channel of biconical perforation (c. diam. 2mm) from the narrow side at the upper part; total length: 43.2mm, max. width of lower part: 20.1mm, max. thickness of lower part: 13.0 mm.
FIG. 18:2	pendant (subfossil Tridacna, from Red Sea)	use-polished pendant with a perforationin its upper narrow part, separated by a "neck" from the lower beshaped part, biconical drilling (c. diam. 2mm) from the broad side of the upper part; total length: 29.2mm, max. width of lower part: 13.6mm, max. thickness of lower part: 11.3mm.

FIG. 18:3	pendant (subfossil Tridacna, from Red Sea)	use-polished pendant with a perforation in its upper narrow part, gradually flows over into the lower bean-shaped part, biconical perforation (c. diam. 2mm) from the broad side of the upper part; total length: 32.0mm, max. width of lower part: 10.8mm, max. thickness of lower part: 9.2mm.
FIG. 17:18	bead (tubular bone)	bead made from an unidentified tubular bone length: 21.3mm, max. diam. 7.3mm.
FIG. 18:21-24	4 beads (bone?)	use-polished polygonal flat beads with central monoconical perforation, outer shape probably fractured before perforation; thicknesses: 1.5-1.9mm, diameters: 9.5-13.1mm.
Burial 3 (B8, Locus 8)		
FIG. 17:13	bead (Dentalium, from Red Sea)	use-polished bead; length: 22.0mm, max ext. diam.: 3.8mm.
FIG. 17:15	bead (fossil from the Echinoidea family) found in Wādī al-Mujib	use-polished perforated bead made of a fossil sea-urchin, perforation is natural; length: 9.9mm, max. diam.: 20.8mm, min. diam. perforation: 5.1mm.
FIG. 17:19	bead (bone)	burned use-polished bead made of a very small tubular bone oval section; length: 14.9mm, max ext. diam: 3.7mm.
FIG. 17:20	bead (bone)	use-polished bead made of a very small tubular bone with triangular section, cutting facets still visible; length: 9.4mm, max ext. side: 2.7mm.
Burial 4 (B8, Locus 9)		
FIG. 18:11	pendant? palette?? (clay)	perforated pendant or palette made of unbaked/sundried reddish clay material disintegrates easily in water, tempered with chaff, one side completely preserved (imitates reddish sandstone palettes known from Southern Jordanian LPPNB sites); length: 75.5mm, width (upper part): 38.2mm, thickness (upper part): 12.3mm.
FIG. 17:16-17	2 beads (coral, from Red Sea)	cylindrical coral beads (1x flattish: biconical drilling, 1x compact/barrel-shaped: almost quadrangular section from abraded sides, nonconical drilling) flattish piece; length: 1.4 ext. diameter: 5.1; barrel-shapped piece, length 4.7mm, side: 5.3mm; diam. perforation: 0.8mm.
FIG. 17:25	bead ("greenstone")	cylindrical use-polished bead with biconical drilling (0.8mm), compact/barrel-shaped; length: 5.0mm, max. ext. diam.: 7.3mm.
FIG. 17:26	bead (turquoise)	cylindrical use-polished bead with biconical drilling (1.1mm), compact/barrel-shaped; length: 9.4mm, max. ext. diam.: 5.2mm.
FIG. 17:27	bead (fine-grained limestone)	use-polished flattish bead, polygonal in section, irregular multifacted on exterior (resulting from an abrading technique), biconical drilling (0.8mm); length: 1.8mm, max. ext. "diam.": 5.5mm.

FIG. 17:28	bead (fine-grained greyish limestone)	elongated use-polished bead with irregular triangular section and rounded edges, bidirectional drilling (1.2mm); length: 11.5mm, max. side: 8.5mm.
FIG. 17:29	bead (fine-grained pink limestone?)	elongated use-polished bead with biconvex longitudinal section, bidirectional drilling (1.2mm); length: 23.1mm, max ext. diam.: 10.1mm.
FIG. 17:30	bead (burnt limestone)	"tubular" bead with parallel-sided longitudinal section, irregular surface probably from fire contact; length: 14.3mm, max. ext. diam.: 4.9mm.
FIG. 17:31	bead (blackish fine-grained section, mineral)	use-polished bead with a narrow and a broad biconvex longitudinal biconical drilling (1.3mm); length: 17.6mm, max. ext. dimension: 12.5mm, min. ext.16.9mm.
FIG. 17:32	bead (blackish fine-grained mineral)	elongated use-polished bead with biconvex longitudinal section, biconical drilling (1.9mm); length: 17.9mm, max. ext. diam.: 10.0mm.
FIG. 18:12	polisher (flint nodule)	almost perfectly spherical flint nodule bearing on all surface the stain of red ochre, intensive ochre patches and stripes are attested, burnishing traces, unidentified blackish dots irregularly distributed on surface; max. diam.: 84.6mm, min. diam. 79.2mm.
Burial 5 (C6, Locus 13)		
FIG. 18:5	pendant or pallette (mother-of-pearl)	triangular use-polished pendant/ pallette with biconical drilling (directions resulted in oval shaped perforation); height: 22.0mm, max. width: 15.7mm, thickness: 3.7mm.
FIG. 17:5	bead? (Conidae)	unperforated bead? length: 17.5mm.
FIG. 17:6	ring (Conidae)	use-polished ring made from a section of a Conidae; ext. diam.: 16.2mm, pres. ring width: 1.7mm, max pres. thickness: 3.1mm.
FIG. 17:7-9	3 beads (Nerita sp.)	3 beads (2 with use-polish, one burnt; one with intact apex; 2 with abraded apex, of which one is obliquely abraded); length: 14.5mm (with complete apex), 16.2mm, 17.2mm.
FIG. 17:12	ring (mother-of-Pearl)	use-polished ring; max. pres. ext. diam.: 21.1mm, pres. ring width: 2.4mm, max. pres. thickness: 2.0mm.
Burial 6 (C12, Locus 8)		
FIG. 17:01-4	4 beads (Conidae)	4 use-polished beads made from the apex parts of conus shells, slightly abraded apex caused "perforation", 1 piece burnt; apex diameters: 17.0mm, 10.4mm, 7.8mm, 7.8mm.
FIG. 18 :4	palette/pendant (limestone)	rectangular pallette; decoration by an incised frame along the edges of all sides, divided again into a quadrangular larger and a rectangular smaller part: in the quadrangular part an incised circle and a biconical perforation was placed, the ractangular part has 3 biconical drillings; length: 22.6mm, max width: 16.1mm, max. thickness: 4.1mm.

FIG. 18:10	pendant (flint)	unique piece of an elongated polished honey-coloured flint pendant, biconical drilling (1.0mm) long edges slightly convex, retouches (damage) took the end of the piece; pres. length: 52.0mm, max width: 16.5mm, max. thickness: 5.2mm.
Burial 7 (C12, Locus 10)		
FIG. 18:6	pendant (oil schist)	upper part of a pendant with biconical drilling and three (preserved) incisions/grooves nearby on the narrow side. The material is a bitumen-rich, highly fossiliferous chalky-marl (oil schist) recently identified by Affonso and Pernicka (1997); pres. length: 15.3mm, pres. width: 10.0mm, pres. thickness: 6.0mm.
FIG. 18:7-8	2 pendants ("greenstone")	2 lower parts of pendants made of copper containing minerals, broken at their perforations (smaller piece with uniconical drilling, larger one with biconical drilling); pres. lengths: 16.3mm and 13.2mm, max. widths: 12.2mm and 7.2mm, max. thicknesses: 3.6mm and 5.5mm.
FIG. 18:9	pendant (subfossil Anadara sp.?)	pendant made of a larger bivalve with chipped off apex (which provided the perforation); pres. length: 45.5mm.
FIG. 17:10-11	2 beads (cowries)	1 use-polished cowrie bead with removed body, 1 use-polished complete cowrie; lengths: 24.2mm, 23.0mm.
FIG. 17:14	shell (Cellana radiata? from Red Sea)	collected shell of Patellidae; length: 20.0mm.
Burial 9 (B2, Locus 14)		
FIG. 13	polisher with handle (basalt)	unique polisher with decorated handle, working surface with reddish pigments, top of vertical handle bears a tetrafoil design (2 pecked grooves cross at righ angle), preservation: flakings around obverse of working surface and near top of handle; max. width of working face: 93.4mm, min. width of working face: 85.1mm, dimension working surface-top of handle: 71.8mm, "waist" of handle: 39.0-35.9mm, top of handle: 49.0-pres. 38.4mm.

Bibliography

Anati, E. 1963. *Palestine Before the Hebrews*. New York: Alfred A. Knope.

Bar-Yosef, O. 1985. *A Cave in the Desert, Nahal Hemar*. Cat. no. 258. Jerusalem: Israel Museum.

____1992. The Neolithic Period. Pp. 10-39 in A. Ben-Tor (ed.), *The Archaeology of Ancient Israel*. Translated by R. Greenberg. Massachusetts: West Hanover.

Bar-Yosef, O. and Alon, D. 1988. Nahal Hemar Cave: The Excavations. *Atiqot* 18: 1-30.

Bar-Yosef, O. and Goren, N. 1973. Natufian Remains in Hayonim Cave. *Poléorient* 1: 49-68.

Beck, H. 1928. *Classification and Nomenclature of Beads and Pendants*. Oxford: Society of Antiquarians of London.

Betts, A. 1985. Black Desert Survey, Jordan: Third Preliminary Report. *Levant* 17: 29-52.

Bienert, H-D. 1991. Skull Cult in the Prehistoric Near East. *Journal of Prehistoric Religion* 5: 9-23.

____1995. The Human Image in Natufian Aceramic Neolithic Period of the Middle East. Pp. 75-103 in W. H. Waldren, J. A. Ensenyat and R. C. Kennard (eds.), *Ritual, Rites and Religion in Prehistory, IIIrd Deya International Conference of Prehistory*. British Archaeological Reports - International Series. 611(1). Oxford: B.A.R.

Bienert, H-D. and Gebel, H. 1997. Baja-Investigations into one of the Earliest Settlements in Jordan. *Occident and Orient: Newsletter of the German Protestant Institute of Archaeology-Amman Office* 2(1): 13-14.

Bisheh, G., Farajat, S., Palumbo, G. and Waheeb, M. 1993. The Cultural Reources Management Project in Jordan: Archaeological Rescue Survey of the Ras an-Naqab-Aqaba

Highway alignment 1992. *ADAJ* 37: 119-134.

Cauvin, J. 1972. *Religions néolthiquies de Syro-Palestine.* Paris: CNRS.

____1974. Troisième campagne a Tell Mureybet (Syrie) en 1973. Rapport préliminaire. *Les Annales Archéologiques Arabes Syriennes* 24: 47-58.

____1978. *Les premiers villages de Syrie-Palestine du IXeme au VIIeme Millenaire avant.* Lyon: CNRS et l'Université de Saint-Etienne.

de Contenson, H. 1967. Troisième campagne a Tell Ramad, 1966: rapport préliminaire. *Les Annales Archéologiques Arabes Syriennes* 17: 17-24.

____1971. Tell Ramad: A Village Site of Syria of the 7th and 6th Millennia B.C. *Archaeology* 24: 178-285.

____1972. Tell Aswad: fouilles de 1971. *Les Annales Archéologiques Arabes Syriennes* 22: 75-84.

____1985. La région de Damas au néolithique. *Les Annales Archéologiques Arabes Syriennes* 35: 9-29.

de Contenson, H. and Van Liere, W. 1966. Séconde campagne a Tell Ramad, 1965: rapport préliminaire. *Les Annales Archéologiques Arabes Syriennes* 16: 167-174.

Cornwall, J. 1981. The Pre-Pottery Neolithic Burials. Pp. 395-456 in K. M. Kenyon and T. Holland (eds.), *Excavations at Jericho.* Vol. 3. London: The British School of Archaeology in Jerusalem.

Crowfoot-Payne, J. 1983. The Flint Industries of Jericho. Pp. 622-759 in K. M. Kenyon and T. A. Holland, *Excavations at Jericho.* Vol. 5. London: British School of Archaeology in Jerusalem.

Ferembach, D. and Lechevallier, M. 1973. Découverte de deux cranes sumodeles dans une habitation du VIIeme millénaire a Beisamoun, Israel. *Paléorient* 1(2): 223-230.

Fiedel, S. J. 1979. *Intra and Inter-Cultural Variability in Mesolithic and Neolithic Mortuary Practices in the Near East.* Unpublished Ph. D. Dissertation. Ann Arbor Microfilm.

Garfinkel, Y. 1987a. Bead Manufacture on the Pre-Pottery Neolithic B Site of Yiftahel. *MiteKufat Haeven, Journal of the Israel Prehistoric Society* 20: 79-90.

____1987b. Yiftahel: A Neolithic Village from the Seventh Millennium B.C. in Lower Galilee, Israel. *Journal of Field Archaeology* 14(2): 119-212.

Garrard, A., Betts, A., Byrd, B. and Hunt, C. 1987. Prehistoric Environment and Settlement in the Azraq Basin: An Interim Report on the 1985 Excavation Season. *Levant* 19: 5-26.

Gebel, H. G. 1988. Late Epipaleolithic-Aceramic Neolithic Sites in the Petra Area. Pp. 67-100 in A. N. 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.

____1992. *Neolithic Ain Jammam, Near Ras an-Naqb.* Unpublished Report Submitted to the Department of Antiquities of Jordan, Amman.

Gebel, H. G. and Bienert, H-D. 1997a. Excavations at Baja, Greater Petra Area, Southern Jordan. *Neo-Lithics: A Newsletter of Southwest Asian Lithics Research* 1/97: 9-11.

____1997b. The 1997 Season at Baja, Southern Jordan. *Neo-Lithics: A Newsletter of Southwest Asian Lithics Research* 3/97: 14-18.

Gebel, H. G. and Bienert, H-D. *et al.* 1998. Baja Hidden in the Petra Mountains. Preliminary Results of the 1997 Investigations. In H. G. Gebel, Z. Kafafi and G. O. Rollefson (eds.), *The Prehistory of Jordan, II. Studies in Early Near Eastern Production, Subsistence and Environment.* Vol.4. Berlin: Ex Oriente.

Gebel, H. G. and Starck, J. M. 1985. Investigations in the Stone Age of the Petra Area (Early Holocene Research): A Preliminary Report on the 1984 Campaign. *ADAJ* 29: 89-114.

Gebel, H. G., Muheisen, M. and Nissen, H. 1988. Preliminary Report on the First Season of Excavation at the Late Aceramic Neolithic Site of Basta. Pp. 101-134 in A. N. 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.

Gopher, A., Goring-Morris, A. and Gordon, D. 1994. Nahal Issaron: The Lithics of the Late PPNB Occupation. Pp. 479-494 in H. G. Gebel and S. K. Kozlowski (eds.), *Neolithic Chipped Stone Industries of the Fertile Crescent. Studies in Early Near Eastern Production, Subsistence and Environment* 1. Berlin: Free University of Berlin.

Goring-Morris, N. 1991. A PPNB Settlement at Kfar Hahoresh in Lower Galilee: A Preliminary Report of the 1991 Season. *Mitekufat Haeven, Journal of the Israel Prehistoric Society* 24: 77-101.

Goring-Morris, N. and Gopher, A. 1983. Nahal Issaron: A Neolithic Settlement in the Southern Negev. *IEJ* 33: 149-162.

Hauptmann, A. 1991. From the Use of Ore to the Production of Metal. In J. P. Mohen (ed.), *Decouverte du Metal.* Paris: Picard.

Hershkovitz, I. and Gopher, A. 1993. Paleodemography, Burial Customs and Food-Producing Economy at the Beginning of the Holocene: A Perspective from the Southern Levant. *Mitekufat Haeven, Journal of the Israel Prehistoric Society* 23: 9-47.

Hershkovitz, I., Bar-Yosef, O. and Arensburg, B. 1994. The Pre-Pottery Neolithic Populations of South Sinai and Their Relations to Other Circum-Mediterranean Groups: An Anthropological Study. *Paléorient* 20(2): 59-84.

Kenyon, K. 1954. Jericho, Oldest Walled Town. *Archaeology* 7: 2-8.

____1956a. Jericho and its Setting in Near Eastern History. *Antiquity* 30: 184-197.

____1956b. Excavations at Jericho 1956. *PEQ*: 67-82.

____1957. *Digging up Jericho.* New York: Frederich A. Praeger.

____1959. Earliest Jericho. *Antiquity* 33: 5-9.

____1979. *Archaeology in the Holy Land.* London: Ernst Benn Limited.

Kenyon, K. and Holland, T. 1981. *Excavations at Jericho.*

Vol.3. London: The British School of Archaeology.

Kirkbride, D. 1960. The Excavation of a Neolithic Village at Seyl Aqlat, Beidha Near Petra: Interim Report. *PEQ*: 136-145.

Kirkbride, D. 1962. Excavations of the Pre-Pottery Neolithic Village at Seyl Aqlat, Beidha. *ADAJ* 6/7: 7-12.

Kirkbride, D. 1966. Five Seasons at the Pre-Pottery Neolithic Village of Beidha in Jordan. *PEQ*: 8-72.

____1967. Beidha 1965: An Interim Report. *PEQ*: 5-13.

____1968. Beidha: Early Neolithic Village Life South of the Dead Sea. *Antiquity* 42: 263-274.

____1978. The Neolithic in Wadi Rumm: Ain Abu Nekheilah. Pp. 1-10 in R. Moorey and P. Parr (eds.), *Archaeology in the Levant: Essays for Kathleen Kenyon.* Warminster: Aris and Phillips.

Kurth, G. and Rohrer-Ertl, O. 1981. On the Anthropology of the Neolithic to Chalcolithic Human Remains from the Tell es-Sultan in Jericho, Jordan. Pp. 407-499 in K. M. Kenyon and T. A. Holland (eds.), *Excavations at Jericho.* Vol.3. London: British School of Archaeology in Jerusalem.

Lechevallier, M. 1978. *Abou-Gosh et Beisamoun: deux gisements du VII milleniare avant l'ere chretienne en Israel. Memoires et travaux de recherches préhistoiriques Français de Jerusalem,* no. 2. Paris: Association Paléorient.

van Loon, M. 1966. First Results of the 1965 Excavation at Tell Murybet Near Meskene. *Les Annales Archéologiques Arabes Syriennes* 16: 211-217.

____1968. The Oriental Institute Excavations at Mureybet, Syria: A Preliminary Report on the 1965 Campaign, Part 1: Architecture and General Finds. *Journal of Near Eastern Studies* 27: 265-290.

Mahasneh, H. 1989. *The Settlement Patterns in the Levant During the Neolithic Period.* Unpublished Ph. D. Dissertation Submitted to the University of Pennsylvania, Philadelphia, PA. USA.

____1996. Es-Sifiya: A Pre-Pottery Neolithic B Site in Wadi el-Mujib, Jordan. *Dirasat, The Journal of the University of Jordan* 23(1) : 135 - 151.

____1997a. A PPNB Settlement at Es-Sifiya in Wadi el-Mujib. Pp. 227-234 in *SHAJ* 6. Amman: The Department of Antiquities of Jordan.

____1997b . The 1995 Season at the Neolithic Site of Es-Sifiya, Wadi Mujib, Jordan. In H. G. Gebel, Z. Kafafi and G. O. Rollefson (eds.), *The Prehistory of Jordan, II. Studies in Early Near Eastern Production, Subsistence and Environment.* Vol. 4. Berlin: Ex Oriente.

____1998. Spatial and Functional Features of Area B in Es-Sifiya. In H.G. Gebel and H-D. Bienert (eds.), Symposium: Central Settlements in Neolithic Jordan. *Studies in Early Near Eastern Production, Subsistence and Environment.* Vol. 5. Berlin: Ex Oriente.

Marks, A. and Scott, T. 1976. Abu Salem: Type Site of the Harifian Industry of the Southern Levant. *Journal of Field Archaeology* 3: 43-60.

Mellaart, J. 1961. Excavations at Hacliar: Fourth Preliminary Report, 1960. *Anatolian Studies* 11: 39-75.

____1962. Excavations at Catal Huyuk: First Preliminary Report, 1961. *Anatlian Studies* 12: 41-65.

____1964. Excavations at Catal Huyuk 1963: Third Preliminary Report . *Anatolian Studies* 14: 39-119.

____1970. *Excavations at Hacilar.* Edinburgh.

____1975. *The Neolithic of the Near East.* London: Thames and Hudson.

Moore, A. 1975. The Excavation at Tell Abu Huryra. *Les Annales Archéologiques Arabes Syriennes* 25: 115-127.

____1978. *The Neolithic of the Levant.* Unpublished Ph. D. Dissertation Submitted to Oxford University.

Mortensen , P. 1970. Preliminary Study of the Chipped Stone Industry from Beidha: An Early Neolithic Village in Southern Jordan. *Acta Archaeologica* 41: 1-54.

Muhly, J. 1973. Copper and Tin: The *Distribution of Mineral Resources and the Nature of the Metals Trade in the Bronze Age.* New Haven: The Connecticut Academy of Arts and Sciences.

Najjar, M. 1992. Tell Wadi Feinan/Wadi Araba: A New Pottery Neolithic Site from Jordan. Pp. 19-28 in S. Kerner (ed.), *The Near East in Antiquity: German Contributions to the Archaeology of Jordan, Palestine, Syria, Lebanon and Egypt.* Vol. 3. Amman: Al-Kutba Publishers.

____1994. Ghwair 1, A Neolithic Site in Wadi Feinan. Pp. 75-86 in S. Kerner (ed.), *The Near East in Antiquity: German Contributions to the Archaeology of Jordan, Palestine, Syria, Lebanon and Egypt.* Vol. 4. Amman: Al-Kutba Publishers.

Najjar, M., Abu Dayya, A., Suleiman, E., Weisgerber, G. and Hauptmann, A. 1990. Tell Wadi Feinan: The First Pottery Neolithic Tell in the South of Jordan. *ADAJ* 34: 27-56.

Nissen, H. 1990. Basta: Excavations of 1986-1989. Pp. 87-94 in S. Kerner (ed.), *The Near East in Antiquity: German Contributions to the Archaeology of Jordan, Palestine, Syria, Lebanon and Egypt.* Vol. 1. Amman: Al-Kutba Publishers.

Nissen, H., Muheisen, M. and Gebel, H. G. 1987. Report on the First Two Seasons of Excavations at Basta (1986-1987). *ADAJ* 31: 79-120.

____1991. Report on the Excavations at Basta 1988. *ADAJ* 35: 13-40.

Noy, T., Legge, A. and Higgs, E. 1973. Recent Excavations at Nahal Oren, Israel. *Proceedings of the Prehistoric Society* 39: 75-99.

Ozbek, M. 1976. Étude anthropologique d'ossements humains neolithiques du VIII millenaire a.c. provenant de Mureybet, Syrie. *Les Annales Archéologiques Arabes Syriennes* 26: 161-180.

Pecontal-Lambert, A. 1987. Approche éthnologique d'un aspect du comportement (magico-religleu) de néolithiques du Proch-Orient. *Paléorient* 3: 15-26.

Perrot, J. 1960. Excavations at Eynam (Ein Mallaha). Preliminary Report on the 1959 Season. *IEJ* 10: 14-22.

____1964. Les deux prémieres compagnes de fouilles a Munhata (1962-1963): Prémieres resultats. *Syria* 41: 223-345.

____1966a. La troisieme campagne de fouilles a Munhata (1964). *Syria* 43: 49-63.

____1966b. Le gisement Natoufien de Mallaha (Eynan), Israel. *l'Anthropologie* 70: 437-483.

____1967. Abu Ghosh. *IEJ* 17: 266-267.

Perrot, J., Ladiray, D. and Soliveres-Massei, O. 1988. Les hommes de Mallaha (Eynan). *Mémoires et Travaux du C.R.F.J.*, 7. Paris: Association Paléorient.

Raikes, T. D. 1980. Notes on Some Neolithic and Later Sites in the Wadi Araba and the Dead Sea. *Syria* 41: 223-345.

Rollefson, G. 1983. Ritual and Ceremony at Neolithic Ain Ghazål (Jordan). *Paléorient* 9 (2): 29-38.

____1984. Ain Ghazal: An Early Neolithic Community in Highland Jordan. *BASOR* 255: 3-14.

____1986. Neolithic Ain Ghazal (Jordan): Ritual and Ceremony. *Paléorient* 12(1): 45-51.

Rollefson, G. and Simmons, A. 1985. The Early Neolithic Village of Ain Ghazal, Jordan: Preliminary Report on the 1983 Season. *BASOR* Supplement 23: 35-52.

____1986. The Neolithic Village of Ain Ghazal, Jordan: Preliminary Report on the 1984 Season. *BASOR* Supplement 24: 145-164.

____1987. The Life and Death of Ain Ghazal. *Archaeology* 40: 38-45.

____1988. The Neolithic Settlement at Ain Ghazal. Pp. 393-421 in A. N. Garrard and H. G. Gebel (eds.). *The Prehistory of Jordan: The State of Research in 1986.* British Archaeological Reports - International Series 396(2): 393-421. Oxford: B.A.R.

Rollefson, G., Kafafi, Z. and Simmons, A. 1989. The 1988 Season at Ain Ghazal: Preliminary Report. *ADAJ* 33: 9-26.

Schick, T. 1988. A Neolithic Cult Headdress from the Nahal Hemar Cave. *The Israel Museum Journal* 7: 25-33.

Schirmer, W. 1988. Zu den Bauten des Cayonu Tepesi. *Anatolia* 15: 130-159.

Simmons, A., Kafafi, Z., Rollefson, G. and Moyer, K. 1989. Test Excavations at Wadi Shueib, a Major Neolithic Settlement in Central Jordan. *ADAJ* 33: 27-42.

Simmons, A., Boulton, A., Butler, C., Kafafi, Z. and Rollefson, G. 1990. A Plastered Skull from Neolithic Ain Ghazal, Jordan. *Journal of Field Archaeology* 17: 107-110.

Singh, P. 1974. *Neolithic Cultures of Western Asia.* New York: Harcourt Brace Jovanovich.

Strouhal, E. 1973. Five Plastered Skulls from the Pre-Pottery Neolithic B Jericho: Anthropological Study. *Paléorient* 1(2): 231-247.

Talbot, G. 1983. Beads and Pendants from the Tell and Tombs. Pp. 788-801 in K. M. Kenyon and T. A. Holland (eds.), *Excavations at Jericho.* Vol. 5. London: British School of Archaeology in Jerusalem.

Waheeb, M. 1996. Archaeological Excavations at Ras an-Naqab-Aqaba Road Alignment: Preliminary Report (1995). *ADAJ* 40: 339-348.

Watkins, T. 1992. The Beginning of the Neolithic: Searching for Meaning in Material Culture Change. *Paléorient* 18(1): 63-75.

Wheeler, M. 1983. Green Stone Amulets. Pp. 781-787 in K. M. Kenyon and T. A. Holland (eds.), *Excavations at Jericho.* Vol. 5. London: The British School of Archaeology in Jerusalem.

Yakar, R. and Hershkovitz, J. 1988. Nahal Hemar Cave: The Modelled Skulls. *Atiqot* 18: 59-63.

Alan H. Simmons
University of Nevada at Las Vegas
Department of Anthropology
Las Vegas, Nevada
USA

Alan H. Simmons

Core and Periphery Models during the Neolithic – Is the Analogy Appropriate?

The theme of this volume is Jordan through the millennia. When viewing the prehistoric past, a thousand years may not seem to be a great deal of time. But as the millennia progress towards the present, major human events unfolded at a quickening pace. One can reasonably argue that those few short millennia during which the transformation from hunting and gathering to food production, or the so-called "Neolithic Revolution," occurred was one of the most significant events in human evolution. This event set the stage for subsequent cultural development not only in Jordan, but ultimately throughout the western world.

If we change our time focus from millennia to decades, the past twenty years have witnessed another "Neolithic Revolution" in a sense, one that involves our unraveling of Neolithic archaeology. There has been a tremendous acceleration of research on Neolithic settlements in Jordan that has radically changed our comprehension of this complex period. Our previous understanding of the Neolithic was relatively simple: there were "big" sites, like Jericho, representing regional centers; and there were "little" sites, like Bayḍa, representing much smaller villages. Contemporary research, however, has greatly complicated the situation.

Our current conception of the Neolithic has changed dramatically as a result of investigations at many huge settlements that dwarf even Jericho. These include 'Ayn Ghazāl (Rollefson *et al.* 1992; Simmons *et al.* 1988), Wādī Shu'ayb (Simmons *et al.* 1989), Basṭa (Nissen 1990; Nissen *et al.* 1991), 'Ayn Jammān (Waheeb and Fino 1997), and aṣ-Ṣifiya (Mahasneh 1997). At the same time, new research at more modest communities, such as al-Ghuwayr I (Simmons and Najjar 1996; 1998) or Ba'ja (Bienert 1997), has also demonstrated that an incredible amount of settlement diversity characterized the Neolithic. We have enough data now that the time is ripe to examine the Neolithic from a regional perspective. There are many ways in which to do so, and in this paper, I present an initial attempt that looks only at one issue, the relationship between the huge "mega-sites" and the smaller communities. In particular, I wish to examine if the theoretical framework known as "core and periphery" is an appropriate model with which to characterize the Neolithic.

First, however, some background is necessary. The large Jordanian settlements have drastically modified our view of the Levantine Neolithic. These centers were different that those closer to the Mediterranean coast, and, falling slightly outside of the so-called "Levantine Corridor" (cf. Bar-Yosef and Cohen 1989; Bar-Yosef and Meadows 1995), probably represented unique desert-edge adaptations. They generally flourished and expanded during the late Pre-Pottery Neolithic B, often contain a transitional Pre-Pottery Neolithic C phase, and then continue, often in a "downscaled" version, into the Pottery Neolithic, after which they are abandoned (Simmons 1995; 1997). Reasons for the abandonment are undoubtedly complex, but compelling arguments have been made that the residents of these enormous settlements mismanaged farming and herding activities to the point of creating ecological chaos. An adaptive response was for some people to move to desert areas and adopt a nomadic lifestyle, while others remained at the large settlements and continued farming until this, too, was no longer viable (Köhler-Rollefson 1988, 1992; Köhler-Rollefson and Rollefson 1990; Rollefson 1997). In a sense, this probably represents the genesis of the classic Near Eastern economic dichotomy between the "desert and the sown."

In addition to large settlements, numerous small sites are known throughout the Levant, and many occur in the more marginal environments of the southern and eastern deserts (Bar-Yosef 1981, 1984; Betts 1990; Garrard *et al.* 1994, 1996; Simmons 1980, 1981). Some of the southern sites are small villages, while others probably reflect logistical camps away from villages, "Neolithic" hunter-gatherer populations, or farmer/pastoralists. Such small sites have prompted some researchers to claim that the Neolithic adaptation in the semi-arid zones was character-

ized by seasonally-mobile hunters and gatherers, or by Neolithic groups making use of a "pastoral package" (Garrard *et al.* 1996:221).

It is clear that some very interesting and highly variable events were occurring during the Neolithic in Jordan. One thing I find curious is that there seems to be a relative lack of Neolithic diversity in central and northern Jordan, where large, nearly "urbanized" communities appear to be the normal adaptation, and smaller sites seem to be rarer. This is in contrast to the south, where in addition to numerous small sites, recent work has also uncovered very large settlements. This, of course, argues against a simple seasonal occupation of the south. In the eastern deserts, however, small sites seem to be the only type present.

It is likely that the roots of what Karl Butzer (1996) has termed the "Mediterranean Agrosystem" were established during this time. During the Neolithic, many profound social changes occurred that had important consequences for the subsequent emergence of civilization in the Near East. The Neolithic witnessed the first true experiment with prolonged communal living, the establishment of sedentary communities, and the inevitable increasing of social complexity. At large "urban" settlements, at least those in central Jordan, intense farming and herding activities had major ecological impacts that required the reorientation of social structure towards the end of the Neolithic. Can such a pattern be documented at smaller settlements located in different environments? Indeed, one may well ask what was the relationship between the large communities and their smaller counterparts? Was there, in fact, a relationship at all, or where these groups of Neolithic peoples unaware of each other's existence?

It was with these sorts of questions in mind that a recently initiated project at al-Ghuwayr I, a small but exceptionally well-preserved PPNB village in the remote Wādī Faynān of southern Jordan, was undertaken (Simmons and Najjar 1997; 1998). While the results of this interdisciplinary study are on-going, the following discussion addresses the types of questions being asked of al-Ghuwayr I and its relationship within a wider Neolithic world.

To fully explain the diversity represented in the Neolithic record of Jordan, we need to focus on the linkage of several complementary research domains. These include social and economic distinctions and possible trade relationships between small "rural" and large "urban" settlements; ecological impacts and their affect upon society; chronological trajectories of village development; and paleoenvironmental reconstruction. In the remainder of this paper, I examine only the first of these issues, exploring potential interactions between some of the large core centers and smaller rural settlements.

The "core/periphery" model, developed from Emmanuel Wallerstein's (1974) World System Theory, has been applied to many complex post-Neolithic societies with considerable success, with the realization that some aspects of it, especially relations of consumption, trade, and dependency, may be appropriate in pre-modern contexts. Guiermo Algaze's (1986, 1989) conceptualization of the Uruk expansion in Mesopotamia is one compelling use of ancient core/periphery models. He proposed that during the fourth millennium BC, highly integrated southern Mesopotamian core Urukian societies had established a system of interaction tying their resource-deficient homeland with the resource-rich, but less-developed, highland periphery. He felt this was an early example of a "world system" based on asymmetrical exchange and on hierarchically organized divisions of labor that played a major role in urban expansion and emergent social complexity. Archaeologically, the Uruk expansion included small and strategically located settlements whose primary function was to control the flow of resources into the core area. Resources consisted of both essential unprocessed materials and rare, exotic materials, necessary for the maintenance of social and political relationships within elite groups.

We might ask if a modified core/periphery model is applicable to earlier, Neolithic societies as well, which may have lacked the economic, organizational, and social elaboration necessary to ensure continual interaction between core centers and peripheral communities. After all, the Neolithic represents the first experimentation with full-time community living. There simply may not have been the need for elaborate interaction systems within the still relatively low population densities that characterized the Neolithic. But, if a modified core/periphery model can be applied, what would the archaeological reflection be? Already, if the pattern observed in central Jordan is correct, we have seen that the large core settlements there apparently did not support smaller local satellite sites, while in the eastern desert, large communities appear absent. But, in the south, both large and small settlements existed. Can using a core/periphery approach help us to better comprehend the social complexities that may have emerged during the Neolithic?

Much of the core/periphery distinction revolves around an economic framework. A system of tribute and redistribution is critical, with primary producers often creating surpluses. Such surpluses were then redistributed from centralized communities through an elaborate system of trade. Often, a pattern of unequal exchange and exploitation between core and periphery develops, with the core communities largely being beneficiaries of "elite" commodities at the expense of smaller rural settlements. Within this model, there often is at least an implied dependency relationship as well. While this can be a highly

successful system, it also can ultimately lead to destabilization, and could have been particularly acute in the face of deteriorating climatic conditions. Thus, the core\periphery model could be a potentially powerful interpretative device for critically examining the Jordanian Neolithic, and might help explain the diversity of site types observed, for at least southern Jordan.

This does not mean that we can completely transplant a core\periphery model to the Neolithic. There are clearly aspects of a such a model that will *not* be appropriate for the Neolithic. For example, it is unlikely that it will be possible to identify core-originated Neolithic "enclaves" as opposed to indigenous Neolithic development. The distinctive ceramics that allowed Algaze to identify Uruk components in peripheral areas are, of course, lacking during the Pre-Pottery Neolithic. Diagnostic artifacts, such as projectile points, may indicate regional linkages, but such arguments are tentative. Architecture is perhaps more sensitive, but this remains to be demonstrated. Furthermore, given the lack of written records, episodes of conquest or colonization would be difficult to precisely identify; indeed, there is relatively little evidence for conflict during the Neolithic.

We might, however, more profitably be comfortable with the distinctions simply between large, "urban" settlements, and smaller, "rural" communities rather than true core/periphery models. Settlements such as 'Ayn Ghazāl, Wādī Shu'ayb, and Baṣṭa might be considered core sites, while many including al-Ghuwayr I, would fall within the category of smaller, rural or peripheral settlements.

It is likely that the emergence of territorality during the Neolithic was based on competition for scarce resources amongst increasingly expanding groups (Bar-Yosef and Meadows 1995:80-82). Thus, it is possible that with the establishment of both large and small settlements, the requirement for some sort of centralized redistribution based on trade goods and economic surplus may have developed. It is unlikely that true dependency relationships existed at this early stage. More likely, settlements arose independently, and self-sufficiently, in a wide variety of environmental settings, producing their own essential materials. Such settlements, however, may have participated in wide-spread trade of exotic materials. While we cannot claim that the large Neolithic communities were located in resource-depleted areas, as during the Uruk, it is known that exotic commodities occur at many Neolithic "core" settlements. These include materials from southern Jordan, such as bitumen, Red and Mediterranean Sea shell, and malachite or turquoise (cf. Rollefson *et al.* 1992).

What is clearly needed in this new level of Neolithic research is to start looking at the Levantine Neolithic from a broad, regional orientation. In particular, an examination of where large and small sites occur on the landscape is necessary. While lacking the major riverine resources of Mesopotamia, there are abundant wadi systems in the Levant that were major trade routes during later, post-Neolithic times. Perhaps the same was true during the Neolithic. We know that the Wādī Faynān served as a major trade route for copper as early as the Chalcolithic (Hauptman 1990); were small Neolithic sites such as al-Ghuwayr I part of even an earlier trade network? Certainly al-Ghuwayr I's location on a hillslope overlooking a major wadi that originates in the Jordanian Plateau uplands and drains to the Mediterranean suggests a strategic positioning appropriate for a "highway of commerce." Of course, this proposition requires refinement: these wadis are east-west running, while commerce with some core settlements such as 'Ayn Ghazāl or Jericho would have been north-south oriented. The Arava, however, to which the Wādī Faynān drains, would have been an ideal north-south corridor.

A simple distinction, however, between "large" and "smaller" sites is an unsatisfactory explanatory device. There is growing evidence suggesting that regional hierarchies, social stratification, and wealth differentiation existed during the Neolithic, especially at large settlements (e.g., Bar-Yosef and Meadows 1995:73-82; Garfinkel 1987; Kuijt 1995; Rollefson 1986). One might ask if the smaller communities were only frontier outposts, perhaps of limited complexity, or if they represented smaller "elite" villages that also enjoyed many of the benefits of the larger, more urban, settlements. This type of contemporary research has generated several questions relating to Neolithic complexity. These include the following. Is the use of "urban" for the core sites an appropriate analogy, or are we dealing more accurately with emerging chiefdoms? Did the smaller communities participate in a wider trade network with large settlements, and if so, to what degree? What was the range of interaction--were small southern sites engaged in trade with only the large souther sites, or did this network expand northward as well? Were the small sites as deeply affected by ecological degradation as at the larger communities? Do such smaller sites exhibit any social stratification and ceremonial elaboration? Can we see specific differences in material culture and burial patterns between the small and large sites? Did the smaller sites serve as intermediaries between settled villagers and Neolithic peoples who maintained hunting and gathering life styles? Finally, a still major issue is chronological: are the small and large sites contemporary components of the same settlement system, or were the small sites settled first, and then aggregated into the larger settlements?

In conclusion, although the Neolithic only covers a few millennia, which in terms of early prehistoric archaeology is not a huge amount of time, the very foundations for the subsequent development of civilizations occurred during this pivotal time. It is now becoming clear, as research

paradigms have progressed from description to explanation, and a new "Neolithic Research Revolution" emerges, that crucial issues relating to increasing social and religious complexity, as well as to fine-tuned adaptations to arid environments were being formulated during the Neolithic. By taking a "big picture" perspective that a regional focus can provide, researchers are certain to come away with a better comprehension of the incredible diversity and complexity that characterized the Neolithic. By understanding this, we will gain considerable insight into the remarkable cultural achievements that followed.

References Cited

Algaze, G. 1986. *Momentum Toward Empire in Early Mesopotamian Society*. Chicago, University of Chicago: Unpublished PhD dissertation, Department of Near Eastern Languages and Civilizations.

___ 1989. The Uruk Expansion: Cross-Cultural Exchange in early Mesopotamian Civilization. *Current Anthropology* 30:571-608.

Bar-Yosef, O. 1981. The "Pre-Pottery Neolithic" period in the southern Levant. Pp. 551-569 in J. Cauvin and P. Sanlaville (eds), *Prehistoire du Levant*. Paris, Colloques Internationaux du Centre National de la Recherche Scientifique, No. 598. Editions du Centre National de la Recherche Scientifique.

___ 1984. Seasonality Among Neolithic Hunter-Gatherers in Southern Sinai. Pp. 145-160 in J. Clutton-Brock and C. Grigson (eds), *Animals and Archaeology 3: Herders and Their Flocks*. Oxford,:British Archaeological Reports, International Series 202.

Bar-Yosef, O. and Belfer-Cohen, A. 1989. The Levantine "PPNB" Interaction Sphere. Pp. 59-72 in I. Hershkovitz (eds), *People and Culture in Change*. British Archaeological Reports, International Series 508, Oxford.

Bar-Yosef O. and Meadows, R. 1995. The origins of agriculture in the Near East. Pp. 39-94 in T. Price and A. Gebauer (eds), *Last Hunters, First Farmers*. Santa Fe: School of American Research Press.

Betts, A. 1990. The Pre-Pottery Neolithic in Eastern Jordan. *Paléorient* 15: 147-153.

Bienert, H. 1997. Ba'ja-Early Neolithic Settlers in the Petra Mountains. *Occident & Orient* 2: 2-4. Amman.

Butzer, K. 1996. Ecology in the Long View: Settlement Histories, Agrosystemic Strategies, and Ecological Performance. *Journal of Field Archaeology* 23: 141-150.

Garfinkel, Y. 1987. Burnt Lime Products and Social Implications in the Pre-Pottery Neolithic B. *Paléorient* 13: 69-76.

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: 73109.

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. Harris (ed.), *The Origins and Spread of Agriculture and Pastoralism in Eurasia*. London: University College London Press.

Hauptmann, A. 1990. The Copper Ore Deposit of Feinan, Wadi Araba: Early Mining and Metallurgy. *The Near East in Antiquity* 1: 53-62.

Kohler-Rollefson, I. 1988. The Aftermath of the Levantine Neolithic Revolution in Light of Ecologic and Ethnographic Evidence. *Paléorient* 14: 87-93.

___ 1992. A model for the Development of Nomadic Pastoralism on the Transjordanian Plateau. Pp. 11-18 in O. Bar-Yosef and A. Khazanov (eds), *Pastoralism in the Levant*. Madison, Monographs in World Archaeology No. 10, Prehistory Press. Madison.

Kohler-Rollefson, I. and Rollefson, G. 1990. The impact of Neolithic Subsistence Strategies on the Environment: the Case of 'Ayn Ghazāl, Jordan. Pp. 3-14 in S. Bottema, G. Entjes-Nieborg and W. Van Zeist (eds), *Man's Role in the Shaping of the Eastern Mediterranean Landscape*. Rotterdam, Balkema.

Kuijt, I. 1995. *New Perspectives on Old Territories: Ritual Practices and the Emergence of Social Complexity in the Levantine Neolithic*. Cambridge, Massachusetts, Harvard University: Unpublished PhD dissertation, Department of Anthropology.

Mahasneh, H. 1997. A PPNB Settlement at As-Sifiyya in Wadi Al-Mujib. Pp. 227-234 in *SHAJ* II. Amman: Department of Antiquities.

Nissen, H. 1990. Basta: Excavations of 1986-89. *The Near East in Antiquity* 1: 87-94.

Nissen, H., Muheisen, M. and Gebel, H. 1991. Report on the Excavations at Basta 1988. *ADAJ* 35: 13-40.

Rollefson, G.1986. Neolithic 'Ain Ghazal (Jordan): Ritual and Ceremony. *Paléorient* 15: 168-173.

___ 1997. The Neolithic Devolution: Ecological Impact and Cultural Compensation at 'Ain Ghazal, Jordan. Pp. 219-229 in J. Seger (ed), *Retrieving the Past*. Mississippi State, Mississippi, Cobb Institute of Archaeology.

Rollefson, G., Simmons, A. and Kafafi, Z. 1992. Neolithic Cultures at 'Ain Ghazal, Jordan. *Journal of Field Archaeology* 19: 443-470.

Simmons, A. 1980. *Early Neolithic Settlement and Economic Behavior in the Western Negev Desert of the Southern Levant*. Dallas, Southern Methodist University: Unpublished Ph.D. dissertation, Department of Anthropology.

___ 1981. A Paleosubsistence Model for Early Neolithic Occupation of the Western Negev Desert. *BASOR* 242:31-49.

___ 1995. Town Planning in the Neolithic—is 'Ain Ghazal "Normal?" Pp. 119-122 in *SHAJ* V. Amman: Department of Antiquities.

___ 1997. Landscape Archaeology and the Exploitation of Natural Resources in the Eastern Levant: a Neolithic Case Study. Pp. 245-248 in *SHAJ* VI Amman: Department of Antiquties.

Simmons, A. and Neolithic Najjar, M. 1996. Current Investigations at Ghwair I, a Neolithic Settlement in Southern Jordan. *Neolithics* 2/96. Berlin.

___ 1998. Preliminary Report of the 1997-98 Al-Ghuwayr I Excavation Season, Wadi Feinan, Southern Jordan. *Neolithics* 1/98: 5-7.

Simmons, A., Kafafi, Z., Rollefson, G. and Moyer, K. 1989. Test Excavations at Wadi Shu'eib, A Major Neolithic Setlement in Central Jordan. *ADAJ* 33: 27-42.

Simmons, A., Kohler-Rollefson, I., Rollefson, G., Mandel, R., and Kafafi, Z. 1988. 'Ain Ghazal: A Major Neolithic Site in Central Jordan. *Science* 240: 232-235.

Wallerstein, E. 1974. *The Modern World System*. New York, Academic Press.

Edward E. Banning
Univesity of Toronto
Department of Anthropology
100 St George Street
Toronto Ontario
Canada M5S 1A1

Edward E. Banning

Settlement and Economy in Wādī Ziqlāb during the Late Neolithic

It is surprising how little we really know about settlement and economy of either the Early or Late Neolithic in Jordan. Despite the intensity of research, as indicated in other papers in this volume, it is likely that we have discovered only a fraction of the sites, plant preservation is often poor, and, although we can talk about some of the plants and animals that were domesticated, we do not really know how their economies worked.

Unanswered questions include the following and many others. Did Neolithic communities use slash-and-burn agriculture, or simple irrigation, or crop rotation? How did they solve conflict between the demands of agriculture and pastoralism for land? What kind of social and political systems did they have? Were settlements all autonomous, or did groups of settlements form regional polities? We still cannot even be sure in most cases that Neolithic sites were occupied year-round, rather than seasonally.

Our work-in-progress in Wādī Ziqlāb cannot yet answer these questions, and what follows is necessarily somewhat speculative. I offer, if you will, some hypotheses based on the emerging patterns in our continuing fieldwork.

Changes in settlement density and distribution from the Late Pre-Pottery Neolithic B (LPPNB) to the Late Neolithic appear so abrupt that for many years there appeared to have been a complete settlement disruption in the late ninth millennium bp.[1] The further fact that many Middle and Late PPNB sites were abandoned and left unoccupied for more than a millennium led authors such as Kenyon (1957), Perrot (1968) and de Vaux (1966) to infer that the Mediterranean woodlands of the southern Levant were completely uninhabited until pottery-using immigrants recolonized them during the Late Neolithic. More recent research, especially in Jordan, now suggests that, in some parts of the southern Levant at least, occupation continued throughout the eighth millennium bp, but settlement pattern differed. Our understanding of the form of these differences remains unclear, with some authors suggesting that the relatively low obtrusiveness of eighth-millennium sites was due to a shift from settled agriculture to nomadic pastoralism (e.g., Köhler-Rollefson 1992) in the Mediterranean corridor. Our understanding of the reasons for the shift shows even less agreement, with explanations ranging from climatic change to anthropogenic deforestation (Rollefson and Simmons 1987; Simmons *et al.* 1988; Rollefson and Köhler-Rollefson 1989).

In Wādī Ziqlāb, in al-Kūra district of northern Jordan, research since 1981 has provided another source of evidence on how the structure of settlement systems may have changed over this time. They appear to indicate, not a shift to nomadic pastoralism, but a shift to a more dispersed pattern of agricultural farmsteads and hamlets, possibly to improve the balance between agricultural and pastoral landuse among sedentary mixed farmers. While it is premature to generalize these patterns, they also indicate possible directions for research in other parts of Jordan's Mediterranean regions, and provide a possible explanation for past difficulties in identifying eighth-millennium settlement.

Sketch of Neolithic Settlement in Wādī Ziqlāb

A combination of surface survey, sub-surface survey and guidance from local informants has led to the discovery of a number of confirmed, and several more possible Neolithic sites in Wādī Ziqlāb (Banning 1995; 1996; Banning *et al.* 1989; 1992; 1994; 1996; Field and Banning 1998).

Apart from a single al-Khiam point found at Ṭabaqat al-Būma (site WZ 200), the earliest confirmed evidence for the Neolithic in Wādī Ziqlāb to date comes from the site of 'Ayn Jahjah (WZ 120)[2] next to the spring of the same name in Wādī Ziqlāb's canyon on the confluence of

[1] All dates expressed in this paper will be in radiocarbon years bp unless sgown in brackets, in which case they are in calibrated years BCE, with 95% confidence intervals.

[2] Previous papers erroneously reported this site as 'Ayn Ṣabḥa, which is actualy the name of the spring on the opposite side of the canyon. A local guidebook unusually reports its name as Tall Anita.

Wādī 'Ayn at-Tays. An exposed section at this site shows LPPNB plaster floors founded on sterile sub-soil and associated with charcoal dated to 8430 ± 70 bp (7550-7305 BCE) and 8100 ± 70 bp (7290-6790 BCE). Deposits with occasional sherds showing Yarmoukian decoration immediately overlie the LPPNB stratum. It is difficult at present to estimate the size of the site, because deep overlying deposits and a pomegranate grove impede visibility, but it is probably the remains of a small village between 0.75 and 1.0 ha in size, occupied from about 8300 to about 7000 bp. We hope that excavations at this site in 1999 will help us to describe its settlement history more fully. If, as at 'Ayn Ghazāl and Wādī Shu'ayb, there is not break in settlement over this sequence, it would be one more case showing that, in the hill country of Jordan, at least, PPNB sites were not routinely abandoned at the end of the eighth millennium bp. Indeed, it is probably one more site founded in Late PPNB, and therefore possibly one of the locations colonized by people who abandoned one of the PPNB sites west of the Jordan River.

Subsurface survey in 1987 discovered site WZ 200 at Ṭabaqat al-Būma, farther up Wādī Ziqlāb's canyon at the confluence of its two most important tributaries, which provides our best evidence to date for the Late Neolithic in the valley. A series of small settlements at this site, each probably representing a farmstead, followed use of the site for some cist-graves, and the combination of radiocarbon dates and stratigraphy indicates occupation from some time probably in the late eighth millennium bp almost to the end of the seventh millennium (FIG. 2, and Blackham 1994; 1998).

The first phase of Neolithic use of the site is of uncertain date, but probably no later than 7000 bp, based on the dates of later phases. It began with the construction of at least two substantial cist graves, dug into earlier Epipalaeolithic deposits and covered with large stone slabs and, probably, earthen tumuli. One of these contained a number of intact and nearly intact vessels and a stone spindle whorl, along with the remains of two adult individuals. The other contained a subadult showing extreme bilateral enlargement of the tibia and proliferation of the endosteal surface, along with an infant wearing a shell necklace. Both histological and macroscopic examination of the tibiae suggests that the subadult suffered from a very early case of treponematosis, possibly bejel (endemic syphilis)(Shafiq 1996; Shafiq, Schultz and Banning n.d.). Interestingly, the vessels show some similarities to those of the Yarmoukian in the overall shape of the jars, but there are also important differences that we will probably understand better once Yarmoukian material from 'Ayn Jahjah becomes available for analysis.

Later in phase 1, two rectangular structures, of which little remains, were built on the site, apparently with levelling of the F34 grave tumulus.

By phase 2 (ca. 6600 bp; 5600 cal BC) the site constituted a small farmstead with one or two families and small-scale storage represented by a clay-lined silo in one building. Phases 3 (ca. 6500 bp) and 4 (ca. 6200 bp) show similar character, usually with two or three buildings in use at any one time, and domestic facilities such as stone platforms and a large mortar. Abandoned buildings were used as burial places, with small stone cists in phase 3 giving way to simpler burials in phase 4. The lithics of all phases are mainly unretouched flakes struck from single-platform cores, the relatively rare formed tools consisting mainly of denticulated sickle blades along with some scrapers and axes/adzes. The pottery of phases 2-3 consists mainly of simple, undecorated bowls and small or medium jars, some of which are probably cooking pots. Decoration, although rare, occurs on bowls and small jars, and is usually limited to a simple band of red-brown paint at the rim, with occasional bowls also showing groups of painted diagonals. By phase 4 we have incised and combed, and occasionally punctate, decoration, similar to that found at sites of the Wādī Raba complex farther west.

Only about 600m west of this site, site WZ 310 seems to have been founded not long before the abandonment of site WZ 200. The Late Neolithic material we have found there, however, has been redeposited above a series of EB I pits and against what appears to be the remnant of an EB I wall. It appears that a small Late Neolithic settlement, approximately contemporary with phase 4 at site WZ 200, that once lay upslope from our excavations has completely eroded away.

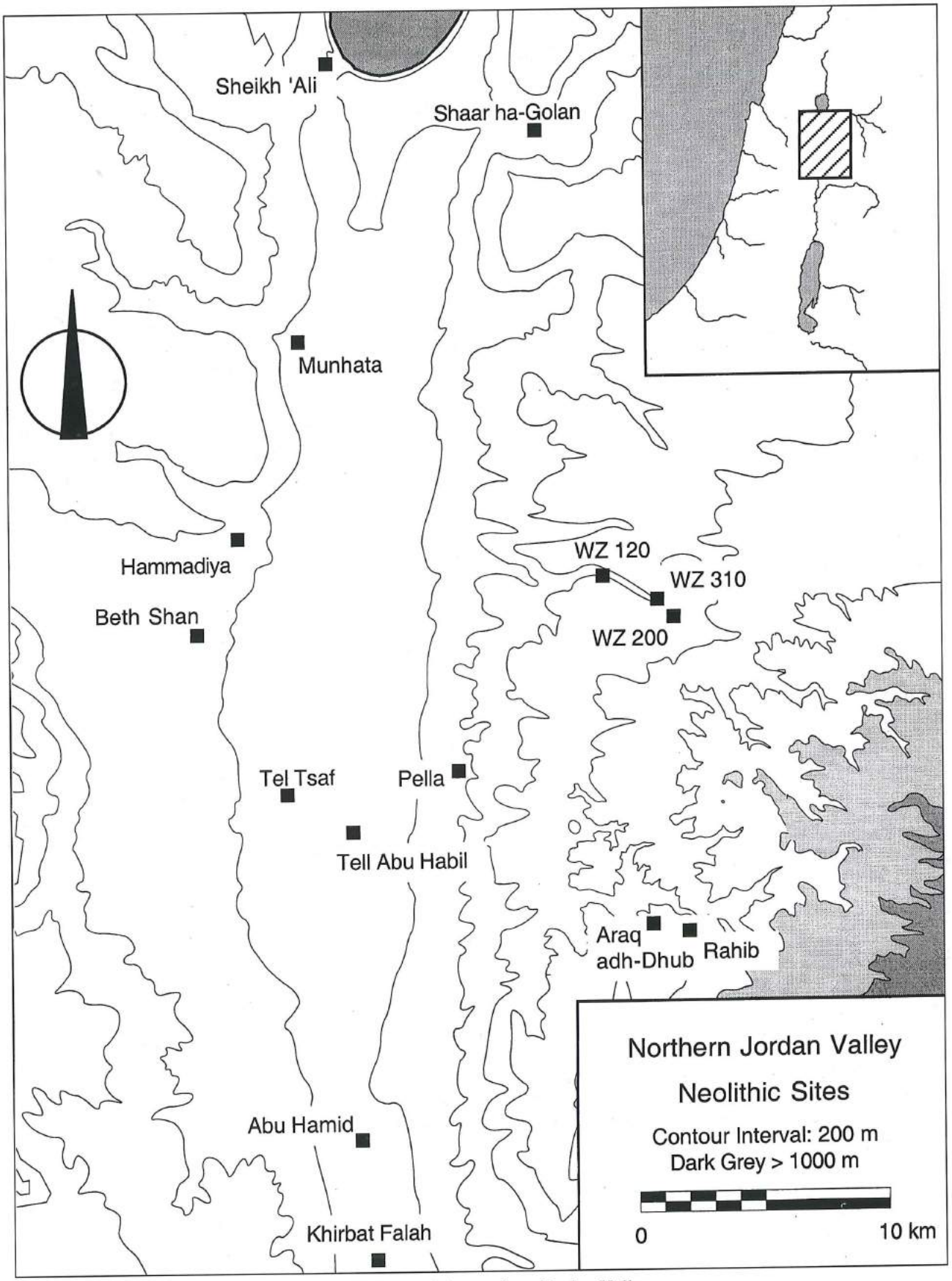
Other evidence that may belong to small Late Neolithic sites comes, like site WZ 310, from soundings with which we have sampled stream terraces along the central stretch of Wādī Ziqlāb and its major tributary, Wādī 'Ayn Sirin (Banning 1996). A few tantalizing artifacts from soundings at WZ 300, 301, 307 and 313 (the latter showing large numbers of cores) are not enough, however, for us to conclude that they represent settlement sites. They may instead represent extensive activities around sites WZ 200 and 310, such as flint quarrying and some flintknapping upslope of WZ 313.

The 1981 surface survey of Wādī Ziqlāb also recorded 18 rather unremarkable lithic scatters that did not include diagnostic formed tools, but could belong to the Late Neolithic. Unfortunately we cannot be sure of this, while it is also possible, once again, that they represent extensive activity rather than loci of settlement.

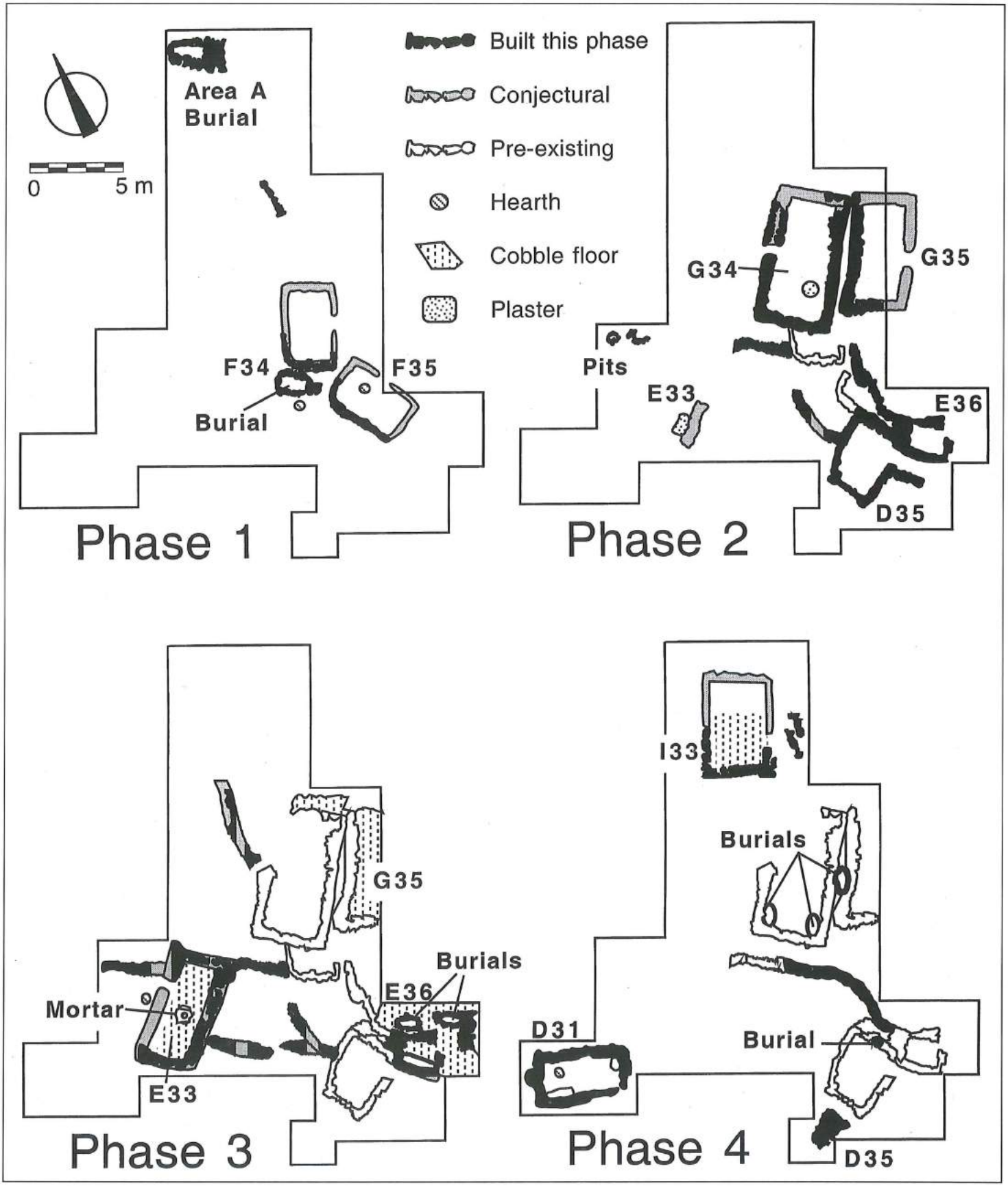
Models of Neolithic Settlement Systems

Our data and that from other Neolithic sites suggests the following possible scenario to account for differences in Late Neolithic settlement and economy different from those of the preceding Late PPNB.

Although PPNB sites vary a great deal in size and



1. Location Neolithic settlements in Wādī Ziqlāb and the northern Jordan Valley.



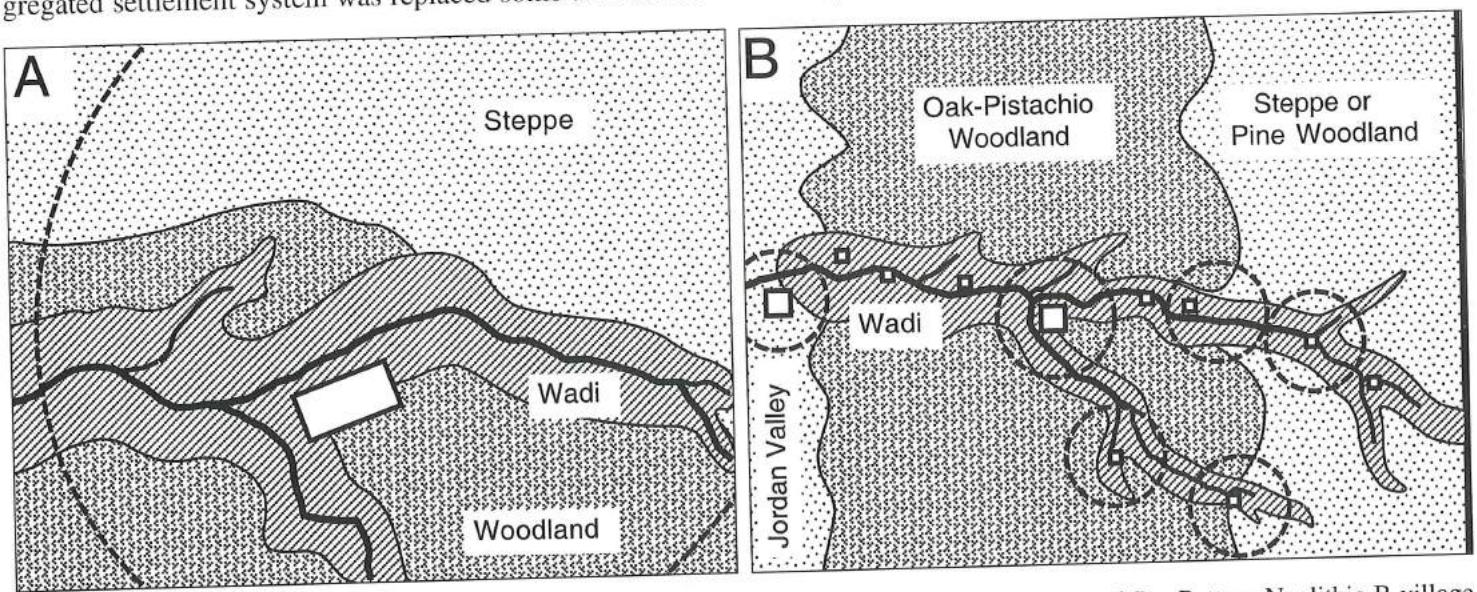
2. Four phases of construction at site WZ 200, Ṭabaqat al-Būma.

character, they may still be characterized as agglomerated settlements. They range in size from small villages to what some authors describe as "mega-villages" more than 10 ha in size, but even relatively small sites, such as Bayḍa, are rather densely built up with clusters of structures. This does not mean that there were no open spaces in PPNB settlements, but only that population densities were fairly high, households were adjacent to and probably shared many outdoor spaces with neighbouring households, and all settlements were made up of many families that were not necessarily close kin.

In addition, these agglomerations of settlement tend to be located on the lower slopes of hills, near major springs, often at stream confluences and near the ecotones between Mediterranean woodland and more steppic territories (FIG. 3a). This placed their inhabitants where they would have reasonably convenient access to timber and woodland game, such as deer, in one direction, steppe resources, including gazelle and onager, in another, and streamside resources, such as abundant water, poplar or tamarisk poles, reeds, and perhaps fish or wild boar, nearby. However, good agricultural land within close proximity to the settlement may have been rather limited. During Late PPNB, as agriculture and herding became quite important, villagers would have had to travel increasing distances to fields and pastures, as local population density probably exceeded the potential of the most conveniently located agricultural fields and pastures.

By contrast, Late Neolithic settlement in Jordan may have been much less aggregated. The interim evidence from Wādī Ziqlāb suggests the possibility that the aggregated settlement system was replaced some time in the eighth millennium bp by a more dispersed settlement system that may have been linear or dendritic in organization (FIG. 3b). The stream systems of wadi drainages may have provided the organizing principle for sets of generally smaller settlements, with farmsteads and small hamlets strung along the stream channels associated with villages that served as central places, even though they were usually much smaller than even average-sized PPNB villages. The inhabitants of many such small settlements in one wadi system may have thought of themselves as a single community, perhaps focussing its identity and ideology on a single village in the system where integrative rituals and other social activities perhaps took place. It is noteworthy, for example, that Late Neolithic village sites have yielded many distinctive human figurines, which may have been involved in these ceremonies or festivals, while farmsteads such as Ṭabaqat al-Būma apparently had no figurines at all.

A more dispersed, dendritic settlement system would have quite a number of advantages for an early mixed-farming society. Because settlement would be more evenly distributed on the landscape, there would be less competition for agricultural land, shorter distances to fields, and less conflict between agricultural and pastoral land use. Competition between agricultural and pastoral land use, furthermore, could be resolved by spacing and scheduling much more easily than when settlement was agglomerated. The fact that the wadis usually cross-cut micro-environments ranging from cooler highlands with mean annual rainfall around 500 mm to hot, drier alluvial fans in the Jordan Valley means that the extended community would be able to exploit directly a larger number



3. Idealized models of settlement location and catchment areas (broken circles) for (a) an aggregated Pre-Pottery Neolithic B village (white rectangle) near the ecotone between Mediterranean and Steppe territories, on a lower slope, and near a spring, and (b) for a "dendritic" Late Neolithic settlement system, with several small farmsteads and hamlets (white squares) dispersed along the banks of streams and associated with one or two small villages. Maps are not to scale, and real catchment areas would not be circular.

of resources than an agglomerated community of similar size. It would spread agricultural risk with different crops at different altitudes, and permit labour-sharing as harvests occurred earlier at lower elevations and later in the higlands. The wadis themselves provided easy communication between different parts of the settlement system, thus enabling sharing of labour and resources through intra-community exchange. Such a settlement system need not involve a hierarchy in the sense of any community controlling other communities — it could even have much the same social system as earlier prevailed in Late PPNB but spread out along wadis instead of concentrated in villages — except that one or two places would have been the focus for community activies, such as festivals and perhaps some kinds of exchange.

New Horizons

If the two models I have just presented bear any resemblance to reality, the question remains why such a change from an agglomerated to a dendritic settlement system should have occurred when and where it did. As it happens, the Neolithic was a time of many quite striking changes, and it is not difficult to see how some of these could have been interrelated with the changes in settlement.

Arguably the most important change was that, by the end of Late PPNB, agriculture and herding had almost completely displaced hunting and gathering as the subsistence base of the community. Faunal diversity, for example, decreased at the same time that dependence on domesticated animals increased markedly (e.g., Köhler-Rollefson *et al.* 1988). Risk of crop failure or poor health of herds may now have been a much greater concern than failure of a hunt. Presumably this meant that allocation of labour and other requirements of agriculture and herding began to take precedence over the requirements of hunting. For example, access to good gazelle-hunting territory would now be much less important than access to good farmland or pasture for goats. As we have seen, the latter was probably in short supply in the immediate vicinity of large PPNB settlements. A Late Neolithic farmstead such as Ṭabaqat al-Būma, by contrast, would have quite adequate pasture for about 200 goats on the hillsides around it, along with small fields on the stream terraces nearby adequate to produce wheat and legumes for one or two families. Spreading herds out like this not only eased pressure on pasture, but would have decreased the risk of disease transmission among the animals.

The new pre-eminence of food production in the subsistence economy, furthermore, would have a number of interesting implications. We might expect changes in the technology and organization of food storage, and indeed stone-lined pits begin to be common in the Late Neolithic (increasing further in the Chalcolithic). It is likely that there were changes in the technology of food preparation, including suddenly the widespread use of cooking pots and perhaps the invention of some new foods and beverages. The latter could have included yoghourt, cheese and beer, although we await good evidence of these introductions.

While the new settlement-economic system had many advantages, it also entailed new risks (Banning and Siggers 1998). Early farmers now so dependent on their crops and herds would have had to worry about crop failure, about pests ruining their stored crops, and about disease transmission among their herds. And a more dispersed settlement system might entail the risk that kin-based or other kinds of alliances might be more difficult to maintain at the same time that the other risks made such alliances as important as ever.

Some of the important changes that occurred in the Late Neolithic may have helped to curtail such risks. The suddenly widespread use of pottery, for example, may be seen in this light. Perhaps the most obvious explanation for pottery's rapid adoption would be to provide secure storage for grain, yet most of the pottery we find in Late Neolithic sites is not very suitable for this purpose. Rather than many large jars, we find mainly small jars and large numbers of bowls, almost all of which seem more likely to be involved in the preparation and serving of food. Given that we would expect a single large storage pithos to break into many more sherds than would several small jars and bowls, it is unlikely that this dearth of large jars is illusory, even if storage jars had a longer use-life. Some of the small forms that were probably serving dishes are also decorated. One possible explanation for this constellation of pottery is that networks of hospitality along the dendritic settlement system were important for maintaining social allegiances and spreading economic risks now that close kin and other allies could no longer be found literally next door. Cooking and serving food to visitors and field hands from homesteads farther upstream or downstream would reinforce social ties, impose future obligations, and allow accumulation of prestige.

Under this admittedly conjectural scenario, we could perhaps even find the origins of Jordanian hospitality in the turbulent changes that accompanied the end of Jordan's PPNB "mega-sites."

Acknowledgements

Neolithic research in Wādī Ziqlāb Project has been funded by the Social Sciences and Humanities Research Council of Canada and the University of Toronto. I would like to thank the Department of Antiquities of Jordan, then its director, Dr Ghazi Bisheh, and Hikmat Ta'ani, our representative at site WZ 200, and all our project members and volunteers, for helping make the project a success. Illustrations are by the author except FIG. 2, which is a

composite of drawings by the author, Mark Blackham, Mark Campbell and Morag Kersel.

Bibliography

Banning, E. B. 1995 Herders or Homesteaders? A Neolithic Farm in Wādī Ziqlāb, Jordan. *Biblical Archaeologist* 58(1): 2-13.

——1996 Highlands and lowlands: Problems and survey frameworks for rural archaeology in the Near East. *BASOR* 301: 25-45.

Banning, E. B., Dods, R. R. Field, J. Kuijt, I. McCorriston, J. Siggers, J. H. Ta'ani, and Triggs, J. 1992 Ṭabaqat al-Būma: 1990 excavations at a Kebaran and Late Neolithic site in Wadî Ziqlāb. *ADAJ* 36: 43-69.

Banning, E. B., Dods, R. R. Field, J. Maltby, S. McCorriston, J. Monckton, S. Rubenstein, R. and Sheppard, P. 1989 Wādī Ziqlāb Project 1987: a preliminary report. *ADAJ* 33: 43-58.

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 Wādī Ziqlāb. *Paléorient* 20(2): 151-64.

Banning, E. B., Rahimi, D. Siggers, J. and Ta'ani, H. 1996 The 1992 season of excavations in Wâdî Ziqlâb, Jordan. *ADAJ* 40: 29-49.

Banning, E. B., and Siggers, J. 1998 Technological strategies at a Late Neolithic farmstead in Wādī Ziqlāb, Jordan. Pp. 319-31 in H. G. Gebel, Z. Kafafi and G. O. Rollefson (eds), *Prehistory of Jordan* II. Berlin: Ex Oriente.

Blackham, M. 1994 *Chronological Correlations of Archaeological Stratigraphy: An Intrasite Test at Tabaqat al-Buma, Jordan.* Unpublished M.Sc. diss. University of Toronto.

—— 1998 Changing settlement at *Tabaqat al-Buma,* in Wādī Ziqlāb: A stratigraphic analysis. Pp. 345-60 in H.-G. Gebel, Z. Kafafi and G. Rollefson (eds), *Prehistory of Jordan* II. Berlin: Ex Oriente.

Field, J. and Banning, E. B. 1998 Hillslope processes and archaeology in Wādī Ziqlāb, Jordan. *Geoarchaeology* 13(6): 595-616.

Kenyon, K. M. 1957 *Digging up Jericho.* New York: Frederick A. Praeger.

Köhler-Rollefson, I. 1992 A model for the development of nomadic pastoralism on the Transjordanian Plateau. Pp. 11-18 in O. Bar-Yosef and A. Khazanov (eds), *Pastoralism in the Levant, Archaeological Materials in Anthropological Perspectives.* Monographs in World Archaeology No. 10 Madison: Prehistory Press.

Köhler-Rollefson, I., Gillespie, W. and Metzger, M. 1988 The fauna from Neolithic 'Ayn Ghazāl. Pp. 423-30 in A. Garrard and H. G. Gebel (ed.), *The Prehistory of Jordan.* BAR International Series 396 (ii) Oxford: British Archaeological Reports.

Perrot, J. 1968 *La Préhistoire Palestinienne.* Supplément au Dictionnaire de la Bible VIII. Supplément au Dictionnaire de la Bible VIII VIII, columns 286-446. Paris.

Rollefson, G. O., and Köhler-Rollefson, I. 1989 The collapse of early Neolithic settlements in the southern Levant. Pp. 73-89 in I. Hershkovitz (ed.), *People and Culture in Change*. BAR International Series 508 (i). Oxford: British Archaeological Reports.

Rollefson, G. O. and Simmons, A. H. 1987 The life and death of 'Ayn Ghazāl. *Archaeology* 40: 38-45.

Shafiq, R. N. 1996 *Investigation of a Late Neolithic Agriculturist Settlement in Northern Jordan.* Unpublished M.Sc. diss. University of Bradford.

Shafiq, R. N., Schultz, M. and Banning, E. B. n.d. Diagnosis of an early treponematosis in a Late Neolithic burial from Wādī Ziqlāb, Jordan. Unpublished.

Simmons, A., Köhler-Rollefson, I. Rollefson, G. O. Mandel, R. and Kafafi, Z. 1988 'Ayn Ghazāl: a major Neolithic settlement in central Jordan. *Science* 240: 35-39.

de Vaux, R.
1966 *Palestine during the Neolithic and Chalcolithic periods.* Cambridge Ancient History. Cambridge Ancient History fascicle 47. Cambridge: Cambridge University Press.

Susanne Kerner
Freie Universität Berlin
Institut für Archäologie
Germany

Susanne Kerner

Pottery Decoration as a Medium to Examine Specialised Production in the Sixth to Fourth Millennia BC

Periodiation and Chronology

The time period which is generally called the Chalcolithic still lacks a precise definition in terms of time, space and characteristics. A similarly complex discussion is concerned with the exact division between the Neolithic and Chalcolithic periods. This problematic time span, which is sometimes called Late Neolithic and sometimes Early Chalcolithic is represented by Wadi Rabah and related cultures. The division of the remaining Chalcolithic phases is also not undisputed.

The chronology in this article is based on an early, middle and late Chalcolithic phase.[1] The early phase is represented by the Wadi Rabah and similar cultures, the middle phase can be found in ash-Shaykh 'Alī and in Tsaf. Some of the middle levels in Tall Abū Ḥāmid and Tulaylāt al-Ghassūl also belong to this phase, but need further clarification. The Late Chalcolithic period is the classic Ghassulien, which includes the upper levels of Tulaylāt al-Ghassūl, most Negevite sites and other sites such as Abū Snaysla, Neve Ur, etc.[2]

It is not of essential importance, how a particular phase is called or even into which larger period it is slotted, but I would suggest that it is important to use more tools for the definition of a certain time period or phase than C14 dates or material evidence, or even *one* category of material evidence (e.g. a particular handle-shape), as most periods are still defined. Another way to come to a more conclusive picture of time periods would be to compare whole assemblages with other assemblages instead of pieces. A third possibility to arrive at a more precise level of definition might be through detailed research into the other sub-systems of a society. While the sub-system of material culture is generally well researched, the other sub-systems such as the political, social, religious or economic spheres remain largely undiscussed. Those possible comparisons are not meant to substitute the comparison of material evidence, but to complement it.

Specialisation

Definition of Specialisation

This approach to a definition of the Chalcolithic period deals with the economic sub-system, more precisely with the specialised production of craft goods and how this specialisation changed from the sixth to the fourth millennium BC. Several authors have claimed the existence of specialised production in the Late Chalcolithic for a number of different commodities like ivory-items,[3] stone-tools, stone-bowls,[4] metal-objects and not least pastoralism.[5] But most of these arguments are of a descriptive nature and do not explain the characteristics of specialisation. A possible definition of specialised production as it has been worked out by numerous ethnological and ethnoarchaeological investigations could be as follows: specialisation is viewed as a *regularised*, permanent, and perhaps institutionalised production system in which producers *depend* on extra-household exchange relationships at least in part for their livelihood, and consumers *depend* on them for acquisition of goods they do not produce themselves.[6]

Specialisation is not characterised by the following: Personal abilities of a person are not a sufficient criterion to define a specialist, a gifted artisan might be a craft person but he or she is not a craft specialist.[7] Specialised items are not necessarily characterised by intricate pat-

[1] A simple renaming of phases and particularly a different use of the term "late" does not seem to be a promising change of the periodisation.

[2] Late Neolithic: 6300-5500 BC, Early Chalcolithic: 5600/5500-5200/5100 BC, Middle Chalcolithic: 5100-4700/4600 BC, Late Chalcolithic: 4500-3700/3600 BC (Kener 1998.: Chapter 2).

[3] *"...they fit easily into the growing evidence for a specialist craft of ivory working in the Chalcolithic settlements of the Beersheba region."* (Moorey 1988: 182).

[4] *"However the basalt industry ventured very soon upon its own independent line of development as demonstrated by the variations of the legged bowls, so we may also assume the existence of specialized workshops"* (Amiran and Porat 1984: 13).

[5] *"...emergence of specialised pastoralism"* (Levy 1983; 1995).

[6] Arnold 1987; Costin 1991; Kerner 1998; Rice 1981.

[7] Arnold 1987: 2. If somebody produces one ivory-figure in one year, he or she is not necessarily a specialist.

terns of decoration as can be found on several of the maces found in Nahal Mishmar (Bar-Adon 1980), they are not necessarily beautiful and rare objects such as the wall-paintings at Tulaylāt al-Ghassūl (Koeppel *et al.* 1940; Mallon *et al.* 1934) or conspicuous objects like for example the basalt stands or pillars from the Golan (Epstein 1975; 1977), even very valuable material like the gold from Nahal Qanah (Gopher 1997) is not necessarily an item produced in specialised mode. It has been claimed for all those objects that they have been produced by specialists, but it has not been proven and might not be true for all of them.

Utilitarian and Prestige Items

All societies have a repertoire of utilitarian goods and more prestigious goods, which need to be treated differently. Utilitarian goods are produced in large numbers and are as much standardised and efficiently produced as possible, which is true for most utilitarian pottery. However, prestigious items which carry social meaning of importance for the society, are manufactured much more elaborately and with more care and labour. Prestige items are defined by their expensive material, by their elaborate, time-consuming and sometimes secret manufacture and by their elaborate decoration. Prestige items should also have a very distinctive distribution pattern, otherwise they would not be prestige-items, because a class of objects which are owned by everybody in a society can hardly express prestige in that society. Prestige-items look special because of the particular information-carrying capacity they have in the society, not because they are made by specialists. The complexity of the relationship between prestige-items and certain specialists, who produce them under the control of an elite cannot be discussed here.

The main aim of this article will be the analysis of utilitarian objects. While prestige-items are characterised by the effort invested in their production, utilitarian objects manufactured in a specialised mode are characterised by the efficiency and standardisation which are assigned to an artefact. And by far the best example of this efficiency and standardisation of the Chalcolithic period is pottery and in particular the very inconspicuous and everyday-item: the V-shaped bowl, which will be examined below.

Evidence for Specialisation

There are two possible sources of information about specialised production of pottery: direct evidence in the shape of wasters, firing installations (pits, kilns), scrapers, raw material (unworked clay, pigments) or stores with finished products. Nothing of that kind has been reported from chalcolithic sites.

Indirect evidence on the other hand is plentiful: growing efficiency of production and standardisation of the product. For pottery this is be expressed in standardised shapes, standardised surface treatment, standardised decoration and better quality of ware and form. For a really undeniable illustration of the change in all those categories and the amount of work which was invested in the production of a particular kind of fabric, it would be necessary to count the relevant information from either the entire pottery assemblage of a site or a statistically relevant section. Unfortunately this is still not the case in most projects and has certainly not been in the majority of the earlier excavations. So we are only left with trends and tendencies, which will be demonstrated in the following.

Early Pottery as a Case Study

There are three dimensions of pottery, which can be examined separately to describe and measure the different amount of work which went into the production of the pottery in question. The treatment of these different dimensions, fabric, shape and decoration, can than be compared during consecutive time-phases to reach a work-profile through time. The analysis will deal with Late Neolithic, Early Chalcolithic and Late Chalcolithic pottery of the Southern Levant and concentrate here on decoration.

Fabric

The pottery of the Late Neolithic is all hand-made and the crumbly quality of the fabric only supports simple shapes. The wares are not clearly defined; the impression is rather that these early potters experimented with clay, temper and their relationship; that several production events occured and each time a different mixture was used. The utilised materials are always local, while in the Early Chalcolithic partly non-local material might have been used. The Early Chalcolithic pottery shows also a slightly narrower fabric-definition.

In the Late Chalcolithic fabric definition is clear and unambiguous: nearly all sites have one or two major wares, which exist in a fine and a coarse version. And the correlation between certain fabrics and certain shapes is very high.[8] The shapes of V-shaped bowls in Pella and Tulaylāt al-Ghassūl are nearly identical, but despite this overall similarity chemical analysis has shown that mostly local materials were used for the pottery production. The important assumption is that pottery was produced on site from locally available material but shaped and decorated in an overall set of parameters. It is interesting to note that

[8] For example in Abū Maṭar and Ṣafadī: Ware 2 is used mainly for small vessels, ware 4 for even smaller and for some of the special vessels like cornets and ware 3 for bigger vessels (large bowls and jars). Looked at from the other direction, the relationship is even clearer: all big vessels in Abū Maṭar and Ṣafadī are made from ware 3 (100% of the holemouth jars), while ware 5 is utilized for special vessels: pots with nose-handles, big churns, small vases, cornets). Commenge-Pellerine 1987: fig. 11 and 1990: fig. 12.

several sites have imported and locally made pottery.

Shape

Late Neolithic pottery has few form-types with large individual variations in each type. This changes continuously through time and the Late Chalcolithic pottery has many different forms with little in-type variation. The form typology begins also with a high degree of diversity and ends with a high level of homogeneity in each type. The development in the forms of jars can be taken as a brief example: in the Late Neolithic one has jars with wide necks, in the Early Chalcolithic jars have everted necks, bow-rim and short cylindrical necks and in the Late Chalcolithic there are jars with three different neck types, jars with spouts, and bottles (as a special kind of jars).

In the Late Chalcolithic some of the shapes are highly specialised like cornets, fenestrated bowls, chalices and churns.[9] But together with these highly specialised items existed a wide range of less dramatic but nevertheless specifically made shapes. The "real" holemouth jars, hole-mouth-jars with large flaring rims, jars with necks and out-flaring rims, large storage jars, small cups, small V-shaped bowls, and large V-shaped bowls. The whole functional range is represented: individual, storage, and drinking vessels, cooking vessels, production and transportation vessels. The standardisation of vessel shapes also shows itself very strikingly in the beginning of the standardised size of vessels. The best example for this development is the V-shaped bowl: one group has between 8 and 15 cm diameter (with a heavy concentration between 10 and 13 cm) and is up to 9 cm high. A second group is between 16 and 24 cm diameter and 13 cm high and the largest group is over 30 cm diameter and around 15 cm high. The important point here is the fact that this is true both for bowls made on the turntable or wheel like in Tall Abū Ḥāmid and for hand-made bowls like in Abū Snaysla. One has to conclude that an overall idea of the "typical" shape and size of, certainly a small, V-shaped bowl existed. Holemouth jars and cornets also show a tendency towards a limited range of measurements.

The V-shaped bowls in particular seem to show an interesting trading pattern as well (Roux and Courty 1998). A certain amount of the small V-shaped bowls were most probably traded from the Negev to other places like Abū Ḥāmid. They were also exchanged in the Negev itself, mainly to Gilat, but also to other places (Alon and Levy 1989).

Decoration

One result of the research into specialised production was, that—concerning specialisation—decoration is the most telling of all the pottery properties. Decoration can be analysed in three ways: 1) the amount of decorated to undecorated pottery in different assemblages (from different time periods) can be compared; 2) the amount of necessary work for different kinds of decoration can be measured (an intricate incised pattern obviously needs much more labour than a simple painted band on the rim); and 3) the labour in one particular decoration technique can be measured in the amount of single, individual gestures, which are necessary to produce that decoration.

At Munḥaṭa, 13% of the *entire* Late Neolithic pottery is decorated (Garfinkel 1992), at Jericho ca. 10%, and at Abū Thawwāb ca. 20% (Kerner 1998: 234ff.). The Yarmukian pottery is often painted *and* incised or slipped *and* incised, therefore shows a considerable amount of labour per vessel. The decoration at Munḥaṭa consists nearly half of incised designs (herringbone and others), 20% is painted, and less than 40% is simply slipped. In the Early Chalcolithic period the percentage of decorated pottery at Munhata 2a is halved to 6%, and while most of the decoration consists of slips (over 80%), only 3% are incised and less than 1% painted. The amount of decoration at Jericho increased to over 20%, but the majority of decoration changed—like at Munḥaṭa—to simple slips (Kerner 1998: 236).[10]

Very little can be said about the Middle Chalcolithic pottery. The small amount of published material from Tall Tsaf or Katārat as-Samrā' consists nearly entirely of elaborately painted sherds and no information about percentages of decorated to undecorated material is given.

The available information about the percentage of decorated material in the different assemblages from the Late Chalcolithic is also scanty and gives a very multifaceted picture: Abū Maṭar, Ṣafadī and Abū Ḥāmid have between 16 and 18% decorated pottery (Commenge-Pellerin 1987: 47; 1990: 32), Tulaylāt al-Ghassūl and Abū Snaysla most probably under 10%, at Pella the results vary between the different areas, but are around 25% and in ash-Shūna North 33% of the pottery is decorated (Kerner 1998: 248ff.). The amount of decorated pottery has not decreased compared with the earlier periods.

It is not only the amount of decoration which is important for the interpretation, but also the kind of decoration. It is a process of standardisation and growing efficiency; in connection with pottery decoration, standardisation can be measured by the variability of decoration and the efficiency of the labour input necessary for the decoration. There is a strong tendency towards

9 Although some of these forms started already in the Early Chalcolithic period.

10 It should be mentioned that certain very time-consuming modes of decoration developed in the Early Chalcolithic period. Vessels with large and elaborate applications have been found in sites like 'Ayn Jarba or Abū Ḥāmid. These vessels are considered as carrying special meaning, which excludes them from the normal utilitarian repertoire.

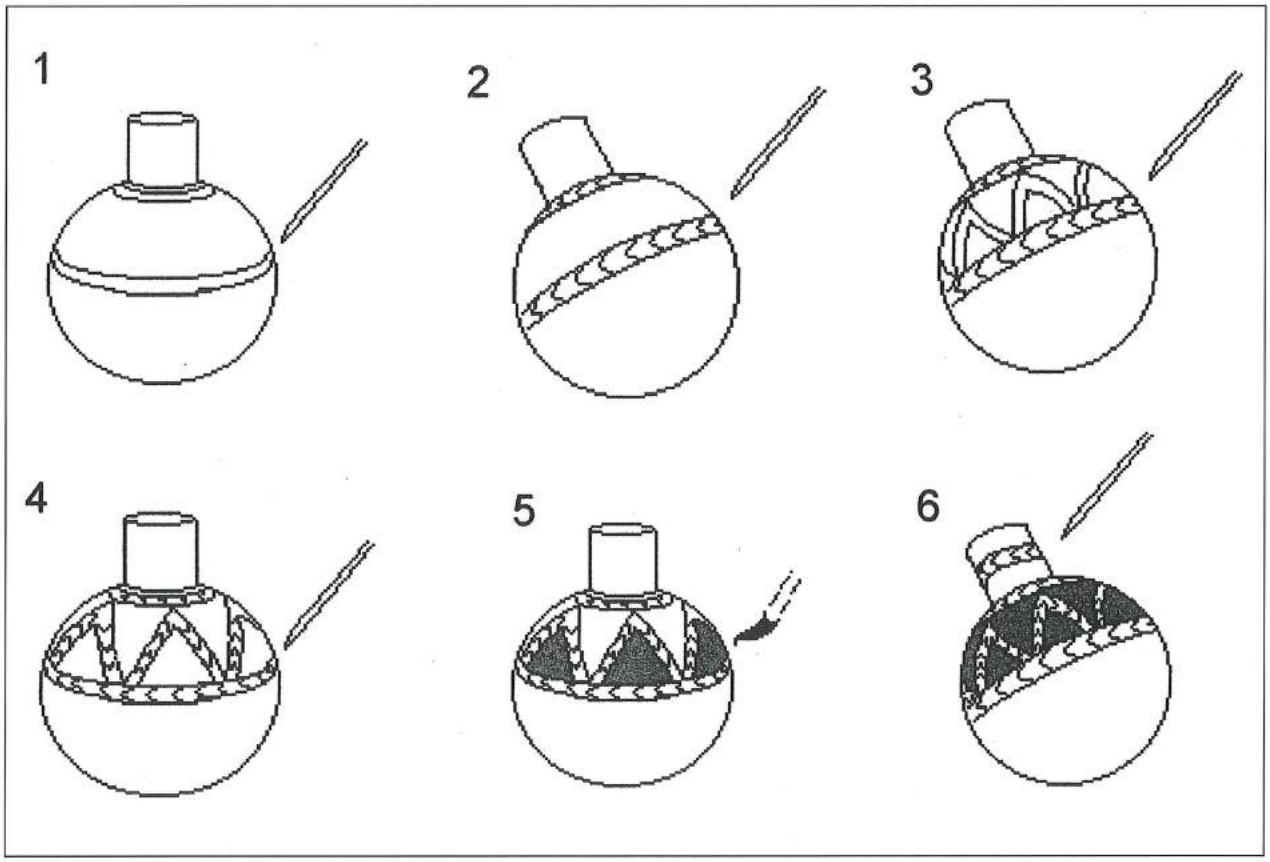
less complicated designs in the chalcolithic material compared with neolithic material. So even if a growing percentage of vessels would be painted with a simple band along the rim, the pottery is much more standardised and can be more efficiently produced than vessels which are first painted, then incised in different designs and then polished. As a good example, the Yarmukian incision design can be taken.

FIG. 1 shows the different movements and steps which are necessary to produce a "typical" Yarmukian pot: the pots first needs to be turned clockwise or anti-clockwise on the same level with one hand, while the other hand incises the horizontal lines on the rim or neck. In the second step: the pot has to be turned twice in both diagonal directions to fill the incised band with short incised strokes. In the third step: the pot has to be laid nearly on its side and then turned up and down to incise the diagonal lines on the body. The fourth step involves the filling of those lines with short strokes. In the fifth step: the tool has to be changed and the space between the incisions painted. Bowls are then finished, Jars need to get a different design of incision on the neck. So five different steps of work are a minimum for the Yarmukian jar, but the larger ones can require up to nine steps of work.

Yarmukian vessels with slightly less complicated decorations need three to four steps (TABLE 1), the same is necessary for Early Chalcolithic vessels, when they are incised or have applications. The Early Chalcolithic incised designs are far less regular than the Late Neolithic designs. Most incised vessels of the Wadi Rabah period need only to be turned in one or two directions for the entire incision and then another time for the painting. But by far most of Early Chalcolithic pottery is only slipped or slipped and burnished and therefore needs only two steps of work (TABLE 1). The application of slip is normally achieved by dipping the entire vessel into the liquid clay-solution of the slip and therefore can be done quickly. Burnishing requires far more time, but has also more ad-

TABLE 1. Schematic representation of the different amount of labour for decoration techniques. Italics show the most frequent kind of decoration for each time period.

Phase	more than 6 steps	5-6 steps	3-4 steps	2 steps	1 step
Late Neolithic	*incised Jars*	*incised bowls*	painted vessels		
Early Chalcolithic			incised vessels and applications	*slipped and burnished vessels*	
Middle Chalcolithic			painted vessels		*slipped vessels*
Late Chalcolithic			applications, complex painted designs	painted or incised also slipped	*painted or incised or impressed* vessels



1. Phases of the decoration of an incised Yarmukian vessel.

vantages for the practical qualities of a vessel than purely aesthetic results.[11]

The Late Chalcolithic pottery consists of a small amount of complexly decorated pottery, which requires three steps of work, but the overwhelming amount needs only one step (TABLE 1). The first group includes the pottery which is painted in complicated chequered or wavy designs. The second group comprises of the vessels with one band of paint along the rim, which can be done very quickly by simply holding the brush to the rim, while the vessel is turned on some kind of turntable. It is also important to notice that the painted decoration becomes more sloppy and negligently done over time.

The third method to measure differences in labour-input is to compare the same kind of decoration. A motif of any kind needs to be translated into gestures (Hagstrum 1985): every short stroke in the filling of the herringbone incisions is one gesture, but one continuous line of incision is also one gesture. One painted stroke along the rim might be up to three gestures, it depends how often the brush would need to be dipped into new paint. If different vessels are compared, the results are as follows: a large incised and painted Yarmukian Jar (which carries two complete sets of the motif) needs 517 gestures, a bowl needs 340 gestures, a small jar 165. Two Early Chalcolithic vessels, which are incised and painted need 63 and 51 gestures, compared on the same grounds (Kerner 1998: 255). The few incised vessels from the Late Chalcolithic period require also only a small number of gestures due to their irregular and small pattern.

It is very interesting to notice, but outside the scope of this article to interpret in detail, that decoration itself and also the kind of decoration and the shape of a vessel are related in some sites: only one third of small open vessels (bowls) are painted, while 50% to 75% of small closed vessels (jars with lug-handles etc.) are painted. Large vessels are more often painted and in particular the large bowls can show a wider variety of decorations. Cooking pots and jars with spouts are very seldom decorated at all and pithoi often have applications or incisions (Kerner 1998: 242, 244-5).

Summary

The information derived from all three different ways to analyse decoration shows that pottery was produced in a continously more effective, standaridized and less time-consuming way. So on the grounds of smaller amounts of evidence in ware and type standardisation and much more so on standardisation in decoration, we can state that pottery becomes produced more and more under specialised conditions. Although hardly any information at all is available about direct evidence for specialisation in pottery production, indirect evidence of more standardisation and efficiency in the production process points towards specialised production. The large amount of common pottery would certainly be produced by independent specialists.

A similar analysis could certainly be carried out for the metal-products from the Late Chalcolithic period. The analysis of the economic sub-system helps therefore to define the different Chalcolithic phases more precisely. A similar study of other sub-systems might help further in defining a set of characteristics for time-periods.

Bibliography

Alon, D. and Levy, T. E. 1989. The Archaeology of Cult and the Chalcolithic Sanctuary at Gilat. *Journal of Mediterranean Archaeology* 2: 163-221.

Amiran, R. and Porat, N. 1984. The Basalt Vessels of the Chalcolithic Period and Early Bronze Age I. *Tel Aviv* 11: 11-19.

Arnold, J. E. 1987. *Craft Specialization in the Prehistoric Channel Islands, California*. Berkeley: University of California Press.

Bar-Adon, P. 1980. *The Cave of the Treasure*. Jerusalem: The Israel Exploration Society.

Commenge-Pellerin, C. 1987. *La Poterie d'Abou Matar et de l'Ouadi Zoumeili (Beersheéva) au IV millénaire avant l'ere chrétienne*. Les Cahiers du Centré de Recherche Française de Jérusalem, 3. Paris: Association Paléorient.

___ 1990. *La Poterie de Safadi (Beershéva) au IVe millénaire avant l'ère chrétienne*. Les Cahiers du Centré Recherche Française de Jérusalem 5. Paris: Association Paléorient.

Costin, C. L. 1991. Craft Specialization: Issues in Defining, Documenting, and Explaining the Organisation of Production. *Archaeological Method and Theory* 3: 1-56.

Epstein, C. 1975. Basalt Pillar Figures from the Golan. *IEJ* 25: 193-201.

___ 1977. The Chalcolithic Culture of the Golan. *BA* 40: 58-61.

Gopher, A. 1997. *Nahal Qanah*. Tel Aviv.

Hagstrum, M. B. 1985. Measuring Prehistoric Ceramic Craft Specialization: A Test Case in the American Southwest. *Journal of Field Archaeology* 12: 65-75.

Kerner, S. 1998. *Das Chalkolithikum in Jordanien. Die Entwicklung handwerklicher Spezialisierung vom 6. bis 4. vorschristlichen Jahrtausend in der südlichen Levante*. Unpubl. Ph.D. dissertation. Institut für Vorderasiatische Altertumskunde. Freie Universität Berlin.

Koeppel, R. *et al.* 1940. *Teleilat Ghassul II*. Rom: Scripta Pontificii Instituti Biblici.

Levy, T. E. 1983. The Emergence of Specialised Pastoralism in the Southern Levant. *World Archaeology* 15(1): 15-36.

___ 1995. Cult, Metallurgy and Rank Societies - Chalcolithic Period (ca. 4500 - 3500 BCE). Pp. 226-244 in T. E. Levy

[11] It should be noted here, that against normal expectations, the amount of burnishing is higher in the Late Neolithic than in the Early Chalcolithic period (Kerner 1998: Tab.7.9).

(ed), *Archaeology of Society in the Holy Land.* London: Leicester University Press.

Mallon, A., Koeppel, R. and Neuville, R. 1934. *Teleilat Ghassul* I. Rom: Scripta Pontificii Instituti Biblici.

Moorey, P. R. S. 1988. The Chalcolithic Hoard from Nahal Mishmar, Israel, In Context. *World Archaeology* 20: 171-189.

Rice, P. M. 1981. Evolution of Specialised Pottery Production A Trial Model. *Current Anthropology* 22: 219-40.

Roux, V. and Courty, M. A. 1998. Les Bols élabores au tou d'Abu Hamid: Rupture techniqué au 4e millenaire avant J. C. dans le Levant-Sud. *Paléorient* 23: 24-43.

Genevieve Dollfus
1 rue Dorian
75012 Paris
France

Zeidan Kafafi
Institute of Archaeology
and Anthropology
Yarmouk University
Irbid - Jordan

Genevieve Dollfus and Zeidan Kafafi

Jordan in the Fourth Millennium

Jordan in the Fourth Millennium...: this title raises immediately the question of chronology. What does "fourth millennium" mean and consequently what chronology to adopt? Should the calibrated dates according to Stuiver and Reimer 1993[1] be considered and then, should it be here referred to calendar years, keeping in mind that a millennium in calibrated dates varies,[2] being either shorter or longer than thousand years... Or should uncalibrated dates be adopted? Facing this problem and considering the wide audience of the conference where not only specialists of ancient periods were present, it was decided at Copenhagen and, in this paper as well, that we would refer to uncalibrated BC dates.

Then, the problem of "slicing" the history of Jordan in millennia came up and soon it became clear that it was irrealistic to stick to it. *Fourth millennium*: we are not yet in historical periods ... and, even in historical periods, there are often difficulties for epigraphists and archaeologists to corrolate their chronologies. Moreover, what does a "millennium" actually mean? From a cultural point of view a "millennium" does not have any signification.

So, why not to keep the classical periodization system and to use "developed and late Chalcolithic" after Joffe and Dessel's 1993 terminology[3] and Early Bronze Age Periods. Then, a major problem of terminology arises: in Europe, these words, at first, had only a technological meaning:[4] for instance "Chalcolithic" was created to define essentially lithic industries to which could be added copper objects; then, its meaning had been enlarged to characterize a period but it is never defined with precision. So, in a text, to understand well what the word "Chalcolithic" means, it becomes often necessary to know the habits of the author. Due to the lack of precise definition of this word, in the region here concerned, the beginning of the period, the "Early Chalcolithic" is often designated as Late Neolithic or *vice-versa*. The explanation for this being — and it should be stressed — that there is no major discontinuity between the end of the Neolithic and the beginning of the Chalcolithic; at the end of the period, even if some sites are totally abandonned, a continuity exists as well with the Early Bronze Age I period: some sites continue to be inhabited, and neither the economy nor the social organization show tremendous changes.

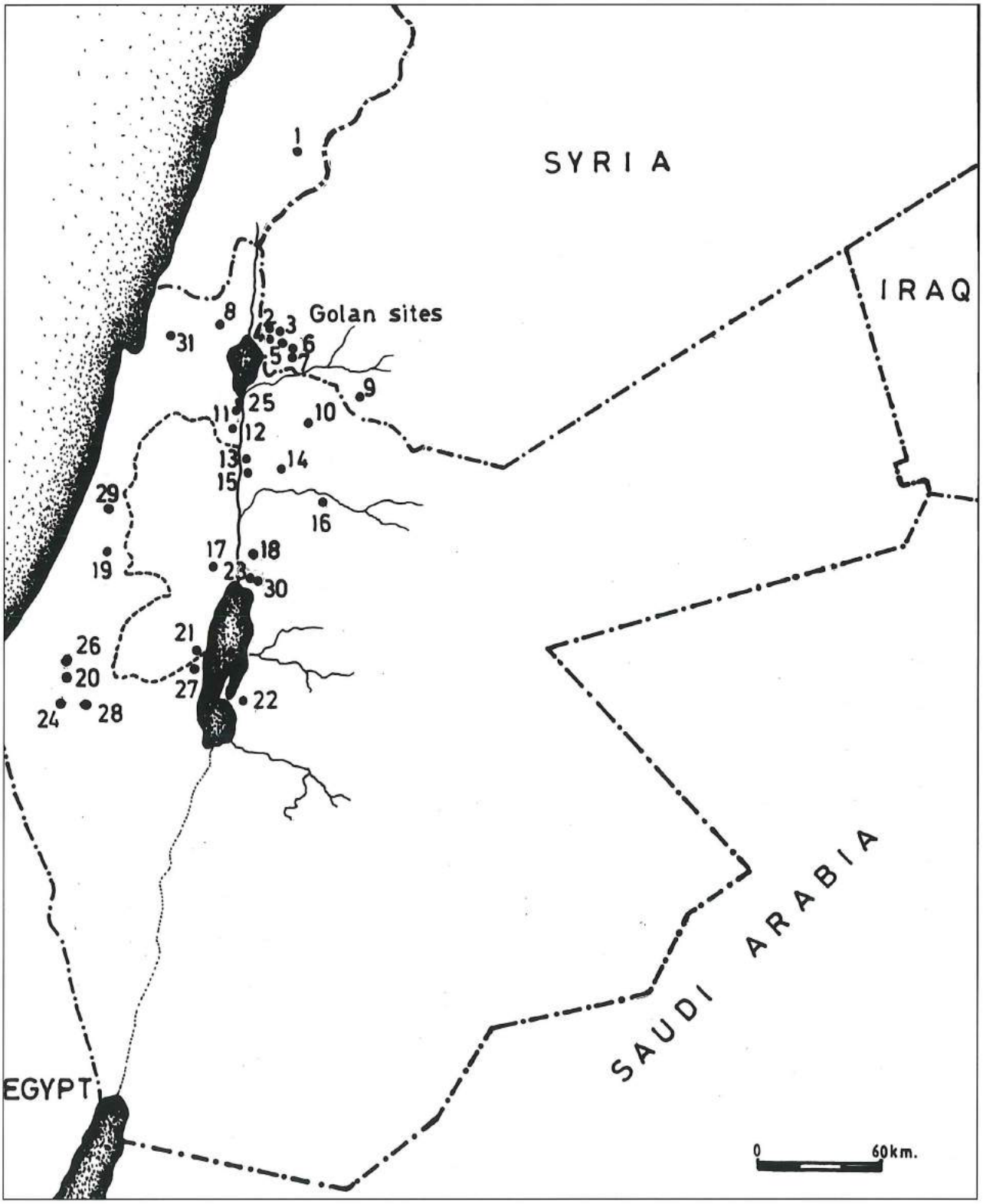
"Culture" names might also have been used and this paper might have been built on the "Ghassulian" that covers part of the fourth millennium; but, once again, what actually is the exact definition of the word "Ghassulian"? Recent excavations[5] have clearly shown that: a) the site of Tulaylāt al-Ghassūl has been occupied for at least a millennium, and b) the period usually called "the Ghassulian" is short if we consider the history of the site; on a stratigraphic point of view it represents only four of sixteen layers that are placed in Joffe and Dessel's chronology in the "Developed Chalcolithic" that means on the same horizon as the "*floruit*" of most of the sites of the Negev.

Now that this question of terminology has been examined[6] and since, in the previous sessions of the conference, the fifth millennium has not been looked at, it has been decided to deal with Jordan in the fifth and fourth millennia. This period is an intermediate one, a period of transition between:

- the time when the groups become intensive producing farmers and when pastoralism, as well, starts to play a more important role due to the presence of domesticated sheep that moves easier than goats;[7]
- and, at the other end of the period, the moment when people begin to settle into towns.[8]

Until the seventies, little work has been achieved in Transjordan related to this period, except for the large ex-

[1] Stuiver and Reimer 1993.
[2] Evin 1995.
[3] Joffe and Dessel 1995.
[4] Leroi Gourhan 1992.
[5] *Hennessy 1969; Bourke *et al.* 1997.
[6] We are not insisting on this problem of terminology since Gilead 1988 and Joffe and Dessel 1993, among others, have recently published detailed articles on this topic.
[7] Ducos 1993; Perrot 1993.
[8] Miroschedji 1989.



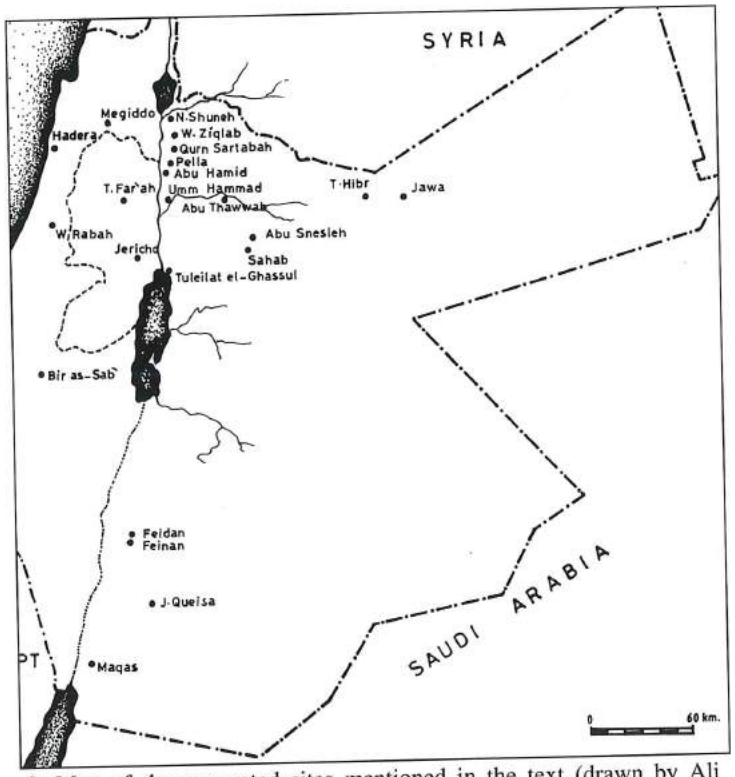
1. Map of the sites mentioned in the text (drawn by Ali Omari):
1. al-Biqā'; 2. ad-Dura; 3. Tall Shiqiyya; 4. Siyar al-Khirfān; 5. Rasm Harbūsh; 6. 'Ayn al-Ḥarīrī; 7. Rasm al-Kabash; 8. Ṣafad; 9. Dar'ā; 10. Sāl; 11. Munḥaṭa; 12. Baysān; 13. Abū Hābil; 14. Tall Maqlūb; 15. as-Sa'īdiyya; 16. Abū Thawwāb; 17. Arīḥa/ Jericho; 18. Ghrubba; 19. Ludd; 20. Gilāt; 21. 'Ayn Jidi/ En Gedi; 22. Bāb adh-Dhrā'; 23. 'Udhayma; 24. Shiqmmim; 25. Neve Ur; 26. Nahal Gerar; 27. Nahal Mishmar; 28. Bi'r as-Saba'/ Beersheba; 29. Wādī Rabah; 30. Tulaylāt al-Ghassūl.

cavations led at Tulaylāt al-Ghassūl by the Pontifical Institute in the thirties, resumed after the war by R. North and in the late sixties by B. Hennessy.[9] Nearby, some work had been done by Stekelis at 'Udhayma, a cemetery site close to Tulaylāt al-Ghassūl.[10] South of the Dead Sea, the excavations at Bāb adh-Dhrā', still active these days, started[11] (FIG. 1).

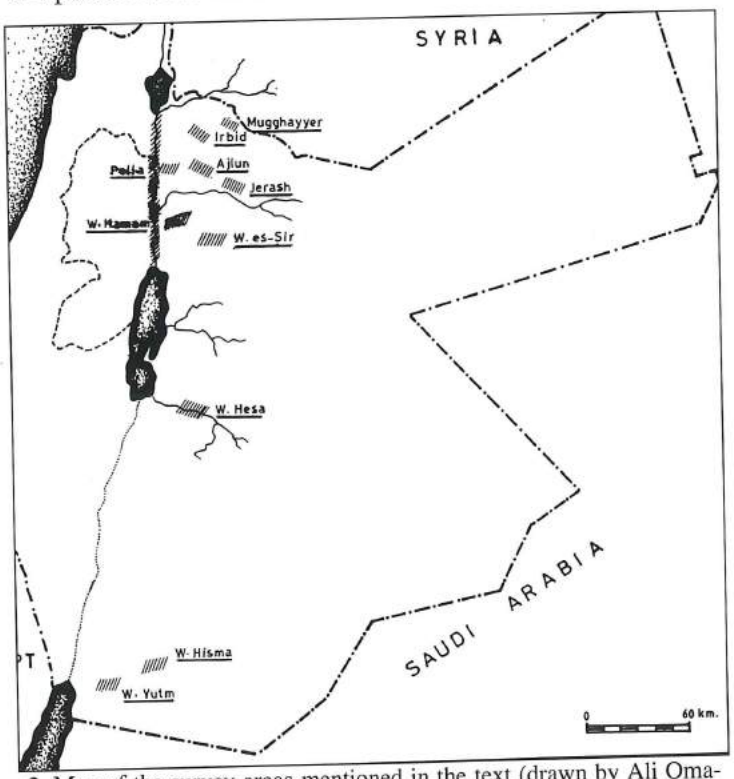
Surveys and soundings by Glueck, Contenson and Mellaart on some sites such as ash-Shūna N., Abū Habīl, as-Sa'īdiyya, and Ghrubba in the Jordan Valley in the late fifties and early sixties,[12] were followed by an intensive survey in 1975 by the Department of Antiquities, the University Jordan and ACOR.[13]

With the exception of the excavations of Saḥāb, south -east of 'Ammān in 1971 under the responsibility of M. Ibrahim,[14] almost nothing had been achieved on the highlands, and the plateau, nor in the South.

Since the last two or three decades, considering the period concerned in a large area of Jordan, surveys, soundings and excavations (FIGS. 2, 3) have been blooming, especially in the northern part of the country (ash-Shūna North, Wādī Ziqlāb excavations, Pella/ Jabal Sarṭaba, Abū Ḥāmid, Tulaylāt al-Ghassūl, Katārat as-Samrā', Umm Ḥammād),[15] more recently, in the 'Arabah (Wādī Faynān, Tall al-Maqaṣṣ),[16] on the highlands and the plateau as well (Abū Thawwāb, Jabal al-Muṭṭawaq, Abū Snaysla) and, in the arid zone (Jāwa, and the rock shelter of Tall al-Hibr to mention only the most important projects).[17] Surveys have also been conducted in the North such as the ones made in the hinterland of Pella, in Wādī as-Sīr, in the 'Ajlūn and Jarash region and, east of Irbid, in the al-Mughayyar area with the important site of Sāl,[18] on the east coast of the Dead Sea.[19] In the South, surveys made were in Wādī al-Ḥasā and Wādī al-Ḥismā.[20] Meanwhile, it remains often difficult to use these surveys as often in the publications the sites are referred either to Neo/ Chal-



2. Map of the excavated sites mentioned in the text (drawn by Ali Omari).



2. Map of the survey areas mentioned in the text (drawn by Ali Omari).

9 *Mallon, Koeppel and Neuville 1934; *North 1961; *Hennessy 1969.

10 *Stekelis 1935.

11 *Lapp 1966.

12 *Glueck 1934, 1935, 1939, 1945, 1951 ; *Contenson 1960, 1964 ; *Mellaart 1962.

13 *Ibrahim, Sauer and Yassine 1976.

14 *Ibrahim . et al. 1984 ; Zu'bi 1992

15 Ash-Shūna N., Baird and Phillip 1994; Wādī Ziqlāb, Banning *et al.* 1996 and Tall Findi, Blackham *et al.* 1998; Pella/ Jabal Sarṭaba: *Hanbury Tenison 1986; Bourke *et al.* 1996, 1997 ; Abū Ḥāmid: Dollfus and Kafafi 1998, 1993; Dollfus *et al.* 1988; Ghassūl: Bourke *et al.* 1995, 1997; *Umm Ḥammād: Helms 1984, 1986, 1987.

16 Wādī Faynān/ Faydān, Hauptmann and Weisgerber 1987, Hauptmann *et al.* 1989, Adams and Genz 1995; Maqaṣṣ: Khalil 1987, 1995.

17 Abū Thawwāb, *Kafafi 1988; Jabal al-Muṭawwaq, *Hanbury Tenison 1986, Fernandez-Tresguerres and Junceda Quintana 1991; Abū Snaysla, Kerner *et al.* 1992; Jāwa, *Helms 1987; Betts (ed.) 1991; Tall al-Hibr, Betts 1992 .

18 Wādī as-Sīr: Chang-Ho, J. 1997; 'Ajlūn and Jarash Region, Sapin 1985; Mughayyar Area, Ibrahim and Mittmann pers. comm.

19 'Amr *et al.* 1997.

20 Wādī al-Ḥasā, McDonald 1988; Wādī Ḥisma, Henry 1988.

co or to Chalco/EB1.

In Jordan, in the Highlands and in the eastern Arid Zones, relatively few fifth-fourth millennia key sites have been excavated, Jāwa — at the end of the period — being an exception;[21] on the other hand, a large number of sites have been surveyed and largely exposed in the Jordan Valley; so, in order to have a glimpse at the evolution of villages during the "Chalcolithic" period, Abū Ḥāmid, a site of the Ghawr that has been occupied during the fifth and the first half of the fourth millennia, will be used as the backbone of this paper and, as an example, we will try to figure out the relations that it had with other regions. This site and the area around have recently (1986-1992) been systematically surveyed and excavated over a large surface (ca 2500 m^2).[22]

At the end of the sixth millennium and at the early fifth millennium the environment of Abū Ḥāmid was quite different from what we can observe nowadays. The Jordan river was not so entrenched and its banks – as the anthracological and vegetal macroremains analyses made by R. Neef[23] have evidenced – were covered by reeds, poplars and tamarisks. On the east bank a slightly undulating gentle slope was leading to the piedmont: the marl deposits left when Lake Lisan dried up were covered by deposits of rich red loams. The researches of Fuad Hourani and Marie Agnès Courty on the early to mid-holocene climate[24] have distinguished – for the Jordan Valley – three main phases: the first one (8, 000-6, 500 uncal BC) corresponds to the development of a mosaic landscape with marshlands in wide flood plains, and to the extensive formation of travertine that took place under the warm and humid conditions well known for the first Holocene optimum. The second phase (6,000-4,500 uncal. BC) begins with a period of erosion and torrential flows, indicator of pronounced instability of the climate. Then, a period of stability seems to have been re-established in the Ghawr with slow deposition by sheet flows of the red silt, their pedological development indicating cold and humid conditions. A third phase (ca. 4,500-3,500 uncal. BC) is marked by the renewal of torrential flows, generalised erosion, enlargement of lateral wadis and the incision of the Jordan River corresponding to the establishment of a Mediterranean semi-arid climate.

Abū Ḥāmid, with the proximity of water — essential not only for human beings but also for domesticated animals — of wood for fuel and of rich loamy soils, offered the conditions requested by a group of herders and farmers who wanted to settle. At that time, late sixth/early fifth millennium BC, the climate seems to have been relatively stable and colder than nowadays.

At its origins, the village is formed by a cluster of round or oval semi-subterranean huts with almost vertical edges; their diameter varies between 2 and 3 meters, their depth between 1.50 and 1.80m. Most of them were dug – from a thick layer of terra rossa – into the marls. Inside these pits, as the micromorphological analyses made by F. Hourani have shown, a succession of trampled floors is present; some of them are covered with mats; according to the phytoliths, most probably, these pits were roofed with vegetals.[25] The stratigraphy and the sediment analyses as well, show that periodically these pits were abandoned. Inside the dwelling-pits not one domestic structure such as basins or hearths was discovered. These features were located outside the shelters. At least in the excavated area, these shelters were very close to each other, but seemingly not dug at the same time.[26]

Gradually these pits were filled up and, in a second phase, replaced by an other type of dwelling. One has been partially excavated; its shape is oval and the floor is ca 0.50m lower than the outside surface. Inside, its edge offers a kind of wall higher than the surrounding floor, made with lumps of clay. Inside this structure two small basins filled with ashes are present.

In the middle of the fifth millennium, for one or two centuries as it seems, the village as a cluster of pit-dwellings seems to have been abandoned but more mobile groups were still coming to the site. Those people had left behind them remains of their passages such as ashy floors, post-holes or stick-holes – these last ones could have been used as stands for goatskin churns or as holes to maintain weaving looms – a lot of hearths and basins often with white plastered walls and pits.

The pottery is in use at Abū Ḥāmid since the origins of the settlement. As Jaimie Lovell has shown,[27] the fabrics are dominated by an orange-buff fabric that has very few inclusions and appears in a very well levigated form and a more granular, less well levigated with slightly different proportions of inclusions. These make up about 93% of the assemblage. A very hard biscuity red/brown fabric appears in very small amount as does a silty buff fabric. For the most part, shapes are simple and bowls dominate the assemblages; small bowls, quite crudely made are often painted in red-orange linear designs, reminiscent in the valley of Katārat as-Samrā'[28] and, on the other side of the river, of Tall Tsaf,[29] of Jericho level IX and also, close to the Mediterranean coast, of Ludd[30] as well as in the high-

21 *Helms 1981.
22 Dollfus and Kafafi 1988, 1993; Dollfus, Kafafi *et al.* 1988.
23 Neef 1988, 1990, n.d.
24 Hourani and Courty 1997.
25 Hourani 1997, 1999 and pers. comm.
26 Hourani 1999 and pers. comm.
27 Lovell *et al.* 1997.
28 Leonard 1992.
29 Gophna and Sadeh 1989.
30 Gopher and Gophna 1993.

lands in Jordan at Abū Thawwāb.[31] That shows well the contacts that the clans or the tribes or, maybe only some individuals, had with other groups. In fact, there is a wide variety of decoration styles which include spots and simple geometric patterns paralleling the material published by Mellaart from Ghrubba.[32] Hole-mouth jars are present as well as tall high-necked jars, sometimes decorated around the base of the necks.

What is also important is to stress the contacts with the North (Northern Syria, Anatolia?) as it can be inferred from some bichrome sherds that are very Halafian in style. An Halafian influence had been already noted in the Lebanese Bīqā'[33] and at Tall Tsaf,[34] northwest of Abū Ḥāmid. Abū Ḥāmid and perhaps Katārat as-Samrā'[35] according to the publications would be the southern sites where Halafian style sherds have been found.

Until now, just a presence of Halafian sherds has been noted, in the future it will be very important to understand the system of exchanges and the reasons of those. It should be added that, differing from the Neolithic periods, almost no obsidian[36] has been found in these levels Also, no copper objects coming from the North that could be testimonies of exchanges with Anatolia have been recovered yet.

All the semi-subterranean pit dwellings contain relatively homogeneous ceramic materials whereas the levels devoid of architecture contain a much larger variety of fabric types and a mixture of earlier and a few of later forms. According to studies by J. Lovell[37] it seems that it is not until the first levels of the middle phase that the fabric groups begin to stabilise into easily definable groups.

These leads to the end of the fifth millennium. At that time, the agglomeration of Abū Ḥāmid offers a quite different aspect. The habitations are not any more semi-subterranean dwellings. They are now houses built above the floor with plano-convex bricks. The rooms are rectangular and their walls are often covered by layers of plaster that might have been the support for frescoes; one of them has been found, fallen in a pit. It is in buildings of the same period that at Ghassūl as well, frescoes appear for the first time. At least at Abū Ḥāmid, nothing can indicate that the building with the wall painting had any special (ritual?) function.

In the Abū Ḥāmid village, some of these dwelling complexes consist of two buildings: one is a rectangular room to live, and the other consisting of two oblong cells too narrow to have been used to live or even to sleep, and was most probably used for storage. Cooking took place outside, in areas where a lot of plastered basins, large oval pits filled with stones cracked by fire or/and ashes were found. Like at Ghassūl, in open-air areas, large oval or round surfaces of pebbles carefully laid and always associated with a fire pit are present.

Henceforth, the pottery is more varied in its fabrics, shapes and decor. New shapes such as fusifom vessels appear. They are still rare and small, no more than 15-20cm while they will be more frequent on some sites in the mid-fourth millennium; then their size can reach 80cm. Some of the pots are most often just covered by a wash or a burnished slip (DFBW or RFBW) while others are decorated by motives incised with combs, shells and reeds. Some vessels are decorated with several bands in relief with finger impressions. Such surface treatments are well known on some sites of the Jezreel Valley, in Western Galilee, along the coastal plain as far south as Wādī Rabah,[38] north of Tel Aviv but until now, it does not seem that they are present on the highlands and plateau. In the Abū Ḥāmid assemblage bow rims and carinated shapes so frequent at Munhata 2a,[39] Hazorea etc. are almost absent whereas in the levels related to the Wādī Rabah phase of Ṭabaqat al-Būma, in Wādī Ziqlāb, they are frequent.[40]

Gradually and without neither stratigraphic gap nor obvious cultural, social or economic change, the Abū Ḥāmid settlement is sprawling and, in the middle of the fourth millennium, may have covered ca. 6 hectares (EW: 1.4km; NS: 0.4km). The network of the village seems loose: houses are not agglutinated but separated by large spaces; close to the houses there were most probably fields of cereals: wheat and barley, peas and lentils; olive trees were also planted around as might be suggested by the anthracological analyses which have shown the presence of olive wood in small hearths.[41] Indeed, the chances are little that people of the group would have walked up the slope more than 10 km to pick up olive wood in the natural forest — the olive trees was one of its composant — and to carry back the wood in order to use it as fuel in small domestic hearths? Bushes, other species of wood present in the riverine forest or dung could have been used more easily. Olives were also found in great quantities at Jabal Sarṭaba in a farm of the same period. Recent work in Wādī Ziqlāb suggests that clusters of small sites at elevations around 400 to 600m have something to do with the development of an olive-oil industry.[42] At Ghassūl, date stones have also been collected. Besides cereals and

31 Kafafi 1989.
32 *Mellaart 1956; Leonard 1992.
33 Copeland1969.
34 Gophna and Sadeh 1989; see also Kaplan 1960.
35 Leonard 1992.
36 At Abū Ḥāmid only one bladelet has been found!
37 Lovell *et al.* 1997 and pers. comm.
38 Among others, Kaplan 1958, 1969, 1972; Nahal Beset, Nahal Zehora, Gopher 1988.
39 Garfinkel 1992.
40 Banning *et al.* 1996; Banning and Siggers 1997.
41 Neef, n.d. This is a strong argument in favor of the cultivation of olive trees, as it is very difficult to distinguish wild olive stones from domesticated ones.
42 Banning *et al.* 1998.

leguminous, we have at this period the beginning of horticulture that in those regions will play over the time a very important role.

Now let us have a look at some of the activities that these villagers had. Indeed, on the floors of some rooms or outside along the walls a great number of objects allow us to reconstruct the activities of some of the inhabitants.

As an example, at Abū Ḥāmid, in one large room more than thirteen spindle whorls and some loom weights, bone spindles and needles, and a ceramic bowl with a curious handle inside, most probably to do with the work of textiles;[43] these bowls are very similar to some depicted in Egypt on later paintings. Imprints of textiles have been found on pottery sherds and one was uncovered as well when, at Yarmouk University (IAA anthropological laboratory) Anne Marie Tillier, the physical anthropologist, cleaned an infant burial. On the skull of this new born skeleton, the imprint of the linen in which it was wrapped[44] was found. Flax and wool were the materials most probably used.

In other areas, flint knapping activities to produce tools were evident, and it is interesting to note that, despite a great abundance of flint nodules in the terraces nearby, most of the nuclei are almost exhausted: piercers, borers, tabular scrapers — some of them showing, as do the sickles, some sheen. These glossed tools were used to reap cereals as well as to cut reeds. On the floors of two rooms were also found primary evidence of an activity of resharpening adzes and axes. It seems that very often the hafted part of those, used to cut wood outside of the settlement, were brought back to the village after having been broken; for what reason? the explanation is simple: the hafted part of a tool is the most precious one and its worth keeping it and then to proceed to a resharpening of the cutting edge that is not a difficult task.[45]

We would like to insist on the fact that, in general, the industry is an *ad hoc* one as it is the case on quite a lot of other sites of the same period[46] and that most of the inhabitants were capable to produce a tool according to their immediate needs. However, few tools seem not to have been made at Abū Ḥāmid as are some microscrapers on a very peculiar honey coloured translucid flint similar to some tools from the Negev and even from several sites in Lower, Middle and Upper Egypt.[47] Some of the scrapers are with invading retouch, some with perforated disks — their function still unknown — could have been made only by specialists. These disks are known essentially in the Middle Jordan Valley especially at Neve Ur,[48] in Northern Jordan, in the Irbid area, at Dar'a[49] and on al-Jawlān. Recently some of them have been discovered in one ossuaries tomb cave that has been found at Peqi'in in western Galilea.[50] South from Abū Ḥāmid they are rare, while some fragments have been noticed at Ghassūl. Where these perforated disks have been made remains a question; was it in each village? in specific places?

Pirifiform or round maces in very hard limestone or in hematite seem also to have been the work of craftsmen. These objects are always made in a very dense material and are very heavy. Despite the fact that they have been depicted in paintings in Egypt and on stelae in Mesopotamia as mace heads their use is still a question. At Abū Ḥāmid eight of them were found together — as if they have been put initially in a basket or a bag — showing various shapes, different materials and have not been perforated in the same way.[51]

Considering the pottery, there is a greater variety of shapes: in the northern part of the country, at Abū Ḥāmid as well as at Ghassūl, Pella (south central field, trench XXXIID), Baysān and in the sites of the al-Jawlān[52] very large jars have been found. At Abū Ḥāmid, one – 1.65m high x 1m diam. – was intact[53] and the base and lower parts of three others were found in various areas of the settlement. It looks like one of them was in each dwelling compound. The question of specialization, of "*savoir faire*" can be raised? Were these large jars made by any of the potters? Considering their weight, they were certainly not moved from far away,[54] but were most probably built up very close to where they were in use, maybe by itinerant specialists.

Besides this aspect, another important point is the appearance of small coiled-made V-shaped bowls that were finished with a slow wheel. We have here the appearance of a new technique that — as for some of the perforated objects — utilizes the rotative energetic force. These small vessels are very abundant, are found on most of the sites of this period and are usually thought to be locally made. At Abū Ḥāmid, the technological and petrographical analyses recently made by V. Roux and M. A. Courty have shown that 90 % of them came from the Negev, which is more than 200 km south. They are made of very specific loessic material.[55]

Abū Ḥāmid, in the middle of the fourth millennium, was not an isolated village in the Jordan Valley. In several locations, there are clusters of at least four or five villages,

[43] Martin 1993, Univ. Paris I, M.A. Thesis. Ali 1996.
[44] Tillier A. M. pers. com.
[45] Coqueugniot n.d.
[46] Rosen 1997.
[47] Coqueugniot in: *Dollfus, Kafafi *et al.* 1988 a, b.
[48] Perrot *et al.* 1967.
[49] Nasrallah 1948.
[50] Gal *et al.* 1997.
[51] Al Sa'ad, Coqueugniot, Kafafi and Dollfus, in prep.
[52] Epstein 1998.
[53] On exhibition at the Museum of Jordanian Heritage, Yarmouk University, Irbid.
[54] Ali 1998.
[55] Roux and Courty 1997.

each one being separated from the other by a rather small distance of about 1.5-2km. These groupings might have had economic reasons such as proximity of good lands for agriculture or horticulture, or social ones such as the segmentation of a lineage.[56]

If the villages are covering — as a mean — area of 1-2 hectares, then larger ones (5-10 ha) are not exceptional, not only in the Jordan Valley but also in the highlands (sites such as Sāl in the Irbid area and one in the neighbourhood of Tall Maqlūb[57] in the upper Wādī al-Yābis, just to mention three of them). In the Lower Jordan Valley, Ghassūl is a very large settlement with unprecise limits; it seems to have covered between 20 and 30 hectares. This large size could be the result of a progressive deplacement of the agglomeration along its successive occupations — like Abū Ḥāmid, Ghassūl as a settlement seem has been founded at the end of the sixth millennium or early in the fifth — in certain abandoned areas postholes seem to suggest the presence of tents or huts. Elsewhere, the net of houses is tight and it seemed that as soon as a space was vacant, a house was built. Recent work at Ghassūl has clearly shown that in one area (area H) two phases of architecture are intermixed, showing long houses well built on multicellular mudbrick architecture.[58] At Ghassūl, it seems that in one area (area E) public, maybe ceremonial, buildings are present. Their plan seem to be very similar to 'Ayn Jidi/ En Gedi and Gilāt "sanctuary" ones.[59]

At Abū Ḥāmid, some of the inhabitants were moving outside the Valley for various purposes. It is almost certain that a part of the group was leaving the village with their ovicaprids flocks every year. No remains of animals younger than three months have been found — and it is not a question of preservation as bird or rodent bones were found. This observation could indicate that she-goats and ewes were giving birth most probably in the highlands where we can imagine part of the group was going in a transhumance movement. There are, indeed, strong material culture ties with sites of western Ḥawrān such as Sāl, Dar'a and with some of the al-Jawlān as well (cf. *supra*). It is also to the north — the region around Wādī al-Yarmūk and Wādī al-'Arab — that most probably if not the groups, at least some individuals, were going to get basalt raw material, or the basalt vessels themselves. At Abū Ḥāmid, the very little number of basalt flakes collected might suggest that the vessels were not produced in the settlement but were most probably made near the raw sources.[60] Till today, no workshop has been found and intensive surveys should be done in that area with the goal of eventually finding them.

Towards the South, there were also movements: Wādī Faynān was certainly an attractive place to go and get some green stone to make figurines or beads, and most probably to get malachite or cuprite in order to produce some utilitarian copper objects such as needles, pins and axes — as is the case, on a larger scale, in the Negev. On the other hand, the "prestigious" items, made in arsenical copper such as the ones found at Nahal Mishmar were imported from far North, Anatolia or even Caucasus.[61]

The Jordan Valley and the Negev, despite some differences in their material culture due on the one hand to their traditional heritage, and on the other to their environment, were sharing in the beginning of the fourth millennium BC some common beliefs. The very schematic and flat-relief violin-figurines in hard stone, found at Abū Ḥāmid and Ghassūl in domestic contexts as well as in the Negev, for example at Gilāt in the "sanctuary" would be some expression of them. The large theriomorphic terra-cotta vessel uncovered at Abū Ḥāmid would be another one. Indeed, this large vase representing a bull loaded originally with one or two vessels, can be compared to the woman and to the sheep found also at Gilāt in the "sanctuary". Both carry containers. Their technology is very similar, as is their symbolism: all three insist on liquids (cf. the vessels that they carry on their back or on their head), that could be poured into their body. Water, as we know, is essential not only for human beings but also for domesticated animals, to which it should be provided when water cannot be found at proximity.

Furthermore, we should add that the small V-shaped bowls, made with the rotative cinetic energy found at Abū Ḥāmid but produced in the Negev, could have been used for some ceremonies a hypothesis that finds some support in their frequent presence in tombs all over the southern Levant.

If we turn now to burials: in non of the excavated sites of the fifth and early fourth millennia in Jordan are burials frequent. Some infants buried in jars or under sherds are present at Ghassūl[62] and at Abū Ḥāmid.[63] In comparison with the population, the adult skeletons that have been found are quite rare. It seems that, like for example at Shiqmim in the Negev,[64] bodies were buried in large cemeteries outside the village that could have been regionally used. 'Udhayma, 3km from Ghassūl could have been one of them.[65] Cists, cairns, stone circles and dolmens are present as they are at Shiqmim. Their date at

[56] Dollfus 1989, paper presented at the fourth conference of the History and Archaeology of Jordan, Lyon; in Wādī Ziqlāb and Wādī al-Yābis also similar clusters have been evidenced.
[57] Palumbo, Mabry and Kuijt 1990; Mabry and Palumbo 1992.
[58] Bourke 1997.
[59] En Gedi, Ussishkin 1980. Gilāt, Alon and Levy 1989.
[60] Wright *et al.* n.d.
[61] Hauptmann *et al.* 1992.
[62] Mallon, Koeppel and Neuville 1934.
[63] Dollfus and Kafafi 1999.
[64] Levy and Alon 1985.
[65] Neuville 1930; Stekelis 1935.

'Udhayma is not certain but recent work in the 'Irāq al-'Amīr region[66] could help put some of them in the late Chalcolithic period or very early in the Early Bronze Age, as Stekelis had already noted. These large cemeteries — a little later it will be the same at Bāb adh-Dhrā' — seem to be the consequence of a new way of life and of a new mode of structuring of the regional space: they could have been a gathering place for nomadic groups. The remains of their temporary dwellings can often be observed among the megaliths. And, as Jean Guilaine wrote in his volume *La Mer Partagée*: «chez certains groupes, conserver les défunts ne saurait être mené à bien sans le recours à une architecture plus ou moins monumentale, gage d'impression, de respect, de durée...Construire des tombeaux immuables éfait aussi l'occasion d'affirmer la pérennité de la communauté».[67]

To come to an end, we should insist that if we begin to have some ideas about the way of life of the people of Jordan in the fifth and fourth millennia, of the environments to which they had to adapt themselves, even of their societies and economies, what we know concerning their dead is still quite little. So we would like to insist that in a near future more efforts to be made on this problem.

References

In order not to lengthen this list of references too much, the references related to the sites and the surveys (denoted by *) should be consulted in J. B. Hennessy and D. Homès-Fredericq, *Archaeology of Jordan I* and *Archaeology of Jordan II- Bibliography*. Only the ones that do not appear in these volumes will be given here.

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.

Ali, N. 1996. *Spinning and Weaving Activities at Abu* Ḥāmid *as Inferred from the Study of «Perforated Objects»*. Yarmouk University: M.A. Thesis.

___ 1998. Procédé de fabrication d'une jarre avant 6 000 ans. *Nouvelles scientifiques de France et du Proche-Orient*. Juillet 1998: 76-81.

Alon, D. and Levy T. E. 1989. The Archaeology of Cult and the Chalcolithic Sanctuary at Gilāt. *Journal of Mediterranean Archaeology* 2: 163-221

Al-Zu'bi, I. 1989. *The Village of* Saḥāb *During the Fourth Millennium B.C.* Unpublished M.A. Thesis submitted to the IAA of Yarmouk University.

'Amr, K., Hamadan, K., Mohamadieh, L. and Helms, S. 1997. Survey of the East Coast of the Dead Sea. *AJA* 101: 500-501.

Baird, D. and Phillip, G. 1994. Preliminary Report on the Third (1993) Season of Excavationss at Tall esh-Shuna North. *Levant* 26 : 111-133

Banning, E. B., Blackham, M. and Lasby, D. 1998. Excavations at WZ 121, A Chalcolithic Site at Tubna, in Wādī Ziqlāb, Jordan. *ADAJ* 42 : 141-159.

Banning, E. B., Rahimi, D., Siggers, J. and Ta'ani, H. 1996. The 1992 Season of Excavations in Wādī Ziqlāb, Jordan. *ADAJ* 40 : 29-50.

Banning, E. B. and Siggers, J. 1997. Technological Strategies at a Late Neolithic Farmstead in Wadi Ziqlab, Jordan. Pp. 319-331 in H. G. K. Gebel, Z. Kafafi and G. Rollefson, *Prehistory of Jordan II*. Senepse 4.

Betts, A. 1992. Tell el Hibr: A Rock Shelter Occupation of the Fourth Millennium B.C.E. in the Jordan Bâdiya. *BASOR* 281: 3-10.

___ 1991. (ed.). *Excavations at Jawa 1972-1986. Stratigraphy, Pottery and other Finds. Excavations and Explorations in the Hashemite Kingdom of Jordan.* Edinburgh: Edinburgh University Press.

Blackham, M., Fisher, K. and Lasby, D. 1998. Tell Fendi, A Late Chalcolithic Settlement in the Lower Wādī Ziqlāb, Jordan. *ADAJ* 42: 161-177.

Bourke, S. J. 1998. The Urbanisation Process in the South Jordan Valley: Renewed Excavations at Tulaylāt al-Ghassūl 1994/1995. Pp. 249-261 in *SHAJ* VI. Amman: Department of Antiquities.

Bourke, S. J. Seaton, P. L., Sparks, R. T., Lovell, J. L. and Mairs, L. D. 1995. A First Season of Renewed Excavations by the University of Sydney, at Tulaylāt al Ghassūl. *ADAJ* 39: 31-64.

Bourke, S. J., Sparks, R. T., Sowada, K. N., McLaren, P. B. and Mairs, L. D. 1998. Preliminary Report on a Second Season of Renewed Excavations by the University of Sydney, Sixteenth and Seventeenth Seasons of Excavations at Pella (Ṭabaqat Faḥl) in 1994-1995. *ADAJ* 42: 179-211.

Chang-Ho, J. C. 1997. The Chalcolithic and Early Bronze Cemeteries Near Irāq al- Amīr and the Preliminary Report on Salvage Excavations. *ADAJ* 41: 49-69.

Copeland, L. 1979. Neolithic Village Sites in the South Beqa'a, Lebanon. *Mélanges de l'Université Saint Joseph* 45: 83-114.

Coqueugniot, E. n.d. Les outils lourds en silex taillé d'Abu Hamid: haches, herminettes, ciseaux, pics. outils de bûcherons et de charpentiers ou instruments agricoles. In G. Dollfus and Z. Kafafi (eds.), *Abu Hamid, 1986-1987.* Paris: ERC.

Dollfus, G. and Kafafi, Z. 1993. Recent Researches at Abu Hamid. *ADAJ* 37 : 241-262.

___ 1999. Sociétés et rites au lendemain du Néolithique. *Dossiers de l'Archéologie juin: Jordanie, sociétés, rites et religions:* 12-17. Editions Faton.

Ducos, P. 1993. Proto-élevage et élevage au Levant-sud au VIIe millénaire BC. Les données de la Damascène. *Paléorient* 19 1: 153-174.

Epstein, C. 1998. The Chalcolithic Cutlure of the Golan. *Israel*

[66] Chang Ho Ji 1997.

[67] Guilaine 1994.

Antiquities Authority Reports 4.

Evin J. 1995. Possibilité et nécessité de la calibration des datations C-14 de l'archéologie du Proche-Orient. *Paléorient* 21, 1: 5-16.

Fernandez-Tresguerres, V. J. and Junceda Quintana, F. 1991. Jebel Mutawwaq (Jordania). Campanas 1989-1991. *Estudios Biblicos* 49: 523-542.

Gal, Z., Smithline, H. and Shalev, D. 1997. Peqi'in. *Excavations and Surveys in Israel* 16: 22-24.

Garfinkel, Y. 1992. The Pottery Assemblages of the Sha'ar Hagolan and Rabah Stages of Munhata (Israel). *Cahiers des Missions Archéologiques Françaises en Israël* 8. Paris: Association Paléorient.

Gilead, I. 1988. The Chalcolithic Period in the Levant. *Journal of World Prehistory* 2: 397-443

Gopher, A. and Gophna, R. 1993. Cultures of the Eighth and Seventh Millennia BP in the Southern Levant: A Review for the 90 s. *Journal of World Prehistory* 7: 297-353.

Gophna, R. and Sadeh, S. 1988/89. Excavations at Tel Tsaf: an Early Chalcolithic Site in the Jordan Valley. *Tel Aviv* 15-16: 3-36.

Guilaine, J. 1994. *La Mer Partagée. La Méditerranée avant l'écriture.* Paris: Plon.

Hauptmann, A. and Weisgerber, G. 1987. Archaeometallurgical and Mining. Archaeological Investigations in the Area of Feinan, Wadi Arabah (Jordan). *ADAJ* 31: 419-37.

Hauptmann, A., Begemann, F., Heitkemper, E. and Schmitt-Strecker, S. 1992. Early Copper Produced at Feinan, Wadi Araba, Jordan. The Composition of Ores and Copper. *Archaeomaterials* 6,1: 1-33.

Hourani, F. 1997. Natural Constraints, Space Organization Models and Rhythm of Occupation at Abū Ḥāmid During the Seventh and Sixth millennium B.P. A Geo-archaeological Study. Pp. 67-76 in *SHAJ* VI. Amman: Department of Antiquities.

___ 1999. *Le cadre paléogéographique des premières sociétés agricoles dans la vallée du Jourdain.* Institut National de la Recherche Agronomique. Paris-Grignon: Thèse.

Hourani, F. and Courty, M. A. 1997. L'évolution morpho-climatique de 10 500 à 5 500 BP dans la vallée du Jourdain. In: P. Sanlaville (coord.), Paléoenvironnement et Sociétés Humaines au Moyen-Orient de 20 000 BP à 6 000 BP. *Paléorient* 23,2: 95-106.

Joffe, A. 1993. Settlement and Society in Early Bronze Age I and II, Southern Levant. *Monographs in Mediterranean Archaeology* 4. Sheffield: Sheffield Academic Press.

Joffe, A. and Dessel, J. P. 1995. Redefining Chronology and Terminology for the Chalcolithic of the Southern Levant. *Current Anthropology* 36 : 507-518.

Kafafi, Z. 1989. Abu Thawwab. In D. Homès-Fredericq and J. B. Hennessy (eds), *Archaeology of Jordan II.* Akkadica Supplementum VII .

Kaplan, A. 1958. Excavations at Wadi Rabah. *IEJ* 8: 149-160.

___ 1969. Ein el Jarba: Chalcolithic Remains in the Plain of Esdraelon. *BASOR* 194: 2-32.

___ 1972. The Wadi Rabah Culture. Twenty Years After. *Bulletin of the Haaretz Museum* 14: 23-29.

Kerner, S., Bernbeck, R., Camrichs, R. and Lehman, G.1992. Excavations in Abū Snesleh: Middle Bronze Age and Chalcolithic Architecture in Central Jordan. Pp. 43-54 in S. Kerner (ed.), *The Near East in Antiquity* III. Amman: Al Kutba Publications.

Khalil, L. 1987. Preliminary Report on the 1985 Season of Excavations at el-Maqass- 'Aqaba. *ADAJ* 31: 481-483.

___ 1995. The Second Season of Excavations at al-Magass 'Aqaba, 1990. *ADAJ* 39: 65-79.

Leonard, A. 1992. The Jordan Valley Survey, 1953. Some unpublished soundings conducted by James Mellaart. *ASOR* 50. Winona Lake/Indiana: Einsenbraun's.

Leroi-Gourhan, A. 1992. *Dictionnaire de la Préhistoire.* Paris: PUF.

Levy, T. E. and Alon, D. 1985. Shiqmim, a Chalcolithic Village and Mortuary Centre in the Northern Negev. *Paléorient* 11, 1: 71-84.

Lovell, J. L., Kafafi, Z. and Dollfus, G. 1997. A Preliminary Note on the Ceramics from the Basal Levels of Abu Hamid. Pp. 361-369 in H. G. K. Gebel, Z. Kafafi and G. O. Rollefson (eds), *Prehistory of Jordan II. Perspectives from 1997.* SENEPSE III. Berlin.

Mabry, J. and Palumbo, G. 1992. Environmental, Economic and Political Constraints on Ancient Settlement Patterns in the Wadi el Yabis Region Pp. 67-72 in *SHAJ* IV. Amman: Department of Antiquities.

Martin, L. 1993. *Technologies des textiles au Proche Orient du Néolithique à l'äge du Bronze.* Université Paris I: mémoinre de maîtrise

Nasrallah, J. 1948. Une station ghassoulienne du Hauran. *RB* 55: 81-103.

Neef, R. 1988. La couverture végétale et l'exploitation de l'environement au 4e millénaire. Pp. 18-19 in G. Dollfus, and Z. Kafafi (eds), Abu *Hamid: Village du 4e millénairè de la Vallée du Jourdain.* Ammān: Institut français et Direction Générale des Antiquités.

___ 1990. Introduction, Development and Environmental Implications of Olive Culture: The Evidence from Jordan. Pp. 295-306 in S. Bottema *et al. Man's Role in Shaping of the Eastern Mediterranean Landscape.* Rotteradam.

___ n.d. Plant Remains from Abu Hamid, an Early 4th Millennium Site in the Jordan Valley. In G. Dollfus and Z. Kafafi *Abu Hamid, 1986, 1987.* Paris: ERC.

Neuville, R. 1930. La nécropole mégalithique d' El Adeimeh, *Biblica* 11, 3: 2490-265.

Palumbo, G., Mabry, J. and Kuijt, I. 1990. The Wādī al-Yābis Survey. Report on the 1989 Field Season. *ADAJ* 34: 95-118.

Perro, J. 1991. Remarques introductives au volume "Le Levant Sud au VIIIe millénaire". *Paléorient* 19,1: 9-22.

Perrot. J., Zori, N. and Reich, Y. 1967. Neve Ur, un nouvel aspect du Ghassoulien. *IEJ* 17,4: 201-232.

Rosen, S. A. 1997. *Lithics after the Stone Age: A Handbook of Stone Tools from the Levant.* Walnut Creek : Alta MiraPress

Roux, V. and Court, Y. 1997. Les bols élaborés au tour d'Abu Hamid: rupture technique au 4e millénaire avant J.-C. *Paléorient* 23, 1: 25-44.

Sapin, J. 1985. Prospection géo-archéologique de l'Ajlūn 1981-1982. Exemple de recherche intégrante. Pp. 217-228 in *SHAJ* II. Amman: Department of Antiquities.

Stekelis, M. 1935. Le monuments mégalithiques de Palestine. Paris: Masson.

Stuiver, M. and Reimer, P. J. 1993. Extended 14C Data base and Revised calib 3.0 14C Age Calibration Program. *Radiocarbon* 35, 1 : 215-230.

Ussishkin, D. 1980. The Ghassulian Shrine at En-Gedi. *Tel Aviv* 7: 1- 44.

Wright, K. , Qadi, N., Ibrahim, K. and Mustafa, H. n.d. Ground Stone Artifacts. In G. Dollfus and Z. Kafafi, *Abu Hamid, 1986-1987.* Paris : ERC.

Juan A. Fernández-Tresguerres Velasco
University of Oviedo
Spain

Juan A. Fernández-Tresguerres Velasco

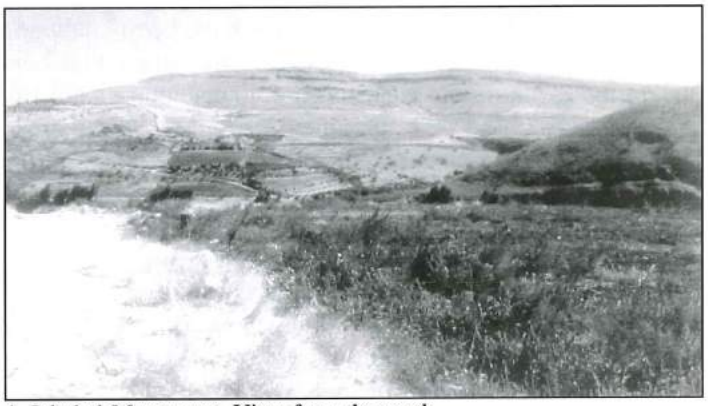
Jabal al-Muṭawwaq at the End of the Fourth Millennium BC

Introduction

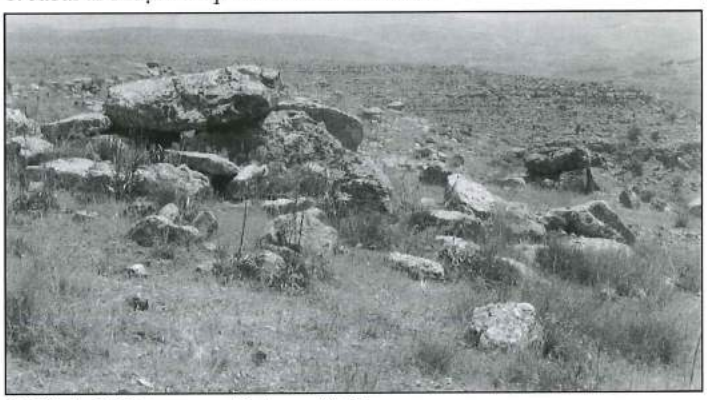
The region situated between az-Zarqā', to the north of the village of as-Sukhna, and the border of the desert in the east, has witnessed various occupations throughout the last centuries of the fourth millennium, the beginning of the third and the Early Bronze Age. These, from a chronological point of view, do not all belong to a same era, but are evidence of a similar exploitation of the territory during the Early Bronze Age by nomadic or semi-nomadic groups, which would have moved through the strip of steppe and probably penetrated towards the better irrigated areas. It is not possible, at present, to have a clear idea about the origin of these groups that occupied the territory after the dissolution of the Chalcolithic societies that populated the Jordan Valley (al-Ghassūl, Abū Ḥāmid, etc.) throughout the fourth millennium. However, the evidence from sites dating from the end of the fourth millennium in the south, as is the case with the cemetery of Bāb adh-Dhrā' (Schaub and Rast 1989) on the shores of the Dead Sea, and from locations more to the north, like Umm Ḥammād (Betts 1992), and even in the desert area of Jāwa (Betts 1991), seem to indicate that they were groups of people that moved through the territory driven by an economical system based on cattle breeding combined, at least in some places, with cultivation of corn, as we will see later on. The types of exploitation, determined by the variety of conditions of environment of the scarce space in which they move, must have been diverse.

In the area around al-Muṭawwaq, situated in the same meander in the az-Zarqā' River where it changes its stream from north-south to east-southwest, there are many different kinds of manifestations of this presence (FIG. 1). The exhaustive surveys of Dr Jean Sapin, concentrated on the steppe area that stretches out from the border between the Mediterranean area and the oriental desert, have provided plenty vestiges of this presence, particularly of the funeral kind, with numerous dolmen fields, including those of al-Muṭawwaq, that produced a vast number of about two thousand megalithic monuments (FIGS. 2 and 3). Just a few villages allow us to have an idea about the forms of occupation of the lands throughout the Early Bronze Age. Places like Marayim, Jabal Makhad and al-Muṭawwaq, among others, offer the clearest evidence of the presence of groups of human beings in the area to the east of the az-Zarqā' River. Another of these locations, a rocky spur between the "wadis" the 'Ayn and Ḥmayd, is one of the clear examples of a complex religious site of the same epoch. It is surrounded by important funeral monuments.

The short review of these complexes shows the variety of the human occupation throughout the last centuries of the fourth millennium BC and, at least, of the beginning



1. Jabal al-Muṭawwaq. View from the south.



2. Jabal al-Muṭawwaq. Dolmen field.



3. Jabal al-Muṭawwaq. Dolmen.

of the third. Even if we take certain affinities of the material culture of some of these populations into account, the divergences are striking enough to make us think about groups from different provenance that exploited the same region during relatively close periods of time.

Jabal al-Muṭawwaq

The Jabal al-Muṭawwaq site is fundamentally known through the surveys carried out by J. W. Hanbury-Tenison in the eighties (Hanbury-Tenison 1986; 1987; 1989). Regardless of some indefiniteness, the importance of the site was already apparent. Since 1989 we have been analysing various archaeological aspects of the mountain that bear reference to the Early Bronze Age. Conscious of the importance of achieving a global vision of the whole zone, surveys of the area, under the auspices of Dr Jean Sapin, continued to be carried out at the same time.

The first excavations Jabal al-Muṭawwaq were carried out on its slope, on a terrace at 450 m altitude, immediately situated above the PPNB occupation indicated by Hanbury-Tenison, Edwards and Thorpe (Hanbury-Tenison 1989; Edwards and Thorpe 1986). The excavations uncovered an area of ephemeral occupation, whose elements correspond to the traditional elements of the Early Bronze I found in the higher situated village.[1]

Subsequently, various campaigns were dedicated to the dolmen fields and tumuli. The last excavations that were carried out were those in some of the houses of Jabal Makhad[2] and in the so called "acropolis" of al-Muṭawwaq. At the same time, some of the caves were explored and the study of the agricultural terraces of the mountain was undertaken. In this study we especially took into account the different aspects of the different inhabited zones of the mountain, the religious structures and the terraces.

The situation of Jabal al-Muṭawwaq is essentially strategic because it is a passing zone between the north plateau of Jordan (and the routes that lead to Syria), the Jordan Valley and the more fertile areas in the west. Its location, in a border zone between a region with a Mediterranean climate in the west and the desert, with irregular rainfall during different years, would have made the occupation problematic had it not been for the wells ('Ayn Kharaisin and 'Ayn Qnayah) and the az-Zarqā' River that allowed permanent occupation of the area. As has been the case, although very irregularly, until the Preceramic Neolithic B, on the terraces that were closest to the valley (cf. Hanbury-Tenison 1989; Edwards and Thorpe 1986), until the Roman and Byzantine period, also close by the valley and the Qnayah well. Nevertheless, the occupation during the Early Bronze Age of Jabal al-Muṭawwaq has very peculiar characteristics. The settlement is situated at more than 570 m, far from the wells and the river and it stretches out through the whole flat area that reaches to the east at this altitude and extends later to places with an increasing degree of inclination.

Leaving aside the dolmen fields, which, although its origin seems contemporary of the settlement, its use was continued at times after the desertion of this settlement. The village offers various important aspects to interpret the whole. In the first place, it concerns an enclosed settlement that is a little longer than 800 m from west to east and a little more than 200 m from north to south. Inside, three areas can be defined, some of them, almost with certainty, developed at different times. The eastern area stretches out over the most even part of the mountain, and within this area living zones can be made out and another space which we could denominate ritual. Another section, of the central sector of the village, partly stretches out along an area towards which various tracks lead. At this point, one of the gates, known as the "South Gate", that opens in the enclosure can be found. To the east of the central sector there is a big enclosure that, without doubt, can be explained as a place with a religious function. The eastern sector is located on a rather steep mountainside, which is not very suitable for a natural habitat, however at a certain time the village extends towards this place. More to the east, the most important area can be found, an area with agricultural terraces, partly used as foundations for the houses at the time of the expansion of the village. This

[1] The works are financed by the "Instituto Biblico y Arqueológico Espanol" (Jerusalem) and the Spanish Ministry of Culture, with the collaboration of IFAPO, Damascus. The research at Jabal al-Muṭawwaq is also directed by F. Junceda Quintana, who has carried out the excavation of the dolmen fields. We would like to thank Dr Jean Sapin (CNRS) for his collaboration, and J.-B. Humbert and Christophe Nicolle (IFAPO at Damascus) for their contribution. We must also thank the Directors of Department of Antiquities of Jordan, and Mr Khaled al-Jbour, Inspector of Antiquities from al-Mafraq.

[2] The Jabal Makhad site is situated over a rocky spur between Wādī Makhad and Suwayinat, near the village of Ḥammana and at around 1.5 km to the southeast of Jabal al-Muṭawwaq.

superficial description allows us to understand the complexity of the settlement, which seems to have been more than just a simple gathering of farmers or cattleman.

Structures of the Settlement

One of the first facts that stands out is, that all the structures are at the surface, which enables us to observe with relative clarity the arrangement of the settlement, the location of the houses and the perimeter wall. It also indicates another phenomenon; the village was only inhabited during the Early Bronze Age IA (although, it may be possible at various moments of this period). There are no higher layers that indicate subsequent occupation, although various vestiges from other periods are evidence of other much later groups that passed through the area (from the Roman, Byzantine and Ayyubid periods). Unfortunately, large sectors of the village were destroyed because of the construction of tracks and terraces, which served to hold back the earth that was dragged along by the heavy erosion, a problem that is not of recent date. In many areas the limestone rocks were completely washed away because of the heavy rains in winter.

The village is surrounded by a wall. We cannot say if the wall was built with a defensive function in mind. It seems to be more a simple wall that was built with big blocks of stone, normally just thrust down on the ground on one of its smaller sides, or pushed over on a bigger base when set over the mother rock. This wall was fortified or erected with smaller stone blocks, as can be seen at some points where the rock slides were retained having formed this way a talus before the wall. The stones used for the walls are the same as those used for all the constructions: the big tabular limestone rocks that came loose from the mountain layers. In no way they seem to be elaborated. The main part of its outline is only a simple wall line, destroyed in its biggest part on the north side, because of the construction of tracks. In other parts, for example around the southern gate, two or three wall lines can be observed. The primitive wall only enclosed the western and central sectors, excluding the big wall which we indicated is located to the south of the southern gate. All along the southern part the wall follows the line of the cliff, from where the village extends towards the north. At some points to the west and to the south, small roofed semi-circular structures, both inside as outside the wall can be observed. When the village extended towards the east a more rudimental wall was erected on the terraces to indicate the limits of the settlement.

The Houses

Within the perimeter outlined by the wall, houses were closely constructed together occupying all the available space. We did not find any urbanistic design, nor the intention to leave big central spaces open, as we can find for example in the site near Jabal Makhad, where the houses form the exterior perimeter while leaving open in the interior a big space like some kind of central court (FIG. 4). In the whole extension of the settlement of al-Muṭawwaq only at one point there seems to be a sort of small alley that leads from the wall towards the interior of the inhabited nucleus in the south-eastern part of the western sector.

The houses differ in many aspects from the habitat structures of the Chalcolithic, such as can be seen in al-Ghassūl or in Abū Ḥāmid. At al-Muṭawwaq the habitat, as has been observed in the ten houses excavated up until now, characterizes itself by always having the same structure. They are composed of two simple parts: one is a broad room with an oval floor, with earth or with a light plastered whitish fragile floor, and a court. Its length varies between 10 and 14 m and its breadth between 3 and 4 m. They are constructed with big stones that were not rough-hewed to form the floor, nothing was found during the excavations that offers clear evidence about the way these floors were covered. It is most probable that they were covered with fine structures that were easy to lift, especially as in none of the cases could it be seen that any kind of wall was constructed with clay or that there had existed some kind of cover with reed.

Not in any of the excavated houses so far could we observe any kind of division of the inner space. Neither, except in one case, have fireside structures been found.

The manner of construction of the houses differs according to the place where they were erected. In the levelled parts they restricted themselves to placing some unprocessed stones, which they dropped on the ground or directly on the mother rock which is at some places perfectly level. The floor was filled with earth in those places where there were fissures or where the ground was slightly inclining. In those places where the degree of inclination was bigger, in the western part of the village, they built terraces and filled them up with earth (which



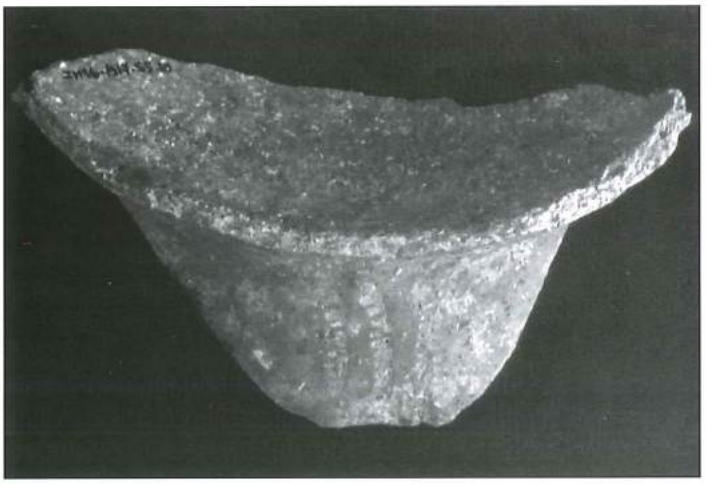
4. East sector. House.

generally consists of an enormous amount of pottery, flint and bones) to level off the ground and subsequently they raised the house. In this same sector the oldest agricultural terraces were frequently re-used to construct houses on top of them. This fact seems to indicate a moment of expansion of the village, be it because of population growth or desertion of other sectors.

The doors of the houses open towards the court. From data that could be obtained from some houses, the doors were put together with two door posts with a height of 70-80 cm, a threshold and a stone lintel. One of these doors—although somewhat more monumental—is conserved in the big wall situated between the central sector and the western sector of the village. With regard to the court, this was formed by stone blocks, generally smaller than those that formed the base of the houses.

The furniture was very simple: storage jars lined up along the court walls (FIG. 5), small bowls, holemouth jars and some grinding stones.

The fact that the houses only show vestiges in one or two occupations is important. At al-Muṭawwaq integrated structures were found within and outside the wall that surrounds the village. But leaving aside those that are remote in time, either those that correspond to the PPNB or to the Roman or Byzantine period, all the vestiges correspond to various moments of the Early Bronze Age I. There is an initial period in the occupation, of undetermined chronology, of which little circular structures are found buried under the agricultural terraces, or even in the very village and possibly in the caves. Except for those, that are without any doubt related to the first builders of the village, we have not found vestiges of earlier occupations. Nor have perceptible traces been found that indicate that habitation continued at later moments. However, on the other hand, it is certain that from the Early Bronze Age I onwards the mountain could have conveyed a religious or funeral function. There are, nevertheless no clear traces of habitation nor economic exploitation of the place. This places it in a peculiar position regarding its interpretation. There is no evidence of continuity of occupation, as there is in other, more western, places, which would allow the village an evolution into a more or less developed urbanism. If we take the planning into, account, al-Muṭawwaq is not much more than a village of considerable proportions that was occupied during a certain, still not determined, time of the end of the fourth millennium or the beginning of the third millennium BC. with possible temporal desertion. The temporal desertion could be demonstrated with the stratigraphy of the houses in which, not infrequently, a double level of occupation can be observed.



5. Handle with seal impression.

The case presents certain resemblance with Jāwa, where the occupation of this same period was not continued and centuries must have passed before it was occupied again. In the case of al-Muṭawwaq, however, we have additional information close to the site that allows a further interpretation. For the moment, we lack elements that make it possible to establish the origin of this population. There are vestiges that apparently relate the constructive tradition of al-Muṭawwaq with others, that we found more to the west, as is the case of the characteristic oval plan (Byblos, Yiftahel, etc.). Nevertheless, this identity is purely superficial and restricts simply to this case. The houses of al-Muṭawwaq (as we have indicated before) do not permit establishing in which way they were covered. If we simply observe the data provided by the excavations of the latter, it is even possible that we are dealing with light structures closer to the characteristic nomad structures than to the more sedentary with more stable constructions. The houses of al-Muṭawwaq seem to be more fragile in their structure than those of Jāwa, Umm Ḥammād or even those of the village close to Jabal Makhad, where the land slides that filled the houses show more solid constructions with stone walls.

On the other hand, the type of pottery of al-Muṭawwaq, which is generally coarse, is also found in the characteristic sites of Jāwa or Umm Ḥammād, with some types that are not found in the earlier mentioned places. It was usually hand made, except for some items that were made with the use of a turn-table, with simple decoration of thumb impressions, incisions and red or sienna paint, or with simple geometric designs (wavy lines, point, parallel oblique lines, etc.). Metal vestiges are highly rare and restricted to some pin fragments that were found in one of the houses of the central sector. The rest of the metal objects, a ring and part of a disc, both of bronze, were found in situations that allow the assumption of a posterior chronology.

The Terraces and the Tracks

The occupation of the mountain required the structuring of an important network of tracks that led from the well of

Kharaisin to the village, coming together at the southern gate and the eastern terraces. They followed the lines with the least degree of inclination and, except in some cases. To maintain some more prominent levels, some coarse stairs with steps of unhewn blocks of stone, were constructed. At some points, where the tracks narrowed dangerously, terraces were constructed to extend them (FIG. 6).

At various points of the mountain, walls can be found which were placed perpendicularly in areas with greater inclination. The function of these frames was to contain the earth and accumulate it and at some points to exploit the accumulated earth for agricultural purposes. Their efficiency is apparent, because until today in those areas where they were constructed there is still a considerable consistency of earth. The pottery and vestiges of the industry of basalt are characteristic of the Early Bronze Age I. Some of the disclosed vestiges are related to agricultural activities: sickle blades and a tool that seems to be a fragment of a hoe made of basalt.

A Hypothesis about the Economic System

The information that is being found related to the economic system of the village, indicates a dry culture, made possible with terraces constructed on the mountainside, olive exploitation, cattle raising of goats and sheep and the presence of asses (which must have been necessary at least to transport water from the wells to the higher levels of the mountain: until now no kind of structures have been found that allowed gathering and holding water).

All the elements seem to sketch a kind of seminomadic groups that exploit this part of the territory. This system was not abandoned when al-Muṭawwaq was deserted. Close to the mountain there are other settlements, big ones as the one at Marayim, or small ones as those at Jabal Makhad and some others pointed out in the surveys of J. Sapin, that extend towards the desert area. From a chronological point of view it seems that these places are from the Early Bronze Age I and III, with no continuing occupations, that can persist until the early moments of the Middle Bronze Age. This appears to indicate the presence of groups of human beings in the region, that extends during a relatively long time, dedicating themselves to the seasonal exploitation of the scarce resources of the territory. In fact, in this whole area one had to wait until technological more advanced times before more permanent settlements could be established.



6. East sector. Terrace.

The disposition and the type of uniform houses that we found in the village seem to be the expression of an egalitarian society. We did not find any architectural signs of social differentiation nor function. On the other hand, the vestiges we have of what could be called a religious architecture are important. We cannot say that the spaces that were marked out for these kind of activities have any resemblance with what we know of the chalcolithic world, for example that what could be construed as a sanctuary in al-Ghassūl or like the kind of temple in En Gedi. In al-Muṭawwaq they restrain to enclosures. We have at least two that can be included in this consideration. The first one of them is located in the western sector of the village. It is close to a big tumulus around which we have found foundations of walls (which, as all the architecture of al-Muṭawwaq are just thrust stones). The interpretation of these sites is complicated because of the fact that the area has been changed recently, to use the stones for the construction of terraces. However, it is not complicated in the second big enclosure, which, as indicated earlier, can be found between the central and eastern sectors (FIG. 7). This one was raised after the cliff, that is steeper at this point. Except for the part where it leans over the cliff, it is enclosed by a thick wall (more than a metre at some points) of big unhewn stones, that were not placed as those found in the houses, but without the use of a foundation over one of its broad sides, forming various irregular lines. The entrance is formed by a gate, situated in the north west, which is completely preserved because it was protected by a tumulus that partly concealed it. This wall encloses a space of some 60 m east to west and 40 m north to south, that inclines towards the precipice where it remains open. This is an indication of the fact that it does not concern an enclosure to hold cattle. The excavation carried out around a big stone block, with a prismatic form close to the northern wall, shows the possible ritual use of this space. The block is situated over a very flat layer of limestone, that forms the natural floor of the mountain and that declines forming broad steps towards the cliff. At the south face of the stone a little semicircular podium was constructed with stones filled with blocks of smaller size and joined by mortar. Close to this podium a small fragment of a bonze disc was found, which, as we already mentioned, is a strange remnant on al-Muṭawwaq and



7. Central-East sectors. Enclosure.

makes us suppose that we are dealing with an object from a chronological posterior use than that of the village, on account of which the place may have been visited during a posterior time—during which the use was restricted to funeral (dolmen fields) and religious function—or to an economical exploitation that did not leave any discernible traces. As a matter of fact, al-Muṭawwaq is close to places such as Jabal Makhad and Marayim. Of course, it is not the only place where these thrust stones appear. They are found in other dolmen fields in the area and in the rocky spur between the "wadis" of 'Ayn and Ḥmayd, where an authentic sanctuary can be found, much more complex in its structure, also from the Early Bronze Age. However, in spite of the differences in structure of these sites, it seems clear that both are a manifestation of the use of the high places with a ritual purpose and the *massebot* as a form of religious expression.

Bibliography

Betts, A. (ed), 1992. *Excavations at Tell Um Hammad. The Early Assemblages (EBI-II).* Edinburgh: Edinburgh University Press.

1991 *Excavations at Jawa 1972-1986. Stratigraphy, Pottery and Other Finds*, Edinburgh University Press, Edinburgh, 1991.

Edwards, P.C. and Thorpe, S. 1986. Surface Lithic Finds from Kharaysin, Jordan. *Paléorient* 12: 85-87.

Hanbury-Tenison, J. W. 1989. Jabal al-Muṭawwaq 1986. *ADAJ* 33: 137-144.

——1986. *The Late Chalcolithic to the Early Bronze Age I Transition in Palestine and Transjordan.* Oxford: BAR International Series 311.

——1987. Jarash Region Survey, 1984. *ADAJ* 31: 129-157.

Schaub, R. T. and Rast, W. E. 1989. Bab edh-Dhra'. *Excavations in the Cemetery Directed by Paul W. Lapp (1965-1967).* Reports of the Expedition to the Dead Sea Plain, Jordan, vol. I. Winona Lake, Indiana.

Kay Prag
The Manchester Museum
Manchester University
Manchester M13 9PL
UK

Kay Prag

The Third Millennium in Jordan: A Perspective, Past and Future

Introduction

Viewed from the perspective of the last forty years, the most significant change in archaeology in Jordan has been a movement away from the focus on large town or city sites to landscape archaeology; this has involved not just a difference in choices, and in data retrieval and management, but has demanded new theoretical approaches. The process has in part been governed by the development of techniques for retrieval of organic evidence—the development of flotation systems for recovering carbonised plant materials in the 1960s, with the by-product of retrieval of small animal bones and microliths to supplement sieving—a processual archaeology (Binford and Binford 1968) "studied through the relatively disinterested medium of palaeo-environmental data" (Bourke *et al.* 1995: 32-33). This information has led inevitably from the study of the site itself, to the fields around the site, and then to the site hinterland. This in turn fuelled the development of ethnoarchaeology in the 1970s.

The development of intensive survey systems has also produced evidence on an unprecedented scale and impacted on in-field work, inviting statistical processes involving random sampling, smaller areas of more intensive excavation, and more varied site selection. The scientific input from the various dating processes and from chemical analyses, has had an impact on both the absolute chronology and on our understanding of inter- and intra-site relationships.

Accompanying shifts in theoretical approaches, mostly developed outside Jordan, paralleled these activities. Due to Jordan's environmental variability, high level of marginal pastoral land and agro-pastoralism, and low level of state formation and urbanization, the application of central place theory, and ideas on chiefdoms and state formation, which had been applied successfully in the plains of Mesopotamia and north Syria, have been less successful in the south.

Brawer (1985) estimates that over 95% of the land in Jordan is built-up, non-productive, desert or grazing land; it is certain that a very large proportion of land in the past was devoted to pastoralism. This balance should be considered when ancient economies are assessed. Wilkinson (1994: eg. Fig. 17), in his important study of dry-farming states in northern Mesopotamia, described pastoralism as mainly concentrated on the periphery of settlements. Others have been inclined to consider pastoralism as the more stable element in such economies, and this may well be true for Jordan (see H. H. Curvers in Wilkinson 1994: 506). Pastoralism, particularly agro-pastoralism, is much more likely to be an integral or linked element of village and town economies in the south Levant, and as such to provide greater flexibility in times of stress than a reliance on intensive agro-horticultural regimes.

Theoretical Debates

For the third millennium, approaches to the archaeology of Jordan have been characterized by aggressive modelling, linked to single or simple explanation; the models have moved from 1960s explanation in terms of external population movements, to cycles of indigenous change, described in a multiplicity of terms in the1980s, both in the Near East and elsewhere.

1. "Theory about how food systems intensify and abate", "repeated cycles of intensification and abatement" are linked to "the varying rates at which sedentarization and nomadization have occurred" (Geraty *et al.* 1986: 117-119; LaBianca 1990);
2. "specialization" and "despecialization" as factors in the "rise and collapse of urbanism" "specialized urban economies devolved to the despecialized milieu reflected in the EB IV material record yet in strong continuity with earlier EB traditions" (Richard and Long 1995: 82); "decentralization" and "abatement"; "from specialized urban to despecialized nonurban" (Richard 1990: 56); and for the site of Iskandar "urban continuity in a period of urban regression" (Richard and Boraas 1988: 107-108);
3. "village level agro-pastoralism to urbanism and back"

(Joffe 1993);
4. "uneven and discontinuous cycles of economic and political development" (Mathers and Stoddart 1994);
5. "oscillations" in the "nomad-sedentary continuum" (Finkelstein 1995: 26); "cyclic processes in the arid zones" (Finkelstein 1995: 155).

Theory based on cycles of activity also relate to economic theories of "boom or bust", neatly summarized in the case of medieval Northampton (Shaw *et al.* 1997: 408-415).

Many of these terms have been applied specifically to the south Levant in the third millennium, and often describe a discernible archaeological process. They do not necessarily explain the factors which trigger the process, and they do not always identify whether the triggers or the processes are identical, either between sites, or over long periods of time. In historical circumstances, it can be seen that these triggers are complex and varied in terms of human responses to environmental and political circumstances. Complex theory is more likely to elicit valid responses from complex evidence.

Early Bronze Age I-III

The EB I is a period of change, when all agree that there is impetus towards central fortified settlements, often described in terms of urbanization and of 'secondary state formation', and towards a long term and wide-spread cultural homogeneity. Hanbury-Tenison (1986) interpreted the data in terms of increasing socio-economic complexity in the EBA, with dependence on the same (Mediterranean) products as in the preceding Chalcolithic, but with a change in organization: from tribal society and greater emphasis on herding, to fixed plot cultivation and urbanization in EB I. These changes are linked to the production of surpluses and foreign, particularly Egyptian exploitation (e.g. Esse 1991). Continuity in architectural forms, and overlap with early fourth millennium assemblages are adduced in support of this process. Opinion tends increasingly to perception of the enclosure of protohistoric settlements within the region (summarized by Mabry *et al.* 1996: 150) in a process of development towards more complex societies.

Large Sites

Urbanization is described in terms of settlement size, presence of fortifications such as those recorded at Jāwa; public buildings (judged by scale, content and linked architectural conceptualization) such as palaces/temples/altars which suggest hierarchically organized societies. Economic organization (and central place theory) is suggested by water harnessing systems (eg. Jāwa, al-Ḥandaqūq North, see Mabry *et al.* 1996: 124; az-Zayraqūn, see Ibrahim and Mittmann 1989) and communal grain storage. The evidence revealed many years ago for large granaries at Khirbat al-Karak has reflections at Tall Abū al-Kharaz (Fischer 1997: 164) where grain was stored in far greater quantities than would fill the needs of an ordinary household. It was proposed that this was a centrally administered grain storage area, and therefore grain may have been a medium of exchange, for goods such as copper. Wine or olive oil production on a large scale at as-Sa'īdiyya may also be a factor in EB II (Tubb and Dorrell 1994: 63). Seals and seal impressions presumably reflect an increasing need for administration, and large numbers have been recovered from the excavations at az-Zayraqūn (Ibrahim and Mittmann 1989; Vieweger 1997: 151, n. 9) and from other sites.

This unitary development through the EBA is however being questioned: Gophna (1998) points to signs of instability, which are reflected in the number of sites which appear to have been abandoned during the EB I period, or destroyed or abandoned during the EB II period (eg. al-Ḥandaqūq North, as-Sa'īdiyya); Finkelstein (1995) suggests that interpretation should account for the diversity of polymorphic societies, with agro-pastoralist and specialized pastoralist components. Theories involving smaller scale urbanism, not pristine or secondary state formation, are perhaps more appropriate, with 'middle-range' theory linked to the scale of the urbanizing phenomenon in the south Levant. The development of an antiquities database in Jordan (JADIS) should also in due course provide a controlled statistical base for understanding scale and distribution factors in the observed phenomena of the period.

The excavations (1991-1993) at ash-Shūna North by Baird and Philip (1994) aimed at reaching an understanding of the development of major centres in the fifth and fourth millennia, dates outside the nominal scope of this paper, but the beginning of the Early Bronze Age is now generally agreed to lie in the mid-fourth millennium. The series of calibrated radiocarbon dates published by Joffe and Dessel (1995) for the Chalcolithic Period, with terminal dates around the middle of the fourth millennium, are in line with the series of radiocarbon dates from the excavations at ash-Shūna (not yet fully published, but see Philip and Rehren 1996, 131; Baird and Philip, pers. comm.); a further series of dates for the EBA is available from Tall Abū al-Kharaz (Fischer 1996).The increasing number of radiocarbon dates now available provides a foundation in any assessment of the period. (TABLE 1). Ash-Shūna also produced evidence for on-site copper working, and for the use of silver, in the EB I period. For copper exploitation in Jordan, there is the well-documented evidence from the Faynān region (Hauptmann *et al.* 1992); the availability of silver for prestige items supports the growing evidence for long-distance circulation, and probable recycling, of metals, going back to the fifth millennium, thus indicating a long-

TABLE 1. Chronology of the Chalcolithic and Early Bronze Periods in the South Levant. (After Joffe and Dessel 1995; Fischer 1996; Philip and Rehren 1996).

Period	Calibrated Dates B.C.
Initial Chalcolithic	5000
Developed Chalcolithic	4500 - 3700
Terminal Chalcolithic	3700-3500
Early EB I	3650-3350
Late EB I	3350-3050
EB II	3050-2850/2750
EB III	2850/2750-2350
EB.MB (=EB IV/MB I)	2350-2000/1900

established, long-distance network of exchange and exploitation of raw materials against which must be set our perceptions of the third millennium (Prag 1978; 1986a; Philip and Rehren 1996).

Town fortifications are generally seen as primary evidence for urbanism in Jordan, and the walls at Jāwa (Helms 1981) are described as an early diffusion from the north (McClellan and Porter 1995), even if still viewed as an anomaly (Betts *et al.* 1995: 166); but fortification walls have also been dated to this period at Jabal Muṭawwaq (Mabry *et al.* 1996: 150) and as-Sa'īdiyya (Tubb *et al.* 1996; 1997). For the most part, EB I sites appear to be unfortified and to have a more open and dispersed character as at Iktanū (Prag 1993: 269; and forthcoming a). A classic example is the site of Bāb adh-Dhrā', where Chalcolithic sherd scatters appear to have been succeeded by remains interpreted as those of seasonal pastoralists in EB IA; an unfortified village of more permanent nature in EB IB; successive walled settlements in EB II and III, with a destruction followed by an open settlement mainly outside the earlier enclosure in late EB III and IV (Schaub 1993: 130-136), a pattern similar to that at Jericho.

The characteristic formation of larger sites in the EB II and III periods often exhibits a walled acropolis and lower town, protecting the water supply and agricultural land. The remarkable Tall Yarmūt in south-west Palestine (de Miroschedji 1993) has echoes at az-Zayraqūn in north-east Jordan (Ibrahim and Mittmann 1989), at Abū al-Kharaz (Fischer 1996), at as-Sa'īdiyya (Tubb *et al.* 1996), Bāb adh-Dhrā' (Schaub 1993: 130-136), al-Ḥammām (Prag 1991a: 65; 1993: 271-2, Fig. 1) and other sites in Jordan. However the scale of these sites is relatively small (TABLE 2), many still shelter courtyard houses, and feature smaller postern gates as well as more elaborate main gates. The function of postern gates may be linked to the keeping of flocks within the walls and an on-going pattern of agro-pastoralism. Indeed whether the large walled towns have a role as territorial markers as much as defence has been proposed (Prag 1995b: 84).

TABLE 2. Settlement size and population estimates.

Site and date	Area	Population estimate (100/200 per ha)
Jabal al-Muṭawwaq EB I	28 ha, walled	2800/5600
Jāwa EB I	12 ha, walled	1200/2400 (Helms 3378-5066)
al-Ḥandaqūq North EB II	25(-30) ha, walled	2500/5000 (Mabry 1000+)
as-Sa'īdiyya EB II	(5-)8 ha, walled	800/1600
az-Zayraqūn EB III	12 ha, walled	1200/2400
Tall Yarmūt EB III	16 ha/40 acres, walled	1600/3200
Bāb adh-Dhrā' EB III	3.6 ha/9 acres, walled	360/720 (Schaub 600-1000)
al-Ḥammām EB III	15 ha/37 acres, walled	1500/3000
Iktanū EB.MB	14-18-22 ha/35-44-54 acres, unwalled	1400/2800-1800/3600-2200/4400 (Prag 2500?)
Mishra' al-Abyaḍ II EB.MB	? 30 ha, unwalled?	?3000/6000
Iskandar EB.MB	4.5 ha/(7-)11 acres, walled	450/900

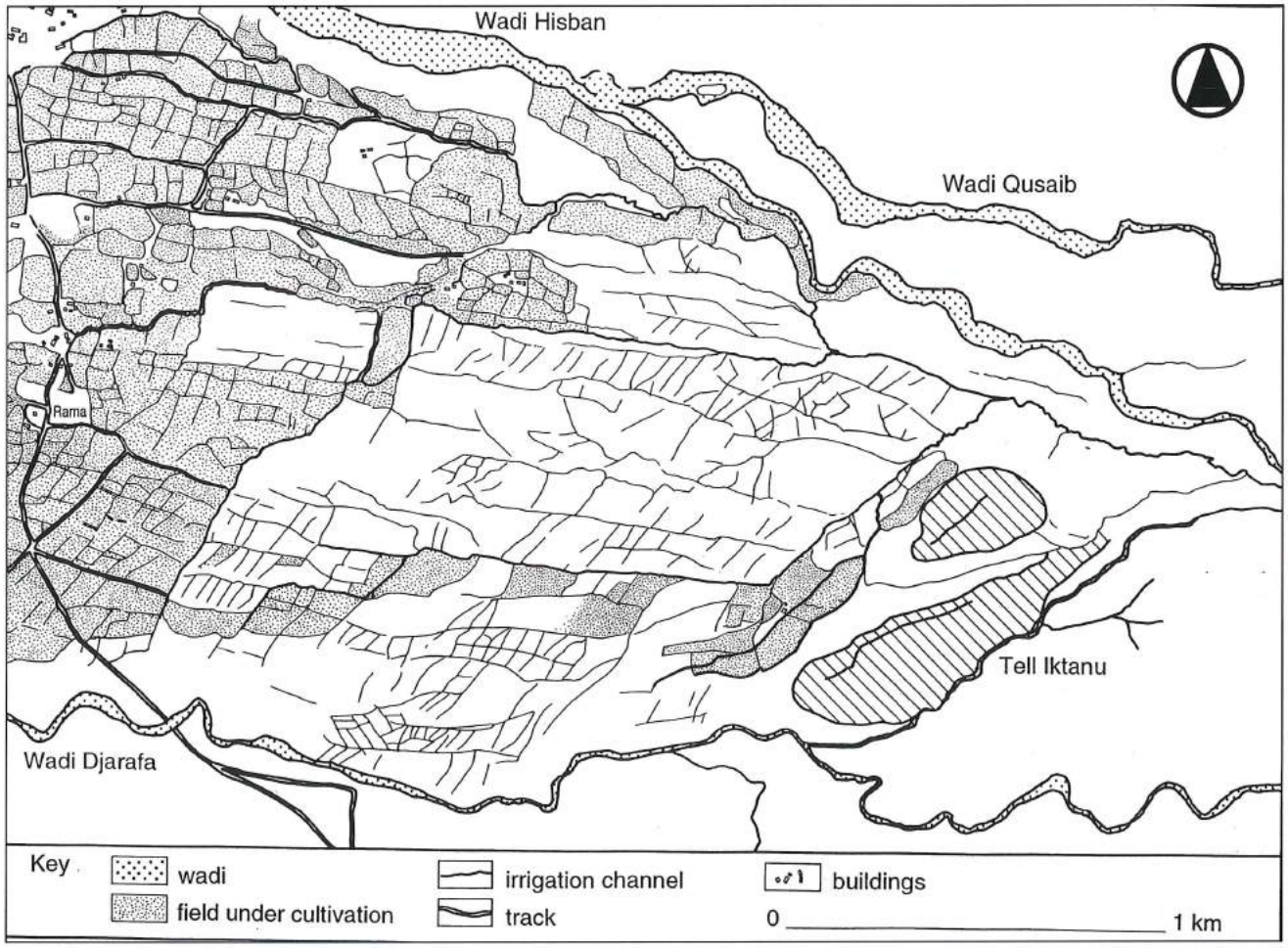
Small Sites and Landscape Studies

The emphasis however should not remain solely with these more spectacular and well-known sites. With advances in the use of air photography (Kennedy 1997) and the survey of field systems, there is greater potential for assessing the position of the larger sites in the countryside. Many examples of such work could be cited. In his analysis of survey evidence from the Mādabā region, Harrison (1997) noted a pattern of isolated site clusters around water sources in the Late Chalcolithic and EB I, a denser pattern in EB II-III, with centres of population showing a low level of integration and centralization, sociopolitically autonomous, in a landscape more rural and self-sustaining than urban. Recent comprehensive survey work on the extensive field systems at Wādī Faynān (Barker *et al.* 1998; 1999) has given rise to hypotheses concerning the development of early, perhaps Chalcolithic, flood-water farming on the wadi systems descending from the plateau to the Jordan/'Arabah trough, with some evidence from Faynān for EBA walls underlying the later Nabataean, Roman and Byzantine field systems. Such patterns also would not be unexpected in the vicinity of al-Ḥammām and Iktanū, where the flow of perennial streams

onto the alluvial soils adjacent to these large EBA sites, suggests they probably controlled gravity-fed irrigation to extensive field systems (Prag forthcoming b) FIG. 1. The evidence for production of flax under irrigation in the Early Bronze Age (eg. Schaub 1993: 135; Mabry *et al.* 1996) also supports these patterns. The dating of a particular type of wall in the field system at Faynān, with stones set upright in rows (Barker 1999: 269, Figs 10 and 11), is paralleled by similar walls of similar date in the excavations by K. Wright (person. comm.) on the EBA site WF100 in Wādī Faynān. These walls can be compared to the construction of the presumed animal pens at Rawda Site 3 (FIG. 2) which may date to the EB I period (Prag 1995b: 79), and in the enclosures at the west end of Iktanū (Prag 1995b: 79), which may also be animal pens and which appear to date to the EB / MB period.

J. Mabry, in searching the banks of incised wādīs for buried sites, in 1987 discovered an EB.MB site in a cutting near the south bank of the Wādī Ḥisbān, several metres above the present incised wadi bed, but beneath 1.60 m. of alluvial soil and the present field surface (Iktanū Site G: Prag 1990: 123) (FIG. 3). P. Macumber found a buried Epipalaeolithic site nearby on the north bank of the Wādī Ḥisbān. Rawda Site 1, covering an area of *ca.* 100 x 100 m., is a small EBA site which is almost invisible in the landscape, perhaps a site buried beneath alluvium, with sherds turned up by modern deep ploughing (FIG. 4). "Many prehistoric and early historic sites in the Wādī el-Yabis basin are buried under colluvial and alluvial sediments, visible only in eroded slope and wadi bank exposures" (Mabry and Palumbo 1988: 277). Whether it will ever be possible to retrieve much evidence for early sites and field systems buried in such alluvial deposits is questionable; indeed the agricultural development of the Jordan Valley may preclude this task; this increases the value of the evidence from arid zones, such as the Faynān project. A recent excellent summary of survey work and its theoretical basis by Harrison (1997) draws attention to potential sources of distortion in the field record, including processes of erosion and burial of sites.

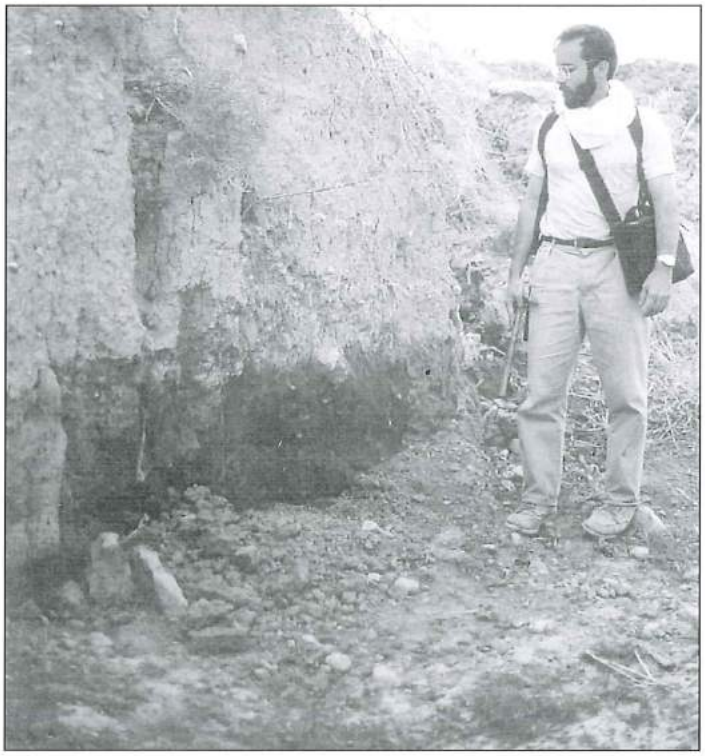
The variety of EBA activities, for which evidence increases every year, will undoubtedly change our perspectives; the assessment of small sites and landscape activities may add considerably to the evidence deriving



1. Tall Iktanū and adjacent field systems; from Huntings Air Survey, noon, 15th September 1953; uncorrected, slightly oblique view from the south-east.



2. Rawda Site 3. Dolmens and wall alignments in centre; ar-Rawḍa to west; from the north.



3. Iktanu Area G; bulldozer cut through the alluvium, with dark soils at base associated with EB.MB ceramics; found by J. Mabry in 1987.

from the so-called 'urban' sites and lead to further reconsideration of the nature of urbanism in the region.

In the Early Bronze Age, the causes of the rise and fall of defended towns based on agriculture has been a matter of debate—why did the low-level 'urbanism' of the south Levant fail late in the third millennium? Why did some EB I sites become walled towns with public buildings, while others were simply abandoned; why were some towns fortified in EB II, but then abandoned? Why were many towns destroyed at the end of EB III? There was no uniform process to suggest major invasion of the region. The revealed pattern is similar east and west of the Jordan —Iktanū, like Jerusalem for example, seems not to have been fortified in the EBA, and was probably abandoned through most of EB II/III; as-Sa'īdiyya, like Arād was fortified in EB II, but abandoned in EB III; while other sites such az-Zayraqūn, like Tall Yarmūt and Jericho, were fortified in EB II and remained so during EB III; perhaps some answers lie in the nature of the economic basis on which each settlement was founded—in some regions the agricultural base was too marginal for the nature of contemporary development, and the population fragmented, with some elements developing a more mobile pastoral existence, and others being attracted to developing agricultural and expanding urban economies elsewhere, thus



4. Rawda Site 1 found by G. W. Newton in 1989; EBA sherds in ploughed ground marked X beside the gully to right; looking west towards ar-Rawḍa.

creating an influx from 'countryside' to 'town'; if so, the same kinship groups may have diversified to sedentary and nomadic lifestyles

The Late Third Millennium

The EB IV (= EB IV/MB I = EB.MB) period is most often described in current theoretical terms as the final cycle of the EBA: a linear decline following the rise and peak of urbanism, though there is some debate around the use of the term urban. No-one disputes the elements of continuity between EB III and the EB.MB period, though some continue to press for a complete break at the end of the period, with little or no continuity to the MBA. Combining this view with adherence to the indigenous cycles of urbanism theory demands some agility. Harrison (1997) notes that for the EB.MB period, the settlement pattern of the Mādabā area reverts to that of the Late Chalcolithic/ EB I, and other similarities between these periods have been proposed (Prag 1995b). The EB I period is usually seen as a period of vigorous change, and the EB.MB period as one of decline; perhaps it too should be reconsidered as a forerunner of social change.

Richard (1986: 11-12) noted that the changes from EB III to EB IV were dramatic, but this statement was qualified shortly afterwards: "Sociological change at ca. 2350 BC now appears to have been far less dramatic than hitherto believed, and the adaptive strategies of the EBIV peoples were not everywhere as simple as the current pastoral-nomadic model would suggest." (Richard and Boraas 1988: 108). In support of her model of EB III/EB IV continuity, Richard listed 14 points of continuity between the EB III and EB IV, based around the perception of Iskandar as a final illustration of EBA urbanism. Taken singly, many of these points are debateable as representing urbanism, but together they present a more sedentary image than that projected by the Kenyon model in the 1960s; more similar to Glueck's interpretation (from 1935: 138 to 1970:157) of an advanced civilization based on fortified sites, extensive agriculture but a semi-sedentary population. Much work has gone on since that time however, including a reassessment of Glueck's work. Settlement patterns still indicate a substantial degree of change, and many conumdrums still remain to be investigated. The on-going tendency, to polarize the discussion between the long-discarded "Amorite invasion" hypothesis, and the current "cycles of urbanism" model,

leads to a series of restatements of hypothesis and aims which are confusing. At least there is increasing consensus that the issues are complex, and not readily explicable by strong statements of simple interpretation ("models"). In this sense, post-processual and interpetative archaeology may represent a more adaptive and penetrating way forward.

What are the main problems, and how can they been addressed? Two of the most extensively excavated EB.MB sites in Jordan, Iktanū and Iskandar, highlight some of the problems. They have a great deal in common, though rather contrasting environmental regimes and site structure; together, and when finally published, they have much information to offer. On current evidence, both sites appear to have been abandoned between the EB I and the EB.MB period (although some possible early EB II occupation is found at Iktanū, and a few EB III ceramic fragments from Iskandar have been recorded); in this Iktanū and Iskandar differ from both Jericho and Bāb adh-Dhrā', sites which reveal continuous occupation from EB I until a destruction in the EB III period. The EB.MB populations in the immediately succeeding phase at Jericho appear to have avoided the ruins, and to some extent the same pattern is revealed at Bāb adh-Dhrā', where minor, unfortified settlements on the *tall* and in the vicinity are recorded. An unfortified village was later built on the Jericho *tall*, but the Bāb adh-Dhrā' town site was thenceforth almost abandoned (Prag 1986b; Schaub 1993). Direct continuity from EB III to the EB.MB period is not witnessed at any of these sites.

Iktanū

The aims of the project in 1966 were two fold: 1) to investigate an accessible and well-preserved site of the EB.MB period and 2) to establish a regional archaeology by surface survey supported by the limited excavation of selected sites. The site lies on the edge of fertile alluvium in al-Ghawr, in a region with an annual rainfall of less than 200 mm but located just south of a perennial stream. Its estimated extent is 14 to 22 ha. extending over and beyond two natural hills and a wadi. The maximum depth of cultural deposits in the EB I is ca. 2 m, and in the EB.MB ca.1 m. Several dispersed phases of occupation were noted in the EB I, and two phases, both short-lived but more extensive, in the EB.MB period. The site is unfortified, for although house walls define an edge of the settlement, many passages between the houses open into the countryside (Prag 1990: 125 and Fig. 5), and dense sherd scatters, querns, mortars and chipped stone continue beyond the built-up areas, especially to the north of the site. All remains investigated appear to be domestic, and there is much evidence for food storage and processing, as well as a pottery kiln site (Prag 1988). No cemeteries were discovered, but there is some evidence to suggest the construction or re-use of dolmens in the vicinity for burial.

Other large EB.MB sites exist in the area; at Tall al-Ḥammām, the EB.MB occupation follows EB III probably after a destruction (Prag 1991a); Mishra' al-Abyaḍ II (Mellaart 1962: 130, 138; Prag 1971: 108-109) appears to be a new site, without other Bronze Age occupation. Smaller sites are also recorded (Prag 1974: 75-76)

Iskandar

The original aim of the project was to investigate the abrupt break between EB III and EB IV (Richard 1982: 291), when it was thought that Iskandar was continously occupied throughout the EBA, like Bāb adh-Dhrā', Later the primary focus was "to test the hypothesis that sedentism - that is, permanent agrarian settlement—was an alternative subsistence choice" during the EB IV period (Richard 1993: 650). Iskandar is located on the central Jordan plateau, with an annual rainfall of ca. 250 mm but no perennial wadi or spring. The original size of the site is no longer clear, due to agricultural development since Glueck's visit; it is variously reported as 11 acres (Richard and Borass 1984, 64) and 71/2 acres (Richard 1986: 6; 1993: 649) but these figures may refer only to the principal west sector of the original site as described by Glueck (1939: 127, Site 168). The principal remains occupy a mound west of two small wadis (Richard 1993: 649); further remains, including extensive shaft grave cemeteries, are located between two small wadis to the east (Cemetery E, associated with stone circles and menhirs), to the south across the main wadi (Cemetery D) and to the west (Cemetery J). Glueck also observed traces of house foundations to the north of the main settlement. The depth of deposit for the EB I appears to be small; for the EB IV period a depth of up to 3 m is reported. One phase of occupation is dated to the EB I, and six to the EB IV. The site was unfortified in the EB I and during the first and last phases of the EB IV (Phases G, F and A1), but fortified in Phases E to A2 of the EB IV period (Richard and Long 1995). On the site, possible cult areas and other public structures have been identified suggesting a permanent, agriculture-based, complex society at Iskandar. Much evidence has been uncovered for food storage and processing, and other activities such as spinning and chipped stone working on the site.

Iskandar, so far unique for its complex 3 m mainly EB.MB stratigraphic sequence, is still subject to ongoing reappraisal due to the tiny exposure of the earlier phases, a matter to be addressed in the forthcoming Phase 2 of the project. Glueck (1939: 127-129) noted that the site was much ruined, and sherds of LB, IA and Roman/Byzantine date and possibly of the Middle Bronze Age were found on the surface and in the upper soils (Richard 1983: 52; Richard and Long 1995: 84; Parr 1960, Fig. 1:7, 14), and perhaps suggest some deflation. At Iskandar, Glueck de-

scribed a larger site, noting ruins spreading beyond the wadis on the west, south and east, and beyond the fortification wall on the north side. It would be interesting to know whether the site, at least in its latest, unfortified phase (A1) spread outwards in a similar manner to that observed at Iktanū and Bāb adh-Dhrā'. A fortified Iron Age and Persian period occupation existed on part of the site at Iktanū, and a scatter of Byzantine and Ottoman fragments not associated with structural remains.

The values of excavating multi-period *versus* single period sites have been noted by Parr (1990-1: 80), Philip and Baird (1993: 15) and Bourke "comprehensive, quantitative data-sets taken from long, unbroken developmental sequences" *versus* the "staccato testimony" of single period sites (Bourke *et al.* 1995: 32-33). However the values of single period sites or sites with interrupted occupation are equally rewarding, for their extensive ground plans, and for the visibility of residual material within assemblages (Prag 1988: 66).

Statistical and Ethnographic Archaeology

Information derived from survey and ethnographic studies has been combined to produce statistics for population size and economic sustainability. There is wide variation in the former, with different density factors (often in the range of 100 to 200 persons per hectare), deriving from varied sources (see e.g. summary in Watson 1980; Wilkinson 1994: 495, 503); the reliability of statistics derived from field survey is always difficult to assess. These processes have been carried further in Palestine (eg. Broshi and Finkelstein 1992: 56-57); there are not yet sufficient data to apply credibly the process in Jordan but some attempts have been made (Mabry *et al.* 1996: 150) (TABLE 2). In future there may well be a basis in population statistics from Palestine, Jordan and Syria to address demographic changes at this time.

Fortifications

Glueck (1935: 138; 1939: 268; 1951: 423; 1970: 157) concluded that a large part of the EB.MB population of Transjordan was (semi)sedentary, and that many sites were fortified at this period. Virtually none of these sites have been excavated, although according to Richard (Richard and Long 1995: 82), Palumbo and Mabry described fortified sites of the period; this is in fact misleading, for they refer only to a few fully sedentary sites, not fortified ones (Mabry and Palumbo 1988). Palumbo *et al.* anticipated fortifications in their excavations at Jabal ar-Raḥail (1996: 393 ff.; 'er-Reheil' in Glueck 1939: 210-211; Prag 1971: App.) but they were unable to verify the date and nature of the shallow and eroded remains they encountered (1996: 400), with no certain stratigraphic evidence, and the possibility that the walls were terraces rather than fortifications. Until excavated, fortifications will remain uncertain on many of Glueck's sites (Prag 1995a: 111-112). At present (as noted in Prag 1974: 97), Megiddo might be the one site that really presents some continuity in its public buildings from EB III into the EB.MB period, and renewed excavations at that site are now in process.

At Iskandar, the Phase D domestic levels contemporary with the founding of the defensive walls and towers have not yet been excavated (Richard 1990: 36), thus the dating of the fortifications appears to depend on the excavation of a small section of the foundation trench in Area B; indeed the "inner line" of the fortification on the north-west corner was dated to either EB IV or EB I as recently as 1990 (1990: 39) when Parr's evidence (Parr 1960) for an EB I date was again revived, though this early date has apparently again been revised to EB IV in 1995. The dating of the fortifications to EB.MB Phases D to A2 has however been generally consistent. That the occupation appears to be restricted to EB I and EB.MB, as at Iktanū, and is not continuous through the Early Bronze Age as once thought, adds a puzzling note to the proposed continuity. If the site with its unusual fortifications (unusual for the Early Bronze Age, apparently approximately rectangular, 150 x 150 m, with corner and median towers, bisecting east-west wall, and 'moat-like depressions' to north and west, see Glueck 1939: 127; Richard and Long 1995), is a renewed foundation after a long gap, then direct continuity is not a factor. If direct continuity is involved, one might expect to find it at Bāb adh-Dhrā', where EB III fortifications were destroyed, and not rebuilt in the following unfortified EB.MB settlement. A few EB III sherds, but no trace of EB II-III occupation have been discovered at Iskandar. To find new fortifications on a site abandoned since the EBI period is another factor which provides stimulus in the quest for elucidating this subject. Perhaps the level of destruction of late EB III sites was such that the sites were not at first re-inhabitable. Perhaps their original function, in protecting water sources and field systems, was no longer relevant to the changes and development of emphasis in agro-pastoralism. It may be that the system of EB.MB fortification is of a rather low level, in nature more like the meandering boundary wall connecting the back walls of houses in Phase B on the south side of Iskandar. The ethnographic-based studies of enclosures, from tent to village, may be of relevance here (see Cribb 1991; Finkelstein 1995).

Ceramics

Both Iktanū and Iskandar have provided evidence for large quantities of ceramics, much of very similar style. The manufacture of pottery in itself is not necessarily to be seen as a sign of urbanism. At Iskandar, it has been suggested that two rooms containing a large quantity of pottery in Phases C and B may have a cultic character, which under-

lines the presence of public structures on the site. However large quantities of pottery in two rooms at Iktanū can be readily understood in a domestic context (Prag 1993: 270). As previously noted (Prag 1974: 78) red-slipped and burnished pottery, a recognizably EB tradition, continues to be produced into the latest phases of the EB.MB period in the south of Jordan, and continues in use in the latest phases at Iskandar. Further north, at Iktanū, this tradition had already disappeared before Phase 2; there does also appear to be a greater emphasis on bowls or platters in the south (cf. Prag 1974: 78 and Richard and Boraas 1988: 124). The regional character of the EB.MB period which I outlined in 1974 is still underestimated, and conservative traditions in the southern highlands of Jordan might be a basis for this regional diversity.

The division of EB.MB ceramics into families, which are not pegged to any chronological or stratigraphic framework, is misleading. Amiran's pioneering work (1960) provided an initial framework for understanding the problems represented by the archaeology of the period, but in developing this approach, Dever's work (1980) was a *cul-de-sac*, which continues to be elaborated (Palumbo and Peterman 1993). The fallacies are illustrated by Richard's conclusion that ceramics typical of the Transjordan, South Palestine, Central Hills of Palestine and Jericho families are all found in exactly the same context at Iskandar (Richard and Boraas 1988: 126). It may be more profitable to assess the overlap in terms of the relations—chronological, social, economic and cultural, between the geographical zones. The issue of the connections with Syria has not yet been fully explored, and is reflected in the presence of Syrian vessels in central Transjordan (Richard 1993: 650; for the wider distribution, see Dever 1980: 51, Fig. 5).

Assemblages

Much of the equipment of Iktanū and Iskandar is similar, and the range of cultivated plants, on very preliminary assesments, has much in common. One interesting point is that Richard notes spindle whorls—"The usual stone and ceramic spindle whorls came to light" (Richard 1983: 51), and benches lining the walls of rooms—none have been found at Iktanū. Some aspects of the assemblage at Bāb adh-Dhrā' are closer to those of Iktanū, perhaps indicating more direct links in the lowlands than with the highlands. There is no doubt, simply on the basis of stratigraphic build-up, that Iskandar represents a more permanent and longer-lived settlement than Iktanū.

The differences make clear that the tendency to interpret the archaeology of the whole period, or even one ecological zone, on the basis of the excavation of one site, is inadequate. Iktanū appears as a large scale village but with interrupted and short-lived phases of occupation—on the edge of permanent settlement but with a range of agriculture and horticulture; and Iskandar emerges as a small "well-defended, permanently occupied, multi-phased settlement"—although the permanence or stability of the occupation is somewhat uncertain, with evidence for destruction of the fortifications at the end of Phase C (Richard and Boraas 1988: 113), a rebuild in Phase B and abandonment of the fortifications during Phase A1.

Cemeteries

There are still many potential areas of investigation into the diverse burial customs of the third millennium. Striking differences relate to scale and visibility. More cemeteries of the Chalcolithic and the EB.MB period continue to be revealed, with evidence for disarticulated bones or no bones (Levy and Alon 1985); compared with relatively minor evidence for the EBA (apart from the multiple, articulated burials in the charnel houses and other grave types at Bāb adh-Dhrā'). There is no general evidence for large scale mortality at the end of the EB III. There is no need to outline this well-known evidence in detail here; but to draw attention to the scale of EB.MB cemeteries which itself marks a major change from the surviving EBA evidence. Acres of the landscape were taken up by shaft grave cemeteries in the EB.MB—there is no evidence to show whether these graves were marked on the surface, but the frequency of reuse in the MBA suggests that they may have been; at Iskandar, where a number of menhirs and stone circles existed in two of the cemeteries (east and south of the site) (Glueck 1939: 128-129; Richard and Boraas 1988: 122), the question of whether they bore some funerary aspect, as markers, prestige symbols or cenotaphs, is unresolved. In contrast to the EB I-III periods, with their cities of the living, in the EB.MB period we appear to have cities of the dead. The evidence that dolmens were in use and re-use in the EB I and the EB.MB periods, with their potential role and significance as territorial markers, is also relevant (Prag 1995b: 83-84). The extensive cemeteries of the sheep/goat Bedouin pastoralist of recent times also suggest ethnographic analogies which may reflect on the practices of earlier agro-pastoralists.

One of the large cemeteries being excavated in recent years in the Mādabā region was in use in both EB.MB and MBIIA periods; with these shaft tombs were "cistern-like structures" which may indicate a "settled population nearby" (Waheeb and Palumbo 1993: 153). The large cistern-like excavations had silt as well as other finds, but no published evidence for water channelling. They are larger than the silos noted at Iktanū, but a storage function appears likely.

Terminology

The same publication draws attention to another area which still needs refining. In dating the use of the ce-

metery in the Mādabā region to the EB IV and the MB IIA periods (in Kenyon's terminology = EB.MB and MB I), a reader is inclined to miss a possible continuity of use —at Jericho EB.MB tombs were frequently reused in MB IIB and IIC (in Kenyon's terminology = MB II), but in this cemetery the re-use appears to be more rapid. In a model which rejects any continuity between EB.MB and MBA, a terminology in which there is no usable 'MB I' period appears to create a cultural break. Increasingly the need to restore a terminology which does not have such gaps, and which does not, by its very syntax, reject models of continuity, would be preferable.

Concluding Thoughts

Relatively few third millennium sites have been excavated in Jordan, and of these a very high proportion are multi-period town sites or cemeteries. In assessing the environment of these sites, the integration of evidence from geological, geomorphological and hydraulic resources, offers great potential (Macumber *et al.* 1997; Barker *et al.* 1998). Ethnoarchaeology, another key to unlock the understanding of local landscape utilization through time, has run hand in hand with the development of more complex approaches; politics, not just environment, played a role in complex human responses to situations in the past. Recent theoretical discussions, in post-processual archaeology (Hodder 1985), upgrade the role of human agency and adaptations to given sets of environmental conditions, rather than presenting more objective social patterning as models of change; where there is no absolute historical knowledge, interpretative archaeology (Tilley 1993) may invite new perspectives. Cognitive archaeology (Mithen 1998) ventures further, "cognitive fluidity" brings fresh discussions of the connections between man, artifact and animal in prehistory, and the impact of modern interpretation.

Despite the ever-expanding range and complexity of data available to archaeologists, the archaeological evidence usually lacks the political/historical dimension, and this should impose caution in developing sweeping hypotheses. "There have always been historians, ...who have argued that in any unit there is an inbuilt process of decline...I have made it my business to challenge these to my mind over-simple theories and the sweeping explanations they imply...There is surely no such thing as a model of decadence. A new model has to be built from the basic structures of every particular case." (Braudel 1966 edition: 1239).

Bibliography

Amiran, R. 1960. The Pottery of the Middle Bronze Age I in Palestine. *IEJ* 10: 204-225.

Baird, D. and Philip, G. 1994. Preliminary Report on the Third (1993) Season of Excavations at Tell esh-Shuna North. *Levant* 26: 111-133.

Barker, G. W., Adams, R., Creighton, O. H., Gilbertson, D. D., Grattan, J. P., Hunt, C. O., Mattingly, D. J., McLaren, S. J., Mohamed, H. A., Newson, P., Reynolds, T. E. G. and Thomas D. C. 1998. Environment and Land Use in the Wadi Faynan, Southern Jordan: the Second Season of Geoarchaeology and Landscape Archaeology 1997. *Levant* 30: 5-25.

Barker, G. W., Adams, R., Creighton, O. H., Crook, D., Gilbertson, D. D., Grattan, J. P., Hunt, C. O., Mattingly, D. J., McLaren, S. J., Mohammed, H. A., Newson, P., Palmer, C., Pyatt, F. B., Reynolds, T. E. G. and Tomber, R. 1999. Environment and Land Use in the Wadi Faynan, Southern Jordan: the Third Season of Geoarchaeology and Landscape Archaeology (1998). *Levant* 31: 255-292.

Betts, A., Eames, S., Schroder, M., al-Husan, A. al-Q. 1995. Archaeological Survey of the Wadi al-'Ajib, al-Mafraq. *ADAJ* 39: 149-168.

Binford, S. R. and Binford L. R. (eds) 1968. *New Perspectives in Archaeology*.

Bourke, S. J., Seaton, P. L., Sparks, R. T., Lovell, J. L. and Mairs, L. D. 1995. A First Season of Renewed Excavation by the University of Sydney at Tulaylat al-Ghassul. *ADAJ* 39: 31-64.

Braudel, F. 1949/1966. *The Mediterranean and the Mediterranean World in the Age of Philip II.* 2nd revised edition/ Collins 1973.

Brawer, M. 1985. *Atlas of the Middle East.* Carta: Jerusalem

Broshi, M. and Finkelstein, I. 1992. The Population of Palestine in Iron Age II. *BASOR* 287: 49-60.

Cribb, R. 1991. *Nomads in Archaeology*. New Studies in Archaeology. Cambridge.

Dever, W. G. 1980. New Vistas on the EB IV ("MB I") Horizon in Syria-Palestine. *BASOR* 237: 35-64.

Esse, D. L. 1991. *Subsistence, Trade and Social Change in Early Bronze Age Palestine*. Chicago: Oriental Institute.

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: Sheffield. Academic Press

Fischer, P. M. 1996. Tall Abū al-Kharaz: The Swedish Jordan Expedition 1994, Fifth Season, Preliminary Excavation Report. *ADAJ* 40: 101-110.

——1997. Tall Abu al-Kharaz: Occupation Throughout the Ages. The Faunal and Botanical Evidence. Pp. 159-165 in *SHAJ* VI. Amman; Department of Antiquities.

Geraty, L. T., Herr, L. G., LaBianca, Ø. S., Battenfield, J. R., Boling, R. G., Clark, D. R., Lawlor, J. I., Mitchell, L. A., and Younker, R. W. 1986. Madaba Plains Project: A Preliminary Report of the 1984 Season at Tell el-Umeiri and Vicinity. Pp. 117-144 in W. E. Rast (ed.), *Preliminary Reports of ASOR-Sponsored Excavations 1980-84. BASOR* Supplement 24.

Glueck, N. 1935. *Explorations in Eastern Palestine II. AASOR*

15.
——1939. *Explorations in Eastern Palestine III. AASOR* 18-19.
——1951. *Explorations in Eastern Palestine IV. AASOR* 25 - 28.
——1970. *The Other Side of the Jordan*. Cambridge: ASOR.
Gophna, R. 1998. Early Bronze Age Canaan: Some Spatial and Demographic Observations. Pp. 269-280 in T. E. Levy (ed.), *The Archaeology of Society in the Holy Land*. Paperback edition. London and Washington: Leicester University Press.
Hanbury-Tenison, J. W. 1986. *The Late Chalcolithic to Early Bronze I Transition in Palestine and Transjordan*. BAR Intl. Series 311. Oxford.
Harrison, T. P. 1997. Shifting Patterns of Settlement in the Highlands of Central Jordan during the Early Bronze Age. *BASOR* 306: 1-37.
Hauptmann, A., Begemann, F., Heitkemper, E., Pernicka, E. and Schmitt-Strecker, S. 1992. Early Copper Produced at Feinan, Wadi Arabah, Jordan: The Composition of Ores and Copper. *Archeomaterials* 6: 1-33.
Helms, S. W. 1981. *Jawa Lost City of the Black Desert*. New York: Cornell University
Hodder, I. 1985. Postprocessual Archaeology. *Advances in Archaeological Method and Theory* 8: 1-26.
Hunter, J. and Ralston, I. (eds.) 1993. *Archaeological Resource Management in the UK: An Introduction*. Alan Sutton: Stroud.
Ibrahim, M. and Mittmann, S. 1989. Khirbet el-Zeiraqun. Pp. 641-646 in D. Homès-Fredericq and J. B. Hennessy (eds.), *Archaeology of Jordan. II.2*. Field Reports L-Z. Leuven: Peeters
JADIS 1994. *The Jordan Antiquities Database and Information System*. Ed. G. Palumbo. Amman: Department of Antiquities, and the American Center for Oriental Research.
Joffe, A. H. 1993. *Settlement and Society in the Early Bronze Age I and II, Southern Levant. Complementarity and Contradiction in a Small-Scale Complex Society*. Monographs in Mediterranean Archaeology 4. Sheffield Academic Press.
Joffe, A. H. and Dessel, J. P. 1995. Redefining Chronology and Terminology for the Chalcolithic of the Southern Levant. *Current Anthropology* 36/3: 507-518.
Kennedy, D. 1997. Aerial Archaeology in Jordan: Air Photography and the Jordanian Southern Hawran. Pp. 77-86 in *SHAJ* VI. Amman: Department of Aniquities.
LaBianca, Ø. S. 1990. *Sedentarization and Nomadization: Food System Cycles at Hesban and Vicinity in Transjordan. Hesban 1*. Berrien Springs, Michigan.
Levy, T. E. and Alon, D. 1985. The Chalcolithic Mortuary Site Near Mezad Aluf, Northern Negev Desert: Third Preliminary Report, 1982 Season. *BASOR* Supplement 23: 121-135.
Mabry, J. and Palumbo, G. 1988. The 1987 Wādī el-Yabis Survey. *ADAJ* 32: 275-305.
Mabry, J. B., Donaldson, M. L. and Palumbo, G. 1996. Early Town Development and Water Management in the Jordan Valley: Investigations at Tell el-Handaquq North. Pp. 115-153 in W. G. Dever (ed.), *Preliminary Excavation Reports*. ASOR Vol. 53.
Macumber, P. C., Edwards, P. C., Head, M. J. and Lakey, R. C. 1997. Physical Environment and Occupation in the Tabaqat Fahl Region, Jordan over the Last Half Million Years. Pp. 87-92 in *SHAJ* VI. Amman: Department of Antiquities.
Mathers, C. and Stoddart, S. (eds.) 1994. *Development and Decline in the Mediterranean Bronze Age*. Sheffield Archaeological Monographs 8. Sheffield.
McClellan, T. L. and Porter, A. 1995. Jāwa and North Syria. Pp. 49-65 in *SHAJ* V. Amman: Department of Antiquities.
Mellaart, 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.
Miroschedji, P. de 1993. *Fouilles récentes à Tel Yarmouth, Israël (1989-1993)*. Académie des Inscriptions et Belles-Lettres. Comptes Rendus des Séances de l'Année 1993, Novembre-Décembre. Paris: Bocard.
Mithen, S. 1998. *The Prehistory of the Mind. A Search for the Origins of Art, Religion and Science*. Paperback edition. London: Phoenix.
Palumbo, G., Munzi, M., Collins, S., Hourani, F., Peruzzetto, A. and Wilson, M. D. 1996. The Wādī az-Zarqa/ Wādī ad-Dulayl Excavations and Survey Project: Report on the October-November 1993 Fieldwork Season. *ADAJ* 40: 375-428.
Palumbo, G. and Peterman, G. 1993. Early Bronze Age IV Ceramic Regionalism in Central Jordan. *BASOR* 289: 23-32.
Parr, P. J. 1960: Excavations at Khirbet Iskander. *ADAJ* 4-5: 128-133.
——1983. The Tell Nebi Mend Project. *Annales Archéologique Arabes Syriennes* 31: 99-117.
——1990-1. The Tell Nebi Mend Project. A Progress Report on the Institute of Archaeology's Excavations at Ancient Kadesh-on-the Orontes in Syria. *Journal of the Ancient Chronology Forum* 4: 78-85.
Philip, G. and Baird, D. 1993. Preliminary Report on the Second (1992) Season of Excavations at Tell esh-Shuna North. *Levant* 25: 13-36.
Philip, G. and Rehren, T. 1996. Fourth Millennium BC Silver from Tell esh-Shuna, Jordan: Arcaeometallurgical Investigation and some Thoughts on Ceramic Skeuomorphs. *Oxford Journal of Archaeology* 15: 129-150.
Prag, K. 1971. *A Study of the Intermediate Early Bronze-Middle Bronze Age in Transjordan, Syria and Lebanon*. Unpublished D. Phil. thesis, St Hughs College, Oxford.
——1974. The Intermediate Early Bronze-Middle Bronze Age: An Interpretation of the Evidence from Transjordan, Syria and Lebanon. *Levant* 6: 69-116.
——1978. Silver in the Levant in the Fourth Millennium B.C. Pp. 36-45 in. P. R. S.Moorey and P. J. Parr (eds.), *Ar-*

chaeology in the Levant: Essays for Kathleen Kenyon. Warminster: Aris and Phillips.

——1986a. Byblos and Egypt in the Fourth Millennium. *Levant* 18: 59-74.

——1986b. The EB.MB. Sequences at Jericho and Iktanu Reviewed. *BASOR* 264: 61-72.

——1988. Kilns of the Intermediate Early Bronze-Middle Bronze Age at Tell Iktanu: A Preliminary Report, 1987 Season. *ADAJ* 32: 59-73.

——1990. Preliminary Report on the Excavations at Tell Iktanu, Jordan, 1989. *ADAJ* 34: 119-128.

——1991. Preliminary Report on the Excavations at Tell Iktanu and Tell al-Hammam, Jordan, 1990. *Levant* 23: 55-66.

——1993. The Excavations at Tell Iktanu 1989 and 1990; The Excavations at Tell al-Hammam 1990. *Syria* LXX.1-2: 269-273.

——1995a. The 'Built Tomb' of the Intermediate Early Bronze-Middle Bronze Age at Beitrawi, Jordan. Pp. 103-113 in S. Bourke and J.-P. Descúdres (eds.), *Trade, Contact and the Movement of Peoples in the Eastern Mediterranean. Studies in Honour of J. Basil Hennessy*. Mediterranean Archaeology Supplement 3. Sydney.

——1995b. The Dead Sea Dolmens - Death and the Landscape. Pp. 75 - 84 in S. Campbell and A. Green (eds.), *The Archaeology of Death in the Ancient Near East*. Oxbow Monograph 51. Oxford.

——forthcoming a. Tell Iktanu, South Jordan Valley: Early Bronze Age I Ceramics. In G. Philip and D. Baird (eds.), *Breaking with the Past; Ceramics and Change in the Early Bronze Age of the Southern Levant*. Series: Levantine Archaeology. Sheffield Academic Press.

——forthcoming b. Ethnicity and Warfare in the South Jordan Valley: is there Relevance to Studies of Nomad/Settled Relations on the Desert Frontier of Syria and Jordan? Paper given to the seminar 'The Desert and the Sown': Ethnicity and Warfare in the Context of Nomad/Settled Relations on the Desert Frontier of Syria and Jordan. American Schools of Oriental Research Annual Meeting, New Orleans, 1996. Edited by A. Betts, J. Greene, C. Lenzen.

Richard, S. 1982. Report on the 1981 Season of Survey and Soundings at Khirbet Iskander. *ADAJ* 26: 289-299

——1983. Report on the Expedition to Khirbet Iskander and its Vicinity, 1982. *ADAJ* 27: 45-53.

——1986. Excavations at Khirbet Iskander, Jordan: A Glimpse at Settled Life during the "Dark Age" in Palestinian Archaeology. *Expedition* 28: 3-12.

——1990. The 1987 Expedition to Khirbet Iskander and Its Vicinity: Fourth Preliminary Report. Pp. 33-58 in W. E. Rast (ed.), *Preliminary Reports of ASOR-Sponsored Excavations 1983-1987. BASOR* Supplement 26: 33-58.

——1993. Iskander, Khirbet. Pp. 649-652 in E. Stern (ed.), *The New Encyclopedia of Archaeological Excavations in the Holy Land*. Vol. 2. IES and Carta. New York and London: Simon and Schuster.

Richard, S. and Boraas, R. 1984. Preliminary Report of the 1981-1982 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.

Richard, S. and Long, J. C. 1995. Archaeological Expedition to Khirbat Iskandar and its Vicinity, 1994. *ADAJ* 39: 81-92.

Schaub, R. T. 1993. Bab edh-Dhra'. Pp. 130-136 in E. Stern, (ed.), *The New Encyclopedia of Archaeological Excavations in the Holy Land*. Vol. 1. IES and Carta. New York and London: Simon and Schuster.

Shaw, M., Chapman, A. and Soden, I. 1997. Northampton. *Current Archaeology* 155: 408-415.

Tilley, C. (ed.) 1993. *Interpretative Archaeology*. Providence and Oxford: Berg.

Tubb, J. N. and Dorrell, P. G. 1994. Tell es-Sa'idiyeh 1993: Interim Report on the Seventh Season of Excavations. *PEQ* 126: 52-67.

Tubb, J. N., Dorrell, P. G. and Cobbing F. J. 1996. Interim Report on the Eighth (1995) Season of Excavations at Tell es-Sa'idiyeh. *PEQ* 128: 16-40.

——1997. Interim Report on the Ninth (1996) Season of Excavations at Tell es-Sa'idiyeh, Jordan. *PEQ* 129: 54-77.

Vieweger, D. 1997. An Early Bronze Age Handle with Cylinder Seal Impression from Dayr Qiqub, Jordan. *Levant* 29: 147-152.

Waheeb, M. and Palumbo, G. 1993. The Cultural Resources Management Project in Jordan. Salvage Excavations at a Bronze Age Cemetery Near Tell el- Umeiri. *ADAJ* 27: 147-163.

Watson, P.J. 1980. The Theory and Practice of Ethnoarcheology with Special Reference to the Near East. *Paléorient* 6: 55-64.

Wilkinson, T. J. 1994. The Structure and Dynamics of Dry-Farming States in Upper Mesopotamia. *Current Anthropology* 35: 483-520.

Timothy P. Harrison
University of Toronto
Dept. of Near and Middle
Eastern Civilizations
4 Bancroft Avenue
Toronto, ON, Canada M55 1C1

Timothy P. Harrison

Urban or Rural? The Development of Regional Communities in the Highlands of Jordan during the Third Millennium

Introduction

The fundamentally urban character of the Early Bronze Age (EBA) southern Levant is a central tenet that runs consistently through the literature on the period (e.g. Kempinski 1978; Kenyon 1979: 84-86; Richard 1987; Mazar 1990: 110-11; Ben Tor 1992: 85-86), with most studies viewing it as structurally analogous to developments elsewhere in the ancient Near East. Urbanism as experienced in the EBA southern Levant was simply a secondary, derivative expression of the earlier and larger-scale manifestations that occurred in southern Mesopotamia and Egypt. In promoting this view, however, the conventional wisdom has failed to account for an important aspect of urbanism; namely that urban centers function not as isolated islands of settlement, but as part of an interdependent regional network of cities, towns and rural communities (Wheatley 1972). Conceived in this way, integration, not scale, becomes the key index for measuring the level of complexity and urbanization achieved in a region.

Attempts to explain the emergence of EBA society typically have invoked varying migration/invasion (Hennessy 1967; Lapp 1970; de Vaux 1971), diffusion (Kempinski 1978; 1989), or indigenous evolutionary (Schaub 1982; Miroschedji 1989; Joffe 1991) models. One study of EBA sociopolitical development has drawn on the concept of secondary state formation to address the role of external influence (Esse 1989). More recently, the core-periphery, or world systems model, has gained popularity in the ongoing effort to explain the move toward social and political complexity (Marfoe 1987; Steele 1990; Joffe 1993). Even the current emphasis on settlement pattern analysis (e.g. Esse 1991; Finkelstein and Gophna 1993; Gophna 1995; Joffe 1993), in spite of its success in documenting the process of settlement intensification and abatement on a regional level, however, has largely failed to examine the functional relationships that emerged between communities. While site-size hierarchies are relatively easy to document, their social, economic and political implications are not as readily evident.

Only recently has attention finally begun to shift to the issue of integration. In a series of studies utilizing site catchment analysis and models generated from rank-size distributions, settlement data from the principal geographical sub-regions of the southern Levant were found to have consistently low levels of integration, with the largest settlements superimposed on a broader, rural network of small towns and villages that followed their own courses of development (Falconer 1994a; 1994b; Falconer and Savage 1995). The advent of "urbanism" in the southern Levant, in other words, seems to have pursued a decidedly different trajectory from that traced elsewhere in the ancient Near East.

Survey and excavated data from the Highlands of central Jordan suggest a similar pattern of low-level integration and autonomous development. Nevertheless a complex social order did emerge, with expanding commercial opportunities serving as the catalyst that stimulated production, creating the incentive for communities to settle and invest in the land. By the EB III, a pattern of "rural complexity" (cf. Schwartz and Falconer 1994) had developed, resulting in a loosely integrated society heterarchically organized to exploit the environmental diversity and uncertainty that characterize the region. The regional communities that emerged were positioned to maximize their options, avoiding the less flexible and responsive tendencies that typify rigidly hierarchical, urban settlement networks.

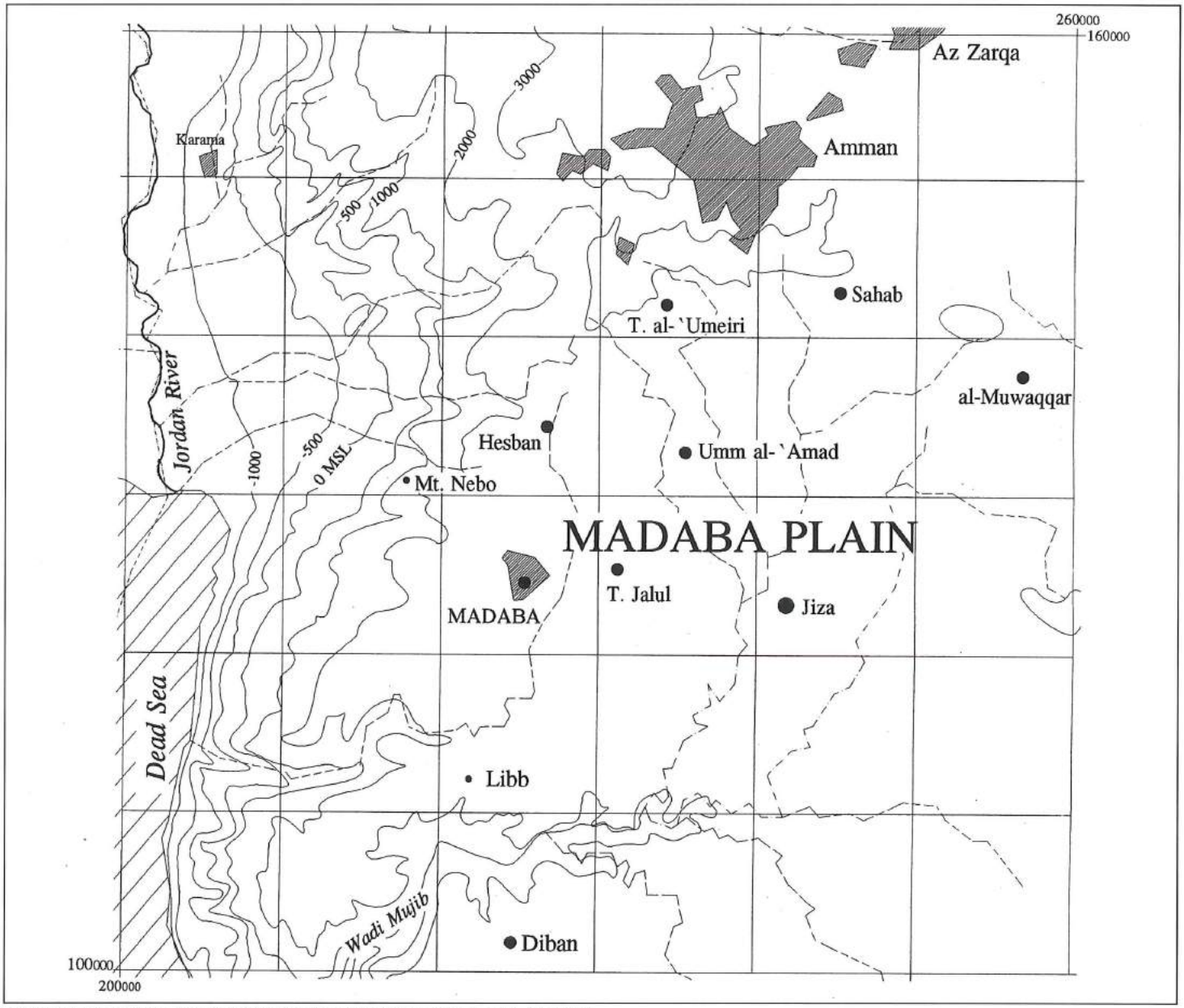
The Highlands of Central Jordan

The semi-arid Highlands of central Jordan present a complex landscape of rolling hills and plateaus broken by deep cavernous widyān and rocky outcrops. Sandwiched between the dry eastern desert steppes and the more humid Levantine coast, the Highlands are characterized by their climatic variability and environmental uncertainty. Straddling this fragmented landscape, the Mādabā Plain, defined loosely here as the land mass between the Dead Sea

escarpment to the west, the foothills of 'Ammān to the north, the desert steppes to the east, and the northern branches of the Wādī al-Mūjib to the south, comprising an area of approximately 1600 sq km, forms a distinct geographic unit within this diverse setting (FIG. 1). As a microcosm of the complex environmental conditions that distinguish the region, the Mādabā Plain represents a coherent unit of analysis, and therefore constitutes the geographical focus of the present study.

Settlement Patterns

On a regional level, the survey data available for the Mādabā Plain region indicate a period of intense settlement activity corresponding to the EB II-III period (Harrison 1997). During the preceding Late Chalcolithic and EB I, settlement data reveal a consistent pattern of small (<2 ha) sites clustered along principal wadi systems, or adjacent to springs. With the EB II-III period, a dense pattern configured in a site-size hierarchy emerged in place of these isolated site clusters. The site of Mādabā, at 16 ha, was the largest settlement on the Plain, and therefore would seem to be the logical regional center during this period. Survey data for the area surrounding Tall al-'Umayrī indicate an intense effort to exploit local resources, so that the parent site, at 4.3 ha, emerges as a large agricultural village actively utilizing the resources of its hinterland. Visible features at a number of other sites suggest additional settlement types within this regional network, and it seems clear that a complex settlement configuration had emerged on the Mādabā Plain by the EB III



1. Topography of the Mādabā Plain region (created by Stephen H. Savage).

period.

Nevertheless, in the absence of excavated evidence of administrative activity, it is difficult to reconstruct the organizational structures that guided life on the Mādabā Plain during this period. The presence of two ceramic seal impressions at Tall al-'Umayrī (Harrison 1995: 149, 156) and a third from Tall Mādabā (Harrison *et al.*, forthcoming) indicate that some kind of administrative apparatus did exist. Significantly, most of the seal impressions found at EB II-III sites in the southern Levant, including those from the Mādabā Plain region, have been on large storage jars, the end product of a specialized production process. These jars typically served as storage vessels, and probably also were involved in the export of agricultural products (Esse 1990: 32*). Thus, it is fair to assume that the presence of a seal impression on such a jar not only helped established ownership, but fulfilled a record-keeping function as well.

In the absence of more direct evidence, the estimated agricultural sustaining capacity of the area provides a sense of the level of integration that might have existed within the regional community that resided on the Mādabā Plain. When calculated for the known EB II-III settlements on the Plain, very little overlap is evident (Harrison 1997: 21), suggesting that the settled population never reached a level of density that placed pressure on the region's resource base. At the same time, the environmental variability endemic to the Plain, which encourages sub-regional economic specialization (horticulture in the northwest, wheat and barley cultivation in the central and eastern steppes, and animal husbandry in the east), and a concomitant incentive toward intra-regional cooperation or interdependence, very likely prompted a significant degree of economic integration, although not necessarily in a hierarchical configuration. Rather than simple low-level integration, therefore, the evidence suggests a predominantly rural settlement landscape heterarchically organized to exploit the diverse resource base that characterizes the Mādabā Plain region. Rank-size analysis of the known EB II-III settlements produces a similar result (Harrison 1997: 21-23).

Thus the settlement data for highland central Jordan indicate that the emergence of social complexity during the EBA was not simply derivative of developments elsewhere in the ancient Near East. Instead, as Falconer and Savage have stated in their study of Bronze Age settlement patterns in Cisjordan, they describe "...an intriguing patchwork, in which the largest cities were superimposed on a much broader network of resilient towns and villages that followed their own courses of development" (1995: 55). Rather than rigidly hierarchical in structure, the EB II-III settlement data for the southern Levant portray a dispersed, heterarchical settlement network in which individual communities and sub-regions maintained significant autonomy, and the ability to integrate in a variety of ways and at varying levels of intensity, in spite of the sedentarization process and increased settlement density evident during the period. While the site of Mādabā may have asserted some political influence over the other settlements on the Plain, it probably never achieved a level of integration that permitted close and sustained control of the social and economic life of these communities.

Ceramic Production and Distribution

Analysis of the EB III ceramic horizon for the Highlands of central Jordan must rely for the most part on an excavated sequence from the agricultural village site of Tall al-'Umayrī, located on the northern edge of the Mādabā Plain (FIG. 1). The Tall al-'Umayrī corpus consists predominantly of a domestic assemblage drawn from four stratigraphically superimposed architectural phases located in Field D, on the southern terrace of the site. The four-phase sequence exhibited a gradual, continuous development that culminated with the burning and destruction of the final phase.[1]

Production

The analysis completed thus far has resulted in the creation of a typological sequence (Harrison 1995; forthcoming), and a preliminary assessment of the manufacturing technology and organization of the pottery industry (London 1991; 1995). Several methods of analysis have been employed, including metric analysis of shape variation, analysis of manufacturing techniques, petrographic analysis of samples from both Tall al-'Umayrī and hinterland sites, and an ethnoarchaeological survey of local contemporary potting traditions. Although this analysis is still in progress, preliminary observations suggest a dispersed, heterogeneous ceramic industry with production organized on at least three levels during the EB III period. Significantly, the ceramic traditions evident at Tall al-'Umayrī appear to parallel those found at the contemporary site of Yarmouth in central Cisjordan to the west (London 1988).

The most basic production occurred at the household level, and involved the manufacture of common everyday domestic wares (London 1991: 394). Vessels such as cups, simple bowls and jars, all of which involved the use of pinch-pot or coiling techniques, are the clearest evidence of this productive activity.

The second level of production is evident in the larger necked jars, flared-rim jars and holemouth jars repre-

[1] A series of carbon samples have been collected from each of these four phases for radiocarbon dating. While ceramic parallels suggest a sequence that spans the EB IIIA and B, in the absence of independent dating evidence, it seems only prudent to avoid assigning the four phases to specific chronological sub-periods for the present.

sented in the assemblage. These vessel types required considerably greater skill to produce, and point toward more specialized production, possibly by itinerants, or potters attached to a local household or workshop industry (London 1991: 394). Although broadly uniform in appearance, metric analysis of individual vessel profiles (measurements have included rim diameter, neck height, and rim thickness) indicate significant variability within the relative morphology of each of these vessel types, implying dispersed rather than centralized mass production. In addition, the presence of a wide range of pre-fired potter's marks on many of the vessels infers the work of a diverse group of potters. Although it involved specialization, this second level of production therefore provides little or no indication of centralized control.

The third level of production preserved in the ceramic record at Tall al-'Umayrī involved non-local wares such as Khirbat al-Karak Ware (KKW) and Combed Ware.[2] The presence of KKW, which probably had originated in northern Palestine, substantiates the existence of a long distance, inter-regional trade network, and links the local ceramic industry and economy of the Mādabā Plain region into the broader exchange network operative in the southern Levant during this period.

An ethnoarchaeological survey of contemporary local ceramic traditions has found parallels with the household and specialized levels of production evident in the EB III record at Tall al-'Umayrī (London and Sinclair 1991), strengthening the case for a heterogeneous and dispersed ceramic industry during this period. Although petrographic analysis of the Tall al-'Umayrī corpus is still in progress, the results of an initial pilot study seem to mirror the observations drawn from the technical and metric analysis, with the mineralogical composition of the samples falling into four distinct groups (London, Plint and Smith 1991: 434-36).

Distribution

In the absence of direct evidence of production,[3] the regional settlement picture provides some sense of the spatial distribution of the EB III ceramic industry, and the regional exchange network of which it was a part. That this network was the product of a complex web of social, economic, and political relationships that extended beyond the world of ceramic production must be emphasized, however, and must condition conclusions drawn about the organization of the ceramic industry itself.

The loosely integrated settlement patterns reflected in the survey data have significant implications for the organization of the ceramic industry. Without a well-integrated and urbanized social order, it is unlikely that a highly specialized ceramic industry emerged to service the so-called "urban" communities of the EB III highland region. This does not mean that the ceramic industry was not well developed. In addition to the household production of common domestic wares, workshops, engaged for the most part in limited rather than large-scale industrial production, probably existed in the principal settlements, satisfying local demand for vessel forms that required specialized skill to produce. The presence of a two-chambered updraft kiln at Tall al-Far'ah (N) (de Vaux 1955: 558-63) provides perhaps the best example of such an operation. It is also possible that itinerant potters traveled from settlement to settlement, filling orders placed at each site, an arrangement well-documented ethnographically (London 1989; 1991: 394). Either way, we would expect such localized production, while retaining certain conservative elements (for example, stable clay-temper combinations, and gross vessel morphology), to result in a diverse and heterogeneous ceramic assemblage, as individual potters or workshops developed their own unique recipes from local raw materials.

The overall picture that emerges is one of a decentralized ceramic industry driven by local demand, rather than one controlled through a centralized redistributive network. Perhaps more importantly, the evidence suggests an economic system guided more by supply and demand than by the dictates of a central ruling elite in control of production. Accordingly, we would expect the distribution of economic goods to occur by means of an intricate regional exchange network, in which small agricultural villages participated actively along with the larger central settlements, both as producing and consuming partners. A similar organization has been documented for the EB IV and MB II in the Jordan Valley (Falconer 1987; 1994b: 133-39).

Overlaying this regional network was a more extensive, inter-regional one, evidenced by the presence of KKW and, perhaps more importantly, the lime-coated Combed Ware with its predominantly southern distribution. The presence of these wares not only indicate consumer demand for non-local products (note the domestic context of this material), they also link the local economy into the broader economic system operative in the southern Levant during this period. More specifically, the parallels apparent in the ceramic assemblages and industries of highland central Jordan and central and southern Cisjordan (for example, Ai, Yarmouth, and Lachish) suggest that there were close economic ties between these two regions. They also infer the existence of an east-west

[2] Frequently coated with a white chalky substance, this ware group has a predominantly southern distribution, and should be distinguished from the more northern Metallic Ware tradition (see now Greenberg and Porat 1996).

[3] Direct evidence of on-site production at Tall al-'Umayrī has now materialized with the recent discovery of the top half of a basalt turntable found in association with the EB III pottery from Field D.

corridor that very likely extended all the way to the Mediterranean, funneling goods to coastal markets at sites such as Ashkelon (Stager, forthcoming) for transshipment to regions beyond.

Regionalism and EBA Sociopolitical Complexity

The survey data for the Mādabā Plain, as we have seen, suggest that EBA communities were only loosely integrated, even when the region reached peak settlement density during the EB II-III period. The ceramic evidence similarly depicts a dispersed, heterogeneous industry characterized by varying levels of production and interaction. Both lines of evidence nevertheless also attest to the emergence of complex, regionally defined communities in the Central Highlands during this period.

Cluster analysis of survey data for the rest of the southern Levant further substantiate this view, revealing distinctly regionalized settlement patterns, with specific regions exhibiting significantly varying levels of integration. Coastal areas, for example, seem to have experienced more integrated, "urban" configurations, fluctuating in response to developments elsewhere in the Near East, while communities in the highlands and inland valley systems appear more stable and insulated from external influence (Savage and Falconer 1995; see also Finkelstein 1995: 55-64, for an alternative attempt at a peer polity model using Thiessen polygons). The restricted northern distribution of Metallic Ware at the onset of the EB III, and corresponding introduction of KKW around the Sea of Galilee and in the North Jordan Valley, moreover, delineate the possible rise of competing centers of production (Greenberg and Porat 1996: 20). The dendritic trade networks forged between hinterland communities and coastal ports (cf. Stager, forthcoming) meanwhile, highlight the economic forces that helped give shape to this regionalized landscape.

In spite of this economic pressure, however, EBA hinterland communities continued to favor adaptive strategies that preserved flexibility and autonomy over those that emphasized maximum productivity. They never fully relinquished the flexibility needed to adapt to economic downturns and periods of political instability, resisting full integration by maintaining a diverse subsistence base and a high degree of autonomy. Even at the height of development, the basic organizational and productive unit remained the household (Harrison 1995: 227-29). Communities remained self-sustaining and sociopolitically autonomous, while engaging in varying levels of specialized economic production. The result was a loosely integrated society comprised of regional communities heterarchically organized to exploit the environmental diversity and uncertainty that characterize the southern Levant. The outcome was a remarkably resilient and enduring culture that thrived for more than fifteen hundred years.

References

Ben-Tor, A. 1992. (ed.) The Early Bronze Age. Pp. 81-125 in A. Ben-Tor, *The Archaeology of Ancient Israel.* New Haven, CT: Yale University Press.

Esse, D. 1989. Secondary State Formation and Collapse in Early Bronze Age Palestine. Pp. 81-96 in P. de Miroschedji, *L'urbanisation de la Palestine a l'age du Bronze ancien.* . BAR International Series, No. 527. Oxford: British Archaeological Reports.

___ 1990. Early Bronze Age Cylinder Seal Impressions from Beth Yerah. *Eretz-Israel* 21: 27*-34*.

___ 1991. *Subsistence, Trade, and Social Change in Early Bronze Age Palestine.* Studies in Ancient Oriental Civilization, No. 50. Chicago: The Oriental Institute, University of Chicago.

Falconer, S. 1987. Village Pottery Production and Exchange: A Jordan Valley Perspective. Pp.251-59 in *SHAJ* III. Amman: Department of Antiquities.

___ 1994a. The Development and Decline of Bronze Age Civilization in the Southern Levant: A Reassessment of Urbanism and Ruralism. Pp. 305-33 in C. Mathers and S. Stoddart (eds), *Development and Decline in the Mediterranean Bronze Age.* Sheffield Archaeological Monographs, No. 8. Sheffield: J. R. Collins Publications.

___ 1994b. Village Economy and Society in the Jordan Valley: A Study of Bronze Age Rural Complexity. Pp. 121-42 in G. W. Schwartz and S. E. Falconer (eds), *Archaeological Views from the Countryside: Village Communities in Early Complex Societies.* Washington, DC: Smithsonian Institution.

Falconer, S. and Savage, S. 1995. Heartlands and Hinterlands: Alternative Trajectories of Early Urbanization in Mesopotamia and the Southern Levant. *American Antiquity* 60: 37-58.

Finkelstein, I. 1995. Two Notes on Early Bronze Age Urbanization and Urbanism. *Tel Aviv* 22: 47-69.

Finkelstein, I. and Gophna, R. 1993. Settlement, Demographic, and Economic Patterns in the Highlands of Palestine in the Chalcolithic and Early Bronze Periods and the Beginning of Urbanism. *BASOR* 289: 1-22.

Greenberg, R. and Porat, N. 1996. A Third Millennium Levantine Pottery Production Center: Typology, Petrography, and Provenance of the Metallic Ware of Northern Israel and Adjacent Regions. *BASOR* 301: 5-24.

Gophna, R. 1995. Early Bronze Age Canaan: Some Spatial and Demographic Observations. Pp. 269-76 in T.E.Levy (ed.), *The Archaeology of Society in the Holy Land.* London: Leicester University Press.

Harrison, T. 1995. *Life on the Edge: Human Adaptation and Resilience in the Semi-Arid Highlands of Central Jordan During the Early Bronze Age.* Ph.D. Doctoral Dissertation. University of Chicago.

—— 1997. Shifting Patterns of Settlement in the Highlands of Central Jordan During the Early Bronze Age. *BASOR* 306.

—— forthcoming. The Early Bronze III Ceramic Horizon for

Highland Central Jordan. In G. Philip and D. Baird (eds), *Breaking with the Past: Ceramics and Change in the Early Bronze Age of the Southern Levant.* Sheffield: Sheffield Academic Press.

Harrison, T., Hesse, B., Savage, S. and Schnurrenberger, D. forthcoming. Urban Life in the Highlands of Central Jordan: A Preliminary Report of the 1996 Tall Madaba Excavations. *ADAJ.*

Hennessy, J. 1967. *The Foreign Relations of Palestine During the Early Bronze Age.* London: Bernard Quaritch.

Joffe, A. 1991. Early Bronze I and the Evolution of Social Complexity in the Southern Levant. *Journal of Mediterranean Archaeology* 4: 3-58.

—— 1993. *Settlement and Society in the Early Bronze Age I and II, Southern Levant: Complementarity and Contradiction in a Small-Scale Complex Society.* Monographs in Mediterranean Archaeology, No. 4. Sheffield: Sheffield Academic Press.

Kempinski, A. 1978. *The Rise of an Urban Culture: The Urbanization of Palestine in the Early Bronze Age 3000-2150 B.C.* Israel Ethnographic Society Studies 4. Jerusalem: Israel Ethnographic Society.

—— 1989. Urbanization and Metallurgy in Southern Canaan. Pp. 163-68 in P. de Miroschedji (ed.), *L'urbanisation de la Palestine a l'age du Bronze ancien.* BAR International Series, No. 527. Oxford: British Archaeological Reports.

Kenyon, K. 1979. *Archaeology in the Holy Land.* 4th Edition. London: Ernest Benn Ltd.

Lapp, P. 1970. Palestine in the Early Bronze Age. Pp. 101-31 in J. A. Sanders (ed.), Near Eastern Archaeology in the Twentieth Century: Essays in Honor of Nelson Glueck. Garden City, NY: Doubleday.

London, G. 1988. The Organization of the Early Bronze II and III Ceramics Industry at Tel Yarmouth: A Preliminary Report. Pp. 117-24 in P. de Miroschedji (ed.), *Yarmouth. Vol. 1. Rapport sur les trois premieres campagnes de fouilles a Tel Yarmouth (Israël) (1980-1982).* Memoire, No. 76. Paris: Editions Recherche sur les Civilisations.

—— 1989. On Fig Leaves, Itinerant Potters and Pottery Production Locations in Cyprus. Pp. 65-80 in P. E. McGovern and M. R. Notis (eds), *Cross-craft and Cross-cultural Interactions in Ceramics.* Ceramics and Civilization, No. 4. Westerville, OH: American Ceramic Society.

—— 1991. Aspects of Early Bronze and Late Iron Age Ceramic Technology at Tell el-'Umeiri. Pp. 383-419 in L. G. Herr, L. T. Geraty, O. S. LaBianca, and R. W. Younker (eds), *Madaba Plains Project 2. The 1987 Season at Tell el-'Umeiri and Vicinity and Subsequent Studies.* Berrien Springs, MI: Andrews University Press.

1995. A Comparison of Bronze and Iron Age Pottery Production Based on Material from the Madaba Plains Region. Pp. 603-606 in *SHAJ* V. Amman: Department of Antiquities.

London, G. and Sinclair, M. 1991. An Ethnoarchaeological Survey of Potters in Jordan. Pp. 420-28 in L. G. Herr, L. T. Geraty, O. S. LaBianca and R. W. Younker (eds), *Madaba Plains Project 2. The 1987 Season at Tell el-'Umeiri and Vicinity and Subsequent Studies.* Berrien Springs, MI: Andrews University Press.

London, G., Plint, H., and Smith, J. 1991. Preliminary Petrographic Analysis of Pottery from Tell el-'Umeiri and Hinterland Sites, 1987. Pp. 429-39, in L. G. Herr, L. T. Geraty, O. S. LaBianca and R. W. Younker (eds), *Madaba Plains Project 2. The 1987 Season at Tell el-'Umeiri and Vicinity and Subsequent Studies.* Berrien Springs, MI: Andrews University Press.

Marfoe, L. 1987. Cedar Forest to Silver Mountain: Social Change and the Development of Long-Distance Trade in Early Near Eastern Societies. Pp. 25-35 in M. Rowlands, M. Larsen and K. Kristiansen (eds), *Centre and Periphery in the Ancient World.* Cambridge: Cambridge University Press.

Mazar, A. 1991. *Archaeology of the Land of the Bible 10,000-586 B.C.E.* New York: Doubleday.

Miroschedji, P. de. 1989. Le Processus d'Urbanisation en Palestine au Bronze Ancien: Chronologie et Rythmes. Pp. 63-79 in P. de Miroschedji (ed.), *L'urbanisation de la Palestine a l'age du Bronze ancien.* BAR International Series, No. 527. Oxford: British Archaeological Reports.

Richard, S. 1987. The Early Bronze Age: The Rise and Collapse of Urbanism. *Biblical Archaeologist* 50: 22-43.

Savage, S. and Falconer, S. 1995. Bronze Age Urbanism in the Southern Levant: Statistical Hypotheses Related to Settlement Systems and Polity Formation. Paper presented at the Annual Meetings of the American Schools of Oriental Research, Philadelphia, November 16-20.

Schaub, R.T. 1982. The Origins of the Early Bronze Age Walled Town Culture of Jordan. Pp. 67-75 in *SHAJ* I. 'Amman: Department of Antiquities.

Schwartz, G. and Falconer, S. 1994. Rural Approaches to Social Complexity. Pp. 1-9 in G. W. Schwartz and S. E. Falconer (eds), *Archaeological Views from the Countryside: Village Communities in Early Complex Societies.* Washington, DC: Smithsonian Institution.

Stager, L. forthcoming. Port Power in the Early and the Middle Bronze Age: The Organization of Maritime Trade and Hinterland Production. In S. Wolff (ed.), *Douglas L. Esse Memorial Volume.* University of Chicago.

Steele, C. 1990. Early Bronze Age Socio-Political Organization in Southwestern Jordan. *ZDPV* 106: 1-33.

Vaux, R. de. 1955. Les fouilles de Tall el-Far'ah, pres Naplouse. *RB* 62: 541-89.

—— 1971. Palestine in the Early Bronze Age. Pp. 208-37 in I. E. S. Edwards, C. J. Gadd and N. G. L. Hammond (eds), *Cambridge Ancient History,* Vol. 1, Pt. 1. Cambridge: Cambridge University Press.

Wheatley, P. 1972. The Concept of Urbanism. Pp. 601-37, in P. J. Ucko, R. Tringham and G. W. Dimbleby (eds), *Man, Settlement and Urbanism.* London: Duckworth.

Christophe Nicolle
(EAD 2244-EPHE)

Frank Braemer
(CNRS)

France

Christophe Nicolle et Frank Braemer

Le Levant sud au Bronze ancien: pour une définition des systèmes socio économiques non intégrés

English Abstract:
The Southern Levant in the EBA: for a definition of the non integrated socio-economic systems

Our knowledge about the Early Bronze Age periods in the area of the arid steppe between Damascus and Wādī az-Zarqā' was updated during the last ten years by new fieldwork. We are now able to define, with new accuracy, the chronological frame of human occupation, the specificity of the settlement patterns and the pottery assemblages. The variability of these patterns is the witness of a high variabitity of the contemporary socio-economic systems. Centrality and economic integration are not the main concepts which allow a general understanding of the period in the arid margins. We have to define the other ways of the socio-economic organisation, and the various kind of links between different systems.

Introduction

La plupart des synthèses archéologico-historiques portant sur le Bronze ancien dans le Levant sud publiées au cours des vingt dernières années ont cherché à définir les éléments de changement majeur caractérisant la période: apparition et développement du phénomène urbain, accroissement de la complexité des structures sociales, spécialisation des productions agricoles et artisanales, intégration économique à l'échelle continentale, dans des systèmes d'échange à longue distance. Les mots clés correspondants sont centralité, intégration, spécialisation. La documentation archéologique utilisée pour ce faire est principalement celle qui provient des régions "centrales" de Palestine, du fossé du Jourdain et de la plaine côtière.

Les travaux de terrain menés dans les zones arides, dites souvent "marginales" ou "périphériques" apportent une importante documentation qui ne se laisse pas expliquer toujours par les mêmes définitions et les mêmes mots clés. Nous voulons ici faire quelques propositions permettant de renouveler et de différencier les interprétations trop généralisantes, et de ce fait trop simplificatrices de cette période, qui opèrent trop souvent en opposition sommaire entre nomade et sédentaire, région centrale et région périphérique, phase urbaine ou phase rurale.

Des exemples d'intégration transversale mettant en relation des groupes humains hétérogènes installés dans des bandes bioclimatiques différentes et d'autres exemples illustrant une indépendance entre la taille d'un groupe, le degré de centralisation de son pouvoir et son mode d'organisation économique nous permettent de décrire une certaine variabilité des systèmes de production, de relation et d'échanges diversifiés des sociétés du Bronze ancien. À côté des systèmes à tendance centralisée et intégrative, organisés selon une base hiérarchisée, il existait des groupes fonctionnant de manière "horizontale", c'est à dire mettant en relation des populations au fonctionnement socio-économique semblable, et d'autre fonctionnant de manière transversale, mettant en relation des groupes n'ayant pas les mêmes modes socio-économiques, et cela sur des bases non hiérarchisées. Par ailleurs, l'organisation de certaines productions (élevage, céramique, par exemple) peut varier fortement dans le temps et dans l'espace. Ces variations, bien identifiées dans les zones dites "marginales", pouvaient à notre avis aussi exister dans les zones "centrales".

Nos propositions veulent enrichir d'autres essais allant dans le même sens, par exemple autour de la notion de ruralité[1], de déplacement des centres de gravité politico-économique[2] ou de variations des formes de la famille[3], et plaider pour une prise en compte accrue de la coexistence de systèmes socio-économiques hétérogènes au cours du Bronze ancien. Un enjeu majeur de la recherche des années à venir sera d'affiner la définition des rapports et des modes de relation entre ces systèmes dont la complexité et les bases organisationnelles ont certainement varié localement. Ces variations se définissent rarement

[1] Schwartz, Falconer 1994.
[2] Finkelstein 1995.
[3] Dever 1985.

dans le temps en terme d'évolution linéaire de formes simples vers des formes complexes pouvant déterminer une tendance majeure vers une transformation sociale généralisée comme on en observe en Mésopotamie ou dans la vallée du Nil. Il n'y a pas non plus une prédominance de variations de type cyclique, comme cela a parfois été proposé pour les phases urbaines du Levant sud[4]. Le concept de "hétérarchie"[5] qui est utilisé depuis quelques années pour caractériser les sociétés du Levant sud[6] paraît plus adéquat. Les exemples développés ci-dessous sont issus pour partie des résultats des missions de prospection et de fouille réalisées en Syrie du Sud et dans le Nord de la Jordanie depuis les années 70, en particulier dans la zone basaltique du Ḥawrān[7] et dans le 'Ajlūn oriental[8] (FIG. 1).

Des exemples d'intégration transversale au Levant sud

À travers trois sites répartis dans l'aire de diffusion de la céramique grise de Jāwa/Tall Umm Ḥammād diffusée au Bronze ancien IA, de la vallée du Jourdain au Jabal al-'Arab à l'est, on constate l'existence d'échanges entre des groupes engagés dans des productions à dominante différentes.

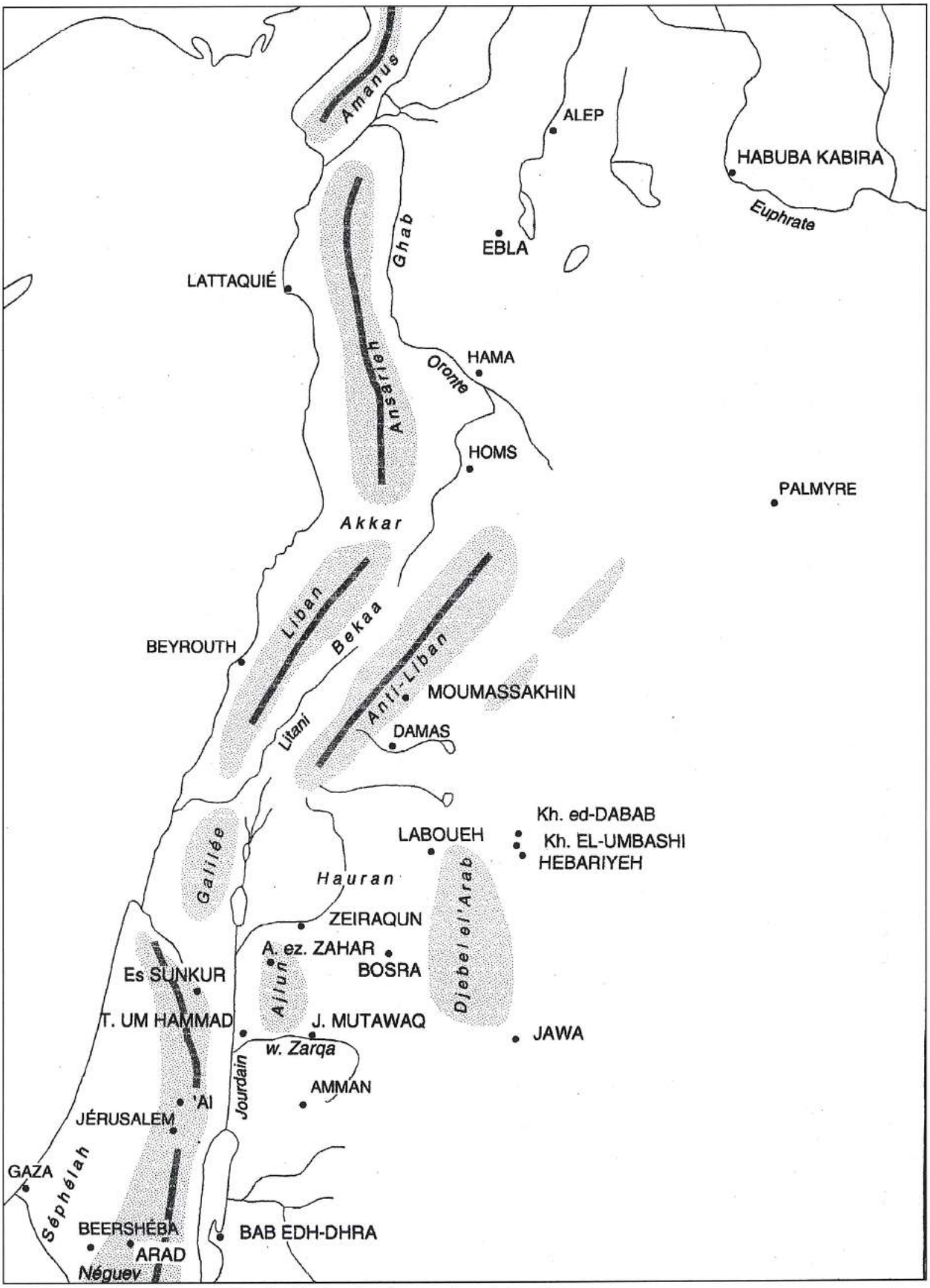
Jāwa est un site fortifié de 8ha, avec un système de récupération et de stockage de l'eau grâce à un réseau de canaux et de réservoirs. Il est implanté dans la zone semi-désertique au sud-est du Jabal al-'Arab. À l'intérieur de l'enceinte fortifiée plusieurs maisons de faibles dimensions, de forme sub-ovales et construites avec de petits blocs de basalte, constituent l'habitat dont l'importance numérique a sans doute été largement surévaluée par le fouilleur. Implanté dans une zone de steppe arborée surplombant le Wādī az-Zarqā', Jabal Muṭawwaq est un village de 18ha regroupant environ 250 longues maisons à double abside, souvent composées de blocs calcaire mégalithiques. Il est entouré par un mur qui n'est pas une fortification, mais un simple enclos. Le village, situé à la frontière de la steppe et de la zone méditerranéenne, est associé à des terrasses agricoles. Le troisième site, Tall Umm Ḥammād, est un village ouvert de 16ha au maximum au Bronze ancien IA, implanté dans la vallée du Jourdain et constitué des maisons rectangulaires en briques crues[9].

Excepté une partie de leurs céramiques (de la famille Grey Ware), ces trois sites n'ont rien en commun[10]. Ils diffèrent par leur d'implantation, leur architecture domestique et leur fonction. Ils correspondent à des groupes différents par l'organisation sociale et le mode de production.

La présence d'une même céramique sur les trois sites pourrait être le témoignage de relation d'ordre matrimonial: l'existence de mariages exogamiques à une échelle régionale, à l'intérieur d'ensembles stables. On connaît de nombreux exemples ethnographiques de cette forme d'échange. Un groupe de femmes potières d'un des trois villages portant avec elles une forte tradition technique aurait été régulièrement marié avec des membres de deux autres villages. Cette relation matrimoniale a pu être doublée d'une relation d'échange de biens de consommation. En effet, sur plusieurs éléments de la céramique grise des empreintes de sceau sont appliquées avant cuisson. Ces empreintes, que l'on retrouve sur les trois sites, sont similaires et proviennent assurément dans certains cas d'un même sceau. Les formes céramiques qui portent majoritairement de telles empreintes sont des jarres à fond plat et à tenons, avec ou sans col[11]. Non lissées, elles sont peu imperméables et possèdent souvent des perforations. C'est là plutôt l'indication d'un contenu sec comme des céréales. La présence d'un tel contenu est cohérente à Tall Umm Ḥammād, mais elle l'est un peu moins à Jabal Muṭawwaq et encore moins à Jāwa où aucune céréale ne peut pousser du fait de l'aridité du secteur. Il est en effet à peu près certain que la population de Jāwa ne pouvait se livrer qu'au pastoralisme. Il faut donc bien supposer l'existence d'échanges de produits secs, vraisemblablement de céréales entre ces différentes zones, sans doute à partir de la vallée du Jourdain en direction de l'est.

On trouve des traces du même type d'échanges de produits contenus dans des vases estampillés à la période du Bronze ancien II et III pour les structures associées au pastoralisme en zone au climat plus clément, comme dans l'enclos de Lawiah (Golan)[12] du Bronze ancien II, sur le site de Jordanie du Nord de 'Arqūb aẓ-Ẓahr[13], celui plus au sud de Bāb adh-Dhrā' ou Khirbat al-Umbāshī à l'est. Toutefois par rapport à la période du Bronze ancien I, une différence apparaît: les empreintes sont appliquées préférentiellement sur des jarres peignées, souvent associées au stockage et au transport de l'huile d'olive. Le fait de retrouver les fragments de ces jarres dans des structures associées à des groupes de pasteurs est l'indicateur d'une continuité des échanges transversaux entre des groupes aux modes de production spécialisée au Bronze ancien I, II et III. Plus au sud, la géographie de ces échanges identifiée par la céramique a été

4 En dernier lieu Herzog 1997, p. 259-260.
5 Crumley 1995.
6 Par exemple Harrison 1997.
7 Helms 1981; Betts éd. 1991; Braemer *et alii* 1993 et 1996.
8 Sapin 1992; Hanbury-Tenison 1986.
9 Betts 1992, p. 10.
10 Un même cas de figure, identifié grâce à l'analyse pétrographique de poteries, existe entre plusieurs sites du Sinaï et du Néguev et Ārād au Bronze ancien II, Porat 1989.
11 C'est le type R2 du corpus de Tall Umm Ḥammād, Helms p. 103 in Betts 1992.
12 Epstein 1972, p. 216; Kochavi 1993.
13 Mittman 1974.



1. Le Levant sud au Bronze ancien: localisation des sites mentionnés dans le texte.

parfaitement définie au Bronze ancien IV entre le plateau jordanien et le Néguev[14]. L'établissement de relations stables dans le temps et l'espace entre des groupes particuliers du Levant semble être une constante.

Si cet échange est établi entre deux zones à production dominante différente, on peut penser logiquement qu'aux céréales contenues dans les jarres du Bronze ancien IA correspondait en provenance de la zone steppique de Jāwa le produit des activités des groupes pasteurs (viande, produits laitiers, laine, cuir, etc.). À partir du Bronze ancien II l'augmentation de la production de l'huile d'olive est un autre exemple d'une production spécialisée qui ne peut s'envisager que dans le cadre d'échanges régionaux.

Hétérogénéité des groupes humains et des modes de production: l'exemple du pastoralisme

Depuis M. B. Rowton[15], les oppositions entre le monde des nomades pasteurs et celui des sédentaires agriculteurs ont souvent été simplifiées à outrance. Le pastoralisme ne se superpose pas au nomadisme, et l'élevage a connu au Bronze ancien des formes bien plus différenciées qu'on ne le croit généralement. L'observation d'une "coexistence de systèmes d'élevage différemment intégrés dans des villages d'une même région qui vivent de manière assez autonome" a été faite en Syrie du nord et en Mésopotamie[16]. On observe en effet dans la zone aride une variation des espèces élevées et particulièrement la présence systématique, mais en proportion fortement variable, de bovins à côté des ovins et des caprins. Les techniques d'élevage des deux espèces ne sont pas identiques et peuvent correspondre à des organisations sociales différentes. Cette constatation est appuyée du point de vue archéologique par l'étude des structures architecturales que l'on peut attribuer à l'entretien des troupeaux[17]. L'exemple du Sahel sub-actuel peut nous donner une idée de ces variabilités.

L'occupation de la région de Khirbat al-Umbāshī, et dans une moindre mesure celle de Jāwa, illustrent l'ampleur de ces variations. Dans la région de steppe aride à l'est du Jabal al-'Arab, on ne peut imaginer d'autre activité de production que l'élevage.

Sur les deux sites, la première installation construite est un rempart associé à un système de captage et de stockage de l'eau. Le rempart de Khirbat al-Umbāshī délimite une superficie de 4ha. Il appartient à la catégorie des enceintes sans agglomération interne, les différentes installations qui se sont succédées ici étaient toutes en dehors des remparts. Par contre, le rempart de Jāwa paraît avoir été occupé par des maisons dont la densité est difficile à estimer. Aucune construction monumentale associée au rempart ne témoigne d'une autorité centrale. On peut donc penser qu'il y a dans ces sites l'exemple de communautés de pasteurs peu ou pas hiérarchisées qui ont édifié des ouvrages monumentaux (marques de territoire plus qu'ouvrages de défense?) et des installations hydrauliques sophistiquées. Ces ouvrages n'ont rien à voir avec un début d'urbanisation; il faut plutôt y voir des exemples analogues à ceux des agglomérations structurées avec remparts, connues à partir du Néolithique final et du Chalcolithique en Mésopotamie[18].

À cette première forme d'habitat succèdent dans la région de Khirbat al-Umbāshī, pendant un millénaire et demi, plusieurs autres organisations des agglomérations.

Un village groupé, Khirbat adh-Dhabab (Bronze ancien II-III), possède une structure hiérarchisée à la fois par un centre monumental, des rues et des maisons de dimension variable. Il assemble sur une superficie de 1,6ha, 60 à 80 maisons dont la structure en *compound* (pièces rectangulaires associées autour d'une cour) est très proche de celle des maisons d'Ārād. Ce village entretient des relations étroites, identifiées par la céramique, avec le monde de la vallée du Jourdain[19].

Par la suite, au milieu du 3e millénaire, puis au Bronze ancien IV, dans le secteur Nord de Khirbat al-Umbāshī, on observe deux villages, composés de plus de 150 à 180 maisons réparties sur une superficie de 10 puis 30ha. Ces agglomérations étendues, pas très denses n'ont pas de structure hiérarchisée, bien au contraire toutes les maisons sont identiques dans leur plan et dans la qualité de la construction. Dans le plus récent de ces deux villages, le plan des édifices est très proche de celui des maisons longues rectangulaires entourant la citadelle de Jāwa. L'élevage des ovins et des caprins paraît être exclusif. La culture matérielle est très pauvre: quasi absence d'outillage lithique, répertoire céramique très restreint et ne montrant aucune relation avec les mondes environnants.

Au troisième quart du 3e millénaire, le site est occupé par un habitat dispersé d'une douzaine de maisons mégalithiques à enclos réparties sur 60ha. Ces maisons monumentales sont peut être contemporaines de constructions fortifiées, deux à Khirbat al-Umbāshī, une à Hébariyeh (citadelles ou greniers collectifs?) très semblables à la "citadelle" de Jāwa. Bien qu'aucun vestige osseux n'ait été découvert permettant d'identifier le cheptel, on peut faire l'hypothèse que les enclos associés aux maisons sont des zones de stabulation pouvant correspondre à l'élevage de bovins. Le mégalithisme qui caractérise cette architecture représente à une rupture majeure avec les techniques mises en úuvre antérieurement.

14 Goren 1996.
15 Rowton 1973.
16 Vila 1998, p. 135.
17 Sapin, Braemer à paraître.
18 Huot 1994, p. 63 sqq.
19 L'absence de découverte de restes osseux empêche de connaître la composition du cheptel de cette agglomération.

Enfin au Bronze ancien IV puis au deuxième quart du 2e millénaire, à Khirbat al-Umbāshī et sur le site voisin de Hébariyeh, on a des maisons agglutinées, réparties en hameaux. Ces hameaux comptent de 15 à 30 maisons selon les périodes. L'élevage des bovins est attesté par les restes osseux; l'existence de nombreux instruments de mouture peut témoigner de l'usage (et peut être d'une production très marginale) des céréales dans l'alimentation ou bien d'une activité de transformation de matière première non identifiée jusqu'à présent. La céramique montre des échanges dominants avec la Syrie moyenne et aussi avec le Nord de la Jordanie.

À ces différentes phases d'occupations, il faut ajouter les campements qui montrent une fréquentation régulière des lieux par des populations mobiles tout au long du 3e millénaire.

Ces établissements, tous liés au pastoralisme, correspondent à des séquences d'occupation plus ou moins longues et denses avec des ruptures dans les modes de vie et les systèmes techniques qui dénotent une importante variation des populations et de leur organisation socio-économique. Ces variations sont également démographiques: on peut en effet compter toutes les maisons sur chacun des sites étudiés en raison de conditions de conservation exceptionnelles. Si l'on s'en tient à un décompte par maisonnées, la variation démographique est de l'ordre de 1 à 15 ou 20 selon les périodes puisque les agglomérations comprennent de 15 à plus de 200 maisons. Pour l'instant rien ne permet de déceler si les populations qui se sont succédées sur le site correspondent à un seul et même groupe qui a connu de profondes transformations sociales (les exemples médiévaux et modernes dans le Levant en montrent la possibilité[20]) ou qui change de mode de vie de manière saisonnière dans des formes de transhumance[200] ou encore s'il s'agit de populations différentes alternant leur fréquentation des lieux ou entretenant des liens de voisinage sur cette zone de steppe.

La variété des modes de production à dominante et leur organisation au sein de systèmes ruraux autonomes

Les différentes installations de Khirbat al-Umbāshī correspondent aussi à des systèmes de relations et d'intégration régionale variables, montrés par les échanges marqués par la céramique. Les villages groupés et agglutinés entretiennent des relations avec les mondes jordano-palestinien et syrien, alors que les deux phases d'occupation du secteur nord sont le fait de deux groupes numériquement importants qui sont déconnectés des régions voisines. Les variations qui touchent les organisations sociales affectent donc aussi l'organisation des systèmes d'échange. Certes, le fait n'est pas nouveau: il est constaté dès l'époque chalcolithique. Mais grâce à un exemple comme Khirbat al-Umbāshī, on peut noter l'indépendance des phénomènes de concentration de la population et de concentration des pouvoirs tout au long du 3e millénaire. De même, on relève une indépendance entre la taille des groupes de pasteurs, la dimension des enclos et le volume des échanges, puisque la phase d'occupation la plus dense du site, celle du secteur Nord, correspond à une période sans aucune trace de relations avec les régions alentour et une absence quasi totale de céramique. Ce n'est donc pas l'importance numérique d'un groupe qui est un moteur de complexification sociale significatif.

Ce cas de figure ne correspond pas uniquement aux groupes de pasteurs des zones "marginales". Les formes d'organisation de pasteurs identifiée à Khirbat al-Umbāshī peuvent être retrouvées dans d'autres secteurs du Levant sud. Les systèmes d'enceintes vides forment un premier ensemble cohérent: on en connaît en Samarie et dans le 'Ajlūn[22], dans le Golan, en Basse-Galilée[23] et jusque dans la région de Buṣrā vers le nord[24]. Ces enceintes fortifiées, implantées sur l'extrémité d'éperons rocheux ou sur des collines, protègent des superficies légèrement plus réduites que celle de Khirbat al-Umbāshī, mais les remparts qui les composent sont parfois tout aussi importants, par exemple à as-Sunkur. Cette enceinte du Bronze ancien I est composée de murs d'une épaisseur moyenne de 2-3m. Certains de ses murs sont renforcés par des rampes de terre et des tours. Le côté sud, plus accessible, est défendu par un mur de 60m de long, d'une épaisseur de 6m et conservé sur une hauteur de 4m[25]. Les enceintes sont essentiellement localisées dans des régions de collines, au climat méditerranéen ou steppique. Il s'agit bien de sites voués à l'élevage. Leur dépendance à des centres urbains, comme le propose Z. Gal[26] pour les enceintes du Golan qu'il rattache au centre urbain de Tel Dan selon la théorie des places centrales, n'est en rien assurée. Au contraire, plusieurs indices indiquent l'existence d'intégrations transversales similaires à celle déjà identifiée entre Jāwa et Tall Umm Ḥammād. Les grands enclos ronds de le 'Ajlūn oriental[27], du Jabal al-'Arab et de la région de Madaba pourraient correspondre encore à une autre forme d'organisation pastorale.

Les systèmes pastoraux du Levant sud revêtent donc des formes variées. L'élevage est dans de nombreux cas une activité de production dominante. Il existe d'autres formes de production dominante dans l'horticulture avec

20 Lewis 1987.
21 Là encore les exemples modernes existent, D'Hont 1994, p. 208 sqq.
22 Zertal 1993, p. 113-115.
23 Gal 1988, p. 1-5.
24 Inédit.
25 Zertal 1993, p. 115.
26 Gal 1988, p. 5.
27 Sapin, Braemer à paraître.

la culture et l'exploitation des oliviers ou de la métallurgie avec la transformation et la diffusion du cuivre.

La "spécialisation" de ces différentes formes de production ne correspond pas à une "spécialisation" telle qu'elle peut exister dans un système urbain, c'est à dire l'émergence d'un groupe qui abandonne des activités vivrières pour se consacrer entièrement à une activité de production spécialisée, et qui est de ce fait pris en charge par la communauté avec laquelle s'établit alors un rapport d'échange nouveau sur la base de surplus. Elle est le fruit d'une différenciation marquée essentiellement par la géographie et sans doute accusée par des particularismes ou un fixisme d'ordre culturel: pastoralisme des steppes, agriculture céréalière du rebord du plateau et de la vallée du Jourdain, arboriculture des massifs collinéaires méditerranéens ('Ajlūn, Golan, Galilée, Samarie). C'est là une manifestation de savoirs spécialisés, existant dès la période néolithique qui aboutissent à des productions agricoles à dominante forte. On peut comparer ces systèmes à ceux des cultures africaines fondées sur l'élevage, les céréales ou la patate douce et les échanges qu'elles peuvent entretenir dans des relations de voisinage proche. Il s'agit de savoirs répartis au sein du groupe qui n'entraînent pas la création de castes ou de groupes sociaux particuliers.

Il faut alors interpréter d'une nouvelle manière les systèmes d'échanges qui s'établissent entre ces entités. Nous faisons l'hypothèse de l'existence de systèmes d'échanges sans autorité centrale entre groupes ayant des productions agricoles différentes. De tels systèmes existent dès le Bronze ancien IA, nous l'avons évoqué dans l'exemple d'intégration transversale de groupes le long du Wādī az-Zarqā'. Il est matérialisé par la diffusion de jarres estampillées. On en trouve d'autres exemples au Levant Nord à Ébla où le réseau d'échanges complémentaires que l'on rattache à l'usage de marquage des jarres par des sceaux se trouve, doublé à partir de 2400 av. J.-C., d'un usage classique de type administratif d'authentification des scellements par des sceaux. Là se côtoient une administration palatiale qui utilise un système de gestion complexe dans une économie de centralisation et de redistribution, et un système de gestion, plus rudimentaire, par marquage des jarres d'un échange entre égaux. Cela correspond à la coexistence de deux modes de gestion rattachés à deux circuits parallèles de production[28]. Quand S. Helms pensait que Jāwa était le résultat d'une volonté délibérée d'aménagement par une autorité centralisée, il se fondait sur une interprétation anachronique de l'usage des sceaux[29]. À ce modèle excessivement centralisateur, il convient de substituer notre interprétation de systèmes d'échanges ruraux autonomes intégrant plusieurs groupes pratiquant des productions "spécialisées".

Avec Khirbat al-Umbāshī, on a pu constater l'indépendance entre la taille d'un groupe humain, l'importance de ses réalisations, son type d'économie et la concentration du pouvoir. De même que l'horticulture[30], le développement du pastoralisme spécialisé ne doit pas être perçu comme la volonté d'un pouvoir centralisateur. Les productions artisanale, métallurgique ou céramique, peuvent être organisées selon d'autres critères et peuvent avoir connu des périodes de spécialisation plus nette dès le Chalcolithique[31] et certainement au Bronze ancien (voir en dernier lieu l'étude de la *Metallic Ware* du nord du bassin du Jourdain[32]). Dans tous les cas, il n'est pas nécessaire d'envisager systématiquement l'existence d'une autorité centrale pour gérer et organiser ces productions.

Rythmes de l'occupation du sol dans le Levant sud

L'abandon de Jāwa et la succession des différents modes d'installation dans la région de Khirbat al-Umbāshī témoignent des changements rapides dans un milieu d'extrêmes climatiques, particulièrement sensible aux variations des précipitations et dans une forme d'activité économique privilégiant les mouvements de population. Dans des régions aux conditions climatiques moins extrêmes, des phénomènes du même ordre ont été identifiés[33]. On peut se demander si dans les régions "centrales", il y a aussi de tels changements dans le rythme et les formes de l'occupation du sol et par conséquent dans les formes d'organisation sociale. On sait en effet que plusieurs cités portent les traces d'évolution, voir de renouvellement complet de leur peuplement.

Par exemple à 'Aī, ce ne sont pas moins de trois phases de destruction des fortifications et de la cité qui sont reconnus (destruction au niveau IIIB, au niveau V, puis au niveau VII) et au moins une où la population qui reconstruit la cité est identifiée par de nouvelles formes céramiques (notamment des bols carénés avec des lèvres éversées et un type de cruche avec un grand col cylindrique et une anse de panier qui se mêlent aux formes autochtones[34]). Les périodes durant lesquelles le rempart demeure ruiné sont parfois suffisamment longues pour que des maisons soient construites sur son tracé (par ex-

28 Mazzoni 1992, p. 185-195.
29 Helms 1984.
30 C'est très souvent que l'horticulture est associée à l'émergence d'un pouvoir centralisé de nature urbaine. Ainsi, I. Finkelstein et R. Gophna utilisent cette notion pour expliquer le développement, à partir du Bronze ancien IA, de la région des collines du centre de la Palestine (Finkelstein, Gophna 1993, p. 12-14). Selon eux, l'horticulture demande l'existence d'un pouvoir centralisé car il faut une organisation politico-économique stable, capable d'investir à long terme dans la plantation des oliviers qui ne sont pas productifs avant une vingtaine d'années.
31 Kerner 1997.
32 Greenberg, Porat 1996.
33 Harrison 1997.
34 Selon J. A. Callaway, cette population proviendrait du nord de la Palestine , Callaway 1972, p. 159-160.

emple dans le chantier L, le bâtiment MK:239 construit sur le sommet ruiné du rempart B). À Tel Yarmouth, des changements aussi radicaux se constatent entre les niveaux IIA et IIB des chantiers B et G dans lesquels l'on constate une reconstruction totale du bâti avec une orientation différente des maisons.

Une instabilité des conditions climatiques n'est pas la seule explication que l'on puisse avancer pour expliquer les rythmes de l'occupation des sols. Ces quelques exemples suffisent à indiquer que s'il faut imaginer des scénarios différents selon la nature des régions occupées et exploitées, rien ne permet de constater une différence entre ceux identifiés à Jāwa et dans la région de Khirbat al-Umbāshī et ceux dit "urbains" des régions "centrales", climatiquement plus favorables. Ils semblent se succéder à des rythmes aussi rapides et sans une logique évolutive continue.

Conclusion

Il est possible de trouver des modèles indépendants des modèles urbains qui permettent de mieux comprendre un certain nombre de vestiges liés au pastoralisme, notamment un mode d'organisation de production et d'échanges de nature rurale, avec une évolution indépendante des processus et des organisations urbaines. Cette forme d'organisation met en relation des régions plus ou moins centrales, ce qui nous conduit à repenser la pertinence de la notion de centralité au Bronze ancien. De tels modes de production sont connus dès l'époque chalcolithique. Il existe donc une gamme variée de formes d'organisation des groupes humains et de leur production sans qu'un rapport de cause à effet puisse être identifié entre les deux, ni qu'il soit possible d'établir la prééminence d'un modèle sur les autres.

L'importance d'un site, par sa superficie, ses constructions et ses aménagements n'est pas systématiquement significative d'une forme d'organisation sociale. Les fortifications et les systèmes de récupération des eaux de Khirbat al-Umbāshī et de Jāwa ne doivent rien à un pouvoir centralisé de nature urbaine ou autre. Il en est de même pour Bāb adh-Dhrā' et d'autres enceintes fortifiées. Par ailleurs, une "mono production" (production à forte dominante) ne doit pas être confondue avec une production de spécialistes. Dans ces conditions, il est cohérent de proposer que l'accumulation de biens permise par de telles formes de production n'ait pas obligatoirement pour conséquence une logique d'économie de marché. Elle peut conduire à une économie d'échanges largement basée sur le don et le contre don.

Ainsi la période du Bronze ancien ne correspond pas partout à une rupture totale des modes de production tels qu'ils existaient dès l'époque chalcolithique. Il ne s'agit pas de nier l'existence dans le Levant sud d'une tendance d'évolution intégratrice conduisant à une forme de cité-État. Les systèmes caractérisés par cette tendance existent à la période du Bronze ancien II-III. Mais ils ne sont sans doute pas toujours dominants et en tout cas ils peuvent coexister avec d'autres systèmes régis par des tendances évolutives différentes. Il est important maintenant de bien mesurer ces différences et les rapports qu'entretiennent ces différents systèmes pour renouveler notre compréhension de cette période.

Bibliographie

Betts, A. V. G. (ed.) 1991. *Excavations at Jawa 1972-1986": Stratigraphy, Pottery and Other Finds. Excavations and Explorations in the Hashemite Kingdom of Jordan.* Edinburgh University Press, Edinburgh.

Betts, A. V. G. 1992. *Excavations at Tell Um Hammad 1982-1984: The Early Assemblages (EBI-II). Excavations and Explorations in the Hashemite Kingdom.* Edinburgh University Press, Edinburgh.

Braemer, F., Echallier, J.-C., Taraqji, A. 1993. "Khirbet el-Umbashi (Syrie). Rapport préliminaire sur les campagnes 1991 et 1992". *Syria* LXX: 415-430.

____1996. "Khirbet el-Umbashi (Syrie). Rapport préliminaire sur les campagnes 1993 et 1994". *Syria* LXXIII: 117-127.

Braemer, F., Sapin, J. à paraître. "Modes d'occupation de la steppe dans le Levant sud-est au Bronze ancien: les structures liées au pastoralisme". In Y. Calvet et B. Geyer, *Les marges arides du Croissant fertile. Appropriation des terres et occupation du sol.* Maison de l'Orient Méditerranéen, Lyon.

Callaway, J. A. 1972. *The Early Bronze Age Sanctuary at Aï (Et-Tell) n°1. A Report of Joint Archaeological Expedition to Aï.* B. Quaritch, London.

Crumley, C. L. 1995. "Heterarchy and the Analysis of Complex Societies". Pp. 1-5 in R. M. Ehrenreich, C. L. Crumley, J. E. Levy J.(éds.), *Heterarchy and the Analysis of Complex Societies.* Arlington.

D'Hont, O. 1994. *Vie quotidienne des 'Agedat. Techniques et occupation de l'espace sur le Moyen-Euphrate.* Institut Franįais de Damas, Damas.

Dever, W.G. 1985. "Village Planning at Be'er Resisim and Socio-economic Structure in Early Bronze Age IV Palestine". *Eretz Israel* 18: 18*-28*.

Epstein, C. 1972. "Early Bronze Age Seal Impressions from the Golan". *IEJ* 22 (2-3): 209-217.

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, Sheffield.

Finkelstein, I., Gophna, R. 1993. "Settlement, Demographic and Economic Patterns in the Highlands of Palestine in the Chalcolithic and Early Bronze Age". *BASOR* 289: 1-22.

Gal, Z. 1988. "H. Sahal Tahit and the "Early Enclosures"". *IEJ* 88: 1-5.

Goren, Y. 1996. "The Southern Levant in the Early Bronze Age

IV: The Petrographic Perspective". *BASOR* 303: 33-72.

Greenberg, G. R., Porat, N. 1996. "A Third Millennium Levantine Pottery Production Center: Typology, Petrography, and Provenance of the Metallic Ware of Northern Israel and Adjacent Regions". *BASOR* 301: 5-24.

Hanbury-Tenison, J. 1986. *The Late Chalcolithic to Early Bronze I Transition in Palestine and Transjordan*. BAR Int. Series 311, Oxford.

Harrison, T. P. 1997. "Shifting Patterns of Settlement in the Highlands of Central Jordan during the Early Bronze Age". *BASOR* 306: 1-37.

Helms, S. W. 1981. *Jawa: Lost City of the Black Desert*. Methuen, London.

____1984. "Land Behind Damascus: Urbanism during the 4th Millennium in Syria/Palestine". Pp. 15-31 in Khalidi (éd.), *Land Tenure and Social Transformation in the Middle East*. American University of Beirut, Beirut.

Herzog, Z. 1997. *Archaeology of the City. Urban Planning in Ancient Israel and its Social Implications*. Tel Aviv Institute of Archaeology, Monograph series 13, E. and C. Yass Archaeological Press, Jerusalem.

Huot, J.-L. 1994. *Les premiers villageois de Mésopotamie. Du village à la ville*. Armand Colin, Paris.

Kerner, S. 1997. "Specialization in the Chalcolithic in the Southern Levant". Pp. 419-427 in H. G. K. Gebel, Z. Kafafi, G. O. Rollefson (éds.), *The Prehistory of Jordan II. Perspectives from 1997. Studies in Early Near Eastern Production, Subsistence and Environment 4*, ex oriente, Berlin.

Kochavi, M. 1993. "Leviah Enclosure". Pp. 915-916 in *The New Encyclopedia of Archaeological Excavations in the Holy Land*, volume 3. The Israel Exploration Society, Jerusalem.

Lewis, N. N. 1987. *Nomads and Settlers in Syria and Jordan, 1800-1980*. Cambridge University Press, Cambridge.

Mazzoni, S. 1992. *Le Impronte su giiara eblaite e siriane nel Bronzo antico*. Università degli studi di Roma "La Sapienza", Roma.

Mittmann, S. 1974. "Zwei Siegelbildscherben der frßhen Bronzezeit aus dem nôrdlichen Ostjordanland". *ZDPV* 90: 1-13.

Porat, N. 1989. "Petrography of Pottery from Southern Israel and Sinai". Pp. 169-188 in P. de Miroschedji (éd.), *L'urbanisation de la Palestine à l'âge du Bronze ancien*. Actes du colloque d'Emmaüs (20-24 octobre 1986). BAR Int. Series 527(i), Oxford.

Rowton, M. B. 1973. "Urban Autonomy in a Nomadic Environment". *JNES* 32: 201-215.

Sapin, J. 1992. "De l'occupation à l'utilisation de l'espace à l'aube de l'âge du Bronze dans la région de Jérash et sa périphérie orientale". Pp. 169-174 in *SHAJ* IV, Department of Antiquities, Amman.

Schwartz, G. M, Falconer, S. E. (éds.) 1994. *Archaeological Views from the Countryside. Village Communities in Early Complex Societies*. Smithsonian Institution Press, Washington.

Vila, E. 1998. *L'exploitation des animaux en Mésopotamie aux IVe et IIIe millénaires avant J.C.* Monographies du CRA 21, CNRS éditions, Paris.

Zertal, A. 1993. "Fortified Enclosures of the Early Bronze Age in the Samaria Region and the Beginning of Urbanization". *Levant* XXV: 113-124.

Walter E. Rast
Department of Theology
Valparaiso University
Valparaiso Indiana 46383 - 6493
USA

Walter E. Rast

Tracing the Course of EB IV Pastoralism and Sedentism in Transjordan and the Negev

A number of scholars, in particular Kay Prag and William Dever, have presented synthesizing views of the EB IV period in Transjordan. On the basis of a detailed study of the typology and distribution of EB IV pottery, along with the results of excavations at Tall Iktanū, Prag (1974) sketched an EB IV landscape on which interaction between sedentary village occupants and semi-nomadic pastoralists took place (Prag 1974: 102). She later expanded her view on the transhumance of the period in a comparative study of pastoral migration in Jordan and other parts of the Levant (1985). Of special importance, and again stimulated by the work at Tall Iktanū, was her modification of Kenyon's paradigm of nomadic incursions from Syria, which Kenyon viewed on a large enough scale to be a determinative force in the urban decline at the end of EB III. Prag proposed, by contrast, that semi-nomads emanating from Syria, some of whom also practiced cultivation, moved southward by means of normal transfusion, following the breakdown of strong centralized authority in Palestine at the end of EB III. There was, however, no massive egress from Syria. Prag's view has similarties to that of Mazzoni, who proposed that whatever Syrian elements are present in the Palestinian EB IV material could be better explained by means of diffusion of cultural elements, especially technological innovations, rather than population movement (Mazzoni 1985: 13).

Dever's contributions have been mainly in two directions: 1) a proposal for six "regional families" based on local differences in EB IV pottery (Dever 1980: 48), and 2) the broadly applied interpretation on which we will focus in this article, that Transjordan was the earliest manifestation of EB IV culture and thus probably also the breeding ground for this post-urban successor to the old urbanized cultures of EB II and III (Dever 1971: 212; 1973: 56-58). In a series of articles appearing over the past quarter of a century, Dever has reiterated the theme that Transjordan was a key area for EB IV development. At the same time, in his latest work he has questioned the degree to which outside factors influenced the origins of EB IV culture (Dever 1989: 228). Thus, rather than looking northward to the Syrian desert regions to find the key for EB IV culture, Dever now prefers to see it as an internal evolution out of the collapsed urban culture of the Early Bronze Age. The differences in ceramics and social organization between Syria and Palestine also are considerably greater than the similarities, and this too argues for the local development of this culture (Dever 1980: 52). More recently excavated data can be added to the role that Transjordan played in the formation and transmission of this culture. We can now follow with some surety the trajectory of EB IV settlement in Transjordan while, as we shall examine below, the discoveries in the tombs at al-Khānazīr in comparison with Dever and Cohen's work at Beer Resisim open a new vista on the transference of EB IV culture across the 'Arabah to the Negev.

Not to be overlooked in the discussion about EB IV in Transjordan are the remains from Khirbat Iskandar, a settlement extensively enough excavated at this stage that some conclusions can be attempted. The work of Richard and Long has important implications not only for cultural development during EB IV, but also, as will be discussed below, because Khirbat Iskandar can be held to have played a special role in the socio-political realities of the time. The site is a remarkable one for the period, quite unique in comparison to any other EB IV site thus far excavated on either side of the Jordan River. Dever's use of the adjective "startling" (Dever 1989: 226; cf. also Richard 1987: 242-243) in reflecting on the impressive EB IV city wall, gate, and towers at Khirbat Iskandar hardly seems an overstatement, even if the most recent excavations indicate that some of this architecture came into being originally in EB II-III (FIG. 1).

Finally, two other EB IV sites in Jordan throw light upon the course of EB IV settlement in Transjordan. The first is Bāb adh-Dhrā', excavated earlier by Paul Lapp and subsequently by the Expedition to the Dead Sea Plain; the second are the EB IV tombs near al-Khanāzīr mentioned above, excavated in 1990 also by the Dead Sea



1. Early Bronze II/III northwest corner tower at Khirbat Iskandar, looking south with abutting Early Bronze IV perimeter wall running to the southwest (courtesy of the Khirbat Iskandar Expedition).

Plain expedition (unpublished but presently in preparation as part of what is to be the fourth volume of the EDSP).

As a result of excavations at Khirbat Iskandar and Bāb adh-Dhrā' it is possible to reflect on what may have been the relation between these two sites, the one on the plateau and the other in the southern Ghawr. One striking feature is the close match-up of pottery forms at the two sites (cf. Richard and Boraas 1988: 125, fig. 19 with Schaub and Rast 1989: 477-81, figs. 274-76). Petrographic analysis has shown that in most cases pottery at Bāb adh-Dhrā' was made from local clays nearby the site (Beynon, Donahue, Schaub and Johnston 1986: 304). Nevertheless, the correspondence of the forms and the treatment of some of the vessels with the same type of red slip suggest a close relation between these two sites, if not in direct ceramic production at least in cultural and probably also social and political associations.

As Dever pointed out some time ago, vessels of the type found at Bāb adh-Dhrā' (representing his TR Group) should most likely be dated to the initial phase, that is, to EB IVA. Notably, Dever and Cohen found a number of sherds in a fill at Beer Resisim that displayed the same kind of red-burnished treatment as that found on EB IV vessels at Bāb adh-Dhrā' and Khirbat Iskandar. One of their examples was from a rilled-rim "teapot" of the same type as found at both Bāb adh-Dhrā' and Khirbat Iskandar (Cohen and Dever 1979: 56, fig. 18: 15, 17).

What can we conclude from these similarities in the cultural traditions of Khirbat Iskandar and Bāb adh-Dhrā', and their appearance also in the central Negev? We propose that EB IV culture began to crystallize at the various EB IV sites that have been found along the Transjordan plateau and in the Jordan valley (Dever 1980: 48; Richard 1987: 242; Ibrahim, Sauer and Yassine 1976: 51-54), and that Khirbat Iskandar played an important role in the consolidation of this culture during its development in Transjordan. From Khirbat Iskandar the tradition spread further to Bāb adh-Dhrā' in the southern Ghawr, carried by the movement of some of the population into the Dead Sea region. In a further dissemination at a somewhat later date (EB IVB) the tradition was carried on by migrants who moved southward in the 'Arabah to al-Khanāzīr, and other parts of the region near al-Khanāzīr (MacDonald 1992: 68), before passing across to the Negev, from which it spread into the hill country of Palestine. We can therefore specify a progression in this culture beyond the assumption of a general directional development from north to south. All of this fits nicely with a chronological development in the pottery through two or three EB IV phases, since the later phases are most abundantly represented in the Negev and Israel, while the earlier are found in Jordan.

If this directional development of the EB IV culture holds, it means both that Khirbat Iskandar played a role in the dispersion of EB IV culture, and that Bāb adh-Dhrā' was one of its important transmission points as this culture worked its way further to the other side of the Rift Valley. This position expands on Dever's early attempt to trace the path of EB IV settlement in Transjordan. In his earlier studies before the evidence from the southern Ghawr was available, Dever viewed the spread of EB IV culture as having occurred across the Transjordan plateau into the Jordan Valley near Jericho, from which it diffused into the Negev and the highlands of Israel (see the map in Dever 1971: 200; also 1980: 47). Dever segregated Jericho and other Jordan Valley sites into his Family J, differentiating this family from the TR family of Transjordan, although he entertained the idea that the former was related to the Transjordan traditions. What we are proposing here is that the movement of this culture progressed further south on the Transjordan side, until it passed across to the west, most likely via the southern Ghawr and the 'Arabah.

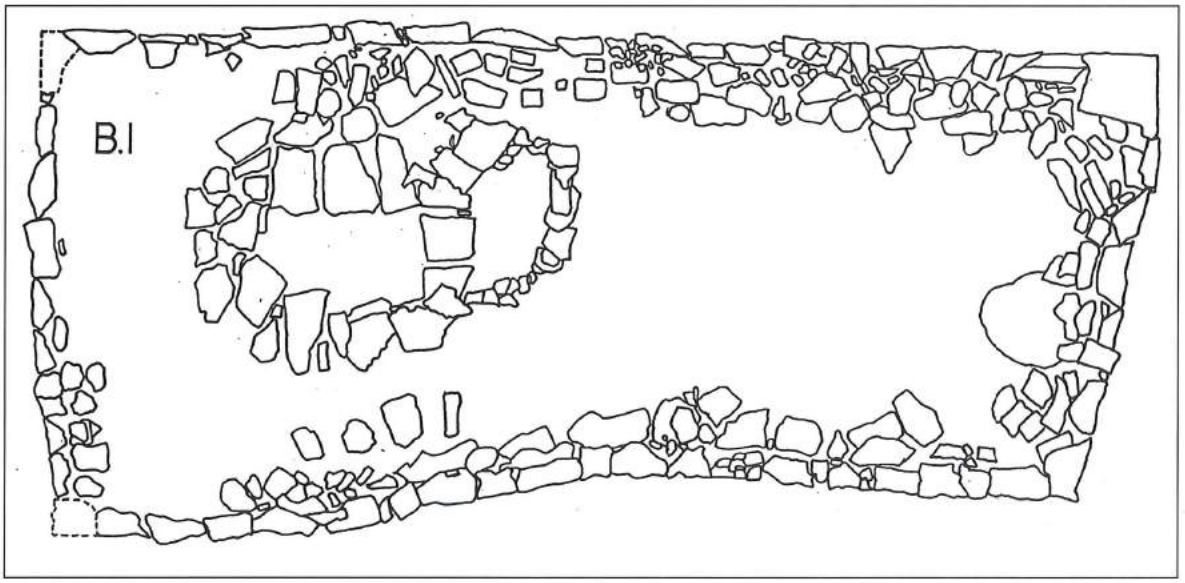
It is at this point, and precisely from the southernmost part of the Ghawr that another source of information can be found bearing on the problem of the progression of EB IV culture from Transjordan to the Negev. During December of 1989 and January of 1990 the Expedition to the Dead Sea Plain excavated the EB IV cemetery located above and east of Wādī al-Khānazīr. The area had been identified previously by the survey team led by MacDonald, which designated it Site 141 (MacDonald 1992: 69). The EDSP has simplified the identification and location by referring to it as the al-Khanāzīr cemetery, since it is nearby the ruins at al-Khanāzīr and the latter are the most marked archaeological remains in the area (Rast and Schaub 1974: 12-13, 18). The tombs near al-Khanāzīr consisted of stone-lined shaft and chamber tombs reminiscent of the stone-lined EB IV shaft tombs at Bāb adh-Dhrā'. But a unique feature is that many of these tombs

were enclosed by low walls made of stone material naturally spalled from the adjacent limestone slopes. The surrounding enclosures were usually in the form of rectangles (FIG 2). In most cases the burials in the tombs were disarticulated, although in one example a group of burials was also articulated. In contrast to Bāb adh-Dhrā' where an EB IV settlement existed alongside the cemetery, at al-Khanāzīr no signs of a settlement appeared. Schaub has placed the pottery slightly later than the main corpus at Bāb adh-Dhrā', with some forms paralleling the latest EB IV stage ceramics at Bāb adh-Dhrā', probably EB IVB (personal communication).

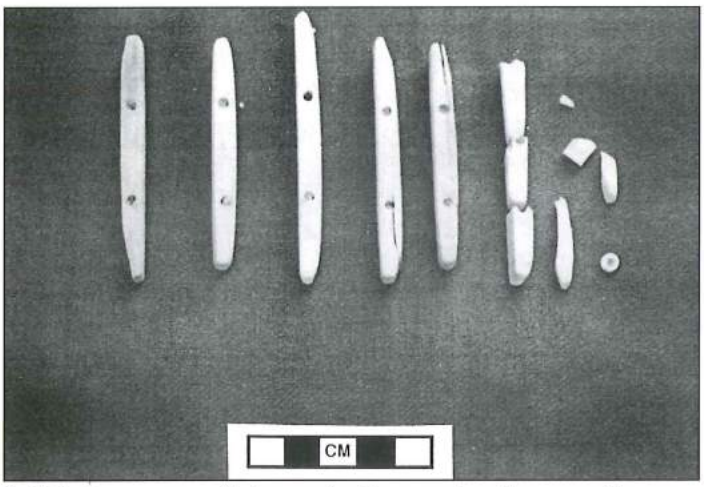
The importance of this evidence from the al-Khanāzīr cemetery is that it supplies a further location point in the advance of EB IV culture southward in the Ghawr and 'Arabah. Al-Khanāzīr lies some 30 km south of Bāb adh-Dhrā', and it seems probable that the al-Khanāzīr tombs were constructed by the successors of the EB IV population at Bāb adh-Dhrā', even though no other EB IV evidence has been found between Bāb adh-Dhrā' and Ghawr al-Khanāzīr. Thus, while Bāb adh-Dhrā' was a settled village, the farther south we go in the southern Ghawr the evidence points to the more usual nomadic pastoralist mode found elsewhere, suggesting a fading-out of the village culture found on the plateau and at Bāb adh-Dhrā'. New excavations in Wādī Faydān in the 'Arabah may indicate something other, however, particularly if an EB IV settlement there was connected with specialization in mining.

As for the link between the southern Ghawr and 'Arabah and the Central Negev in EB IV, it is not without significance that the cemetery at al-Khanāzīr is situated at nearly the same latitude as Beer Resisim in the Negev (approximately Pal. Grid 020 for Beer Resisim and 030 for Khanazir). It is also indicative of probable contacts between the EB IV inhabitants around al-Khanāzīr and those at Beer Resisim that both sites produced virtually identical ornamental pieces. A group of these, which Broeder and Skinner analyzed as cylinder spacers made from aragonite (mollusc shell) and commonly containing two perforations, was found at Site 120E in the al-Khanāzīr tomb area by the MacDonald survey (FIG. 3 and MacDonald 1992: 138-139). Identical examples came from Bir Resisim (Cohen and Dever 1980: 52, fig. 12), and the excavations of the Expedition to the Dead Sea Plain found one in one of its tombs at al-Khanāzīr . Regarding the further movement of EB IV culture into central Palestine, Dever has proposed that pastoralists from the Negev made their way into the more verdant hill country during the time of the year when the Negev was at its most arid (Dever 1985b: 119-121), and as they moved, EB IV cultural tradition accompanied them. Thus, while it is possible that influences other than those transmitted from Transjordan could have occurred at EB IV sites in Israel, it seems that it was the Transjordan EB IV culture that ultimately spearheaded the emergence of this culture at many of the sites in Israel.

The situation in Transjordan raises the further problem of how we might view political organization during this last phase of the Early Bronze Age. The political features of EB IV have received only limited discussion in the literature. Some efforts have been made in relation to social and economic dynamics, while the politics of pastoralist society have been dealt with mostly tangentially (Dever 1985a; Palumbo 1987). The paradigm of pastoralism itself tends to screen out a focus on political determinants, since it can be assumed that in such societies little incentive to the formation of political structures would be present. Palumbo's excellent restudy of evidence in the Jericho EB IV tombs led him to argue for a certain



2. Plan of Tomb B.1 at the al-Khanāzīr cemetery, with enclosure wall and stone-lined shaft and chamber.



3. Cylinder spacers with two perforations, analyzed as aragonite, possibly mollusc shell, rom Site 120E near al-Khanāzīr (MacDonald 1992: 176-177, photograph 28).

amount of stratification in EB IV society, but he concluded that there was an absence of "central government" or a "series of local powers" in Palestine during this period, presumably on the grounds that we are dealing with a society of nomadic pastoralists (Palumbo 1987: 56).

A good starting point for a discussion about political arrangements during EB IV again would be Khirbat Iskandar. Richard (1987: 242) has suggested that other sites like Khirbat Iskandar should come to light, but it is noteworthy that some of the best known EB IV sites like Bāb adh-Dhrā', Ader and Aro'er, are no match for Khirbat Iskandar. At present, the distinctive character of Khirbat Iskandar is attested in its substantial fortifications, including its bench-lined, two-chambered gateway rooms (Richard 1990: 51, fig. 24). By contrast, the EB IV settlement at Bāb adh-Dhrā' seemingly made no use of the destroyed fortifications of the previous EB III town. The main EB IV construction over the ruins of the previous town was a cult center along the northern ridge of the site (Schaub and Rast 1984: 57), most other EB IV occupation having been in an area east and northeast of the ruins of the EB III town.

We may ask, then, what purpose a fortified settlement such as Khirbat Iskandar served during EB IA. The explanation we propose here is that we are dealing with a key, if not the key, administrative center of EB IV society in this region of Transjordan. That is, from Khirbat Iskandar there radiated a certain amount of influence, and conceivably control, over the various smaller EB IV settlements and nomadic pastoralist encampments across the plateau. How far this extended can only be surmised. The common interpretation of EB IV Palestine as tribal and pastoral would not militate against such an interpretation, since "even at a simple tribal level centrally-located, fortified towns may provide protection for neighbouring small villages" (Trigger 1978: 162), and one could add, encampments. This point would seem to fit well with the data from various surveys involving EB IV material in Jordan, and from the unique site of Khirbat Iskandar itself. The recent findings substantiate what has been supposed for some time, including Prag's conclusion cited at the beginning, that Transjordan in EB IV was marked by temporary, camping settlements and by unfortified agricultural villages. Mittmann's work in north Jordan produced evidence of EB IV (MB I) settlement or burials from near the Syrian border as far south as Wādī az-Zarqā' (see his list in Mittmann 1970: 256-264). The Miller survey of the al-Karak plateau gathered data on small EB IV settlements along the plateau, with an apparent decline of sedentism in the latter part of EB IV (Miller 1991: 184, the conclusion of Robin Brown in her section on the pottery of the survey). MacDonald's survey of Wādī al-Ḥasā produced only small amounts of conclusive EB IV pottery (MacDonald 1988: 163-166), but in the southern Ghawr and 'Arabah the survey led also by MacDonald found much more evidence for EB IV, mostly in the way of tombs, including those at al-Khanāzīr discussed here (MacDonald 1992: 66-69). These results of the newer surveys put a new perspective on Glueck's findings as well, for he also had concluded for a fairly dense occupational pattern across the plateau in EB IV, although his supposition that there existed a number of EB IV settlements with defensive systems was based on mistaken dates assigned the pottery. Many of the sites he called EB IV have subsequently been redated to EB II or III, as Glueck himself came to realize (Glueck 1934: 81-82; 1970: 139-140; Prag 1974: 74; Schaub 1992: 162-167).

In contrast to Transjordan, on the other side of the Rift Valley no EB IV site comparable to Khirbat Iskandar has come to light, whether in the Negev, the hill country or further north. The description of EB IV culture as an essentially pastoralist one, known through its tombs and seasonal settlements, thus actually fits Israel and the West Bank better than it does Jordan. The evidence from Jordan suggests a degree of political organization, obviously not of the level of that during the preceding urban age but significant nonetheless, a system appropriate to the pastoral-agricultural nature of this period. Such a political arrangement would have included policing parts of the region to keep potential hostilities between tribes, and between tribal pastoralists and villages, under control. Khirbat Iskandar's imposing architecture provided it with recognizable symbols of power to exercise a monitoring function over the region, and its location on a major route was advantageous. Bāb adh-Dhrā' also, although lacking fortifications, was the scene of substantial village life (Schaub and Rast 1984: 55-58), as were probably also Ader and Aro'er. It seems best to view these three sites as secondary units in a system in which Khirbat Iskandar

played the leading role. Since all of this is an echo of the preceding EB II and III urban period, although at a considerably suppressed level, it seems that the arguments for continuity from EB III into EB IV, advanced by Dever and Richard, have validity also from the perspective of a certain carryover of political organization. The latest reports from Khirbat Iskandar, which claim that earlier EB II and III construction was incorporated into the EB IV system, are showing this as well.

As a region where the germination of EB IV culture occurred, then, Transjordan not only experienced its own changes in political and social organization, but also played an instrumental role in the settlement that was to take place west of the Rift Valley, following the decline of the EB III urban settlements. In the course of time groups of EB IV migrants moved southward and westward in a directional drift that took them through the southern Ghawr into the northern 'Arabah. From there they eventually passed through the wadis that led into the Negev, making their way into the hilly areas of central Palestine. Since these latter regions were remote from an administrative center like Khirbat Iskandar or even secondary administrative units such as Bāb adh-Dhrā', the pattern of EB IV settlement here took on the more typical pastoral nomadism associated with the period.[1]

Bibliography

Beynon, D.E., Donahue, J., Schaub, R.T. and Johnston, R.A. 1986. Tempering Types and Sources for Early Bronze Age Ceramics from Bāb adh-Dhrā' and Numeira, Jordan. *Journal of Field Archaeology* 13: 297-305.

Cohen, R. and Dever, W.G. 1979. Preliminary Report of the Second Season of the "Central Negev Highlands Project." *BASOR* 236: 41-60.

Dever, W.G. 1970. The Peoples of Palestine in the Middle Bronze I Period. *Harvard Theological Review* 64: 198-226

____ 1973. The EB IV-MB I Horizon in Transjordan and Southern Palestine. *BASOR* 210: 37-63.

____ 1980. New Vistas on the EB IV ("MB I") Horizon. *BASOR* 237: 35-64.

____ 1985a. Village Planning at Be'er Resisim and Socio-economic Structure in Early Bronze Age IV Palestine. *Eretz-Israel* 18: 18-28.

____ 1985b. From the End of the Early Bronze Age to the Beginning of the Middle Bronze. Pp. 113-135 in *Biblical Archaeology Today.* Proceedings of the International Congress on Biblical Archaeology Jerusalem, April 1984. Jerusalem: Israel Exploration Society.

____ 1989. The Collapse of the Urban Early Bronze Age in Palestine: Toward a Systemic Analysis. Pp. 225-246 in Pierre de Miroschedji (ed.), *L'Urbanisation de la Palestine à lage du Bronze ancien. Part ii.* BAR International Series 527 (ii). Oxford: 5, Centremead, Osney Mead.

Glueck, N. 1934. *Explorations in Eastern Palestine I. AASOR*14. Philadelphia: American Schools of Oriental Research.

____ 1970. *The Other Side of the Jordan.* Cambridge, MA: American Schools of Oriental Research.

Ibrahim, M., Sauer, J.A., Yassine, K. The East Jordan Valley Survey, 1975. *BASOR* 222: 41- 66.

MacDonald, B. 1988. *The Wadi el Hasa Archaeological Survey 1979-1983.* Waterloo, ON: Wilfrid Laurier University Press.

____ 1992. *The Southern Ghawrs and Northeast. 'Arabah Archaeological Survey.* Sheffield Archaeological Monographs 5. Sheffield: J.R. Collis Publications.

Mittmann, S. 1970. *Beiträge zur Siedlungs- und Territorialgeschichte des nördlichen Ostjordanlandes.* Abhandlungen des deutschen Palastinavereins. Wiesbaden: Otto Harrassowitz.

Palumbo, G. 1987. "Egalitarian" or "Stratified" Society? Some Notes on Mortuary Practices and Social Structure at Jericho in EV IV. *BASOR* 267: 43-59.

Prag, K. 1974. The Intermediate Early Bronze-Middle Bronze Age: An Interpretation of the Evidence from Transjordan, Syria and Lebanon. *Levant* 6: 69-116.

____ 1985. Ancient and Modern Pastoral Migration in the Levant. *Levant* 17: 81-88.

Rast, W.E. and Schaub, R.T. 1974. Survey of the Southeastern Plain of the Dead Sea, 1973. *ADAJ* 19: 5-53, 175-185.

Richard, S. 1987. Questions of Nomadic Incursions at the End of the 3rd Millennium B.C. Pp. 241- 246 in *SHAJ* III. Amman: Department of Antiquities.

____ 1990. The 1987 Expedition to Khirbet Iskander and Its Vicinity: Fourth Preliminary Report. Pp. 33-58 in Walter E. Rast, (ed.), *Preliminary Reports of ASOR-Sponsored Excavations 1983-87. Bulletin of the American Schools of Oriental Research, Supplement No. 26.*

Richard, S. and Boraas, R. 1988. The Early Bronze IV Fortified Site of Khirbet Iskander, Jordan: Third Preliminary Report, 1984 Season. Pp. 107-130 in Walter E. Rast, (ed.), *Bulletin of the American Schools of Oriental Research, Supplement No. 25.*

Schaub, R.T. 1992. A Reassessment of Nelson Glueck on Settlement on the Jordan Plateau in Early Bronze III and IV. Pp. 161-168 in *SHAJ* IV. Amman: Department of An-

[1] A point raised by Kay Prag at the Copenhagen conference alerted me to look more closely at the latest contention of the excavators at Khirbat Iskandar, that EB II and III fortifications are appearing at this site. Discussions with Richard and Long subsequently have confirmed this is the case. Although the data are unpublished at this writing, they will provide an important new dimension to understanding the site, which has so far been associated mainly with EB IV, apart from the EB I material at the base of the settlement and in nearby tombs. I do not sense in the discussions with the directors that this in any way diminishes in their estimation the importance of Khirbat Iskandar as an EB IV settlement.

tiquities with Maison de l'Orient Méditerranéen, Université Lumiere, Lyon 2.

Schaub, R.T., and Rast, W.E. 1984. Preliminary Report of the 1981 Expedition to the Dead Sea Plain, Jordan. *BASOR* 254: 35-60.

____ 1989. Bâb adh-Dhrâ': Excavation in the Cemetery Directed by Paul W. Lapp (1965-67). Reports of the Expedition to the Dead Sea Plain, Jordan. Volume 1. Winona Lake: Eisenbrauns.

Trigger, B.G. 1978. *Time and Traditions: Essays in Archaeological Interpretation.* New York: Columbia University.

Jens Kamlah
Eberhard-Karls-Universität Tübingen
Biblisch-Archäologisches Institut
Leibermeisterstraße 14
72076 Tübingen
Germany

Jens Kamlah

Patterns of Regionalism: The Plateau of Northern Jordan during the Early Bronze Age in Light of the Zayraqūn Survey

Introduction

The third millenium BC in Jordan is marked by a major historical event: the rise and decline of the first urban culture in the history of the country (for a critical discussion of the term 'urban' cf. Harrison 1997). Our knowledge about the process of urbanization and the character of urban culture has been considerably broadened by the results of the Khirbat az-Zayraqūn Regional Project.

The excavations of the third millenium settlement on Khirbat az-Zayraqūn are the core of the project (FIGS. 1-3; no. 20). They lasted from 1984 until 1994 and were directed jointly by Moawiah Ibrahim (Archaeological Institute of tYarmouk Universtiy, Irbid) and Siegfried Mittmann (University of Tübingen; cf. Ibrahim and Mittmann 1994; Mittmann 1994).

Excavations at Khirbat az-Zayraqūn uncoverd 5000m^2 of a 7 ha large settlement which dates to the urban phase of the Early Bronze Age (EB II/III). Two areas have been dug: the "upper city" on the highest plateau of the site and the "lower city" where mainly domestic buildings were exposed. In contrast to the lower city, the plan of the "upper city" is dominated by public buildings: the city wall with a city gate, the palace which is only partly excavated and the temple area. With the uncovered architecture and the associated finds Khirbat az-Zayraqūn can be considered an examplary model of an Early Bronze Age city.

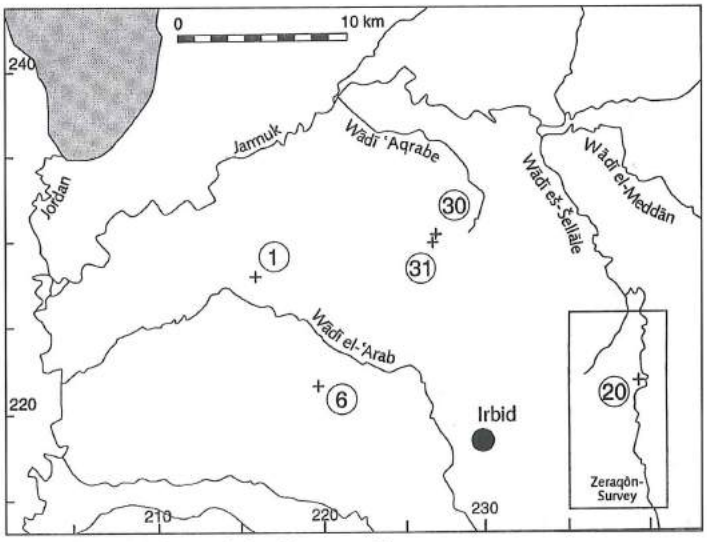
The Zayraqūn Survey

In order to obtain a more comprehensive understanding of this Early Bronze Age city the local investigation of Khirbat az-Zayraqūn was completed by a regional study: the Zayraqūn Survey. Survey work was carried out during September and October 1989 and in several shorter site visits until 1994 (cf. Kamlah 1993; final publication: Kamlah in press a).

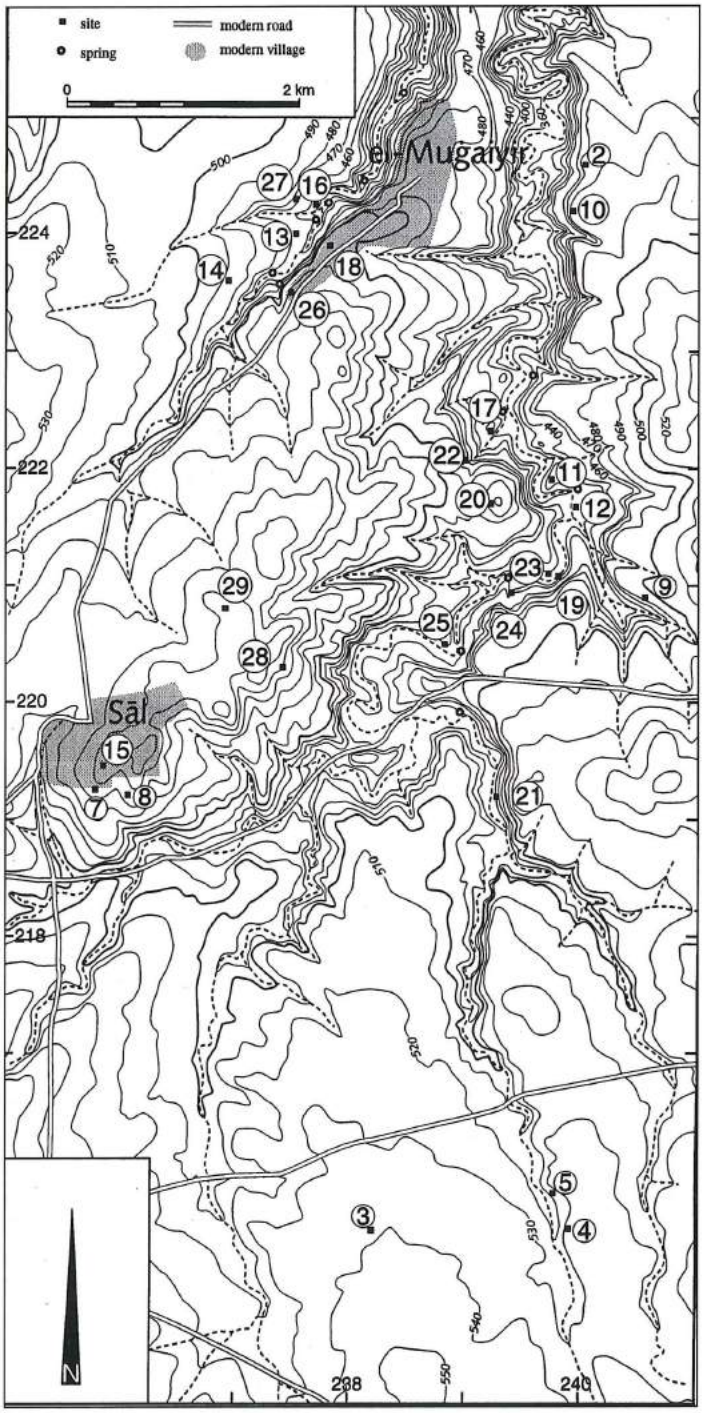
In northern Jordan, north and south of Wādī al-'Arab, four Early Bronze Age sites, which were already known through previous studies, were investigated in detail (FIG. 1): the twin cities of Khirbat al-Bayyāḍ and Rujm al-Qādī (no. 30-31; cf. Glueck 1951: 128-129, 441-442), the settlement of 'Arqūb aẓ-Ẓahr where an Early Bronze Age cave had already been excavated (no. 1; cf. Parr 1956), and ath-Thanaba (no. 6; cf. Mittmann 1970:35 no. 77 "Rugm Sa'ab"), one of the largest Early Bronze Age sites in all of northern Jordan.

Apart from the examination of these four sites, the survey work concentrated on the immediate surroundings of Khirbat az-Zayraqūn. An area measuring 12 x 6 km was surveyed intensively (FIG. 2). The area is situated 5 km east of Irbid on both sides of Wādī ash-Shallāla. Its southern half covers part of the fertile plain of Irbid. While the southern part of the survey area offers settlement conditions which are typical for the lowlands, the situation in the northern part is quite different. Here Wādī ash-Shallāla and Wādī ar-Rāḥūb form deep canyons and the settlement conditions correspond to those of the hill country.

The main aim of the survey was to support the exploration of Khirbat az-Zayraqūn. Fourteen settlement



1. Northern Jordan and the Zayraqūn Survey.

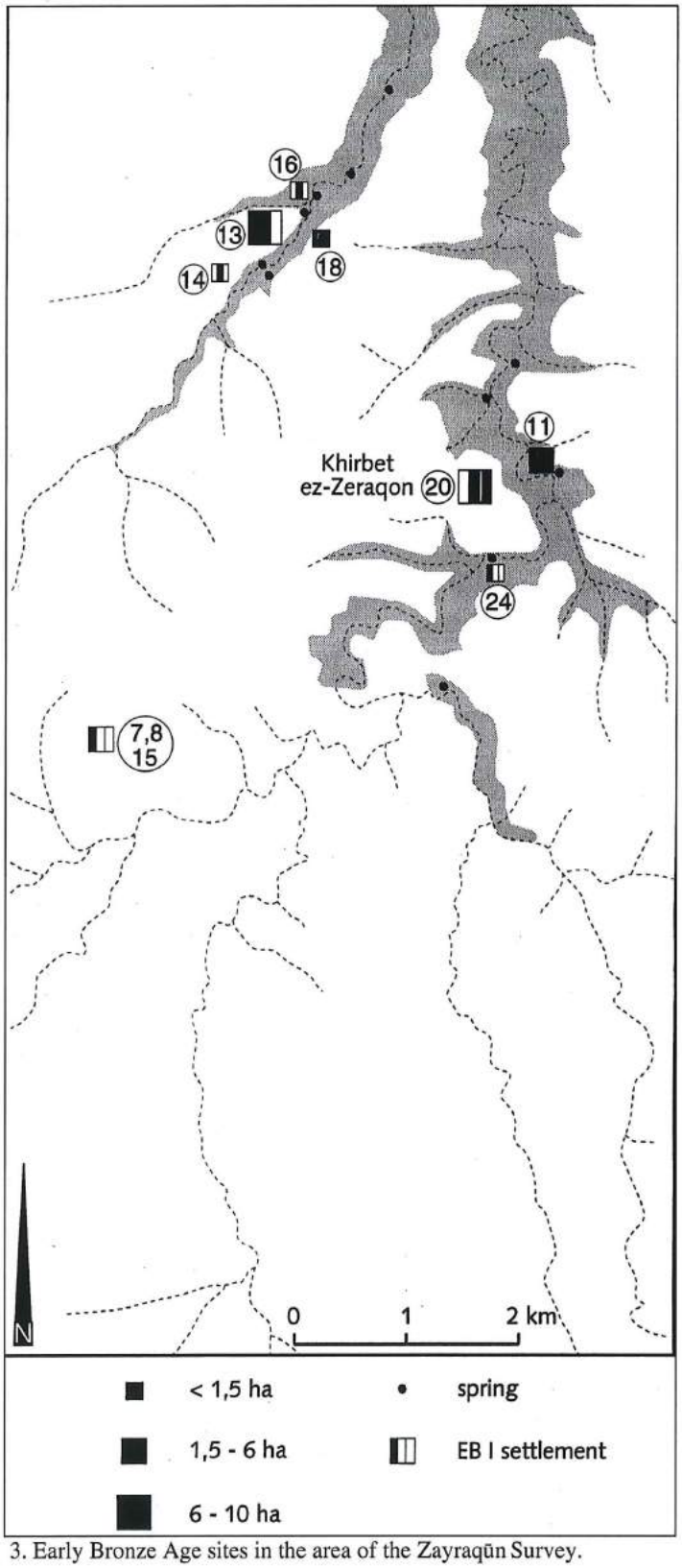


2. Ancient sites in the area of the Zayraqūn Survey.

sites in the area were surveyed. They extend from the Neolithic to the Ottoman period. The survey map includes three additional excavation sites which are being investigated by other independent projects, such as Yaṣīlah (no. 21; cf. Muheisen 1994) and Tall al-Fukhār (no. 11; cf. Ottosson 1993; Strange 1997; McGovern 1997).

Results of the Zayraqūn Survey Concerning the Early Bronze Age

In the following a summary of the most important survey



3. Early Bronze Age sites in the area of the Zayraqūn Survey.

results concerning the Early Bronze Age are given:

1. Inside the survey area, eight sites were settled during the Early Bronze Age (FIG. 3). During the Early Bronze Age the settlement activity in the area reached

its first peak. Prior to the Hellenstic Period exclusively during the Iron Age, occupation and land use were of similar intensity.

2. All Early Bronze Age settlement sites are situated in the northern part of the survey area. In the southern part—the fringe of the plain of Irbid—no settlements were founded. Direct access to the water springs was obviously of great importance during the Early Bronze Age. A favorable topography was likewise important for protecting the settlement with a defensive wall. Suitable sites for such needs can be found only in the northern part of the survey area.
3. In the course of the settlement process during the Early Bronze Age the number of settlements decreased. At its end, during the Early Bronze Age III only three settlements existed (cf. FIG. 3). At the same time the building density inside the walled city of Khirbat az-Zayraqūn increased, as the excavations have shown. These data reflect a major characteristic of Early Bronze Age urbanism in the research area: an increasing tendency toward centralization in the course of the settlement process.
4. The Early Bronze Age settlements can be classified according to their size. It is necessary to distinguish between sites which are smaller than 5 ha and sites which are larger than this. Khirbat az-Zayraqūn was the only city in the area because it was larger than 5 ha and was fortified. The smaller, probably unfortified settlements can be classified as villages. Therefore, in the survey area a settlement system can be traced which consisted of a city and associated villages.
5. The limited survey area does not reveal the full range of the Early Bronze Age settlement system in northern Jordan. A site like ath-Thanaba (FIG. 1; no. 6), which measured 19 ha during the Early Bronze Age II-III, demonstrates that the system included a third stage: the central cities. In the larger system Khirbat az-Zayraqūn belonged to the middle group of settlements. It was a city with associated villages and was itself was linked to a nearby central city, most probably Tall Irbid.

Early Bronze Age Regionalism

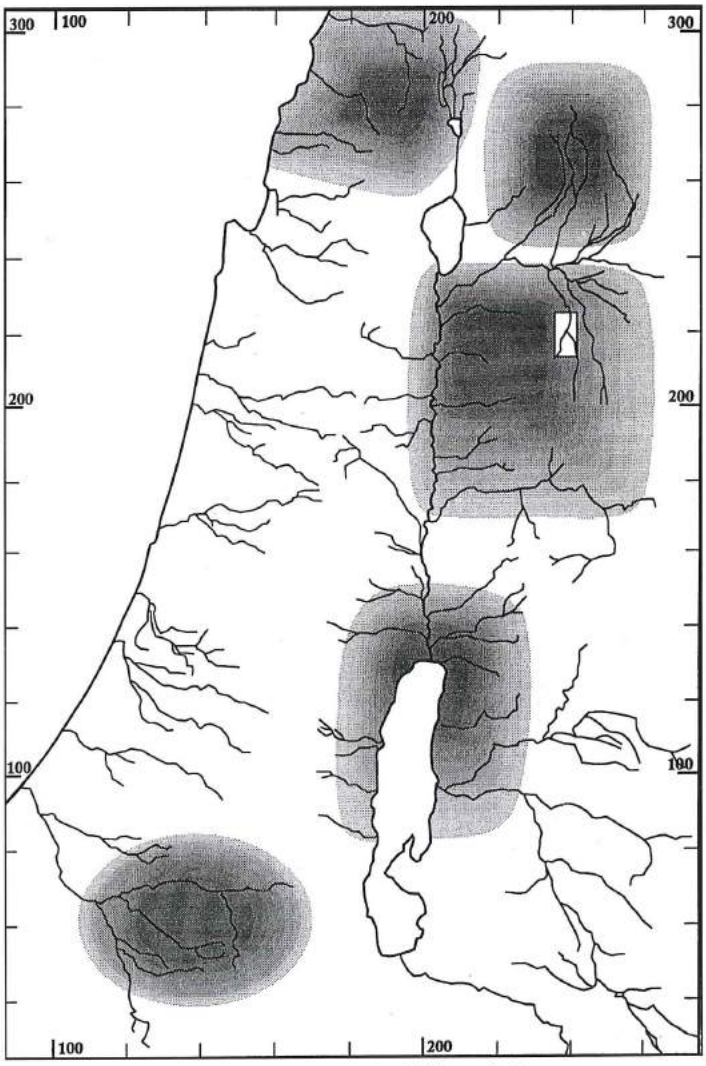
While analyzing the material from the survey, special attention was paid to the question of regionalism. In order to trace regionalism, first of all typical pottery forms from the survey were determined. In the second step, all other sites in Palestine where these pottery forms had been found were registered and mapped. This approach yields certain patterns of regionalism, and it appears that these patterns change from period to period.

To understand regionalism during the Early Bronze Age, the previous and the following period have to be taken into consideration. The Chalcolithic period in Palestine is marked by several small pottery regions (FIG. 4). The finds from the Zayraqūn Survey show that the plateau of northern Jordan was closely related to the central Jordan valley while it was clearly distinguished from the Golan region.

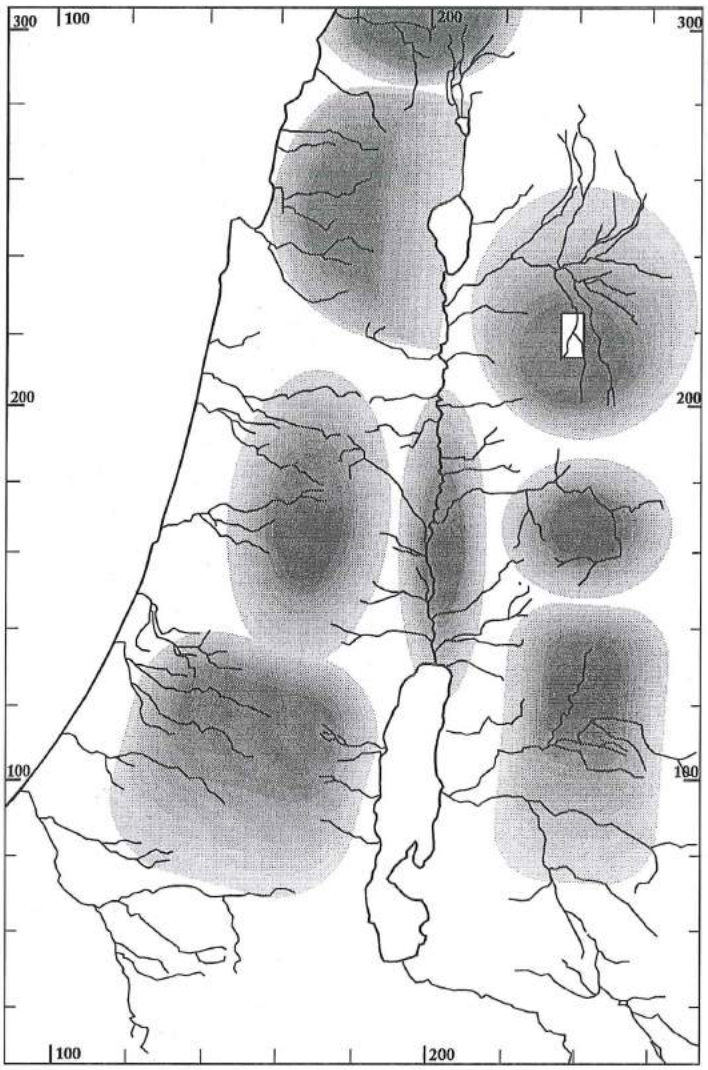
Much more research has been done on the pottery regionalism of the Intermediate Bronze Age (EB IV) in Palestine (FIG. 5). Several pottery families were recognized by William Dever (1980), as well as by Gaetano Palumbo and Glenn Peterman (1993). The finds of the Zayraqūn Project make it possible to classify the pottery of northern Jordan in this regional pattern: it is necessary to define it as a new family because it differs from the neighbouring groups (for details cf. Kamlah in press a).

However, it is important to notice that the general pattern of pottery regionalism during the Intermediate Bronze Age (EB IV) resembles that of the Chalcolithic period. Palestine is subdivided in several small pottery regions.

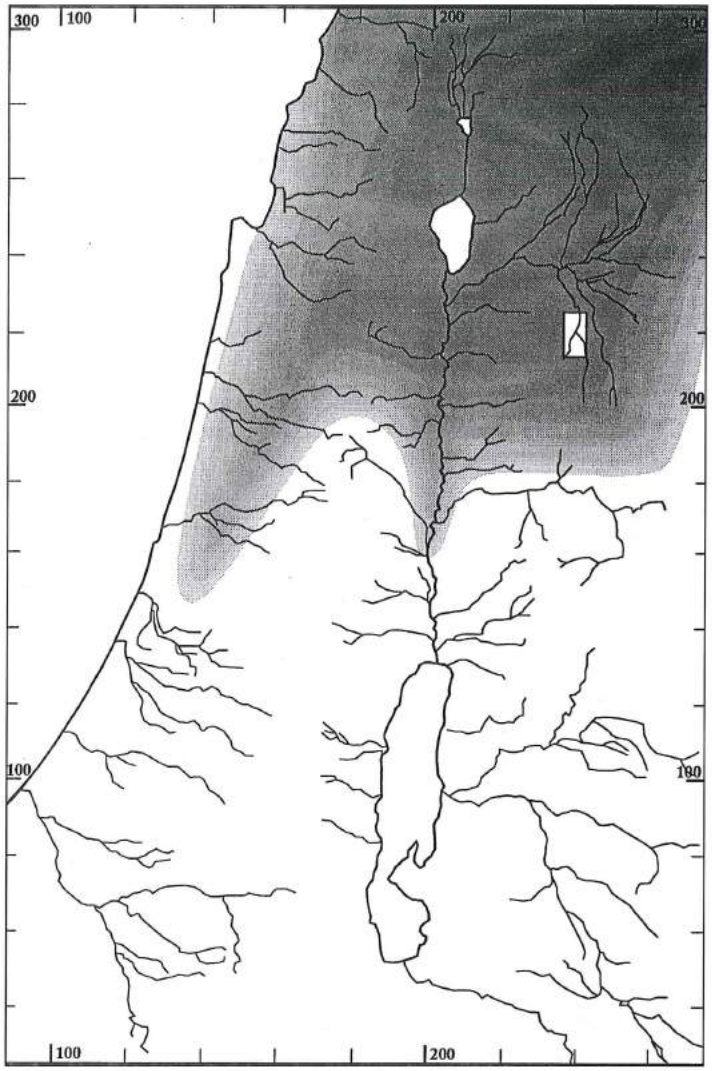
The regional pattern during the Early Bronze Age was totaly different (FIG. 6). Various distinctive pottery fea-



4. Pottery regionalism during the Chalcolithic period.



5. Pottery regionalism during the Intermediate Bronze Age (EB IV).



6. Pottery regionalism during the Early Bronze Age.

tures are clear evidence for the existence of a homogeneous northern pottery region in Palestine. The most important examples are:
- Gray-Burnished Ware;
- Grain-Wash Decoration;
- Metallic Ware;
- storage vessels with cylinder seal impressions;
- "Khirbet Kerak" Ware;
- vats with loop handles;
- jars with loop handles;
- pithoi without clay application around the body.

The northern region is bordered in the south by Wādī al-Farah and Wādī az-Zarqā'. It extends a little farther south in the coastal plain and in the Jordan Valley. Northern Jordan can be definitely linked to this region. In the north, the material culture east and west of the Jordan River was almost identical.

Aside from the north-south-division and the east-west-unity, there is a third aspect of special interest: the regional pattern remains constant during the entire Early Bronze Age. This can be seen from the list of examples for northern pottery above. All of these examples have a distribution pattern which corresponds more or less to the area marked on FIG. 6. The earliest example is the Gray-Burnished Ware which marks the beginning of the Early Bronze Age. The next group is the Grain-Wash decorated pottery which extended into the Early Bronze Age II/III (Kamlah in press b). Metallic Ware (Greenberg and Porat 1996) and storage vessels with cylinder seal impressions are examples of northern pottery traditions during the early part of the urban phase, the Early Bronze Age II. For the Early Bronze Age III, Hermann Genz (in press) has defined the characteristic types of the north in his work on the pottery of Khirbat az-Zayraqūn (vats with loop handles; jars with loop handles; pithoi without application around the body). Just as Gray-Burnished Ware stands at the beginning of the Early Bronze Age, Khirbet Kerak Ware marks its end. These two pottery groups illustrate

the stability of the regionalism during the entire period.

The research on pottery regionalism has just begun, but its importance was demonstrated by a special workshop at the Seventh Conference on the History and Archaeology of Jordan. Discovery of regional patterns can shed new light on the history of the Southern Levant. The data of the Zayraqūn Project show that during the Early Bronze Age the regional pattern was relatively constant. This regional stability should be seen as one of the conditions lending itself to the rise of urbanization during the third millennium BC in Jordan.

Acknowledgements

I would like to thank the directors of the Khirbat az-Zayraqūn excavation, M. Ibrahim and S. Mittmann. For preparing the drawings I would like to give my thank to A. Goeddecke, M. Sauer, and S. Wilhelm. I would like to thank also K. Douglas and H. Genz for discussing the subject.

Bibliography

Dever, W. G. 1980. New Vistas on the EB IV ("MB I") Horizon in Syria-Palestine. *BASOR* 237:35-64.

Genz, H. in press. Die frühbronzezeitliche Keramik von Hirbet ez-Zeraqon, Nordjordanien, und ihre Bedeutung für die Frühbronzezeitchronologie der Levante. Abhandlungen des Deutschen Palästina-Vereins. Wiesbaden: Harrassowitz.

Glueck, N. 1951. *Explorations in Eastern Palestine*, IV. Part I: Text; Part II: Pottery Notes and Plates. *AASOR* 25-28 (1945-1949). Baltimore.

Greenberg, R. and Porat, N. 1996. A Third Millennium Levantine Pottery Production Center: Typology, Petrography, and Provenance of the Metallic Ware of Northern Israel and Adjacent Regions. *BASOR* 301: 5-24.

Harrison, T. P. 1997. Shifting Patterns of Settlement in the Highlands of Central Jordan during the Early Bronze Age. *BASOR* 306: 1-37.

Ibrahim, M. and Mittmann, S. 1994. Excavations at Khirbet ez-Zeraqon, 1993. *Newsletter of the Institute of Archaeology and Anthropology, Yarmouk University* Irbid 16: 11-15.

Kamlah, J. 1993. Tell el-Fuhhar (Zarqu?) und die pflanzenhaltende Göttin in Palästina. Ergebnisse des Zeraqon-Surveys 1989. *ZDPV* 109: 101-127.

____in press a. Der Zeraqon-Survey (1989-1994): Mit Beiträgen zur Methodik und zur geschichtlichen Auswertung archäologischer Oberflächenuntersuchungen in Palästina. Abhandlungen des Deutschen Palästina-Vereins. Wiesbaden: Harrassowitz.

____in press b. Early Bronze Age Grain-Wash Decoration from Northern Jordan. The Evidence of the Zeraqon Survey. In D. Baird and G. Philip (eds.), *Breaking with the Past: Ceramics and Change in the Early Bronze Age of the Southern Levant*. Sheffield: Academic Press.

McGovern, P. 1997. A Ceramic Sequence for Northern Jordan: An Archaeological and Chemical Perspective. Pp. 321-425 in *SHAJ* VI. Amman: Department of Antiquities.

Mittmann, S. 1970. Beiträge zur Siedlungs- und Territorialgeschichte des nördlichen Ostjordanlandes. Abhandlungen des Deutschen Palästina-Vereins 2. Wiesbaden: Harrassowitz.

____ 1994. Hirbet ez-Zeraqon: Eine Stadt der frühen Bronzezeit in Nordjordanien. *Archäologie in Deutschland* 2/1994:10-15.

Muheisen, Z. 1994. La cinquième campagne à Yasileh - 1994, *LA* 44: 651-653.

Ottosson, M. 1993. Tell el-Fukhar in Northern Jordan: The First Season 1990. *Syria* 70: 214-217.

Palumbo, G. and Peterman, G. 1993. Early Bronze Age IV Ceramic Regionalism in Central Jordan. *BASOR* 289:23-32.

Parr, R. J. 1956. A Cave at Arqub el Dhahr. *ADAJ* 3: 61-73.

Strange, J. 1997. Tall al-Fukhar 1990-1991: A Premilinary Report. Pp. 399-406 in *SHAJ* VI. Amman: Department of Antiquities.

Hermann Genz
Eberhard-Karls-Universitat Tübingen
Biblisch-Archäologishes Institut
Liebermeisterstr. 14
D-72076 Tübingen
Germany

Hermann Genz

Early Bronze Age Potmarks from Khirbat az-Zayraqūn: Some Aspects Concerning their Meaning*

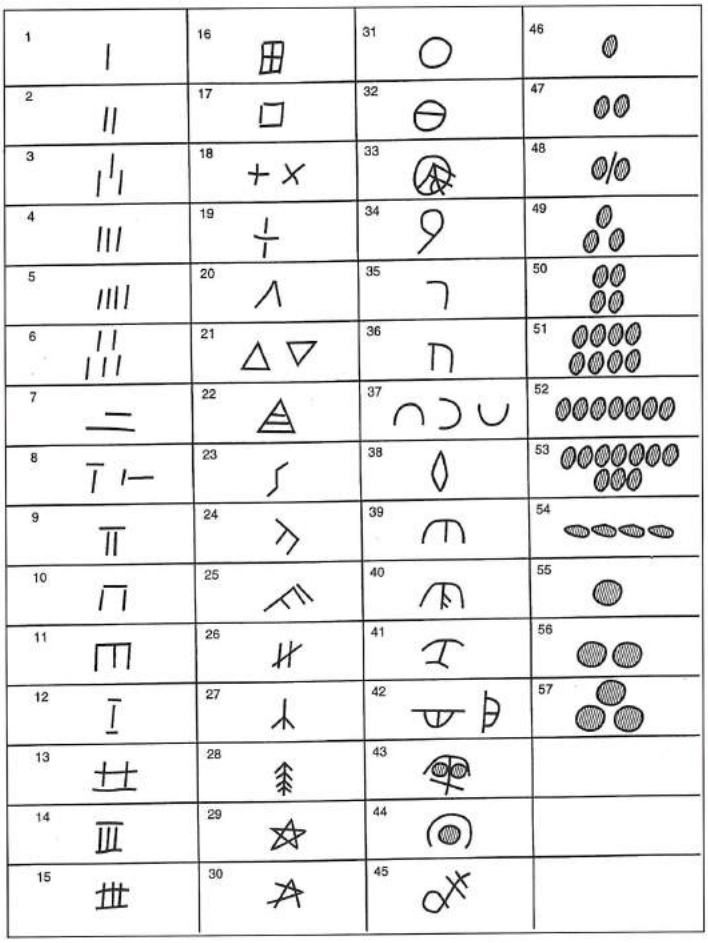
Introduction

Potmarks, generally defined as pre-firing incisions on vessels, are a well known phenomenon for the Early Bronze Age of the Southern Levant. The earliest finds were already reported by W. M. F. Petrie from Tall al-Hiṣi during the excavations in 1890 (Petrie 1891: 42 and Pl. V:48-50). Since then potmarks have been found on almost every Early Bronze Age site, although only from few sites complete catalogues or more detailed discussions of these finds are published (Bliss 1894: 42ff. and Nos. 1-68; Tufnell 1958: 156ff. and Pl. 18; Amiran *et al.* 1978: 49; Fargo 1979: 27ff.; London 1991: 388ff.; Scheftelowitz 1992: 8ff.; Lapp 1995).

The recent excavations at Khirbat az-Zayraqūn offer new possibilities for examining the function of these potmarks. Khirbat az-Zayraqūn is an Early Bronze Age II-III walled town of about 7 ha in size in Northern Jordan, 12 km east of Irbid. The site was excavated between 1984 and 1994 by S. Mittmann, Biblisch-Archäologisches Institut, University of Tübingen and M. Ibrahim, Institute of Archaeology and Anthropology, Yarmouk University, Irbid (Mittmann 1994, Ibrahim and Mittmann 1991, 1994)

Description of the Incisions from Khirbat az-Zayraqūn

During the excavation of Khirbat az-Zayraqūn, altogether 545 potmarks incised before firing where found on vessels and sherds.[1] 267 of these marks are completely preserved and enable a typological grouping of the different motives. 57 different motives can be recognized, most of them incised, some impressed, and some even show a combination of the two techniques (FIG. 1). The motives range from very simple lines or finger impressions to complex signs like pentagrams and tree motives. Twenty-two of the motives occur only once, but the remaining ones are found more often, even on different classes of vessels. Most common are the motifs 2, 18, 39, 46, 47 and 55, ranging from 20 to 30 occurences (FIGS. 2-7).

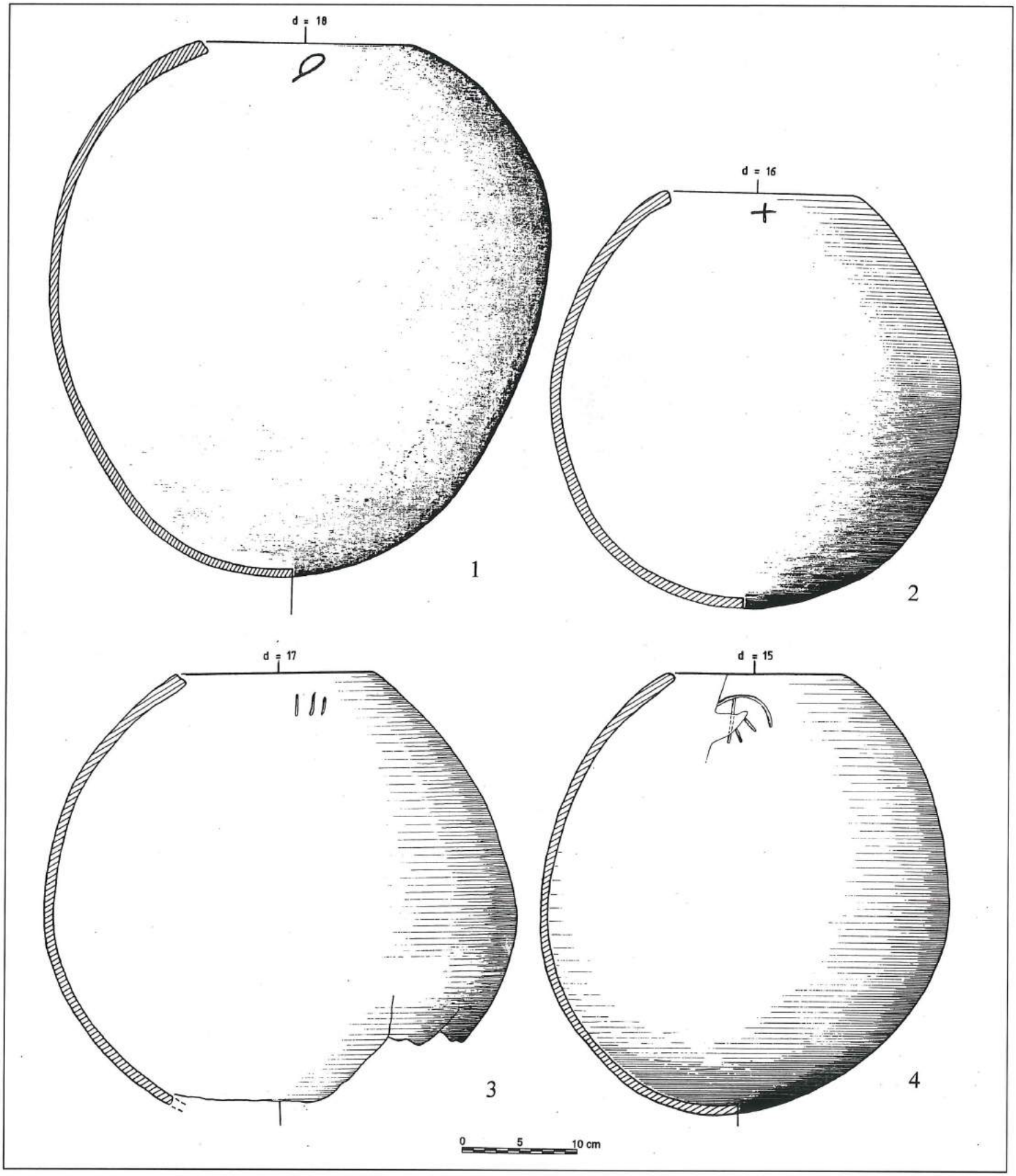


1. Motifs of potmarks represented in Khirbat az-Zayraqūn.

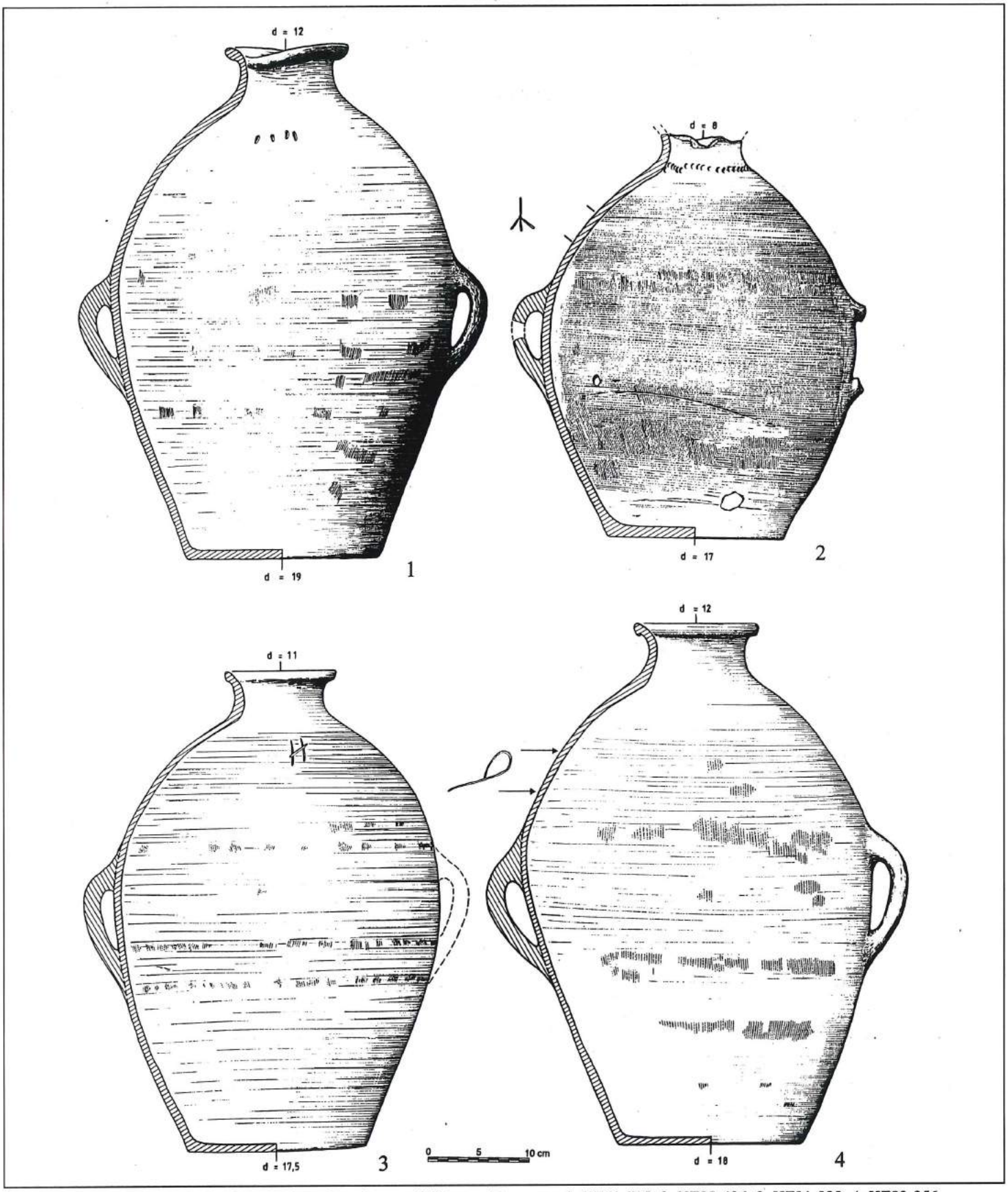
Almost all motives from az-Zayraqūn find parallels at

* The subject presented here was taken from my Ph. D. Dissertation, which deals with the Early Bronze Age pottery from Khirbat az-Zayraqūn in general (see Genz, in press). I would like to thank the directors of the Khirbat az-Zayraqūn Project, Prof. Dr. S. Mittmann, Tübingen, and Prof. Dr. M. Ibrahim, Irbid, for entrusting me with the material. Special thanks go to Jens Kamlah, Tübingen, for various comments concerning the article. The pottery drawings are the work of J. Englert, Tübingen.

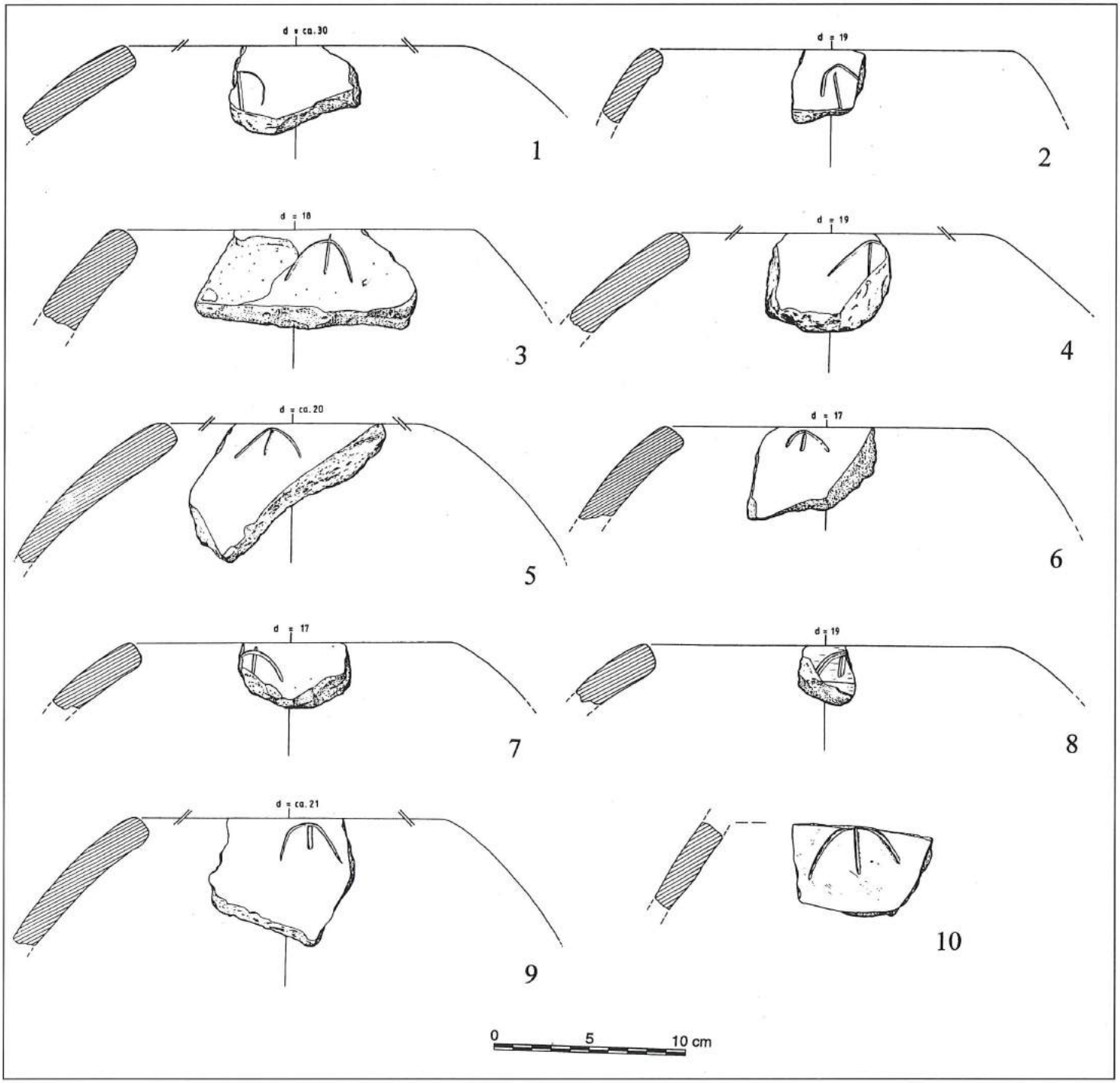
1 This large number stands in strong contrast to only 19 post-firing incisions known from the site.



2. Complete holemouth jars with potmarks from the last urban phase at Khirbat az-Zayraqūn. 1: HZ87-306; 2: HZ87-305; 3: HZ87-338; 4: HZ87-349.

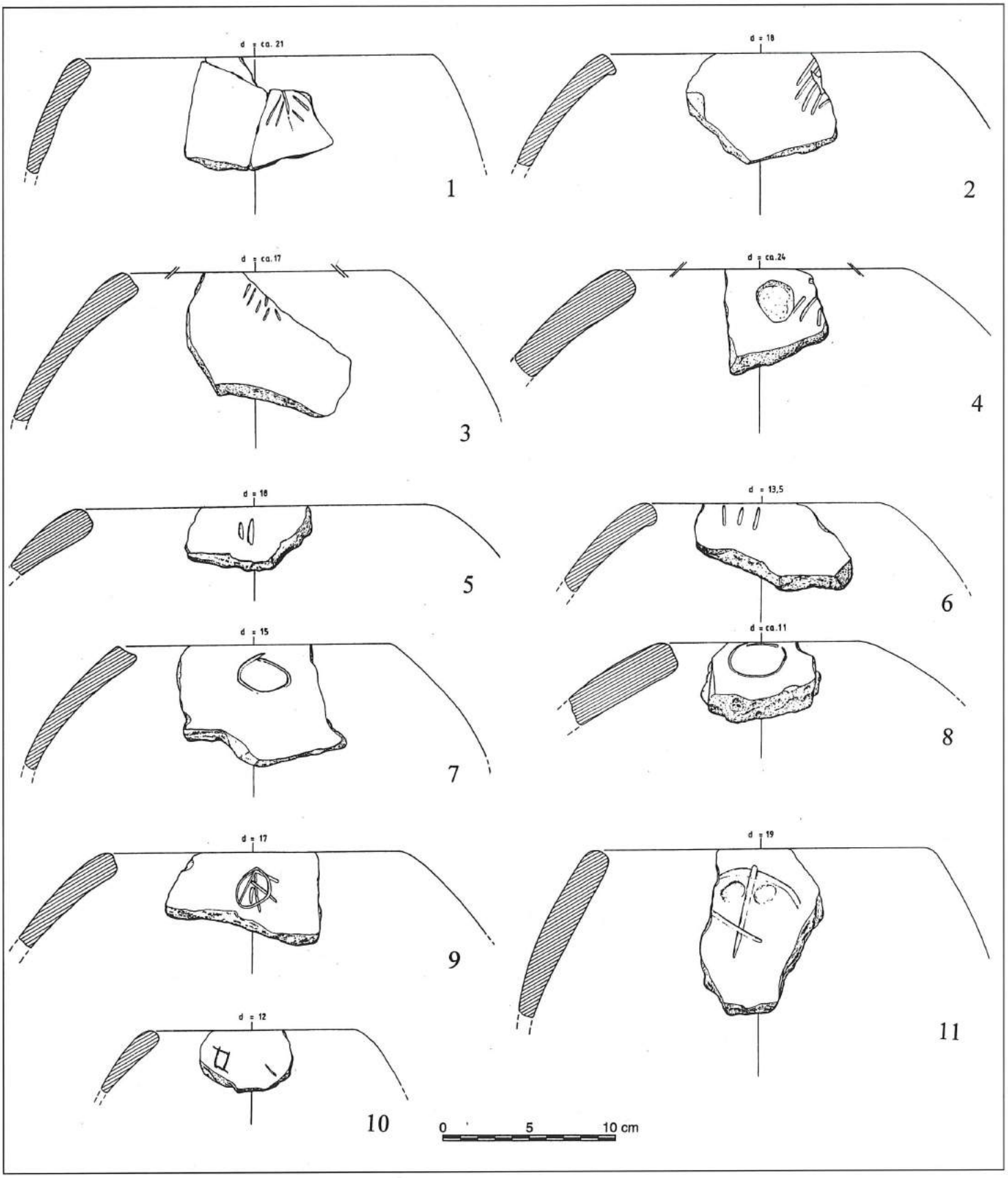


3. Complete jars with potmarks from the last urban phase at Khirbat az-Zayraqūn. 1: HZ91-785; 2: HZ88-436; 3: HZ91-838; 4: HZ93-256.

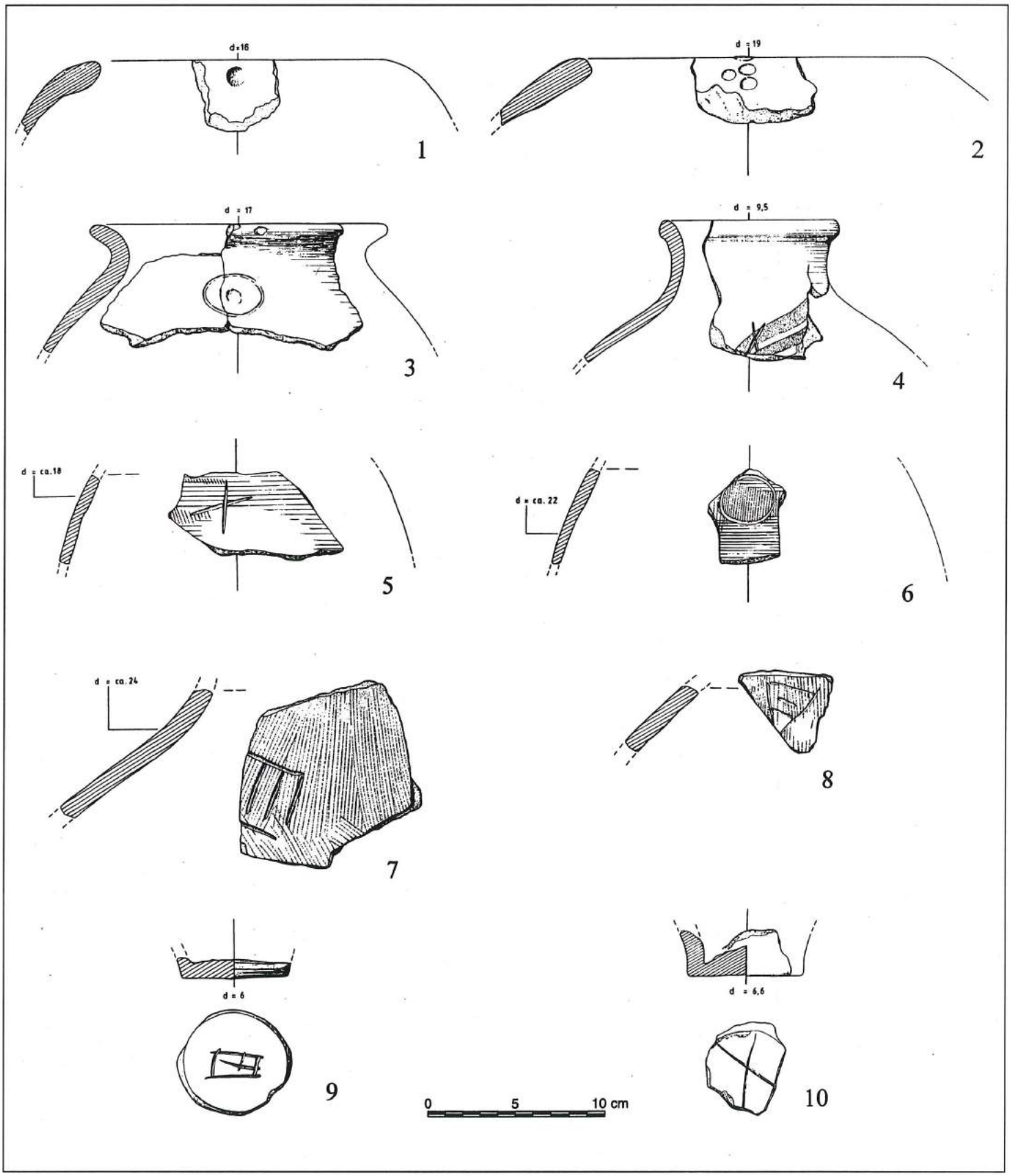


4. Holemouth jars with potmarks from Khirbat az-Zayraqūn. 1: IH5:FN148:5; 2: IH5:FN207:1; 3: IF4:FN3:1; 4: IM8:FN59:1; 5: IIIB16:FN145:63; 6: IIID15:FN91:1; 7: IIID17:FN194:5; 8: IVA16:FN11:14; 9: IVA18:FN4:20; 10: IG5:FN176:2.

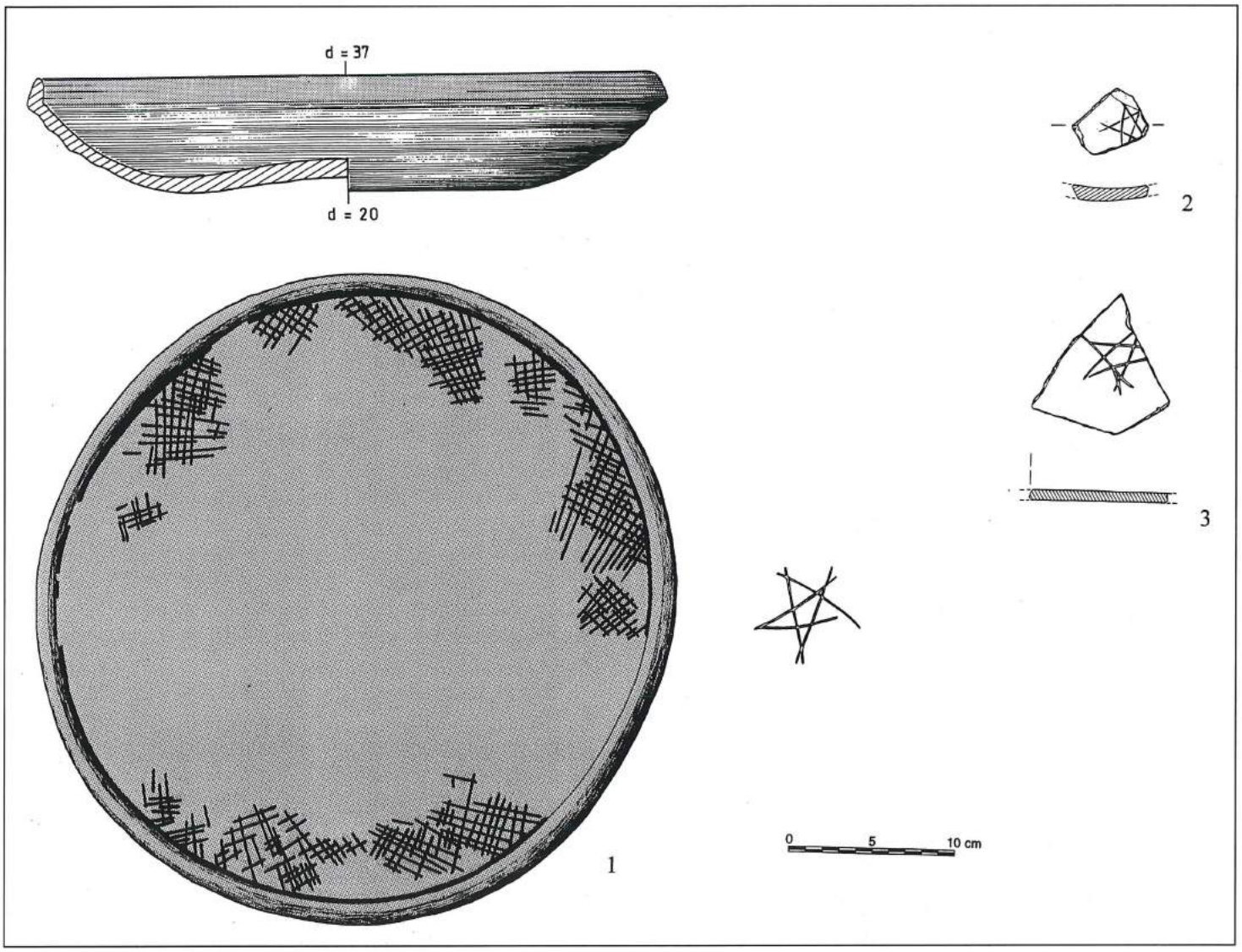
other sites in the Southern Levant. While this is not surprising for the simple ones, it seems quite remarkable for the more complex signs. Motif 28, the tree motif, is found at Tall ad-Duwayr (Tufnell 1958: Pl. 18:25) and Tall al-'Umayrī (London 1991: Fig. 21:8:9). The pentagram (Motiv 29) seems to have a longer tradition. One find from En Shadud is dated to the Early Bronze Age I (Braun 1985: Fig. 26:12), while another one from Kfar Ata comes from a typical Early Bronze Age II platter (Amiran 1969: Fig. 68). The examples from az-Zayraqūn are found on typical Early Bronze Age III platters (FIG. 7). Motif 39, very frequent at az-Zayraqūn (FIG. 4), occurs also at Tall al-'Umayrī (Harrison 1997: Fig. 5.8:24), Tall ad-Duwayr (Tufnell 1958: Pl. 18:67), Tall al-Hiṣi (Bliss 1894, 21) and even at Tall Mardikh in Syria (Mazzoni 1988: Fig. 7:3). This cursory overview shows the



5. Holemouth jars with potmarks from Khirbat az-Zayraqūn. 1: IG5:FN1:1; 2: IG5:FN143:89; 3: IG5:FN143:88; 4: IG5:FN143:87; 5: IG5:FN163:2; 6: IVA18:FN4:19; 7: IG5:FN134:4; 8: IVA17:FN12:79; 9: IIIC15:FN277:10; 10: IJ5:FN110:1; 11: IM7:FN80:3.



6. Different vessel classes with potmarks from Khirbat az-Zayraqūn. 1: IP7:FN3:15; 2: IVA18:FN48:4; 3: IF4:FN29:1; 4: IJ5:FN5:7; 5: IK8:FN29:1; 6: IL8:FN68:15; 7: HZ88-291; 8: IIIE15:FN63:10; 9: IG5:FN164:1; 10: HZ88-511.



7. Platters with pentagrams (motif 29) from Khirbat az-Zayraqūn. 1: HZ85-83; 2: IIIB16:FN87:16; 3: IIIC15:FN337:1.

wide distribution of some of the signs not only in the Southern Levant, but even into Syria. Interestingly, the signs are not confined to pottery. The same motifs, for instance the pentagram, are found in in the Southern Levant on tabular flint scrapers as well (Rosen 1997: 74ff.). All signs from az-Zayraqūn show non-figurative patterns. Figurative incisions seem to be exceptions, and are only rarely found in the Southern Levant.[2]

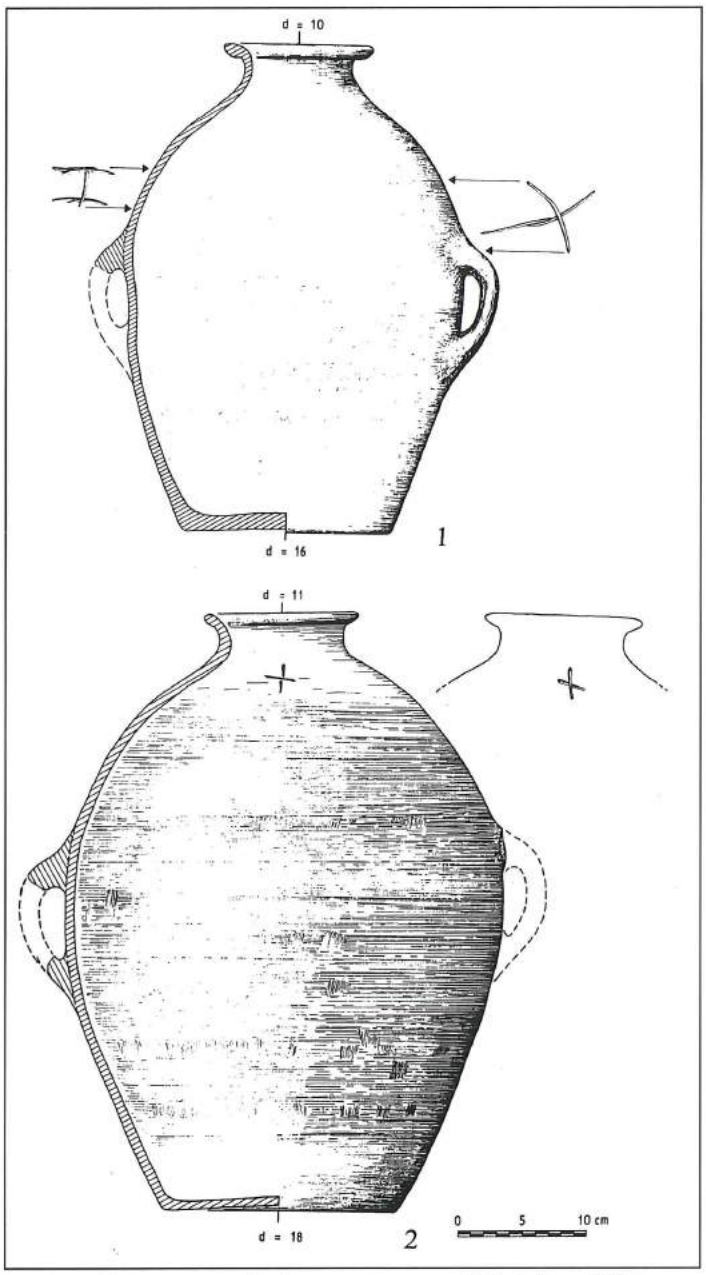
Further, the marks can be separated according to visibility. 452—the majority of the signs—are situated at the rim, on the shoulder or on the handle of the vessels, and thus can be easily recognized by the user, whereas 93 are situated on bases and thus are invisible for the user. Visible signs occur mainly on holemouth jars, globular jars with flaring rims, bottles and jars, on bases they are confined to bowls, platters, jugs and jars.

Generally only one sign per vessel is found.[3] From az-Zayraqūn only two exceptions with two incisions exist on jars (HZ 87-314, HZ 88-460). In both cases one is a pre-firing, the other a post-firing incision (FIG. 8).

Potmarks in az-Zayraqūn are not evenly distributed on all different classes of vessels (FIG. 9). The majority of them are found on holemouth jars (class E) and jars (class K). Less frequently, they are found on bowls (class A), platters (class B), globular jars with flaring rims (class F), jugs (class H) and bottles (class J), whereas they hardly ever or never occur on cooking bowls (class C), vats (class D), juglets (class G), amphoriskoi (class I) and pi-

[2] From Tall al-'Umayrī and Bāb adh-Dhrā' fragments of incised quadrupeds are known (London 1991: 389; Lapp 1995, Fig. 6:13). Tall Yaqush produced an incision of an ibex (Esse 1993: Fig. 7:E).

[3] This seems to be true for most other sites from the Southern Levant. Only Tall Ḥalif shows a case of two different signs on one vessel (Jacobs 1996: Fig. 55:15). Two or more different signs are a feature more commonly known from Egypt (Van den Brink 1992: 267) and from Syria (Kolinski 1993-94: 11; Holland 1976: Fig. 8:4).



8. Jars with two potmarks (one pre-, one post-firing) from Khirbat az-Zayraqūn. 1: HZ87-314; 2: HZ88-460.

thoi (class L)[4]. This seems to be true for all other sites from the Southern Levant as well (Guy 1938: 12; Amiran *et al.* 1978: 49; Fargo 1979a: 27ff.; Nodet 1988: 125ff.; London 1991: 388ff.; Harrison 1995: 153).

For az-Zayraqūn this distribution is clearly demonstrated by the restorable vessels with potmarks from the last urban phase (Early Bronze Age III). Of the 266 restorable vessels from this phase, 48 show potmarks. The distribution of the marks to the vessel classes is shown in TABLE 1.

Function

For the discussion of the meaning of these potmarks only the pre-firing incisions are considered, because a post-firing incision is not necessarily connected to the vessel, but could have also been applied on a sherd after breakage.

The majority of scholars interprets the pre-firing incisions as potters' marks, to mark the producer or locality of production (Bliss 1894: 42; Frankel 1975; Amiran *et al.* 1978: 49; Rice 1987: 183; Wood 1990: 45ff.; London 1991: 388ff.).

Fargo (1979: 38) cautiously suggested to see a numerical system behind these marks. This idea probably goes back to Guy (1938: 12), who suggested volume measures for the marks from Megiddo. This idea was taken up by Helms (1987: 46ff.) for the potmarks from the Early Bronze Age IV cemetry of Umm al-Bighāl near 'Ammān, but London (1991: 393) convincingly disproved his suggestions by showing that no relationship existed between the signs and the vessel sizes.

The potmarks from Ebla/Tall Mardīkh are interpreted by Mazzoni (1988, 90ff.) as indicating the place of origin of the vessel contents, but for open vessels like chalices she accepts the common idea of potters' marks.

For the potmarks from the Dead Sea Region, Lapp differentiated two groups. The potmarks from the Early Bronze Age I tombs on the one hand are seen as mainly decorative elements. Since certain motifes are restricted to cetain tombs, these decorative elements are thought to be indicators of family or clan membership (Lapp 1995: 566). The potmarks from Early Bronze II and III contexts from the city are recognized by her as having a different background, but without further specifying their meaning (Lapp 1995: 566).

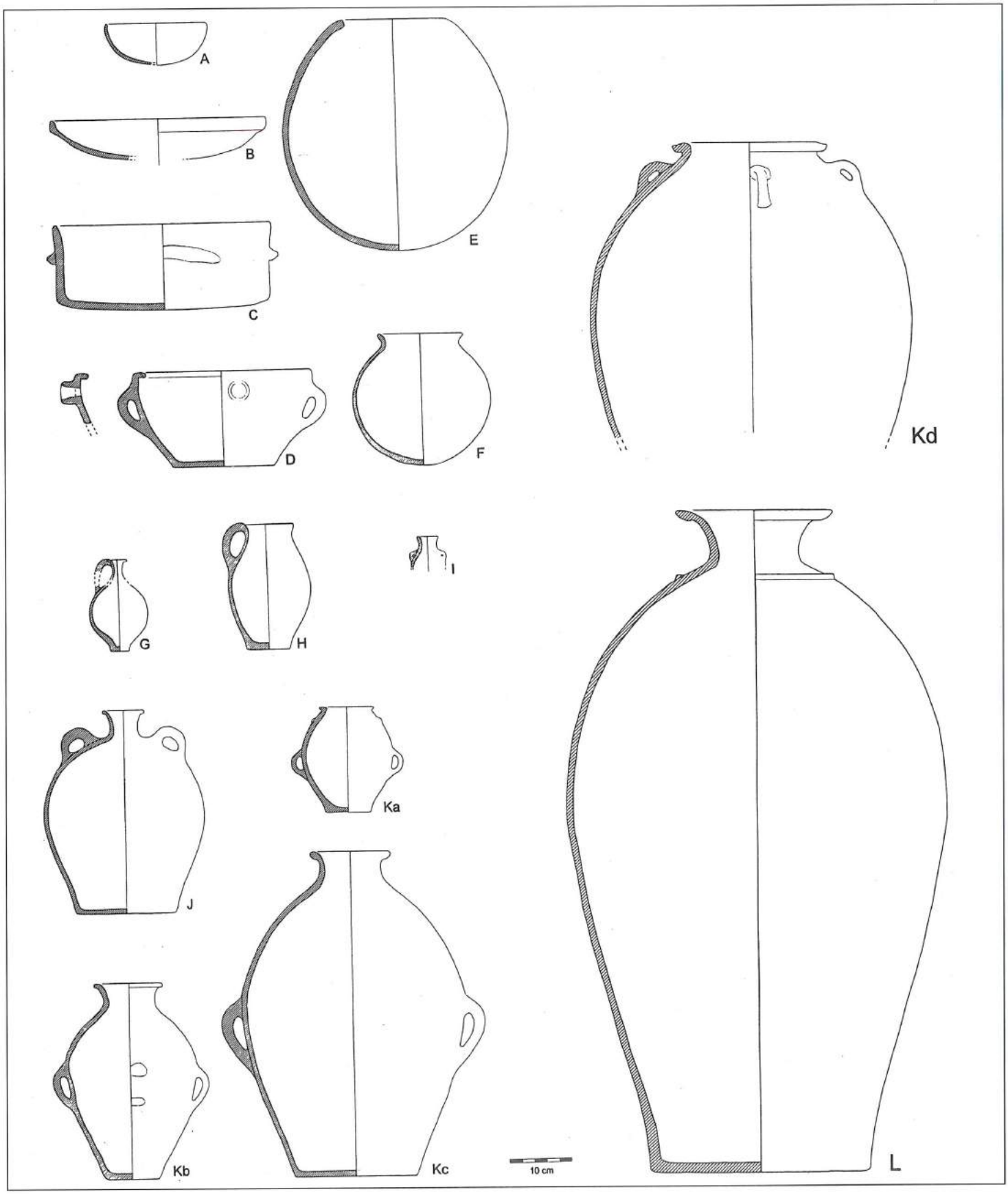
Most attempts at clarifying the meaning of these potmarks are hampered by too small databases. From Tall al-'Umayrī 14 potmarks are known (London 1991, 388), from Arād 14 pre- and 5 post-firing incisions (London 1991: 391), Bāb adh-Dhrā' and an-Numayra toghether produced about 120 potmarks (Lapp 1995), for all other assemblages the exact numbers are not even known.[5]

With 545 pre-firing incisions az-Zayraqūn offers a great potential for new investigation of the meaning of these incisions.

Of the 266 restorable vessels from the last urban phase,

[4] The pithoi in Khirbat az-Zayraqūn and the North of Palestine quite often show seal impressions around the neck. It is quite unlikely that these are purely decorative (Chesson *et al.* 1995: 120ff.), so these seal impressions may represent an additional marking system to the incisions. This may explain the scarcity of pithoi with potmarks in the north. In the south, however, where cylinder seal impressions on pithoi are absent, potmarks do appear on pithoi, for instance at Tall Yarmut (Miroschedji 1988: 80 and 84).

[5] The possibilities of a quantitative investigation are shown by Van den Brink 1992 for Early Dynastic potmarks from Egypt.



9. Vessel classes from Khirbat az-Zayraqūn.

TABLE 1. Quantity and percentage of vessels with potmarks from the last urban phase at Khirbat az-Zayraqūn.

Vessel class	A	B	C	D	E	F	G	H	I	J	Ka	Kb	Kc	Kd	L
quantity	4	1	0	1	15	0	0	1	0	4	0	3	18	0	1?
percentage	9%	2%	0%	2%	32%	0%	0%	2%	0%	9%	0%	6%	38%	0%	0%

48 (18%) show pre-firing incisions (TABLE 1). As already mentioned above, most potmarks are found on holemouthjars and large jars of the Kc type. Fifteen (23%) of the altoghether 47 restorable holemouthjars from the last urban phase show incisions,[6] in the case of the jars of the type Kc 18 (37%) of the 49 complete specimens are marked.

The observation that the incisions are not evenly distributed on the different vessel classes, but concentrate on certain forms like jars and holemouth jars seems to speak against the interpretation of these marks as potters marks. The concentration of the potmarks on these two classes was already recognized by London (1991: 394) and Harrison (1995: 153ff. and 157), but was interpreted as evidence of specialist production. The other, mostly unmarked vessel types would thus represent household production. While different ways of manufacture are very likely to have existed side by side, it seems not justified to see the potmarks as evidence of specialist production. Why should the specialist potters only have marked about one third of their production? Some vessels types like pithoi, that were very likely produced by specialists, hardly ever show incisions. With 57 different motifs the number is simply too large to represent individual potters or even potters workshops for a middle sized town of about 7 ha like az-Zayraqūn.[7] Even if some of the marked vessels are counted as imports, there still remains the problem that the absolute number of the same motif is in all cases too small for a mass-produced class of objects like pottery vessels. The most often occuring motif in az-Zayraqūn (motif 2) is only represented 29 times! Lastly, potters' marks should be expected to occur in less prominent positions on the vessels than is actually the case. As was shown above, most incisions occur on the shoulder or near the rim of the vessels. In most other known cases producers marks are rarely found on such prominent positions. All these observations are strong arguments against seeing the pre-firing incisions as producers' marks.[8]

Another interpretation found quite often in the literature is that as owners marks. In that case one would expect the same sign to repeat itself on all or most vessels in the same building. The evidence from az-Zayraqūn is negative in this respect. Most buildings show a large variety of up to 13 different motifs, while only in rare cases the same motif occurs twice in the same building.

The suggestion to see potmarks as marking the volume of the vessels cannot be supported from the az-Zayraqūn vessels. In no case was there any recognizable correlation between the motif and the volume of the vessel. On the contrary, the same motifs occured on small and large vessels alike.

The marked vessels have a very even spatial distribution within the site of Khirbat az-Zayraqūn. In no building any obvious concentration can be recognized. If the potmarks are interpreted as being connected to a redistributive system or any other kind of administrative activity, one would expect to find a concentration of marked vessels in public buildings. Neither the palace (B0.8) nor the temple in az-Zayraqūn show any obvious concentration of marked vessels (see TABLE 2).[9]

Thus, the most likely explanation for these potmarks is to see them in connection with the contents of the vessels. This seems quite plausible for the visible potmarks (Bikaki 1984: 43; Müller-Karpe 1988: 148ff.; Roller 1987: 2ff.). They are usually found on closed vessel shapes, where it is difficult to recognize the contents from the outside.[10] Less likely is this explanation for the invisible signs on the bases of vessels.

The interpretation of the pre-firing incisions as marking the contents of the vessels intends that already during the production process the potter must have had ideas what the vessels might have been used for. This assump-

TABLE 2. Spatial distribution of potmarks during the last urban phase at Khirbat az-Zayraqūn.

	Temple-area	B0.8	B0.9	B1.2	B1.3	B1.4	B1.6
Number of restorable vessels	28	47	19	29	90	12	18
Vessels with potmarks	4	10	2	6	16	4	4
Percentage	13%	21%	11%	21%	15%	33%	18%

[6] For Tall Yarmut Nodet (1988: 125ff. and footnote 2) estimates that about every sixth holemouth jar had an incision.

[7] The same observation was made by Kolinski (1993-94: 14) for Early Bronze Age sites in Syria.

[8] In contrast to the interpretation favoured here, Wood (1990: 47) and London (1991: 391ff.) mention cases where recent potters do mark their products, for instance when different potters are firing together in the same kiln. Unfortunately in neither case the quantity of the marked vessels and the positions of the marks are recorded.

[9] In Egypt, however, potmarks are mainly restricted to vessels in the tombs of kings or higher court officials during the Early Dynastic period (Van den Brink 1992: 267).

[10] At az-Zayraqūn, pithoi are hardly ever marked, but here the frequently occuring cylinder seal impressions on the shoulders of these vessels may have provided information about the contents, see Chesson *et al.* (1995: 121).

tion is not too unlikely, given the fact that also by selecting the clay, the temper, the shape, the surface treatment and firing temperature the potter decided about the future use of the vessels he produced.

The fact that only a certain part of the vessels were marked, seems to indicate that only the marked vessels were reserved for special contents, whereas the unmarked ones could be used for varying contents and purposes.

The most difficult question is, whether each of the motifs had a special meaning in the true sense of a writing system. This cannot be answered with the evidence available at the moment. As has already been said, all dfferent motifs in az-Zayraqūn occur only in very small numbers, which does not agree very well with the fact that most households probably stored and used the same commodities like olive-oil, wine etc. This is the strongest argument against assigning a certain, generally accepted and recognized meaning for each of the motifs. It seems thus more likely that the principal difference was not between different motifs, but between marked and unmarked vessels. If these motifs ever had some kind of special meaning, these meanings were probably only assigned *ad hoc* and individually, perhaps seperately for each household. Why on the other hand the same signs occur at different sites and even in widely seperated regions like the Southern Levant and Syria cannot be explained at the moment.

From Egypt (Emery 1972, 201; Arnett 1982; Van den Brink 1992) and other regions (Potts 1981; Bikaki 1984) it is well known, that the use of signs and markings directly preceeds the use of true writing systems. The potmarks in Palestine, however, never developed into a true writing system, maybe because of the decline of urban societies at the end of the Early Bronze Age III.

Bibliography

Amiran, R. 1969. *Ancient Pottery of the Holy Land*. Jerusalem.

Amiran, R., Paran, U., Shilo, Y., Brown, R., Tsafrir, Y. and Ben-Tor, A. 1978. *Early Arad: The Chalcolithic Settlement and Early Bronze City I. First-Fifth Seasons of Excavations, 1962-1966*. Jerusalem.

Arnett, W. S. 1982. *The Predynastic Origin of Egyptian Hieroglyphs*. Washington: University Press of America.

Bard, K. A. 1992. Origins of Egyptian Writing. Pp. 297-306 in R. Friedman and B. Adams (eds.), *The Followers of Horus. Studies Dedicated to Michael Allen Hoffman* (Egyptian Studies Association Publication No. 2. Oxford: Oxbow Monograph 20.

Bikáki, A. H. 1984. *Ayia Irini: The Potters' Marks*. Keos Vol. IV. Mainz: Philipp von Zabern.

Bliss, F. J. 1894. *A Mound of Many Cities or Tell el-Hesy Excavated*. London.

Braun, E. 1985. *En Shadud. Salvage Excavations at a Farming Community in the Jesreel Valley, Israel*. British Archaeological Reports, International Series 249. Oxford: B.A.R.

Chesson, M. S., Flender, M., Genz, H., Hourani, F., Kuijt, I. and Palumbo, G. 1995. Tell es-Sukhne North: An Early Bronze Age II Site in Jordan. *Paléorient* 21: 113-123.

Emery, W. B. 1972. *Archaic Egypt*. Harmondsworth)

Esse, D. L. 1993. Yaqush. *The Oriental Institute 1991-1992 Annual Report*: 81-90.

Fargo, V. 1979. Early Bronze Age Pottery at Tell el-Hesi. *BASOR* 236: 23-40.

Frankel, D. 1975. The Pot Marks of Vounous - Simple Clustering Techniques, their Problems and Potential. *Opuscula Atheniensia* 11. 37-51.

Genz, H. in press. *Hirbet ez-Zeraqo¡n IV. Die frühbronzezeitliche Keramik von Hirbet ez-Zeraqo¡n, Nordjordanien, und ihre Bedeutung für die Frühbronzezeitchronologie der Levante*. Abhandlungen des Deutschen Palästina-Vereins.

Guy, P. L. O. 1938. *Megiddo Tombs*. Oriental Institute Publications XXXIII. Chicago.

Harrison, T. P. 1995. *Life on the Edge: Human Adaptation and Resilience in the Semi-Arid Highlands of Central Jordan during the Early Bronze Age*. Unpublished Ph. D. Thesis, University of Chicago.

Helms, S. W. 1987. A Question of Economic Control during the Proto-Historical Era of Palestine/Transjordan. Pp.41-51 in *SHAJ* III.

Holland, T. A. 1976. Preliminary Report on Excavations at Tell es-Sweyhat, Syria 1973-74. *Levant* 8: 36-70.

Ibrahim, M. and Mittmann, S. 1991. Excavations at Khirbet ez-Zeraqoun 1991. *Newsletter of the Institute of Archaeology and Anthropology, Yarmouk University:* 12, 3-5.

___1994. Excavations at Khirbet ez-Zeraqon, 1993. *Newsletter of the Institute of Archaeology and Anthropology, Yarmouk University* 16: 11-15.

Jacobs, P. F. 1996. A Cosmetic Palette from Early Bronze III at Tell Halif. Pp. 123-134 in J. D. Seger (ed.), *Retrieving the Past. Essays on Archaeological Research and Methodology in Honor of Gus W. Van Beek*. Winona Lake: Eisenbrauns.

Kolinski, R. 1993-94. Early Dynastic Potter's Marks from Polish Excavations in Northern Syria. *Berytus* 41: 5-27.

Lapp, N. 1995. Pottery Marks from the Expedition to the Dead Sea Plain. Pp. 555-571 in *SHAJ* V.

London, G. A. 1991. Aspects of Early Bronze and Late Iron Age Ceramic Technology at Tell el-Umeiri. Pp. 383-419 in L. G. Herr, L. T. Geraty, O. S. LaBianca and R. W. Younker (eds.), *Madaba Plains Project 2: The 1987 Season at Tell el-Umeiri and Vicinity and Subsequent Studies*. Berrien Springs: Andrews University Press.

Mazzoni, S. 1988. Economic Features of the Pottery Equipment of Palace G. Pp. 81-105 in H. Waetzoldt and H. Hauptmann (eds.), *Wirtschaft und Gesellschaft von Ebla*. Heidelberg.

Miroschedji, P. de (ed.) 1988. *Yarmouth 1. Rapport sur les trois premières campagnes de fouilles à Tel Yarmouth (Israel) (1980-1982)*. Éditions Recherche sur les Civilisations 76. Paris.

Mittmann, S. 1994. Hirbet ez-Zeraqon: Eine Stadt der frühen Bronzezeit in Nordjordanien. *Archäologie in Deutschland* 2/1994: 10-15.

Müller-Karpe, A. 1988. *Die hethitische Töpferei der Oberstadt von Hattuöa.* Marburger Studien zur Vor- und Frühgeschichte, Band 10. Marburg.

Nodet, E. 1988. Jarres et marmites sans col. Essai de classification typologique. Pp. 125-134 in P. de Miroschedji (ed.) 1988.

Petrie, W. M. F. 1891. *Tell el Hesy (Lachish).* London.

Potts, D. 1981. The Potter's Marks of Tepe Yahya. *Paléorient* 7/1: 107-122.

Rice, P. M. 1987. *Pottery Analysis. A Sourcebook.* Chicago/London.

Roller, L. E. 1987. *Nonverbal Graffiti, Dipinti, and Stamps.* Gordion Special Studies Volume I. University Museum Monograph 63. Philadelphia.

Rosen, S. A. 1997. *Lithics After the Stone Age. A Handbook of Stone Tools from the Levant.* Walnut Creek): Altamira Press.

Scheftelowitz, N. 1992. Area B, the Pottery. Pp. 7-10 in A. Kempinski and W.-D. Niemeier (eds.), *Excavations at Kabri 6, Preliminary Report of 1991 Season.* Tel Aviv University.

Seidl, U. 1972. *Gefäßmarken von Bogazköy.* Bogazköy-Hattuöa VIII, Wissenschaftliche Veröffentlichungen der Deutschen Orientgesellschaft 88. Berlin.

Tufnell, O. 1958. *Lachish IV: The Bronze Age.* London.

Van den Brink, E. C. M. 1992. Corpus and Numerical Evaluation of the "Thinite" Potmarks. Pp. 265-296 in R. Friedman and B. Adams (eds.), *The Followers of Horus. Studies Dedicated to Michael Allen Hoffman.* Egyptian Studies Association Publication No. 2, Oxbow Monograph 20. Oxford.

Wood, B. G. 1990. *The Sociology of Pottery in Ancient Palestine. The Ceramic Industry and the Diffusion of Ceramic Style in the Bronze and Iron Ages.* Journal for the Study of the Old Testament Supplement Series 103, JSOT/ASOR Monographs 4. Sheffield: Sheffield Academic Press.

Eveline J. van der Steen
Faculteit der Archeologie
Universiteit Leiden
The Netherlands

Eveline J. van der Steen

Excavations at Tall al-Ḥammah

In 1996 and 1997 a small scale excavation was conducted at Tall al-Ḥammah, on the north bank of Wādī az-Zarqā' (van der Steen 1997). The *tall* lies on a natural hill, and rises about 7m above its surroundings. It was noticed by Glueck (1951: 313), by Gordon and Villiers during their Wādī az-Zarqā' survey (Gordon and Villiers 1983), and also by the Jordan Valley survey (Ibrahim *et al.* 1988). Based on the survey results the site was believed to be settled in the Early Bronze Age, and the Early Iron Age up to the Persian period. Excavations revealed occupation layers from the Chalcolithic and Early Bronze Age, and, after a gap, from the end of the Middle Bronze Age to the end of Iron Age II.

The most surprising find was that of a number of what seem to be iron furnaces, dated to the eighth or seventh century BC, and large amounts of slag. Analysis of this slag has proved beyond doubt the presence of an iron production centre at Tall al-Ḥammah. Its discovery has solved a riddle that has long kept archaeologists occupied. The site lies close to an extensive source of iron ore. It has always been presumed that iron industry must have been conducted somewhere in the area from a very early period, and several sites have been put forward as possible iron working centres, Dayr 'Allā among them. Nothing was found however on any of these sites that pointed to iron industry on any scale, until the slag and furnaces on Tall al-Ḥammah were excavated. The iron industry of Tall al-Ḥammah will be the subject of a separate publication.

The excavations are integrated in the Dayr 'Allā regional project, and are part of a larger scale research project which focuses on the transitional Late Bronze-Early Iron Age in this area.

Based on the information from several sources it is suggested that there was a trade route between the Jordan Valley and the Transjordanian plateau during the Late Bronze Age (van der Steen 1996). This route was either part of, or linked to the Egyptian-controlled trade network that extended from Egypt itself, through Palestine to the east and north.

Although it seems inevitable that Egypt was involved in this trade, there is no evidence that this part of the route, from the Jordan Valley to the Transjordanian Plateau, was actually controlled by Egypt. The question of how far eastward the Empire stretched, still remains unsolved. But if Egypt was not in control of this trade, who was? Who organized it, and who profited? Answers to these questions, if any, can be found only in archaeology, since the written sources of the period are conspicuously silent about this area.

Based on the results of an ethnoarchaeological study (van der Steen 1995 and 1998) and on the published results of several excavations, the Baq'ah valley (McGovern 1986), and Dayr 'Allā (Franken 1969 and 1992), both of which are well-known, a hypothesis is formulated. It is suggested that there was a trade market on the Plateau, possibly in the shape of a small city state, centered around Saḥāb. It formed the link to the north, to Syria and further. It was basically independent, and, due to its nature, multicultural. The local population was Canaanite and contained a large nomadic component. These people conducted the trade between the Dayr 'Allā area and the Plateau and were dependent on it. At the end of the period, with the collapse of the Egyptian empire, and therefore of the trade, the new society that emerged was formed largely by these local people, who found means to survive in a changing world.

One of the phenomena of this new society was a string of new settlements along az-Zarqā', where formerly there were none. One of these new sites, according to the surveyresults, was Tall al-Ḥammah, which was our main reason for excavating it. We wanted to find out who the inhabitants were, where they came from, and what kind of life they lived.

In the second season, remains were found of the Early Iron Age and the Transitional Late Bronze - Early Iron Age. Surprisingly also remains of the Late Bronze Age I and II and even from the end of the Middle Bronze Age

were found, whereas all the survey results had suggested that this site was newly founded in the Early Iron Age.

Late Bronze age material was so far only excavated in two squares. It is possible therefore that further excavations, which we hope will take place shortly, may change our outlook on the history of the *tall*. However, so far the remains suggest that people lived a very basic life here: no structures of any importance were found. Some cobbled floors and a partition wall consisting of only one, very irregular, course of boulders, were the only 'architecture' found. The installations that were found, mainly bread ovens and hearths, suggested household activities.

The pottery, on the other hand, was of good quality, well made and sometimes very fine in nature. It was clearly imported from elsewhere. A few small fragments of chocolate-on-white ware were found, but the most conspicuous feature was a large number of cooking pots, belonging to a type that is generally rare on the east side of the Jordan, but is well attested on sites like Baysān/ Beth Shean, Megiddo and, most recently, Khirbat Bal'amah (van der Steen, forthcoming). Two small fragments of this type were recently found on Tall Dayr 'Allā. This cooking pot is generally dated to the end of the Middle Bronze Age. At Dayr 'Allā the context in which one of the fragments was found, was dated by the excavator to the beginning of the Late Bronze Age (van der Kooij, pers. comm.).

Much of the other pottery found was slipped with a cream to pink slip, sometimes in two layers, and often decorated. A fragment of a milk bowl was found. The repertoire is generally comparable to that from Dayr 'Allā in the Late Bronze Age (Franken 1992).

These earliest layers were cut by pits in which pottery from the end of Late Bronze Age II and the Transitional Period was found. This pottery can be compared to that of the Latest Sanctuary phase at Dayr 'Allā (phase E and F, Franken 1992). The presence of large numbers of pits is often related to activities by farmers or farmers/ pastoralists. The pits were covered by surfaces where industrial or household activities had been performed, leaving ash, burnt surfaces and large numbers of sherds. There was an irregular flimsy wall or boundary consisting of a north-south row of stones. A fire-place was found associated with one of the surfaces, consisting of a circle of stones in which the remains of a fire were found. Beside it was a smaller stone circle that may have been used as a potstand.

On another of these surfaces the remains of a *tannūr* were found, and a kind of burnt round clay platform, 30cm in diameter, that may also have had a function in the preparation of food. Many cooking pots were found here, of types common in the Transitional and Early Iron Ages in Dayr 'Allā. A layer of wash covered this activity area. This phase is dated to the Transitional Late Bronze - Early Iron Age.

Over it were more occupation layers showing the same type of occupation: surfaces with cobbles and activity area's, dated to the first part of the Early Iron Age. The pottery is more or less contemporaneous with the first phases of Iron Age Dayr 'Allā (Franken 1969).

The nature of the architectural remains, if one may call them so, points to a very simple type of occupation: a partition between two open spaces, a cobbled floor and a few pits. It seems justified to interprete it as farmer, or farmer/ pastoralist occupation. What is at odds with it, however, is the nature of the pottery. There were some chocolate-on-white sherds from the earliest layers. And also in the later phases much of the pottery was made of fine ware, often decorated. Apparently, although the people who lived here, or camped here, may have led a primitive, simple life, they were in contact with the greater culture that surrounded them, and possibly were less primitive, or rural, than their architecture, or lack of it, suggests.

We can think of several explanations for this phenomenon. In the light of Tall al-Ḥammah's proximity to the Dayr 'Allā market area, and its position on the trade route to the east, it seems well possible that this was, at least during the Late Bronze Age, a temporary camp used by people involved in the trade during their stay in the Dayr 'Allā area, and revisited whenever they came here. It had the basic requirements for a temporary camp: water was near at hand, and cobbles and boulders were lying everywhere around to quickly build temporary structures and installations. They obtained their pottery from either centre, at Dayr 'Allā or at the plateau.

The pottery from the earliest layers shows that this camp already existed at the end of the Middle Bronze Age or the very beginning of the Late Bronze Age. That does not implicate automatically that the trade route also existed already, although the presence of luxury pottery, as well as possible relations with the west, suggested by the presence of a certain type of cooking pots that has its parallels mainly west of the Jordan, make it at least a serious possibility.

Bibliography

Franken, H. J. 1969. *Excavations at Tell Deir 'Alla I.* Leiden.

——1992. *Excavations at Tell Deir 'Alla: the Late Bronze Age Sanctuary.* Leuven.

Glueck N.1951 *Explorations in Eastern Palestine IV. Annual of the American Schools for Oriental Research 25-28.* New Haven

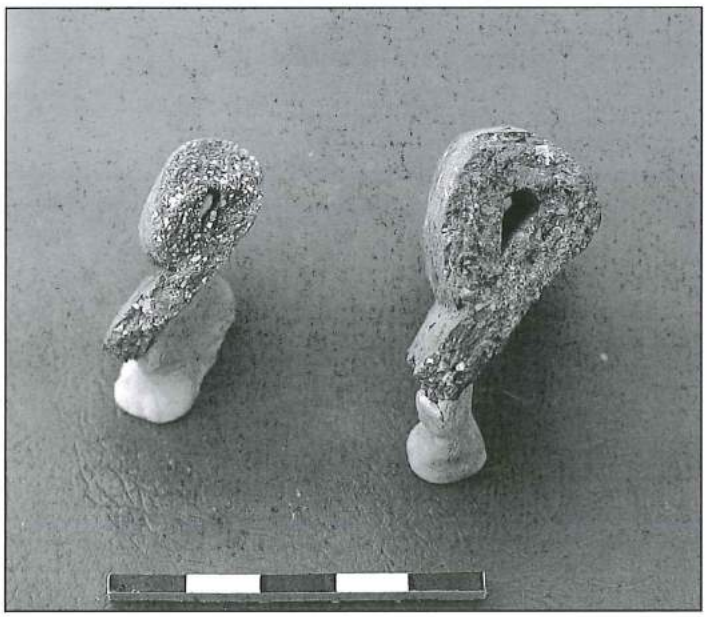
Gordon R. and Villiers, L. 1983. Telul edh-Dhahab and its Environs. Surveys of 1980 and 1982, a Preliminary Report. *ADAJ* 27:285-289.

Ibrahim M. M., Sauer, J. A. and Yassine, K. 1988. The East Jordan Valley Survey, part two. Pp. 189-207 in K. Yassine, *Ar-*

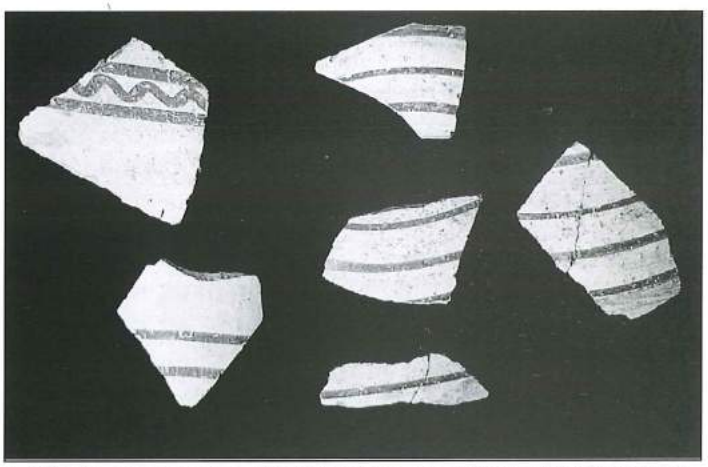
chaeology of Jordan, Amman.
Leonard, A. Jr. 1989. *Late Bronze Age Settlement Satterns in Transjordan*. Lecture at the fourth conference on Studies in the History and Archaeology of Jordan.
McGovern, P. E. 1986. *The Late Bronze and Early Iron ages of Central Transjordan, the Baq'ah Valley Project 1977-1981*. University Museum Monograph 65. Philadelphia.
van der Steen, E. J. 1995. Aspects of Nomadism and Settlement in the Central Jordan Valley. *PEQ* 127: 141-158.
——1996. The central East Jordan Valley in the Late Bronze and Early Iron Ages. *BASOR* 302: 51-74.
——1997 Excavations at Tell el-Hammeh. *Occident and Orient* 3.
——1998. Adaptation and Survival. *PEQ*.
——forthcoming. Excavations at Khirbet Bal'amah, Field B, Preliminary Report. In prep.



1. Middle Bronze Age IIB-C cooking pot rims from Tall al-Ḥammah.



2. Middle Bronze Age IIB-C cooking pot rims from Tall al-Ḥammah.



3. Middle - Late Bronze Age decorated pottery from Tall al-Ḥammah.



4. Middle - Late Bronze Age decorated pottery from Tall al-Ḥammah.



5. Middle - Late Bronze Age decorated pottery from Tall al-Ḥammah.



6. Middle - Late Bronze Age decorated pottery from Tall al-Ḥammah.



7. Pottery sherds from the Late Bronze Age IIB layers at Tall al-Ḥammah.



8. Pottery sherds from the Late Bronze Age IIB layers at Tall al-Ḥammah.



9. Pottery sherds from the Late Bronze Age IIB layers at Tall al-Ḥammah.

David Warburton

Egyptian Campaigns in Jordan Revisited

Introduction

It is now a platitude to remark that archaeological field work in recent decades has changed our image of Bronze Age in Jordan. It is now clear that the Late Bronze Age witnessed the slow development of a semi-urban system which collapsed, giving way to the more numerous but smaller and more dispersed rural settlements of the early Iron Age (cf. e.g., Braemer 1992; McGovern 1987; Miller 1982). Even though it was a regional power, Egypt had virtually no role in these developments, except as one of several peripheral actors. Egyptian material has therefore provided an anecdotal background and some details for a chronological framework, but little more.

This is hardly surprising as the sources are limited, being (1) a text allegedly bearing Jordanian toponyms dating to the reign of Thutmosis III, and some potential Jordanian toponyms in a Late New Kingdom literary text; (2) the Amarna letters from Pella; (3) a stela naming Sei I found at Tall ash-Shihāb on the Yarmuk river in Jordan; (4) a text possibly mentioning a campaign in Transjordan under the reign of Ramesses II; (5) some Egyptian influenced architecture at Tall as-Sa'idiyyah and Pella; and (6) some isolated Egyptian artifacts including the box found at Pella, a broken commemorative scarab of Amenophis III of uncertain provenance; and a fragmentary vase bearing the cartouche of Tauseret from Tall Dayr 'Allā.

This seems to indicate some kind of Egyptian influence throughout the Late Bronze Age. It also seems to confirm an Egyptian presence in the region around Pella during Dynasty XVIII and Egyptian military activity in a few short decades at the beginning of Dynasty XIX, in the reigns of Sethos I and his son Ramesses II (ca. 1290 - 1265 BC). Egyptological interest in Jordan has primarily centered on the maximum exploitation of philological breakthroughs in texts possibly mentioning Transjordanian toponyms. Archaeological interest has concentrated on evidence of an Egyptian presence and/or influence in Transjordan, in terms of artifacts and architecture. The blending of the two approaches is difficult as the methods and goals are quite different. Egyptologists seek to confirm philological interpretations and archaeologists try to understand the significance of the rare Egyptian material found in Jordan.

When viewed from the historical standpoint however, this activity can be understood in terms of the overall policy of the Egyptian Empire. Egyptian material and interest in Jordan is foreign by definition, and foreign relations in the Bronze Age were either commercial or war-like. Egyptian commercial relations were primarily waterborne, following the Nile into an-Nūba and the Levantine coast to the north. This would necessarily eclipse Jordan. Egyptian military activity followed the same lines, except that it penetrated more deeply into the riparian lands along the Nile and into the hinterland of the Syrian coast. Egyptian presence in Asia beyond the Jordan and the Orontes can therefore be primarily explained in terms of its military conflict with the neighboring Mitanni and Hittite empires. This is particularly true of Egyptian material relating to Jordan, as Jordan lay well off the important trade routes of antiquity Egyptian interest in the region can thus hardly be assigned a significant commercial component, from the Egyptian standpoint.[1]

In a previous volume of this series, D. Redford discussed the character of Egyptian documentation and the possible itinerary mentioned in the lists of foreign toponyms dating to the reign of Thutmosis III (1479-1425

[1] From an archaeological standpoint, the maximum extent of Egyptian military presence in Asia corresponds almost precisely to the distribution of Mycenean pottery in the Levant. In a previous volume of this series, Nicholaou suggested that the Myceneans were not concerned about the conflict between Egypt and Hatti (Nicholaou 1982), but the distribution of the pottery on his maps suggests a close connection between Egyptian influence and Mycenean pottery. This does not apply to Carchemish and Emar which lay on the very edge of the region reached by the Egyptians. Alalakh—and other Anatolian coastal regions—were probably never approached by an Egyptian army, but otherwise the distribution of Mycenean pottery does not reach deep into Hittite territory, which is quite curious, unless there was fundamental conflict between Hatti and the Myceneans, which matched the Egyptian conflict precisely.

BC, cf. Redford 1982a; 1982b). Redford's assumption that the lists represented trade routes rather than military itineraries can hardly de disputed.

In confirming the names of Aegean ports and political centers in the lists of toponyms from the reign of Amenophis III, Edel demonstrated that the Egyptians were familiar with trade routes well beyond their military reach (cf. Edel 1966). The general tone of the Amarna correspondence likewise confirms that the Egyptians were primarily concerned about the acquisition of goods from their "vassals" in Syria, and less with possible military advantages.

Present evidence does not indicate that the Egyptians campaigned in the region, and therefore the trade option must be preferred. It must however be conceded that extensive searching has failed to reveal any Late Bronze I pottery at several of Redford's postulated sites. This emphasizes that even if the toponyms are correctly identified, and the character of the itinerary correctly recognized, the alleged itinerary need not have been commercially active during Dynasty XVIII. The absence of Middle Bronze material at the sites suggests however that they cannot reflect earlier trade routes either since these sites cannot have lain on early second millennium trade routes either. Redford suggests that the sites without Late Bronze material may have been "camp-sites" (1982b: 73). This flies in the face of the evidence that trade was highly insecure during the Amarna period. By definition, therefore, trade routes would connect secure towns or fortifications, and thus the itineraries would have to identify secure places. It would be highly misleading and dangerous to establish itineraries which connected exposed sites.

This implies either (a) that the toponyms have not been correctly identified or (b) that the toponyms moved from one archaeological site to another. Redford suggested the latter, but either is possible and suggests that support be sought in a reexamination of the growing number of identified Late Bronze Age sites in Jordan. The arguments in favor of the identification of the individual sites and the character of the lists are familiar, and remain subject to dispute. In the absence of new field work, any argument employing this list of toponyms must remain speculative.[2]

Regardless of hypothetical reconstructions of trade routes or military outings, the Amarna letters from Pella are tangible evidence which cannot be disregarded (EA 255-256, Moran 1992: 308-310). They confirm that the city was clearly within the Egyptian zone of influence towards the end of Dynasty XVIII.

It is however improbable that the Egyptians gave much thought to Pella as it will hardly have had access to any goods which Egypt could not acquire commercially from elsewhere. The absence of a commercial motive could then suggest that military interests were decisive in this case. There is however no evidence of a campaign. It is however unnecessary to assume that either Egyptian campaigning or commercial interests in the region compelled Pella to join the empire. By the end of Dynasty XVIII, Egypt had become the dominant power in Palestine. Mitanni was being slowly eliminated by the Hittites, and during the reigns of Thutmosis IV, Amenophis III, and Akhenaten, Egyptian influence in Asia grew as vassals in the border region played the Egyptians, Mitanni and Hatti off against one another (cf. Murnane 1990; Izre'el and Singer 1990). Under these circumstances, a city such as Pella would have found itself outmaneuvered by its neighbors. Given its geographical position, Pella could hardly hope to join Amurru or Mitanni, yet its neighbors will all have been allied to the Egyptians. Unless it joined the Egyptian camp, Pella would be completely excluded from the international arena, and would thus have been obliged to seek Egyptian recognition or risk being isolated. Once within, Pella could offer security for diplomatic and communications along an alternative trade route. Mutual diplomatic interest can thus explain Pella's position without postulating an improbable campaign in the region.

The situation changed after the destruction of Mitanni however. At the end of Dynasty XVIII, the Hittites moved into the areas formerly held by Mitanni, and even established a common frontier with the Egyptians by annexing Amurru. This radical transformation is reflected in the stele put up by Seti I somewhere along the Yarmuk, and the reinforcement of the garrison at Beth Shan. The Egyptians were obliged to seriously consider establishing an armed border against a well armed foe. There had never been a clear cut border so much as a border buffer zone during the long conflict with Mitanni, Until the Hittites relieved the Egyptians of Amurru, the concept of an armed and fortified border was not familiar to them.

Seti I endeavored to establish a defensive line along easily defended boundaries, running along the upper Orontes, Litani, and Jordan rivers. The lower part of the stela found at Tall ash-Shihāb is unfortunately missing, and it is unknown exactly where the stela came from, but this is immaterial—except insofar as it furnishes infinite

[2] The astute reader will also have noticed that Redford implicitly contradicts himself in claiming that the lists could not be a "roster of captured and destroyed towns" because the Egyptians allegedly could not have destroyed the cities in sieges (1982a: 117) while himself conceding that the Egyptians may have razed the cities after capture (1982a: 117). Archaeologically, the destruction levels remain; philologically, the names remain; and politically, the results are the same, regardless of when the destruction took place tactically, as long as it was carried out by the Egyptians. The real difficulty is being certain of assigning the results to the Egyptians, but there are not any other candidates. For a recent interpretation of the evidence and the debate concerning Middle Bronze Palestine, cf. Warburton 1997. Regardless of possible conquests in Palestine, it is unlikely that the Egyptians destroyed any cities in Late Bronze I Jordan.

material for speculation. The evidence available does however demonstrate that Seti I was refurbishing the Egyptian garrison at Beth Shan and securing northern Galilee against attacks. Whether a foray to Tall ash-Shihāb should be assigned to this period or to another could be debated.[3] Although it would be useful, it is not essential that the context of the Pharaoh's visit be known, for the campaign can be understood in terms of Seti I's foreign policy. Beth Shan lies on the Jordan and Tall ash-Shihāb lies on the Yarmuk. The motives for securing a frontier along the Yarmuk and Jordan rivers would correspond to Seti I's general policy of observing river borders, as his stelae at Kadesh on the Orontes and Tyre on the Litani demonstrate. Seti I was defining the limits of Egyptian hegemony in terms of modern geographical borders.

Ramesses II failed to appreciate the strategic vision of his father's policy, and endeavored to expand to the north of the borders so clearly defined by his father. At Kadesh, Ramesses proved unable to shove the Hittites further north, and was ultimately obliged to recognize Hittite sovereignty on the upper Orontes. Unable to move north in a strategic sense, Ramesses may have chosen the empty expanses to the south and east of Beth Shan as a less awesome alternative. His Transjordanian campaign would therefore have logically followed the defeat at Kadesh by a few years.

The campaign was directed against Moab, an entity which had not previously existed in this region.[4] While in itself interesting, the idea that unknown population groups were appearing on the borders of the empire is curious. The appearance of Moab in Transjordan adumbrated the appearance of the Arameans and the Sea Peoples on the fringes of the collapsing Bronze Age empires. Ramesses II's campaign into Transjordan can thus be understood as an operational necessity, the inevitable response to these newly emerging political entities which threatened to spill into Egyptian possessions. His measure may have been either pre-emptive, or a response to aggression such as his father Seti I had faced at Beth Shan.

Kitchen (1964; 1982: 67-68) has suggested that a coordinated two pronged assault took the Egyptian army through Palestine and Moab simultaneously, and that the two reunited in Transjordan before heading north. Although Haider (1987) has thrown doubt on this, Desroches Noblecourt (1996) has accepted it.

Darnell and Jansow (1993) have actually strengthened the case with their reconstruction of parts of the scene not visible to Kitchen. They have suggested that the traces can be understood as confirming that Ramesses gave orders to the Crown Prince, and thus implying a separate detachment, which would form the corps of the army proceeding northwards through Transjordan. They also suggest that the motivation for the Moabite campaign would have been a Moabite alliance with the Hitties. Kitchen's reconstruction would thus appear to be largely possible, although the unification of the two corps may have taken place further north, perhaps not far from Beth Shan.

Although Darnell and Jasnow maintain that the scenes at Luxor do not provide any chronological fixpoints, this is not completely accurate. On the one hand—given the refernces to vile Hittites—the scenes must have preceded the peace treaty of 1258 BC, and on the other, it is generally agreed that they followed the battle of Kadesh in 1274. Since one of the war steeds used by Ramesses bears the same name as one at the battle of Kadesh (Kitchen 1964: 55), the scenes evidently date to a period not far removed from that famous battle.[5]

While giving the campaign a chronologically precise position is probably not possible, dating an Egyptian campaign in Transjordan against Moabite enemies allied with the Hittites to just before the peace treaty is extremely important. It should be evident that any Hittite attempt to unite with the Moabites would have been designed as a flanking maneuver exclusively intended to threaten the Egyptian empire. There could have been no other mutual interest in such a measure. This would in turn suggest

3 It is commonly assumed that the registers of military scenes in the decorative programs of Ramesses II and Seti I at Karnak and Luxor are organized according to both geographical regions chronological years. It is however conceivable that events of several different years in one geographical region could have been incorporated into one register, and therefore that the events depicted were not all related by a single campaign.

4 Haider has suggested that the most significant detail of this campaign is the reference to the toponym Moab. Although the present writer would dispute this, the point is interesting. This is by far the earliest reference to an entity termed Moab, and is reminiscent of the reference to "Israel no longer existing" on Merneptah's Israel Stele, at a time when the familiar "Israel" had still not come into existence—let alone disappeared—according to conventional reconstructions of the Bible compatible with Egyptian sources.
The fact that the Hebrews allegedly worked at Piramesse demonstrates that this must have followed Ramesses II's accession to the Egyptian throne, for the city can hardly predate him. Placing the exodus during or after his reign would leave precious little time for the conquest to have been so complete that a political entity could have been familiar enough to have been allegedly extinguished by Merneptah's Year 5. Placing the exodus at the end of the reign of Merneptah would itself exclude the possibility of any entity similar to the later "Israel" having existed before then, as the Biblical account suggests a revolutionary move. Thus, the "Israel" dating to the reign of Merneptah cannot be related to the "Israel" existing several hundred years later –except by name.
The existence of Late Bronze Age entitites bearing names later associated with Iron Age political and geographical entities (which were unknown during the earlier part of the Bronze Age) suggests that the name Moab should be associated with the Late Bronze Age population movements which eventually led to the appearance of the Aramean kingdoms.

5 Since at least one of the others named is not known (Kitchen 1964: 62), it could equally compellingly be argued that the campaign dates to the second decade of the reign, as this would provide leeway for overlap. It could also be argued that this implies that several campaigns and thus several years are integrated into the scenes.

that this campaign effectively terminated Hittite hopes of expansion, and may thus have been the counterpart to the stalemate ensuing from the failure of the Egyptians to expand northwards of Kadesh. The campaign would thus have defined the boundaries of the respective spheres of influence and led to the peace treaty.

In the short term, the Egyptian Empire was secured for another century. By the time the newly emerging peoples had consolidated their positions enough to threaten the Egyptians, the Hittite menace had been removed. In the long term however the Egyptians were unable to hold off the incursions from abroad.

This is not however the final evidence of Egyptian presence east of the Jordan. The apparently Egyptian architecture at Tall as-Sa'idiyyah is the mirror image of that at Pella. The "residence" at Pella preceded the appearance of Egyptian military activity in Transjordan, and the "residence" at Tall as-Sa'idiyyah followed the last Egyptian military intervention in the region.[6]

When the residence at Pella was built, Mitanni was effectively allied with Egypt and defending itself against the Hittites, and therefore the "residence" cannot represent a significant reflection of military threats. When the residence at Tall as-Sa'idiyyah was built, the Hittite threat had been eliminated, as (a) the campaigns of Seti I and Ramesses II held off the Hittites, (b) the peace treaty with Hatti eliminated conflict and (c) the Syrian campaigns of Tukulti-Ninurta I effectively ended Hittite activity in the region. During the Bronze Age the Egyptians never came to appreciate the significance of the Assyrian threat, and therefore an Egyptian presence at Late Bronze Tall as-Sa'idiyyah cannot be explained in terms of Egyptian military strength. There is also no evidence of Egyptian concern for the region, except for the incursions of Ramesses II. After that, the Egyptians were too concerned with securing their own borders and the coasts of Palestine to worry about irrelevant events beyond the Jordan.

It certainly cannot be contended that Egyptian architecture suggests Egyptian control, and the cases of both Pella and Tall as-Sa'idiyyah should be understood in terms of emulation or aspiration rather than reflecting Egyptian hegemony.

Egyptian military interest in the region beyond the Jordan was restricted to the reigns of Seti I and Ramesses II, when the Hittite empire was attempting to expand at the expense of the Egyptians.

Bibliography

Braemer, F. 1992. Occupation du sol dans la région de Jérash aux périodes du Bronze Récent et du Fer. Pp. 191-198 in *SHAJ* IV, Amman: Department of Antiquities.

Darnell, J. C. and Jasnow, R. 1993. On the Moabite Inscription of Ramesses II at Luxor Temple. *Journal of Near Eastern Studies* 52: 263-274.

Desroches Noblecourt, Ch. 1996. *Ramsès II: La veritable histoire.* Paris.

Edel, E. 1966. *Die Ortsnamenlisten aus dem Totentempel Amenophis* III. Bonn: Bonner Biblische Beiträge 25.

Haider, P. W. 1987. Zum Moab-Feldzug Ramses' II. *Studien zur aAtägyptischen Kultur* 14: 107-122.

Hennessy, J. B. and Smith, R. H. 1997. "Pella," *Oxford Encyclopaedia of Archaeology in the Near East* IV: 256-259.

Izre'el, Sh. and Singer, I. 1990. *The General's Letter from Ugarit: A Linguistic and Historical Reevaluation of RS 20.33 (Ugaritica V, No. 20).* Tel Aviv.

Kitchen, K. A. 1964. Some New Light on the Asiatic Wars of Ramesses II, *Journal of Egyptian Archaeology* 50: 47-70.

——1982. *Pharaoh Triumphant: The Life and Times of Ramesses II.* Warminster.

McGovern, P. E. 1992. Settlement Patterns of the Late Bronze and Iron Ages in the Greater Amman Area. Pp. 179-183 in *SHAJ* IV. Amman: Department of Antiquities.

6 Based on archaeological finds and philological sources Egyptian governors' "residencies" have been identified at a number of sites in Asia. Aside from Pella and Tall as-Sa'idiyyah, I have noted: Aphek (AKA Ras el-Ain), Tel Sera (AKA Tell esh-Sheria), Beth Shan, Tell Fara South, Ashdod-Yom (AKA Tell Mor, Tell Khedar), Deir Balah, Taanach, Gaza, Megiddo, Tel Halif (AKA Lahav, Tell Khuweilifah), Tell el-Hesi, Tel Masos (AKA Khirbet Meshash), and Tell Jemmah, Tell Batashi and Lachish (AKA Tell ed-Duweir). Certainly, Sumur (Tell Kazel?), and Kumidi (Tell Kamid el-Loz?) should be added to the list, making at least 18 sites for three governors!

Two published lists (using the Hebrew names, Oren 1984; and Arabic names, Weippert 1988: 272) are neither identical nor complete. While both lists include structures that are not convincingly Egyptian, the residency at Tell Halif is strangely missing from both, although one of the few buildings with convincingly Egyptian architecture (cf. Seger and Borowski 1993). It also dates to Late Bronze Ib, while the others are Ramesside Late Bronze II.

Some "residences" are defined by arhcitecture, and some by finds. Based on finds, rather than architecture, the buildings at Aphek, Deir el-Balah and Tel Sera would appear to have a reasonable claim to being Egyptian. Based on architecture, those at Fara South, Halif and Beth Shan would qualify. There are too many and the "typically" Egyptian architecture far from typical, yet textual finds indicate that there is a discrepancy between the three commissioners one would expect and their activities, such as the letters found at Aphek (where the architecture is not typically Egyptian) and Tanaach. It would be reasonable to suggest that Egyptian officials were lodged at Tell Fara (as Gaza, an Egyptian political center) and Beth Shan (as an Egyptian military center), and that the rabisu-commissioner at Fara was comparable to his analogues at Sumura and Kumidi, while the military official at Beth Shan will have had different local contacts and different responsibilities. The political *rabisu* will have been responsible for commercial activity, and have had the highest responsibility, being directly accountable to Pharaoh. Military officials will probably have reported to the *rabisu*, but they may have lived in houses with the same architecture, and there may have been several of them, depending upon the prevailing situation. At present, it can only be stated that there are too many residences for too few officials. It is possible that some "residences" were left vacant except when the officials appeared, and it is possible that some of the "vassals" chose to erect Egyptian-style residences for themselves, and it is possible that both Syrian and Egyptian merchants erected such buildings for themselves. As always, only further excavation can enhance understanding.

——1987. Central Transjordan in the Late Bronze and Early Iron Ages: An Alternative Hypothesis of Socio-Economic Transformation and Collapse. Pp. 267-273 in *SHAJ* III. Amman: Department of Antiquities.

Miller, J. M. 1982. Recent Archaeological Developments Relevant to Ancient Moab. Pp. 169-173 in *SHAJ* I. Amman: Department of Antiquities.

Moran, W. L. 1992. *The Amarna Letters*. Baltimore.

Murnane, W. J. 1990. *The Road to Kadesh: A Historical Interpretation of the Battle Reliefs of King Sety I at Karnak.* Chicago: Studies in Ancient Oriental Civilization 42.

Nicolaou, K. 1982. The Myceneans in the East. Pp. 121-126 in *SHAJ* I. Amman: Department of Antiquities.

Oren, E. D. 1984. Governors' Residencies in Canaan under the New Kingdom: A Case Study of Egyptian Administration. *Journal of the Society for the Study of Egyptian Antiquities* 14 (1984): 37-56.

Potts, T. F. 1987. A Bronze Age Ivory-Decorated Box from Pella (PaHel) and its Foreign Relations Pp. 59-71 in *SHAJ* III. Amman: Department of Antiquities.

Redford, D. B. 1982a. Contact Between Egypt and Jordan in the New Kingdom: Some Comments on Sources. Pp. 115-119 *SHAJ* I. Amman: Department of Antiquities.

——1982b. A Bronze Age Itinerary in Transjordan (Nos. 89-101 of Thutmose III's List of Asiatic Toponyms. *Journal of the Society for the Study of Egyptian Antiquities* 12: 55-74.

Seger, J. and Borowski, O. 1993. "Halif, Tel." Pp. 553-560 in E. Stern, (ed.), *New Encyclopedia of Archaeological Excavations in the Holy Land* (4 vols., New York, 1993), II.

Smith, G. A. 1901. Notes of a Journey through Hauran, with Inscriptions Found by the Way. *PEQ* (1901): 340-361

Tubb, J. 1997. "Sa'idiyeh, Tell es-," *Oxford Encyclopaedia of Archaeology in the Near East* IV: 452-455.

Tushingham, A. D. 1997. "Dibon," *Oxford Encyclopaedia of Archaeology in the Near East* II: 156-158.

Warburton, D. 1997. 'Kadesh and the Egyptian Empire," *Journal of Ancient Civilizations* 12 (1997): 125-147.

Weippert, H. 1988. *Palästina in vorhellenischer Zeit.* Munich: Handbuch der Archäologie; Vorderasien II:1/1.

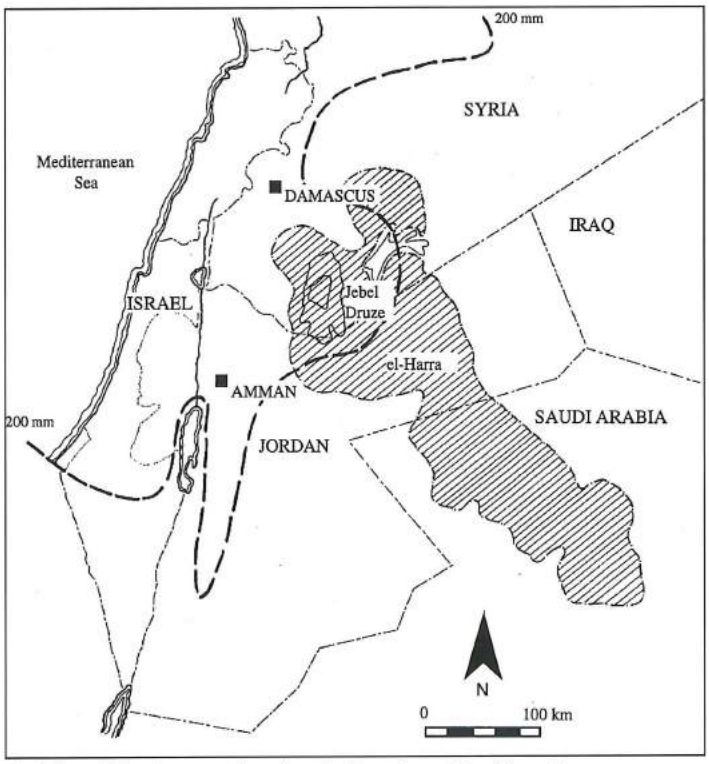
Samantha Eames
Department of Archaeology
The University of Sydney
NSW, 2006
Sydney - Australia

Samantha Eames

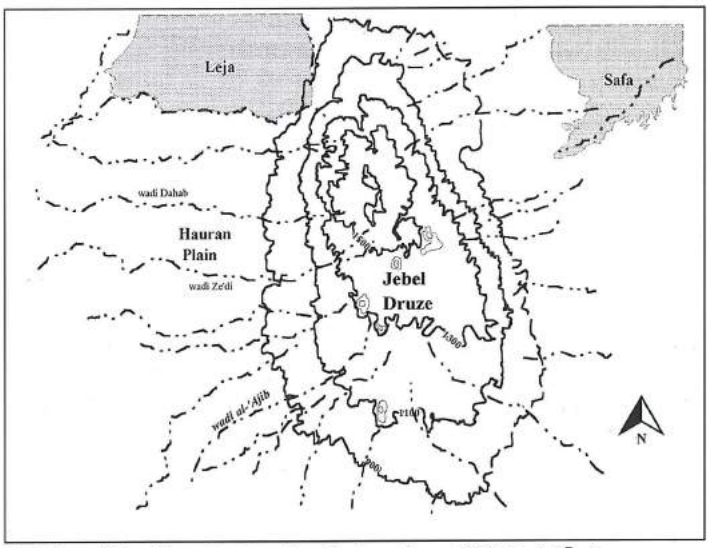
A "Gateway Community" in Northern Jordan: The University of Sydney Ḥawrān Project

Location and Environment

Wādī al-'Āqib (al-'Ajib) is one of the main wadis of the Ḥawrān, draining off the south western slopes of Jabal ad-Drūz in southern Syria (FIGS. 1 and 2). The wadi runs in a south westerly direction, crossing the border into northern Jordan, a few kilometres west of the village of Umm al-Quṭṭayn, eventually draining into the mudflats west of Qaṣr al-Ḥallābāt. The wadi, situated in a semi-arid or marginal steppic region that receives between 200-250 mm annual precipitation, experiences seasonal flooding from heavy rainfall and snow-melt higher up the mountain. In the upper reaches, close to the Syrian border, the wadi is fairly shallow and has a narrow flood plain suitable for agriculture. As it continues further downstream, the wadi becomes more deeply incised which, along with lower annual rainfall, renders agriculture unviable. The varying environmental conditions down the length of the wadi may have been a crucial factor in determining the range of types of sites and periods of occupation identified.



1. Map of the Levant showing the location of the Ḥawrān.



2. Map of the Ḥawrān showing the location of Wādī al-'Āqib.

Research Background

The primary aims of the Ḥawrān Research Project, of which the current study is part, are twofold; to examine the ebb and flow of human settlement in the agriculturally marginal land of the southern Ḥawrān on the edge of the steppe, with particular emphasis on the Middle Bronze Age and to examine the relationships between the settled and nomadic groups in the region. The aims were to be achieved through a combination of intensive survey and excavation. On the basis of this, two preliminary seasons of survey along the upper reaches of the Wādī al-'Āqib from the Syrian border down to al-Khālidiyya were carried out in 1992 and 1993.[1] These were followed up with

[1] For the inital survey results see Betts *et al.* 1995, 149-168.

more intensive surveys and excavation in 1994 and 1995/96.[2]

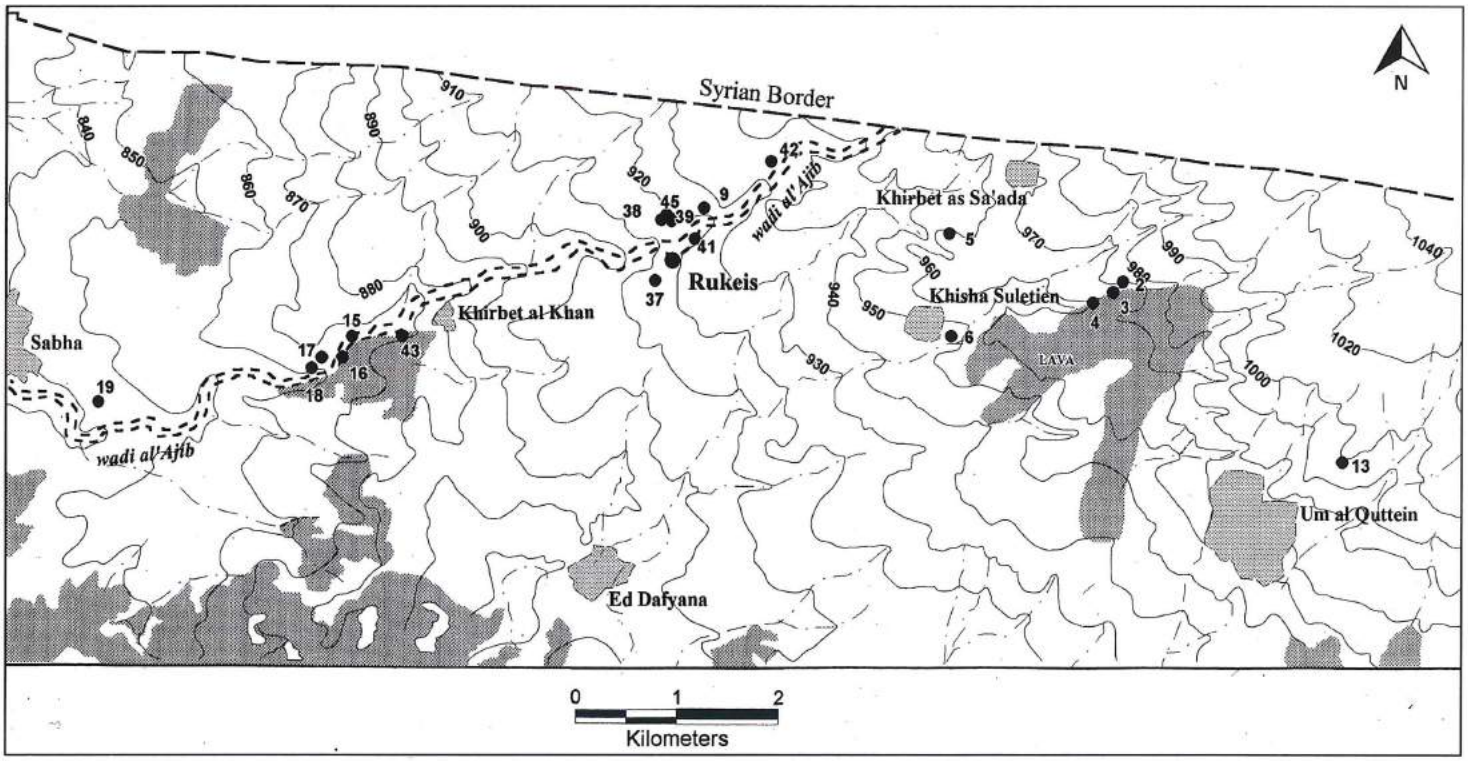
The Survey

In 1992 and 1993 the methodology of the Wādī al-'Āqib survey consisted of field walking along the wadi and hillsides to either side. The aim of the survey at this stage was not to record individual sites in detail but to document the general nature of site distribution. As a result, the recording of sites was not exhaustive; however, most major remains were visited and random artefact scatters were noted. Sample collections of artefacts were made and the general characteristics of each site was documented. Thirty-six sites were identified as displaying evidence of occupation ranging from the Prehistoric to the Islamic periods. In 1993, those sites identified as having evidence for Middle Bronze Age occupation were subjected to further investigation and a trial sounding was carried out at the site of Rukays (Site 7). On the basis of the results of this sounding, which revealed significant evidence of Middle Bronze Age occupation, the site was chosen as the subject of several major seasons of excavation.

The 1994 survey was more intensive than the previous seasons and concentrated in the upper reaches of the wadi in the immediate vicinity of Rukays. Small teams walked along both banks of the wadi one side at a time, spaced some thirty to fifty metres apart, covering an area of roughly two hundred metres from the edge of the wadi bed. All rising ground was investigated and wall foundations, pottery scatters and areas of broken chert were recorded. When such features were located, random surface collections were undertaken. A further fifteen sites were identified, seven of which, on the basis of surface finds, showed evidence of Middle Bronze Age occupation. These were chosen for further investigation in the form of 1 x 1 m soundings, made in selected locations. Each of the selected sites was planned and diagnostic pottery drawn and photographed. The results confirmed the presence of Middle Bronze Age occupation with pottery dating from the MB II to the Late Bronze Age being recovered from many of the sites sounded.

Settlement along Wādī al-'Āqib

The surveys undertaken by the University of Sydney Ḥawrān Project along the length of Wādī al-'Āqib located fifty-one sites in all. Most Middle Bronze Age sites were found to be concentrated along the upper wadi in the immediate vicinity of Rukays and consist largely of enclosed settlements (FIG. 3). On the basis of their location within close vicinity to the wadi and field systems, their architectural remains, consisting of enclosures with few internal structures, and excavated remains such as ceramics, ground stone and botanical and faunal remains, these sites may be identified as small farmsteads. The evidence so far compiled suggests the development, by the Middle Bronze Age, of a fairly simple and generally small scale



3. Map of the upper Wādī al-'Āqib showing the location of Middle Bronze Age sites.

[2] For the 1994 and 1995/6 seasons see Betts *et al.* 1996, 27-39 and n.d. See also Kennedy 1995.

settlement hierarchy with perhaps only one large centre (Rukays) surrounded by a network of small sites scattered roughly in a linear direction along the wadi. An examination of the material remains from these sites, including botanical and faunal evidence (presented below), suggests that the inhabitants of this network may have participated in both agricultural and pastoral activities, possibly supporting Rukays as the centre of these activities.

The Survey Excavations

During the second major season of excavation at Rukays in 1995/96, a more intensive survey along the upper length of the wadi was carried out. The primary goals were to revisit sites previously identified as displaying evidence of Middle Bronze Age occupation in order to re-examine them for additional features and information. As a result, two sites were chosen for more detailed investigation in the form of small scale excavations (Sites 38 and 42). The purpose of the excavations were fourfold; to confirm the Middle Bronze Age date of the sites by excavation on a larger scale, to establish the date of the foundation of the sites and their length of occupation, to identify the chronological relationship between these sites and the site of Rukays, and to examine more closely the nature of the sites, their function and their relationship with Rukays.

Site 38

Site 38 is situated approximately 300 m north west of Rukays, on a rise on the north western side of Wādī al-'Āqib. The site consists of a roughly rectangular enclosure wall with long rectangular internal structures. A small 4.5 x 3.5 m trench was opened up inside one of the structures on the north east side of the site. Bedrock was reached at a depth of approximately 1.5 m, revealing basalt walls preserved to a height of about 1.25 m. Below the walls of this building was evidence of an earlier episode of occupation characterised by occupation debris and pits cut into the sterile earth. The stratigraphy and depth of deposit suggest that Site 38 was occupied for a limited time span, with the major phase of occupation dating on the basis of the ceramic analysis to the MB IIB/C period. The occurrence of wares possibly dating to the Late Bronze Age, while limited, suggest some use of the site during this period, the nature of which remains uncertain.[3]

Site 42

Site 42, situated about 600 m north east of Rukays on the north side of the wadi, is similar in nature to Site 38. It is surrounded by a roughly circular enclosure wall and has internal rectangular architectural features visible on the surface. A small 4 x 3.5 m trench was laid out inside one of these structures on the north east side of the site. Bedrock was reached in the southern of the trench at a depth of 1.70 m while the northern half of the trench was excavated to a depth of 1.10 m, where the basalt walls were preserved to a height of about 0.95 m. As with Site 38, the relatively shallow depth of deposit, in conjunction with the stratigraphic record, suggests that the length of occupation at Site 42 was short. Analysis of the ceramic repertoire from site 42 indicates a less clear occupational history than that of site 38. The majority of ceramic types date from the MB IIA/C periods, suggesting the site was occupied throughout this time; however, identification of the most significant phase within that stretch of time is unclear.[4] Again, the occurrence of Late Bronze Age sherds suggests that like Site 38, Site 42 continued to be occupied into the Late Bronze Age.

Ceramics and Special Finds

While the proportion of ceramics from both Site 38 and 42 is relatively small due to the limited nature of the excavation, enough was recovered to allow a general pattern to be seen. According to Schroder's analysis the overwhelming majority of identifiable forms retrieved during the excavations were jars, with storage jars being particularly predominant.[5] The next most common forms are fine jars and storage bowls, while common domestic wares such as cooking pots are few in number. Special ceramic types retrieved include several sherds of what may be considered Levantine painted ware, a sherd possibly of chocolate-on-white ware, several sherds with unusual incised decoration, a ceramic waster and a cylindrical ceramic vessel or "model shrine".[6] Non-ceramic finds are represented largely by basalt ground stone artefacts, including saddle quern fragments, several grinding and rubbing stones and a small basalt bowl.

Radiocarbon Dating

While a number of charcoal samples were taken for radiocarbon dating from both Sites 38 and 42, so far only one result has been received. The sample comes from a large pit in the southern part of the trench in site 42. The sample is dated roughly within the period from 2200 to 1800 BC.

The Botanical Remains

Carbonised botanical remains collected in soil samples from selected contexts from Site 38 were recovered by flotation and then analysed by George Wilcox (FIG 4).[7]

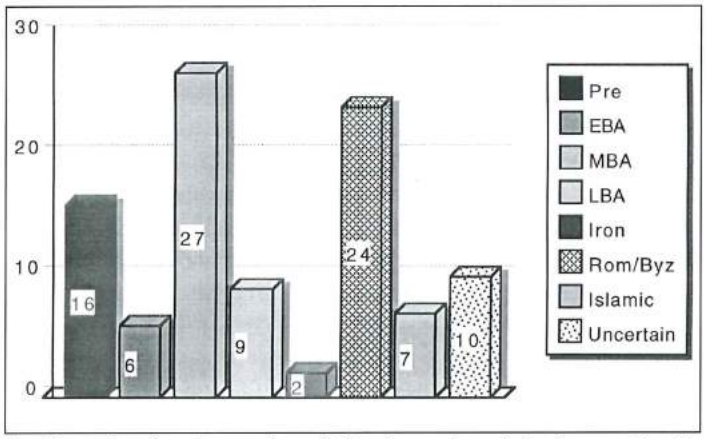
[3] For an analysis of the ceramics from Site 38 see Schroder 1997, vol. 1, 147-148, Fig. 38, vol. 2, Fig 13.

[4] Schroder *op. cit.*, vol. 1., 149, Fig 38, vol. 2 fig 13.

[5] Schroder *op. cit.*, vol. 1, 94-95, 128 and 132-136, Fig. 12, vol. 2, Fig. 12.

[6] Eames in preparation

[7] For a more detailed account of Wilcox's analysis see Betts *et al.* n.d.



4. Chart showing the number of sites for each period of occupation in Wādī al-'Āqib.

The results indicate that barley is by far the most common cereal, with only three examples of wheat being identified. Lentils and examples of grape pips are present as well as several weed species. The presence of weeds suggest the local cultivation of crops as weeds would not normally be imported with grain. While the evidence is limited, one may provisionally conclude that barley was the predominant crop being locally cultivated along with both lentil and grape. The presence of grape pips is particularly interesting and suggests that this crop may have been one of the agricultural products cultivated in the region, possibly for the production and exportation of wine.[8]

The Faunal Remains

An examination of a selection of the faunal material collected from sites 38 and 42 was conducted by Lachlan Mairs (TABLE 1).[9] While only relatively small samples were recovered, resulting in the low number of identifiable species, some preliminary conclusions could be drawn. Sheep and goat are found almost exclusively at sites 38 and 42, with both immature and mature examples being equally represented. While only one identifiable example of domestic cattle has so far been found, the SGE suggests that in terms of how much meat they provided, cattle may have been of at least equal importance, if not more. This pattern is similarly reflected at Rukays, where sheep and goat accounted for the majority of species present. Again, while the number of cattle was relatively limited, the meat equivalent ratio suggests it may have been of greater significance. However, the variety of species present is unlike Rukays, where examples of equid, gazelle, pig and small mammals were recovered. The predominance of sheep and goat suggests, not suprisingly, that these animals were probably the focus of local pastoral activities but cattle, while less in number, may have been of equal or even more significance.

TABLE 1. Results of C14 date for charcoal sample from Site 42.

Site	42
Context	4201013
Phase	1a
Lab no.	Beta-112145
Material	charcoal
Conventional C14 Age (uncal)	3660 +/- 70 BP
1 Sigma Calibration (68% probability)	cal BC 2130 to 1920
2 Sigma Calibration (95% probability)	cal BC 2205 to 1875 and cal BC 1805 to 1795

Interpretation and Summary

Sites 38 and 42 reflect a degree of similarity in many aspects; in their location and physical appearance, in their architectural remains, in the material recovered and in their occupational histories. Both are small settlements surrounded by enclosure walls with several internal rectangular structures, situated within close proximity to the wadi and associated water harvesting systems. While the function of these sites is difficult to determine due to the limited nature of the excavations, they may be considered farmsteads. Whether seasonal or sedentary, it may be assumed that, to survive, the inhabitants participated in or took advantage of the agro/pastoral activities that probably supported the region at the time, a conclusion partially confirmed by the analysis of the botanical and faunal remains. The almost exclusive occurrence of storage wares at both sites may indicate that at least those parts excavated were storage or domestic areas, one may assume not unreasonably for the storage and or processing of agro/pastoral products, such as barley, lentils and possibly wine.[10] The presence of other objects, namely basalt ground stone artefacts such as saddle querns and grinders, also appear to confirm participation in local agricultural cultivation and production.

Chronologically both sites appear to have been occupied for a relatively short space of time. While the major phase of occupation at Site 38 dates, on the basis of the ceramic analysis, to the MB IIB/C periods, that of Site 42, which appears to have been occupied during the MB IIA/C periods, is less clear. The presence of possible Late Bronze Age sherds at both sites, while limited in number, suggests that both probably continued to be occupied into at least the initial stages of this period. At some stage following this, possibly not very long, both sites were abandoned and never reoccupied. While the evidence at Rukays indicates both earlier and later phases of activity, the occupational history is similar to that of Sites 38 and 42, the major phases of occupation of which largely co-incide with that at Rukays. In summary, Sites 38 and 42 may be

[8] For a discussion of Canaanite wine trade see McGovern 1998, 28-32.
[9] For a full description of Mair's results see Betts *et al.* n.d.
[10] A conclusion similarly reached by Schroder *op. cit.*, 123.

considered part of a larger network of sites surrounding Rukays, resulting in the formation of a small scale settlement hierarchy, with a population practicing local agriculture and pastoralism, not only for self subsistence but possibly also for trade.

Patterns of Settlement Location and Distribution

While the region immediately surrounding the site of Rukays underwent fairly exhaustive survey, this was not uniformly practiced along the entire length of the wadi and certain gaps are apparent, which in the future may be altered by further work. Despite this shortcoming, several preliminary conclusions about the nature of Middle Bronze Age settlement along Wādī al-'Āqib may be drawn. It appears that one of the major contributing factors affecting the location and distribution of Middle Bronze Age sites was that of environment, the conditions of which vary along the length of the wadi. Analysis of the distribution reveals that while the majority of sites are found along the length of the wadi, there is a concentration in the immediate vicinity of Rukays, particularly on the north and western sides where the ground rises gently up from the wadi. These sites are located close to both each other and the wadi itself. Environmental conditions are more favourable in this part of the wadi largely due to the presence of a wide surrounding flood plain and sufficient rainfall for agriculture practices. Surveys carried out by Braemer along the Syrian length of the wadi to the north indicate the continuation of Middle Bronze Age sites in this region.[11]

The pattern of settlement along the length of the Wādī al-'Āqib appears to represent an example of a linear stream or riverside pattern, of which several studies have been undertaken.[12] As already mentioned, the choice of river bank, which in the case of Wādī al-'Āqib is usually on the north or west side, may due to environmental factors where sites can be situated in locations close to water sources and suitable farming land. Similarly the spacing of sites along the wadi may also be partially related to environmental factors where a relationship between the spacing of sites and the width of the alluvial plain or valley may be found. In the upper wadi, where the alluvium is wide, sites are found closer together and farther apart further downstream as the alluvium narrows.

Settlement Hierarchy and Integration

The evidence so far compiled for the settlement pattern in Wādī al-'Āqib suggests the development by the Middle Bronze Age of a fairly simple and generally small scale settlement hierarchy characterised by medium and small settlement sites, the prevalence of which suggests community organisation at family level.[13] However, the presence of Rukays, which may be considered a regional centre, indicates that settlement organisation did not follow at a family level at all sites and suggests the possible existance of an administrative hierarchy.[14]

The site of Rukays may be viewed as a "gateway community", defined by its development along a natural route of communication in a sparsely populated frontier area between different environmental zones.[15] Gateway communities are located at the interface between areas of various intensities of exploitation or productivity and of various mineral or agricultural resources, tend to have dense populations, reflect a high demand or supply of scarce resources, have the ability to provide different technologies or skills and play a central role in trade networks.[16] Rukays is situated on one of the major wadi systems in the south west Ḥawrān, which may have also acted as a natural communication route. The wadi is located in a frontier area between the differing environmental zones of the verdant Ḥawrān Plain to the north west and the more arid region of the Ḥarra to the east, in a zone between areas of differing intensity of exploitation or productivity and of vastly different resources. Other remains at the site such as evidence for metal working, suggests the site's ability to provide different technologies and skills.[17] Rukays' location also may have allowed it control of regional north-south traffic along the wadi. As such it is not unreasonable to assume the site played a central role in the local trade network, possibly dominated by the movement and exchange of agricultural and pastoral products.[18]

Settlement in the Ḥawrān

The overall pattern of settlement along Wādī al-'Āqib is similar to that observed in the rest of the Ḥawrān.[19] An examination of the location of Middle Bronze Age sites indicates that, as in the region of the upper Wādī al-'Āqib, environment probably played a major role in site location. The majority of sites are found along the lower, western slopes of Jabal ad-Drūz and in the Ḥawrān Plain, which are generally the regions of highest rainfall with annual precipitation reaching up to 350 mm. As the altitude of Jabal ad-Drūz increases and as one moves further east, where annual rainfall drops off, the number of sites de-

11 Braemer 1993, 133, Fig 11.
12 See for example Flannery in 1976, 173-180 for an examination of riverside settlement systems in Mesoamerica.
13 An idea proposed by Akkermans for Neolithic villages in the Balikh Valley in 1996, 199.
14 For a discussion of the evolution of site hierarchies and administrative hierarchies see for example Flannery *op. cit.*, 168
15 Akkermans *op. cit.* 199.
16 *Op. cit.* 210.
17 Betts *et al.* 1998, in preparation.
18 An idea which might be supported by the discovery of examples of imported ceramics, such as "Tell el Yehudiyeh" ware.
19 See in particular Braemer 1984, 219-250, 1988, 99-137 and 1993, 117-170.

creases dramatically. Sites appear not only to be located in areas of high rainfall, but also in areas where that rainfall can best be exploited, namely along the major wadi systems running off the Jabal and across the western plain.

Examination of the distribution of Middle Bronze Age sites also indicates two major areas of concentrated settlement, supporting Braemer's identification of two regions of territorial organisation. The largest concentration of sites occurs in the north, in the south-east Lajja and north-western foot of the Jabal. Here, the settlement pattern is similar to that observed around Rukays, with a concentration of sites connected by wadi and canal systems, around the fortified site of Tall Dabbah.[20] This is the largest site in the region (4 ha) and is considered by Braemer as the most important. The majority of surrounding sites in this region, like those surrounding Rukays, are thought to be associated with agricultural activities.

Summary

Preliminary analysis of Middle Bronze Age sites in the Ḥawrān indicates this was greatest phase of settlement activity prior to the Roman period. During this time environment must have played a major part in affecting the location and distribution of sites. As a result, the majority are located in regions most beneficial for agriculture, those of highest rainfall and along the major wadi systems. A fairly simple, small scale hierarchy developed, characterised by few major centres surrounded by concentrated networks of small sites, the majority of which being less than 1 ha in size. Many of these sites, on the basis of their location close to water sources and field systems, the nature of the architectural remains and the material recovered from excavations, including ceramics, ground stone and botanical and faunal remains, can best be described as farmsteads, possibly involved in both agriculture and pastoralism. It is not clear, however, whether these represent seasonal or permanent settlements. It is possible to determine different territorial organisations in the Ḥawrān, which may also reflect social and political organisation and the presence of an administrative hierarchy. Within this organisational framework, centres such as Rukays and Tall Dabbah, may be considered "gateway communities", controlling regional trade networks. This pattern, although smaller in scale, is similar to that seen in numerous regions of the southern Levant at the same time, such as the Coastal Plain and Central Hill Country of Palestine.

TABLE 2. The number and percentages of botanical species identified at Site 38.

Sample type	Number present	%
Hordeum 3	44	57.9
Triticum	3	3.9
Lens	4	5.3
Vicia/Pisum	1	1.3
Vitis	9	11.8
Gram seed	5	6.6
stem	3	3.9
culm	1	1.3
Galium	2	2.7
Adonis	1	1.3
Pistacia	2	2.7
Androseae	1	1.3

Acknowledgments

The University of Sydney Ḥawrān Project is jointly sponsored by the University of Sydney and the British Institute at Amman for Archaeology and History. Permission to undertake the fieldwork was kindly given by Faisal al-Qudah, Acting Director of the Department of Antiquities of Jordan in 1994. Representatives of the Department of Antiquities were Khalid al-Jbour and Abed al-Qader Hesan. Fieldwork in 1994 and 1995/6 was funded through volunteer contributions. Thanks are due to the director of the Project, Dr Alison Betts for her permission to publish this article and for her valued advice and input. Thanks are also due to Maria Schroder for the ceramic analysis, to George Wilcox for an analysis of the botanical remains

TABLE 3. The NISP, MNI, SGE and SGE% according to age for the faunal remains from Sites 38 and 42.

Species	Relative Age	NISP	MNI	SGE	%SGE
Ovicaprine	Neonatal	3	2	1	5
	Immature	5	3	3	15
	Mature	5	3	3	15
	Other	2	1	1	5
Bos	Mature	1	1	12	60
Undiagnostic		61			
Totals		77	10	20	

[20] Braemer 1993, 158, Fig. 37.

[21] For the Middle Bronze Age settlement pattern in the Coastal Plain see Broshi and Gophna 1986, 73-90 and for the Central Highlands, Finkelstein and Magen 1993.

and to Lachlan Mairs for an analysis of the faunal remains.

Bibliography

Akkermans, P. M. M. G. 1993. *Villages in the Steppe. Later Neolithic Settlement and Subsistence in the Balikh Valley, Northern Syria.* International Monographs in Prehsitory, Archaeological Series 5.

Betts, A., Eames, S., Schroder, M. and Hesan, A. al-Q. 1995. Archaeological Survey of the Wadi al-'Ajib, al-Mafraq. *ADAJ* 39: 149-168.

Betts, A., Eames, S., Hulka, S., Schroder, M., Rust, J. and McLaren, B. 1996. Studies of Bronze Age Occupation in the Wadi al-'Ajib, Southern Hauran. *Levant* 28: 27-39.

Betts, A., Eames, S. McLaren, B. and Schroder, M. n.d.

Braemer, F. 1984. Prospections Archéologiques dans le Hawran (Syrie). *Syria* 61: 219-50.

——1988. Prospections archéologiques dans le Hawran II. Les réseaux de l'eau. *Syria* 65: 99-137.

——1993. Prospections archéologiques dans le Hauran III. *Syria* 70: 117-170.

Broshi, M. and Gophna, R. 1986. Middle Bronze Age II Palestine: Its Settlement and Population. *BASOR* 261: 73-90.

Eames, S. n.d. A Middle Bronze Age House Model or "Model Shrine" from the Hauran.

Eames, S. and Schroder, M. 1997. A Middle Bronze Age Landscape: Occupation and Resource Management in the Wadi al-'Ajib, al-Mafraq. Pp. 149-158 in *SHAJ* VI. Amman: Department of Antiquities.

Finkelstein, I. and Magen, Y. 1993. *Archaeological Survey of the Hill Country of Benjamin.* Jerusalem.

Flannery, K. 1976. Linear Stream Patterns and Riverside Settlement Rules. Pp. 173-180 in K. Flannery (ed), *The Early Mesoamerican Village.*

Kennedy, D. and Freeman, P. 1995. Southern Hauran Survey 1992. *Levant* 27: 39-73.

McGovern, P. 1998. Wine for Eternity. *Archaeology* July/August: 28-32.

Schroder, M. 1997. *The Ceramics from the Wadi al-'Ajib Jordan.* Unpublished PhD Dissertation, The University of Sydney.

Bruce McLaren
Department of Near Eastern Archaeology
University of Sydney
Sydney - Australia

Bruce McLaren

Comparative Ceramic Analysis as a Dating Mechanism in 'Marginal' Zones: A Case Study[1]

1. Introduction

The most common method of dating used by archaeologists working on Middle Bronze age (hereafter 'MBA') Levantine material is that of 'comparative ceramic analysis'. This method essentially involves comparing the ceramic assemblage from a given phase at a site, with that of previously established ceramic typologies from other Levantine sites. The strongest parallels with these other typologies are considered to be indicative of a certain date/period, which in turn determines the date/period of the phase in question. Although there is an increasing use of C-14 and other 'absolute' dating techniques, it is the comparative ceramic method which remains the most commonly utilised technique when dating the material culture of a given site.

This paper demonstrates some of the problems that are faced when relying solely on this accepted method of dating. Particularly when working at sites in 'peripheral' or 'marginal' regions of the Levant (such as the Ḥawrān) which lack extensive typologies that may be referred to, the problems become all the greater. Tall Rukays (Rukeis), a site situated in the Jordanian Ḥawrān, serves as an appropriate case study for the purpose of illustrating these problems. This study will focus on three phases of MBA development which took place in a single trench "Rukeis 0705". The main architectural feature associated with these phases is the Middle Bronze age defensive system which protected the site. The construction of this monumental architectural feature represents an important shift in the nature of settlement at the site (and the region) from an unfortified settlement, to a heavily defended urban centre.[2]

Establishing a date for the construction of this feature, and for its period of use, presently relies upon the application of both a comparative ceramic analysis of the pottery, and upon the processing of C-14 samples, from the three relevant phases. Although C-14 dates are currently being processed, one of the aims of this paper is to stress the importance of combining the study of pottery typologies, with C-14 dates. These two avenues of inquiry are adjunct studies, and both need to be made use of.

2. Project Background

Tall Rukays is situated to the south-west of Jabal ad-Drūz in the southern Ḥawrān. Since 1992 a series of surveys of Wādī al-Āqib (al-Ajib), south of the Jordanian border with Syria, have been conducted by the University of Sydney as part of the "Hauran Research Project", directed by Dr. A. V. G. Betts. This initial survey work resulted in two major seasons of excavations (1994 and 1996) at Tall Rukays, the largest Bronze age site in the survey area (FIG. 1). One of the major aims of the 1996 season was to study the defensive works which clearly surrounded the site.[3]

The Ḥawrān is a basalt environment, which, though visually hostile, receives 150-200mm annually, allowing dry-farming to take place. Rukays is thus on the wet-dry steppic interface. It is likely that MBA settlement in marginal areas, at sites such as Rukays, was related to the general trend towards prosperity throughout the Levant at this time.[4]

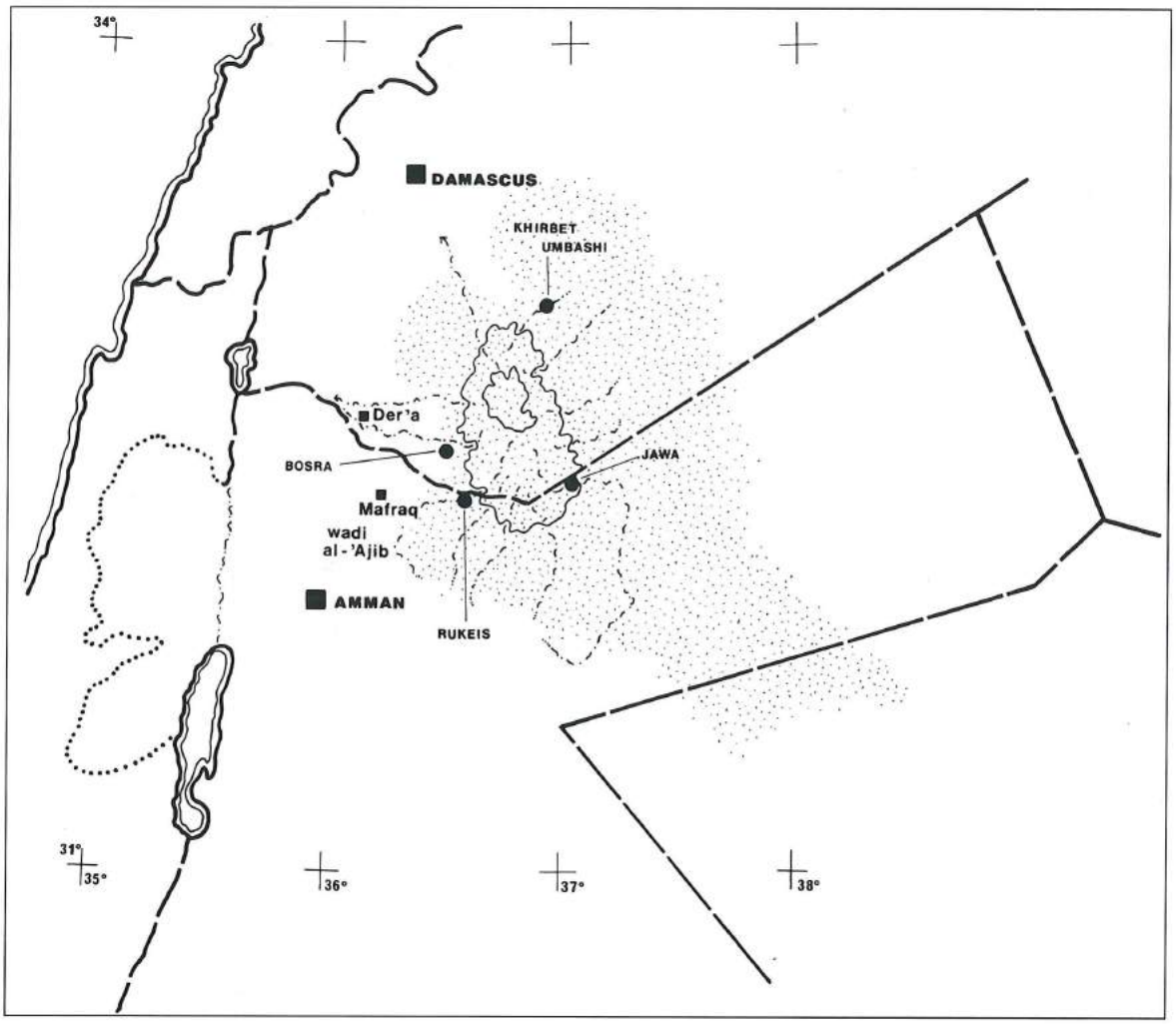
During the MBA, Rukays was defended by a monumental wall 2-3m wide, constructed of basalt boulders laid without mortar. In places the wall was preserved to a height of 5m and had a slight batter. During 1996 the entire exterior face of the wall was defined and planned. The builders of the wall had followed the natural contours of

[1] The data which forms the core of this paper was gathered during fieldwork undertaken in the Hashemite Kingdom of Jordan during the 1995/6 season of the "Hauran Research Project". The author would like to express his thanks to the Department of Antiquities of Jordan and it's representatives for their assistance with regards to the project.

[2] This paper is the result of work undertaken for the author's forthcoming Ph.D. titled *Middle Bronze Age Fortifications in Jordan*. See McLaren, forthcoming.

[3] For previous work undertaken on the "Hauran Survey Project," see Betts *et al.* 1995; 1996; in press.

[4] For discussion regarding settlement patterns in Wādī al-'Āqib see Eames, forthcoming.



1. Location of Wādī al-'Āqib and Rukays.

the mound rather than build in straight sections. Although no towers have yet been clearly identified, one of the site gates has been partially excavated. The defensive elements of the site were encountered in trench areas 0705, 0708, 0714, and 0716 (FIGS. 2, 3).

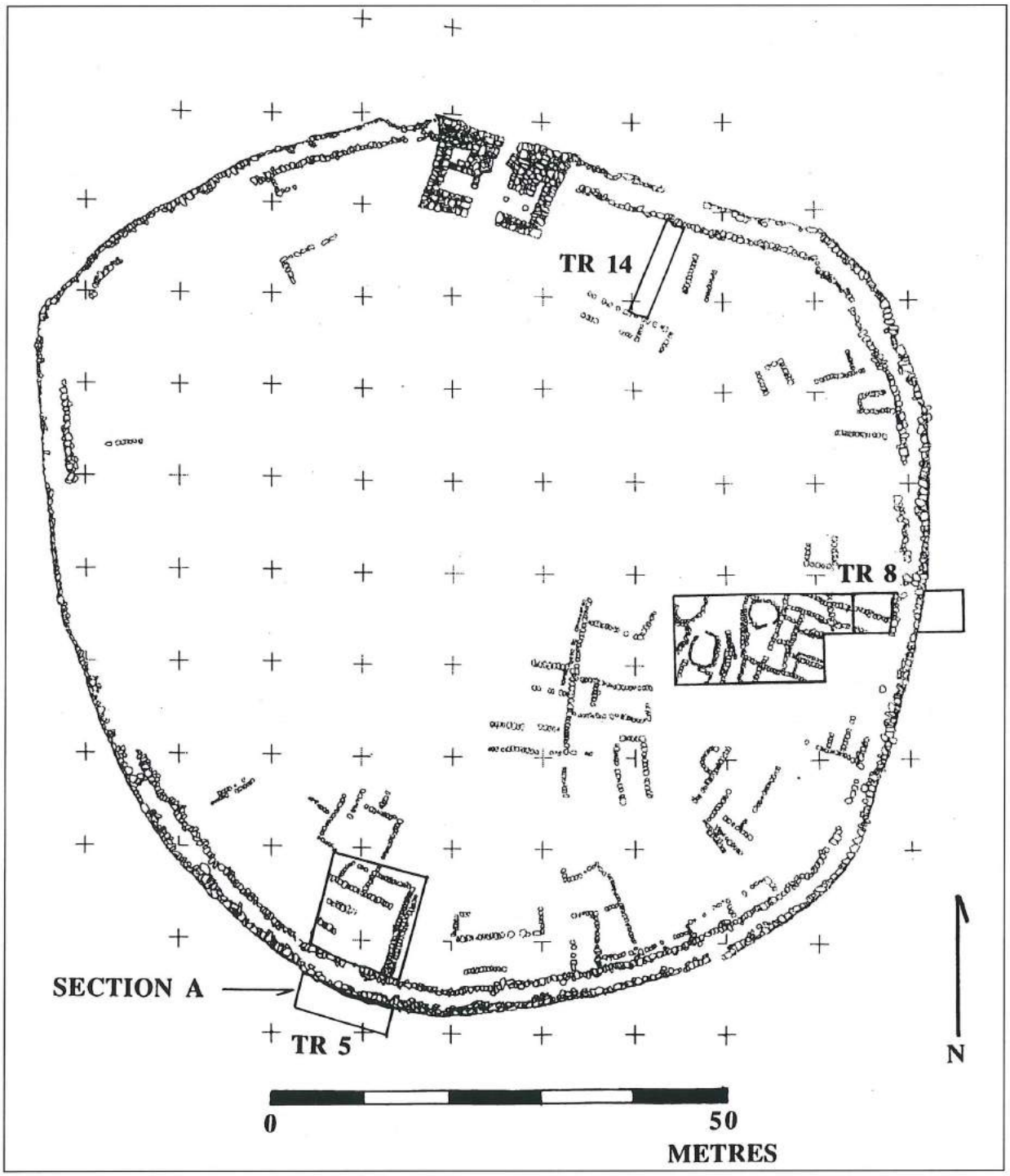
3. Rukays Phasing (TABLE 1 and FIG. 4).

Trench area 0716 (the gate) requires further excavation before any solid phasing may be proposed. With regards to the other trench areas in question (0705, 0708 and 0714) the proposed phasing is tabulated in TABLE 1.[5] Trench 0705 revealed the most detailed phasing with regards to the early period of MBA settlement at the site. This trench not only revealed a period of MBA occupation which preceded the construction of the fortification wall (Phase II.1) and subsequent periods of occupation which succeeded the defence construction (Phase II.2.b - II.6), it also revealed the distinct phase of fortification wall construction itself, as represented by the wall foundation cut (Phase II.2.a). This phase of fortification construction is not present in trenches 0708 or 0714, either because there was no foundation cut made at certain points of the inner face of the wall circuit (0708) or because the foundational material is yet to be excavated (0714). For this reason trench 0705 will serve as the most appropriate case study.

Trench 0705 abuts the outer face of the city circuit wall in the south of the site. The stratigraphy in this trench area is clear and is represented by the west section ('Section A') for the purposes of this study (FIGS. 2, 3, 4). Above bedrock, a series of Early Bronze Age (hereafter 'EBA') phases (Phases I.a-c) were followed by a period of abandonment. In turn, an unfortified settlement was re-established during the MBA (Phase II.1), followed by the construction of a defensive circuit (Phase II.2.a), and a series of phases of MBA occupation following the defensive circuit construction (Phases II.2b - II.6).

Phases II.1 - II.2.b represent an important shift in set-

[5] Preliminary analysis of the pottery from Rukays indicates that Phases I.a-c are EBI-II, while Phases II.1-6 are MBII. Later phases are not discussed in this paper.



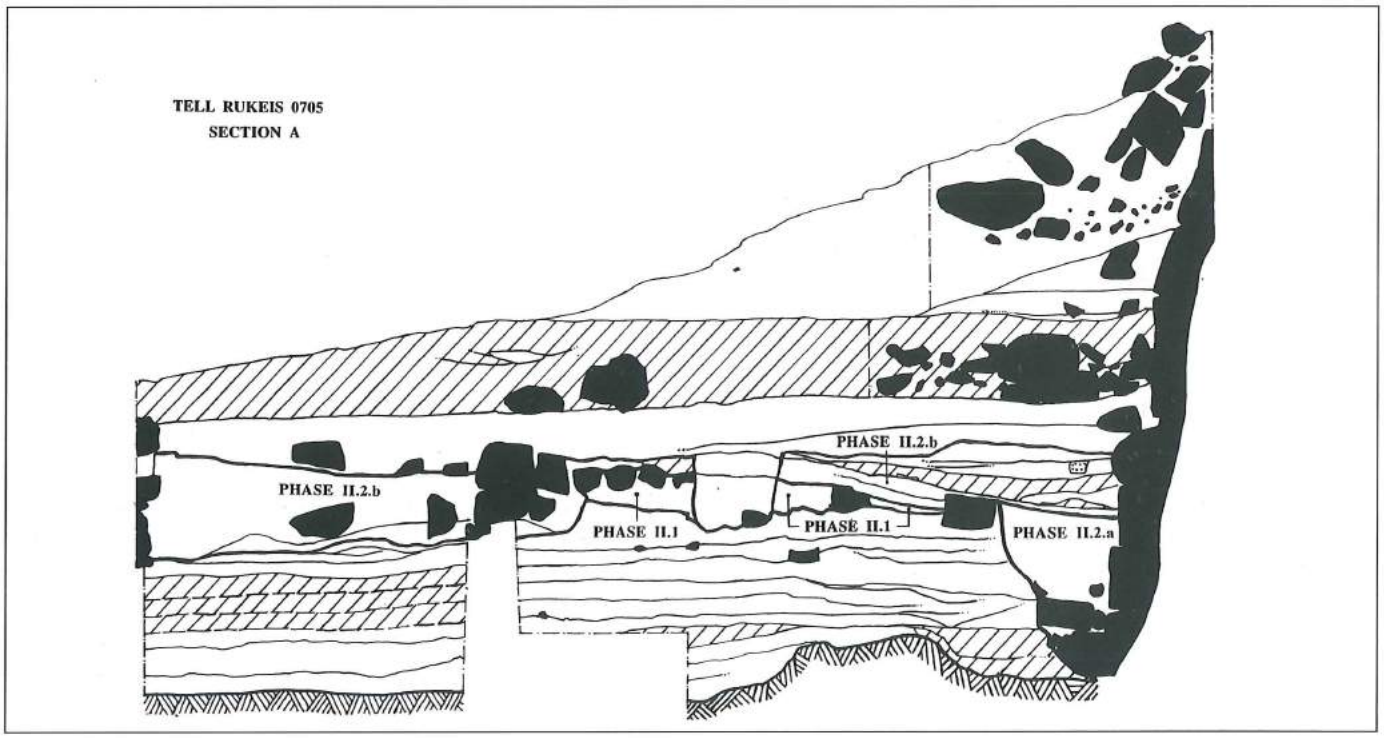
2. Rukays: plan of site after 1995/6 season, showing location of trenches 0705, 0708, and 0714, and 'Section A'.

tlement from an unfortified MBA site to a heavily defended MBA urban centre. The defensive elements are representative of this shift in urban settlement in this part of the Ḥawrān, and it is the possibility of associating a date of construction with the wall itself that will offer us our best insight as to when this shift in settlement occurred. It follows that the phase which immediately preceded the wall construction (Phase II.1), the phase which represents the wall construction (Phase II.2.a) and the phase which represents settlement that immediately followed the wall construction (Phase II.2.b) will be of most use in establishing a date for this transition from pre-fortified to fortified urban centre.

When arriving at a final conclusion regarding a date/period for each phase, the combined results from each different trench must be taken into account. In this regard, the pottery from the three phases represented in trench 0705 is only representative of the phase in question within



3. Rukays: aerial photograph showing trench locations, 1995/6 season.



4. Rukays Trench 0705. 'Section A' (west section), indicating relevant phases discussed in the text.

TABLE 1. Rukays Trench 0705/0708/0714 phasing.

PHASE	TR. 0705.	TR. 0708.	TR. 0714.
Ia.	Y	n	n
Ib.	Y	n	n
Ic.	Y	n	Y
II.1.	Y	Y	n
II.2a	Y	n	n
II.2b	Y	Y	Y
II.3 - II.6.	Y	Y	Y

that trench, rather than the phase across the site. The aim of the exercise here is only to use part of the site to analyse the dating process, rather than conduct a comprehensive assessment of the dating of the various phases across the site. The pottery from the three relevant phases in trench 0705 serves as an appropriate sample to work with.

4. The Pottery Phases[6] (FIGS. 5, 6; TABLES 2, 3)
The pottery sample for phases II.1/II.2.a/II.2. is represented by FIGS. 5, 6. The diagnostic sherds have been limited specifically to rims, the sample sherds being organised along the lines of a 'shape typology'. The criteria which determine which shapes are considered to be 'Identical' as opposed to 'Related' are discussed in the author's forthcoming thesis (McLaren, forthcoming) and for the sake of space are not discussed here. The sample sherds which represent each phase have been compared to previously established typologies from 22 sites across the Levant. Sites that are in the more immediate environment of Rukays include Buṣrā (Seeden 1986); aṣ-Ṣaliḥiyya (van der Osten 1956) and Jāwa citadel (Helms 1989). North Levantine sites include Alalakh (Heinz 1992), 'Arqa (Thalmann 1978; 1979; 1991), Ebla (Guardata 1988), Ghassil (Doumet 1986), Ḥamāh (Fugmann 1958), Kamīd al-Lawz (Marfoe 1979), Nabī Mind (Bourke 1991), Sarepta (Anderson 1988) and Tyre (Bikai 1978). South Levantine sites include Aphek (Beck 1975; 1985), Bayt Mirsim (Albright 1932; 1933), Dan (Biran *et al.* 1996), Gezer (Dever *et al.* 1970; 1974), Hazor(Ben-Tor *et al.* 1997; Yadin *et al.* 1958; 1960; 1962; 1981), Jericho (Kenyon *et al.* 1982), Lachish (Tufnell *et al.* 1958), Megiddo (Loud 1948), Mevorakh (Stern 1984) and Shechem (Cole 1984). These sites provide an extensive and broad sample of typologies to work with. Parallels are recorded in one of two categories — 1) a virtually identical or identical match, or 2) a slight variation in shape yet displaying essentially the same features.

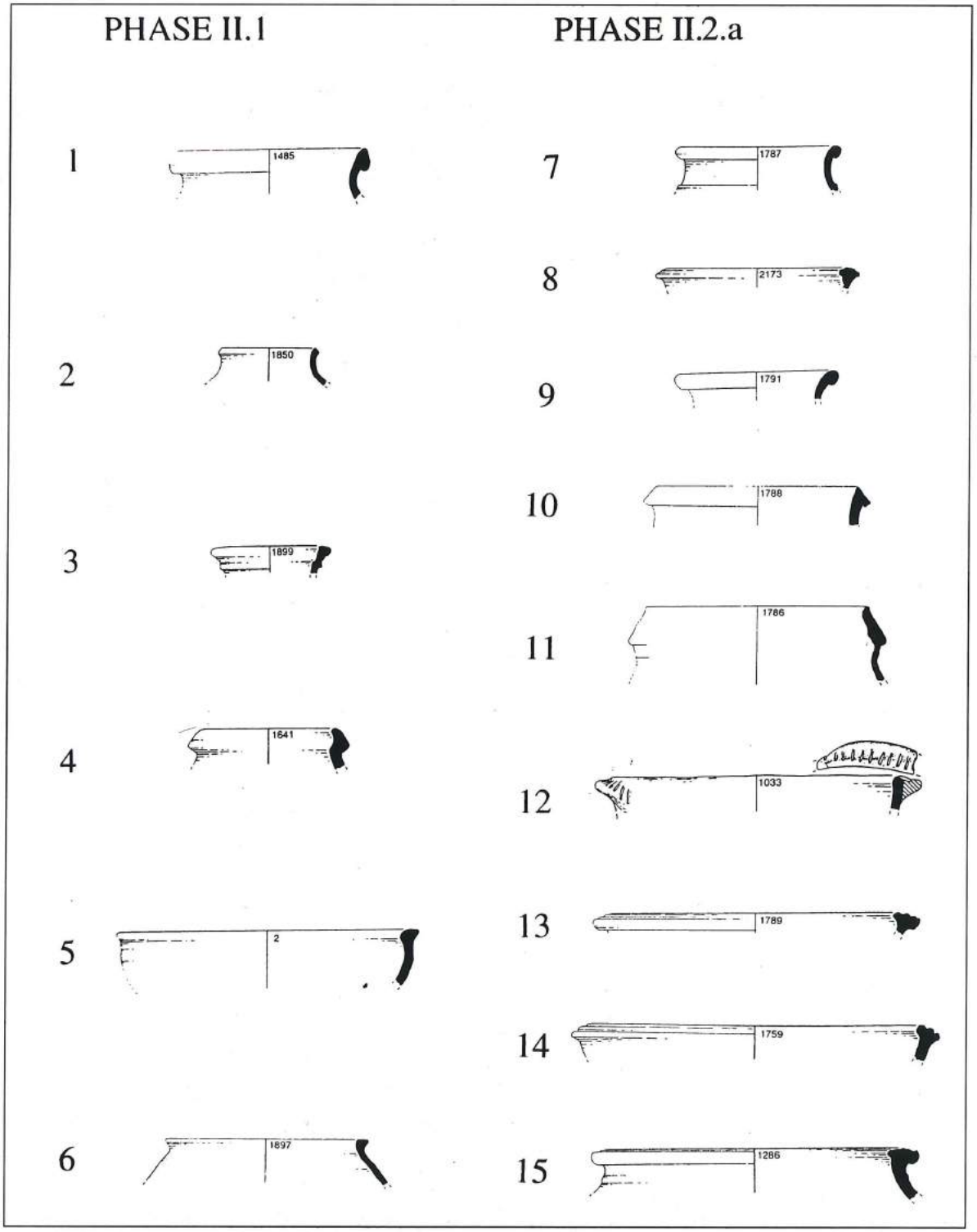
Phase II.1. (FIG. 5:1-6; TABLES 2a, 3a)
The pottery sample from the pre-fortification MBA settlement included a total of 81 parallel matches with almost 35% of those belonging to the MBIIB. Although almost 24% of the parallels were found in the MBIIA and 22% were found in the MBIIC, it should be noted that 60% of the 'Identical' parallels should be attributed to the MBIIB (TABLE 2a). The latest parallels are associated with Late Bronze Age (hereafter 'LBA') typologies. Apart from Buṣrā, the majority of parallels were found at sites in the south such as Gezer, Jericho, Lachish and Shechem (TABLE 3a). All Rukays types illustrated find reasonable parallels outside of the Ḥawrān. Of note is SBWL 001 (FIG. 5:5) which continues to appear regularly throughout the MBA sequence.

Phase II.2.a. (FIG. 5:7-15; TABLES 2b, 3b)
The pottery sample from the fortification wall foundation cut was very similar to Phase II.1 in terms of its parallel matches. From a sample of 91 matches over 36% were attributed to the MBIIB period, with the largest of 'Identical' and 'Related' parallels being found during this period. 16% of parallels were found in the MBIIA period, while 26% of parallels were attibuted to the MBIIC period. The latest parallels are associated with LBA typologies (TABLE 2b). This phase is only represented in trench 0705 on the site.The site which provided the greatest of parallels was Hazor (almost 19%), yet, apart from Jericho, the sites which provided most parallels were 'local' sites such as Buṣrā, aṣ-Ṣaliḥiyya and the Jāwa citadel (TABLE 3b).

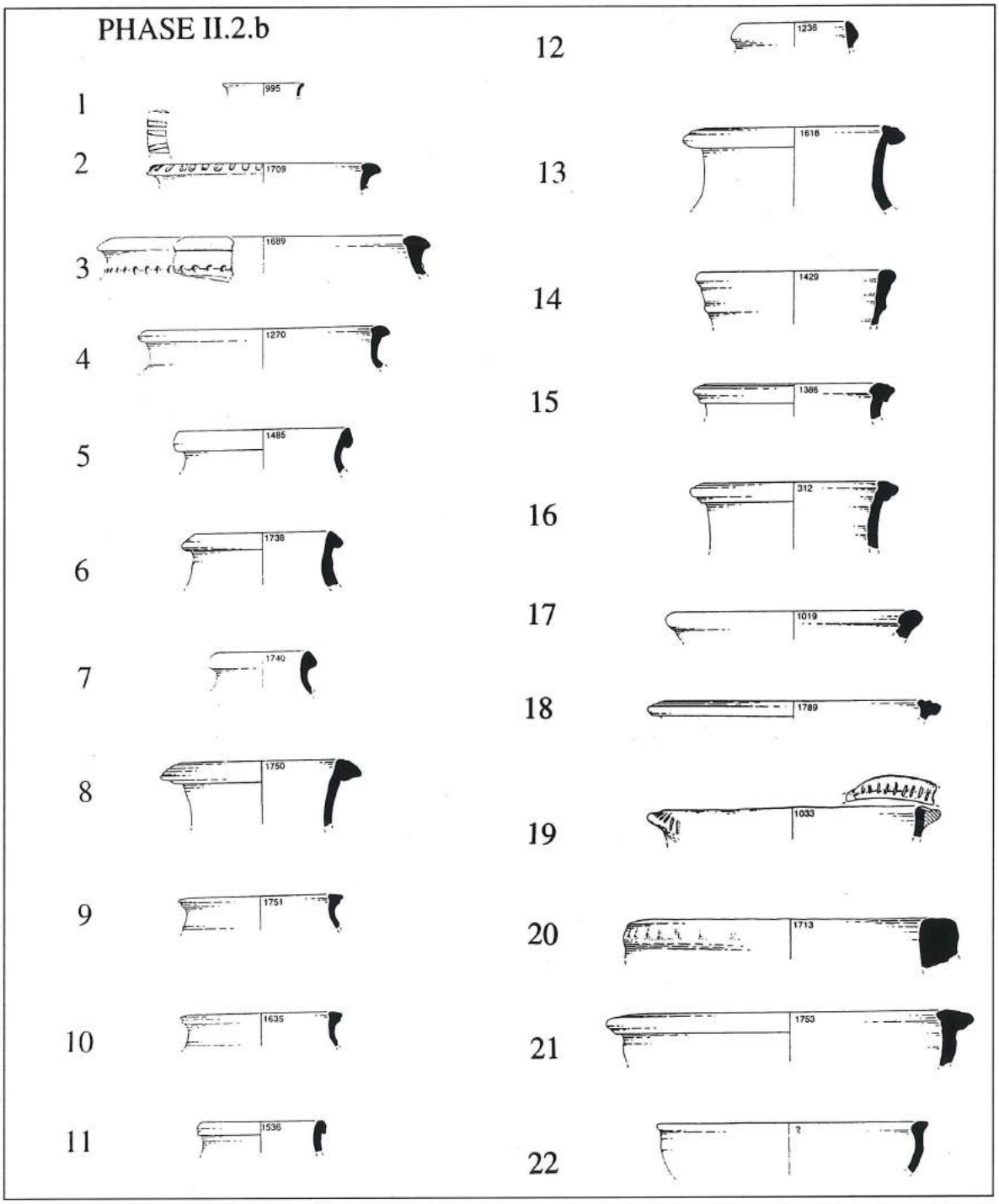
An important feature of this pottery sample is that the majority of these types have few parallels, and usually only with 'local' sites such as Buṣrā and aṣ-Ṣaliḥiyya — these vessels include SJAR 085 (FIG. 5:15), SBWL 032 (FIG. 5:12), SJAR 126 (FIG. 5:11). Also of note, the 'ripple' rims of SJAR 048 (FIG. 5:13), SJAR 119 (FIG. 5:14), and SJAR 085 (FIG. 5:15) only appear during this phase and find most parallels at Hazor, Buṣrā and Jāwa citadel. The distinctive ledge-handled cooking pot/bowl SBWL 032 (FIG. 5:12) makes its appearance during this phase and continues to appear throughout subsequent phases.

Phase II.2.b. (FIG. 6:1-22; TABLES 2c, 3c)
The pottery sample from the first post-fortification wall occupation consists of a larger sample than the previous two phases, yet the results are remarkably similar. Most parallels are again found in the MBIIB (over 37%). Again, a fairly even number of parallels are found in the MBIIA (over 24%) and MBIIC (over 23%) periods (TA-

[6] The pottery drawings and contextual information have been drawn from Schroder 1997.



6. "Rukeis 0705". Pottery of Phases II.1. and II.2.a. **Phase II.1.** *1.1.* FORM/TYPE. SJAR 103 (1485). PROVENIENCE. 0705217. FABRIC. BROWN. *1.2.* FORM/TYPE. XJAR 065 (1850). PROVENIENCE. 0705217. FABRIC. BROWN. *1.3.* FORM/TYPE. SJAR 136 (1899). PROVENIENCE. 0705216. FABRIC. BROWN. *1.4.* FORM/TYPE. SJAR 108 (1641). x2. PROVENIENCE. 0705216. FABRIC. RED/BROWN. *1.5.* FORM/TYPE. SBWL 001 (2). PROVENIENCE. 0705216. FABRIC. CP. *1.6.* FORM/TYPE. XJAR 068 (1897). PROVENIENCE. 0705216. FABRIC. BROWN. **PHASE II.2.a.** *1.7.* FORM/TYPE. XTNN 008 (1787). PROVENIENCE. 0705215. FABRIC. FINE BROWN. *1.8.* FORM/TYPE. XJAR 077 (2173). PROVENIENCE. 0705215. FABRIC. FINE BROWN. *1.9.* FORM/TYPE. SJAR 062 (1791). PROVENIENCE. 0705215. FABRIC. FINE BROWN. *1.10.* FORM/TYPE. XTNN 023 (1788). PROVENIENCE. 0705215. FABRIC. RED. *1.11.* FORM/TYPE. SJAR 126 (1786). PROVENIENCE. 0705215. FABRIC. RED. *1.12.* FORM/TYPE. SBWL 032 (1033). PROVENIENCE. 0705215. FABRIC. CP. *1.13.* FORM/TYPE. SJAR 048 (1789). PROVENIENCE. 0705215. FABRIC. GREY. *1.14.* FORM/TYPE. SJAR 119 (1759). PROVENIENCE. 0705212. FABRIC. BROWN. *1.15.* FORM/TYPE. SJAR 085 (1286). x2. PROVENIENCE. 0705212. FABRIC. GREY.



7. "Rukeis 0705". Pottery of Phase II.2.b. *2.1.* FORM/TYPE. FJAR 018 (995). PROVENIENCE. 0705210. FABRIC. FINE BROWN. *2.2.* FORM/TYPE. SJAR 084 (1709). PROVENIENCE. 0705210. FABRIC. CREAM-GREEN. *2.3.* FORM/TYPE. SJAR 112 (1689). PROVENIENCE. 0705210. FABRIC. BROWN. *2.4.* FORM/TYPE. SJAR 084 (1270). PROVENIENCE. 0705210. FABRIC. CREAM-GREEN. *2.5.* FORM/TYPE. SJAR 103 (1485). PROVENIENCE. 0705210. FABRIC. BROWN. *2.6.* FORM/TYPE. SJAR 056 (1738). PROVENIENCE. 0705210. FABRIC. GREY. *2.7.* FORM/TYPE. XTNN 022 (1740). PROVENIENCE. 0705210. FABRIC.BROWN. *2.8.* FORM/TYPE. SJAR 094 (1750). x4. PROVENIENCE. 0705207. FABRIC. BROWN. *2.9.* FORM/TYPE. XJAR 117 (1751). PROVENIENCE. 0705207. FABRIC. BROWN. *2.10.* FORM/TYPE. XJAR 059 (1635). PROVENIENCE. 0705207. FABRIC. CP. *2.11.* FORM/TYPE. XJAR 054 (1536). PROVENIENCE. 0705209. FABRIC. GREY. *2.12.* FORM/TYPE. SJAR 082 (1236). PROVENIENCE. 0705210. FABRIC. BROWN. *2.13.* FORM/TYPE. SJAR 024 (1618). PROVENIENCE. 0705206. FABRIC. BROWN. *2.14.* FORM/TYPE. SJAR 096 (1429). PROVENIENCE. 0705207. FABRIC. GREY. *2.15.* FORM/TYPE. SJAR 094 (1386). x4. PROVENIENCE. 0705207. FABRIC. BROWN. *2.16.* FORM/TYPE. SJAR 034 (312). PROVENIENCE. 0705213. FABRIC. GREY. *2.17.* FORM/TYPE. SBWL 032 (1019). PROVENIENCE. 0705215. *2.18.* FORM/TYPE. SJAR 048 (1789). PROVENIENCE. 0705210. FABRIC. CP. *2.19.* FORM/TYPE. SBWL 032 (1033). PROVENIENCE. 0705215. FABRIC. CP. *2.20.* FORM/TYPE. SJAR 178 (1713). PROVENIENCE. 0705209. FABRIC. CP. *2.21.* FORM/TYPE. SJAR 118 (1753). PROVENIENCE. 0705207. FABRIC. BROWN. *2.22.* FORM/TYPE. SBWL 001 (2). x4. PROVENIENCE. 0705206. FABRIC. CP.

TABLE 2a-c. "Rukeis 0705". Parallels by period.

RUKEIS 0705. PARALLELS BY PERIOD.

PHASE II.1. PRE-FORTIFICATION MBA SETTLEMENT.

PERIOD	IDENTICAL	RELATED	TOTAL	%
EBI	1		1	1.23
EBII				
EBIII		3	3	3.70
EBIV-MBI	2	3	5	6.17
MBIIA	5	15	20	24.69
MBIIB	15	13	28	34.57
MBIIC	1	17	18	22.22
LBI	1	3	4	4.94
LBII		2	2	2.47
TOTAL	25	56	81	100.00

PHASE II.2.a. FORTIFICATION WALL FOUNDATION.

PERIOD	IDENTICAL	RELATED	TOTAL	%
EBI				
EBII				
EBIII		3	3	3.30
EBIV-MBI	1	1	2	2.20
MBIIA	7	8	15	16.48
MBIIB	9	24	33	36.26
MBIIC	4	20	24	26.37
LBI	3	7	10	10.99
LBII	2	2	4	4.40
TOTAL	26	65	91	100

PHASE II.2.b. FIRST POST-WALL OCCUPATION PHASE.

PERIOD	IDENTICAL	RELATED	TOTAL	%
EBI				
EBII				
EBIII	1	4	5	2.22
EBIV-MBI	10	4	14	6.22
MBIIA	23	32	55	24.44
MBIIB	40	44	84	37.33
MBIIC	23	29	52	23.11
LBI	3	7	10	4.44
LBII	3	2	5	2.22
TOTAL	103	122	225	100.00

TABLE 3a-b. "Rukeis 0705". Parallels by site.

RUKEIS 0705 - PARALLELS BY SITE.

PHASE II.1. PRE-FORTIFICATION MBA SETTLEMENT.

SITE	IDENTICAL	RELATED	TOTAL	%
ALALAKH				
APHEK		3	3	3.70
ARQA		2	2	2.47
BEIT MIRSIM	1	1	2	2.47
BOSRA	3	8	11	13.58
DAN				
EBLA				
GEZER	3	5	8	9.88
GHASSIL		3	3	3.70
HAMA		2	2	2.47
HAZOR	2	2	4	4.94
JAWA		5	5	6.17
JERICHO	3	5	8	9.88
KAMID EL-LOZ		1	1	1.23
LACHISH	2	7	9	11.11
MEGIDDO	4	2	6	7.41
MEVORAKH		3	3	3.70
NEBI MEND		1	1	1.23
SALAHIYE		1	1	1.23
SAREPTA		2	2	2.47
SHECHEM	7	2	9	11.11
TYRE		1	1	1.23
TOTAL	25	56	81	100.00

RUKEIS 0705. PARALLELS BY SITE.

PHASE II.2.a. FORTIFICATION WALL FOUNDATION.

SITE	IDENTICAL	RELATED	TOTAL	%
ALALAKH		1	1	1.10
APHEK		1	1	1.10
ARQA		2	2	2.20
BEIT MIRSIM	3	1	4	4.40
BOSRA	4	11	15	16.48
DAN				
EBLA				
GEZER		5	5	5.49
GHASSIL		3	3	3.30
HAMA				
HAZOR	4	13	17	18.68
JAWA	7	1	8	8.79
JERICHO	1	6	7	7.69
KAMID EL-LOZ		2	2	2.20
LACHISH		3	3	3.30
MEGIDDO		1	1	1.10
MEVORAKH		4	4	4.40
NEBI MEND	2	1	3	3.30
SALAHIYE	2	6	8	8.79
SAREPTA		1	1	1.10
SHECHEM		2	2	2.20
TYRE	1	1	2	2.20
TOTAL	26	65	91	100.00

BLE 2c). The latest parallels are associated with LBA typologies. In terms of parallels by site, again most parallels were found either with 'local' sites such as Buṣrā, aṣ-Ṣaliḥiyya and the Jāwa citadel, or with south Levantine sites such as Hazor, Jericho and Gezer (TABLE 3c). Vessels which find only few parallels and then usually only with sites such as Buṣrā and aṣ-Ṣaliḥiyya include SJAR 082 (FIG. 6:12), SJAR 094 (FIG. 6:8), SJAR 178 (FIG. 6:20).

In conclusion, there is not only remarkable consistency in terms of parallels by period, there is also consistency in terms of which sites provide most of the parallels — 'local' Ḥawrān sites, and south Levantine sites. These results compare well with other areas of the site. For example

TABLE 3c. "Rukeis 0705". Parallels by site.

RUKEIS 0705. PARALLELS BY SITE.

PHASE II.2.b. FIRST POST-WALL OCCUPATION PHASE.

SITE	IDENTICAL	RELATED	TOTAL	%
ALALAKH		1	1	0.44
APHEK	3	7	10	4.44
ARQA	1	1	2	0.89
BEIT MIRSIM	5	6	11	4.89
BOSRA	7	12	19	8.44
DAN				
EBLA				
GEZER	11	18	29	12.89
GHASSIL		4	4	1.78
HAMA		3	3	1.33
HAZOR	14	7	21	9.33
JAWA	13	6	19	8.44
JERICHO	11	9	20	8.89
KAMID EL-LOZ		3	3	1.33
LACHISH	5	1	6	2.67
MEGIDDO	5	7	12	5.33
MEVORAKH	6	10	16	7.11
NEBI MEND		1	1	0.44
SALAHIYE	18	3	21	9.33
SAREPTA		5	5	2.22
SHECHEM	2	14	16	7.11
TYRE	2	4	6	2.67
TOTAL	103	122	225	100.00

Phase II.1 in trench 0708 found 34.65% parallels for the MBIIB, almost identical to that of trench 0705, even though a much larger sample. Phase II.2.b in trench 0708 found 34.16% parallels with the MBIIB.

5. Dating Methodology — Qualitative Versus Quantitative

When using comparative ceramic analysis to associate a date/period with an archaeological phase there are two fundamental approaches, each producing differing results. Using the above phases as an example, the approaches would be as follows:-

Qualitative

This approach focuses on the 'latest' material derived from any given phase. For example, the date of the wall construction (Phase II.2.a) cannot be any earlier than the latest type of pottery associated with the foundation cut. Following this premise, each of the three phases should date to the LBII, even though LBII parallels usually amount to no more than 2% of the sample.

Quantitative

The 'Quantitative' approach focuses on a statistical analysis of the pottery from the three phases. As opposed to a qualitative approach, a quantitative approach indicates that each of the three phases should be associated with the MBIIB period. In each phase approximately 80% of the parallels are found in either the MBIIA-C periods, and in each phase almost half of those parallels are found in MBIIB contexts.

6. Discussion (TABLE 3a-c).

There is a fundamental problem involved when working in a region such as the Ḥawrān where only a very limited amount of work has previously been undertaken on Bronze age ceramics. The only other Ḥawrān site where a multi-period sounding has been excavated is Buṣrā and the resulting typology is not extensive. When it comes to establishing a detailed multi-period ceramic typology, none exists for the region. Within other regions of the Levant assemblages from other sites can usually be referred to, however, in a region such as the Ḥawrān which lacks assemblages, this is not the case. In such a situation a quantatitive study combined with carbon dates should be considered the most useful approach.

The qualitative approach has a number of problems associated with it. Although it is logical to find earlier period material (e.g. EBI) in later deposits (e.g. MBII), the problem lies in the latest material found. To associate a LBII date with these phases disregards the overwhelming majority of parallels (MBIIB) in favour of the latest parallels, even though they are consistently in the minority. It should be noted that nearly all of the LBI and LBII parallels are from the Buṣrā assemblage. In the Buṣrā assemblage, however, types which are considered MBA in other assemblages, are often found in what the Buṣrā excavators consider to be LBA contexts. For example SBWL 032 (FIG. 5:12) of Phase II.1 finds close parallels in Buṣrā Str 16-14 (LBI-II) yet also finds close parallels at the Jāwa citadel (MBIIA). This in itself is not illogical because, as mentioned above, earlier material can easily be found in later deposits. The problem lies in the process of parallel matching which dictates that if a match is found in an LBII deposit, the parallel is of that period, even though it may well be an earlier period sherd in a later context. In this regard the results are misleading.

Another problem lies in the uncertainty with regards to the length of time over which a vessel type was commonly produced and used. In the southern Levant this is less of a problem because the numerous and detailed typologies that have been developed can trace with a fair degree of accuracy the periods during which specific vessel types were produced. In the Ḥawrān, however, these assemblages are lacking. We are thus unsure as to the 'lifespan' of certain ceramic types in the Ḥawrān. The Ḥawrān, for example, may well be ceramically 'conservative', with specific types continuing to be produced

far beyond the period of production of that same type elsewhere in the Levant. Alternately, the reverse may be the case.

Because we lack detailed typologies in the Ḥawrān, these ceramic developments are largely unknown. To assume that the ceramics of the Ḥawrān developed virtually identically to those of typologies elsewhere in the Levant is unfounded. The parallels by site demonstrate that a large percentage of matches during each phase are found at sites closely associated with Rukays, rather than with north or south Levantine sites proper. In Phase II.2.a for example, 1/3 of the total parallels were found at Buṣrā, Jāwa Citadel and aṣ-Ṣaliḥiyya. Even on the meagre evidence that we possess, there is already a good indication that a large percentage of the 'Ḥawrān' pottery corpus is indigenous, and is not commonly found outside of the region.

In theory, because ceramics are our largest data base for the MBA material culture, they should provide 1) an indication of which dates/periods should be associated with given phases, and 2) evidence of cultural contact between specific regions at a given period. As demonstrated, a quantitative analysis should offer the most useful insights in this regard. However, some methodological problems should first be taken into consideration.

Using the above three phases as an example, a quantitative analysis demonstrates that during Phase II.1, Buṣrā, Gezer, Jericho, Lachish and Shechem provide the greatest percentage of parallels (TABLE 3a). During Phase II.2.a, Buṣrā, Hazor, Jāwa, Jericho and aṣ-Ṣaliḥiyya provide the greatest percentage of parallels (TABLE 3b), while during Phase II.2.b, Buṣrā, Gezer, Hazor, Jāwa, Jericho and aṣ-Ṣaliḥiyya provide the greatest percentage of parallels (TABLE 3c). On this basis the ceramics indicate that the strongest contact is between Rukays and sites in the Ḥawrān, the Damascene, and sites in the south Levant such as Gezer, Jericho, Lachish, Shechem and Hazor.

However, this information can be misleading for a number of reasons. Firstly, the reports from these sites have published vastly differing quantities of Bronze age pottery. Using Jericho and aṣ-Ṣaliḥiyya to serve as an example, the Jericho pottery volume contains 1560 MBA sherds, whereas the aṣ-Ṣaliḥiyya volume has published 222 MBA sherds. So although Jericho has provided 8.82% of the parallels found with the Rukays pottery, as a percentage of the published MBA material from Jericho, Rukays only has 2.24% parallels with the Jericho material. Aṣ-Ṣaliḥiyya provided 7.8% of the parallels with the Rukays pottery, yet as a percentage of the published MBA material from aṣ-Ṣaliḥiyya, Rukays has a much greater 13.96% parallels with the aṣ-Ṣaliḥiyya material. The percentage parallels thus have to be put into their true context of the amount of material published. If this were not done, then one would assume that Jericho and aṣ-Ṣaliḥiyya had a similar degree of contact with Rukays, at least in terms of the evidence of ceramics. In fact, when the amount of published material is taken into account, the ceramic evidence suggests a considerably stronger contact between Rukays and aṣ-Ṣaliḥiyya, than Rukays and Jericho. The amount of published material used in any study naturally plays a role in determining which date/period will be associated with a given phase.

Secondly, a further problem lies in the fact that with many reports which publish MBA typologies, we are often unsure as to the % of the total material published. At most sites used for the comparative work above we are unsure how much of the complete corpus has been published, and which parts of the corpus have been published. To serve as an example, Ben-Tor discusses how this was the situation with the early Hazor volumes in his preamble to Hazor III-IV. Ben-Tor concluded that "Hazor's assemblages.....cannot serve as true representatives of the finds of each room, structure or area" (Yadin 1989: xxi). Unless this information is provided with each typology, it is very difficult to conduct a comprehensive quantitative analysis of a given corpus.

Finally, an issue remains with the problem that some partially published corpora could present a biased view of the material. For example, if one published corpus presents a majority of bowls, over a minority of storejars, then one would expect that the percentage parallels between that site and others would be less. This is assuming that storejars were a vessel more likely to be used in trade, and moved over greater areas, and in greater numbers, than bowls. Such issues play a major role in determining the results of any quantitative study, whether they be related to looking at issues of cultural contact through ceramics, or related to associating dates/periods with a given phase.

In the face of such methodological problems, a quantitative approach using a large range of sites, associated with carbon dating, should provide the most useful results. The advantage of adopting a quantitative approach is that this method offers more realistic results based on probability, even considering our lack of understanding of the relationship between the Ḥawrān and other Levantine regions.

When working in a region which lacks established typologies from sites in the vicinity which can be referred to, it is not enough to do a comparative study alone, and in particular, a qualitative study. Ultimately, if such problems are to be addressed when working at sites such as Rukays we must not only develop and publish a comprehensive ceramic typology for the site — we must also couple this with clusters of carbon dates throughout the sequence.

In terms of ceramic typological development the Ḥawrān and the Damascene remain 'black holes' in our

knowledge. The evidence that we have suggests a degree of different ceramic development compared with elsewhere in the Levant. To rely solely on comparisons with ceramic sequences from sites far-afield, in order to associate dates/periods with developments at sites in the Ḥawrān, could result in a misleading picture regarding when and why those developments occurred.

Bibliography

Albright, W. F. 1932. *The Excavation of Tell Beit Mirsim. Vol.I. The pottery of the First Three Campaigns.* New Haven.

——1933. *The Excavation of Tell Beit Mirsim. Vol. IA: The Bronze Age Pottery of the Fourth Campaign.* New Haven.

Anderson, W. P. 1988. *Sarepta I: The Late Bronze and Iron Age Strata of Area II.Y.* Beirut.

Beck, P. 1975. The Pottery of the Middle Bronze Age IIA at Tel Aphek. *Tel Aviv* 2: 45-85.

——1985. The Middle Bronze Age IIA Pottery from Aphek, 1972-1984: First Summary. *Tel Aviv* 12: 181-203.

Ben-Tor, A., Bonfil, R., Garfinkel, Y., Greenberg, R., Maeir, A. M. and Mazar, A. 1997. *Hazor V.* Jerusalem.

Betts, A., Eames, S., Schroder, M. and Hesan, A. al-Q. 1995. Archaeological Survey of the Wadi al-'Ajib, Mafraq District. *ADAJ* 39: 149-168.

Betts, A., Eames, S., Hulka, S., Schroder, M., Rust, J. and McLaren, B. 1996. Studies of Bronze Age Occupation in the Wadi al-'Ajib, Southern Hauran. *Levant* 27: 27-39.

Betts, A., Eames, S., McLaren, B. and Schroder, M. (in press), The Middle Bronze Age of the Southern Hauran: a preliminary report on the 95/96 field season at Tell Rukais. *Levant.*

Bikai, P. M. 1978. *The Pottery of Tyre.* Warminster.

Biran, A., Ilan, D. and Greenberg, R. 1996. *Dan I. A Chronicle of the Excavations, the Pottery Neolithic, the Early Bronze Age and the Middle Bronze Age Tombs.* Jerusalem.

Bourke, S. J. 1991. *The Transition from the Middle to the Late Bronze Age in the Northern Levant: The Evidence from Tell Nebi Mend, Syria.* Unpublished Ph.D. Thesis, University of London.

Cole, D. P. 1984. *Shechem I: The Middle Bronze IIB Pottery.* Winona Lake.

Dever, W. G., Lance, H. G. and Wright, G. E. 1970. *Gezer I: Preliminary Report of the 1964-66 Seasons.* Jerusalem.

Dever, W. G., Lance, H. D., Bullard, R. G., Cole, D. P. and Seger, J. D. 1974. *Gezer II: Report of the 1967-70 Seasons in Fields I and II.* Jerusalem.

Doumet, C. 1986. *Les Fouilles de Tell el Ghassil de 1972 à 1974.* Unpublished Ph.D. Thesis, Universite de Paris 1 Sorbonne.

Eames, S. (forthcoming), *Middle Bronze Age Settlement in the Hauran.* Ph.D. Thesis, University of Sydney.

Fugmann, E. 1958. *Hama II.I: l'Architecture des Periodes Pre-Hellenistiques.* Copenhagen.

Guardata, F. B. 1988. Les sepultures d'Ebla a l'age du Bronze Moyen. Pp. 3-20 in H. Waetzoldt and H. Hauptmann (eds.), *Wirtschaft und Gesellschaft von Ebla.* Heidelberg.

Heinz, M. 1992. *Tell Atchana / Alalakh. Die Schichten VII-XVII.* Wiesbaden.

Helms, S. W. 1989. Jawa at the Beginning of the Middle Bronze Age. *Levant* 21: 141-168.

Kenyon, K. M. and Holland, T. A. 1982. *Excavations at Jericho. Vol. IV. The Pottery Type Series and Other Finds.* London.

Loud, G. 1948. *Megiddo II: Seasons of 1935-39.* Text and Plates. Chicago.

McLaren, P. B. (forthcoming), *Middle Bronze Age Fortifications in Jordan.* Ph.D. Thesis, University of Sydney.

Marfoe, L. 1979. Tell Kamid el Loz 1973-72. *Preliminary Type Series Catalogue: North Slope and Palace Areas.* Unpublished manuscript, University of Chicago.

van der Osten, H. H. 1956. *Svenska Syrien Expeditionen 1952-1953. Die Grabung von Tell es-Salihiyeh.* Lund.

Schroder, M. 1997. *The Ceramics from the Wadi al-'Ajib, Jordan.* Unpublished Ph.D. Thesis, University of Sydney.

Seeden, H. 1986. Bronze Age Village Occupation at Busra: AUB excavations on the northwest tell 1983-1984. *Berytus* 34: 11-82.

Stern, E. 1984. *Excavations at Tel Mevorakh (1973-1976). Part Two: The Bronze Age.* Jerusalem.

Thalmann, J-P. 1978. Tell Arqa: Campagnes 1972-74. *Syria* 55: 88-144.

——1979. Tell Arqa 1978-1979: Rapport provisoire. *BMB* 30: 61-80.

——1991. L'Age du Bronze à Tell 'Arqa. Bilan et perspectives (1981-1991). *Berytus* 30: 21-38.

Tufnell, O., Inge, C. H. and Harding, L. 1958. *Lachish IV : The Bronze Age. Text and Plates.* London.

Yadin, Y., Aharoni, Y., Amiran, R., Dunayevsky, I. and Perrot, J. 1958. *Hazor I.* Jerusalem.

——1960. *Hazor II.* Jerusalem.

——1961. *Hazor III-IV.* The Plates. Jerusalem.

Yadin, Y., Aharoni, Y., Amiran, R., Dunayevsky, I., Perrot, J. and Ben-Tor, A. 1989. *Hazor III-IV.* The Text. Jerusalem.

Rachael T. Sparks
School of Archaeology
Classics and Ancient History
University of Sydney
NSW, 2006
Australia

Rachael T. Sparks

Palestinian Stone Vessels - The Evidence from Pella

Introduction

From early in the second millennium BC stone vessels formed a popular Egyptian import to Palestine. Most of these were made from calcite, a material sometimes described as 'Egyptian alabaster'.[1] Shapes include a range of cosmetic containers which were used to hold substances such as perfumed oils, ointments, kohl and medicines. The influx of Egyptian material seems to have triggered the development of local Palestinian workshops specialising in a similar range of luxury stone vessels. These often copied the shape of the imported examples but made use distinct raw materials which were locally available. At the same time, the repertoire expanded to include shapes of Palestinian origin to suit local tastes.[2]

The stylistic interaction between imported Egyptian stone vessels and locally produced material sometimes made it difficult to distinguish between the products of these two industries. It was not until the 1940s that clear criteria for isolating locally made from imported stone vessels were established. In a seminal article on the subject, Ben-Dor used a series of finished and unfinished gypsum vessels from Baysān as a starting point for studying the local industry as a whole.[3] He was able to establish that both, choice of material and the manufacturing techniques used differed between Egyptian and Palestinian workshops. The former used many types of stone, amongst which calcite was the most prominent, and hollowed out the interior of each vessel using a tubular drill.[4] Palestinian craftsmen employed gypsum, a softer stone than those commonly used in Egypt, but visually similar in many respects to calcite.[5] The interiors of the gypsum vessels were removed using a narrow-bladed chisel.[6] This technique leaves a series of vertical and oblique ridges down the interior walls of vessels, quite distinct from the regular concentric ridges and grooves left by use of the Egyptian drill.[7] This technological distinction between the industries is one that seems to have remained in place throughout the second millennium BC, suggesting that the Egyptian forms and ideas were introduced to Palestinian workshops primarily through imported goods, rather than through the movement of craftsmen between regions.

The number and location of these Palestinian gypsum vessel workshops is something that still needs to be established. Physical evidence for on-site manufacture is known only from Baysān, where a series of unfinished vessels were found in settlement deposits dating from the later Middle Bronze Age through to Iron I (levels X-VI).[8] The types of unfinished vessels are well represented in the repertoire of completed examples from the site, a repertoire which displays a high degree of variability consistent with the idea of local workshops. Although comparable manufacturing debris has not been discovered elsewhere in the region, the presence of additional workshops can be inferred through a detailed stylistic analysis of the stone vessels, combined with a study of the distribution of finished examples. This paper will examine some recent evidence from Pella that points to the existence of further centres of production in northern Palestine during the MBII-LBI period.[9]

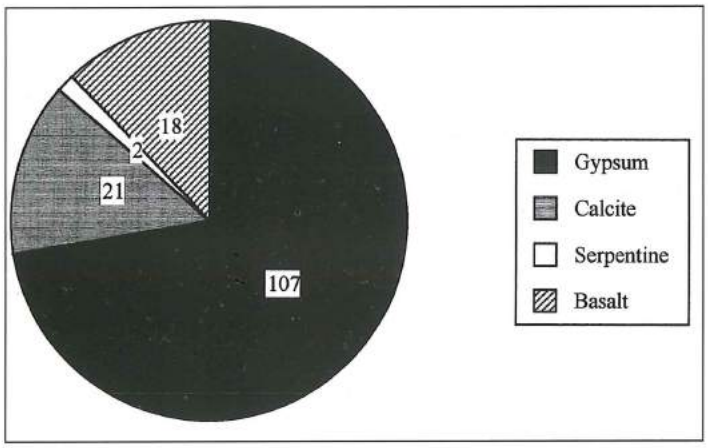
The Stone Vessel Repertoire at Pella

Located in the north Jordan valley, Pella had a rich and

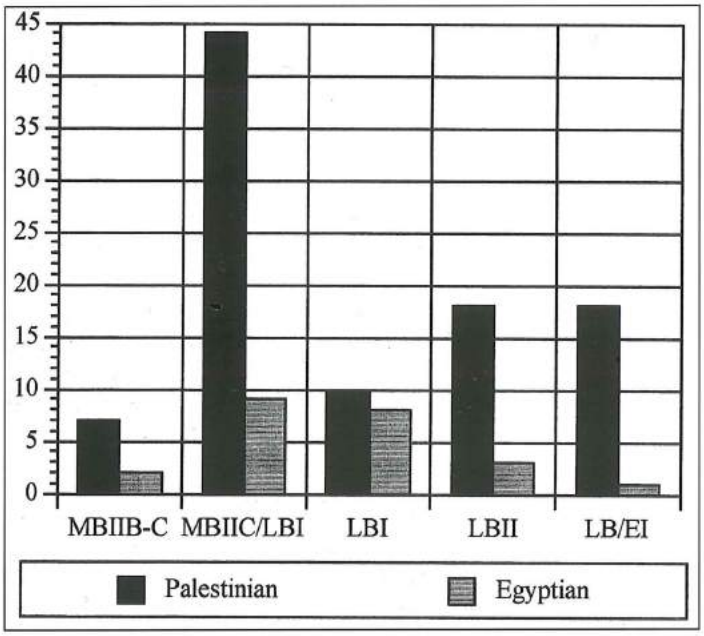
[1] For problems in the terminology used to describe this material see Ben-Dor (1945: 94-96); Harrell (1990) and Aston (1994: 43).
[2] eg.: Sparks (1991); Ben-Dor (1945: 107-109, type F).
[3] Ben-Dor 1945.
[4] Ben-Dor (1945): 97. For studies on the technology involved, see Lucas and Harris (1962: 423-426) and references infra; Stocks (1986); id. 1993; Gorelick and Gwinnett (1983).
[5] Many varieties of gypsum and calcite are white and partially translucent. This visual similarity is one of the main reasons why these two materials are often confused in the archaeological literature- see Sparks (1998: 262).
[6] Ben-Dor (1945: 97).
[7] Compare, for example, Ben-Dor (1945: plates XXIII.8 and XXIII.9).
[8] Ben-Dor (1945: 97-98); James (1966: figure 54.10).
[9] The possibility of additional workshops at Jericho during the Middle Bronze Age has been raised elsewhere (Dajani 1962: 69; Bienkowski 1986: 127; Sparks 1991: 53; Clamer 1992; Sparks 1998: 445-446).

varied stone vessel assemblage during the second millennium BC. There are currently one hundred and fifty stone vessels datable to this period, comprising a mixture of imported Egyptian calcite and serpentinite forms and Palestinian-made basalt and gypsum examples. A summary of these results is presented in FIG. 1.

Egyptian imports made up less than 25% of the total stone vessel repertoire at the site during the second millennium BC, with trade in these goods reaching a peak in the MBIIC-LBI period (FIG. 2). Closed cosmetic containers such as the alabastron were the most popular import, and the repertoire at Pella mirrored assemblages from nearby sites such as Baysān or Megiddo. From LBII onwards, the quantity of Egyptian imports decreases, although sporadic examples continue to appear.



1. The stone vessel assemblage at Pella during the Middle and Late Bronze Ages - variation in material use.



2. Comparison of the frequency of Egyptian imported stone vessels to Palestinian-made gypsum vessels at Pella over time.

The basalt repertoire included a series of finely made bowls and plates closely paralleled by examples at Baysān, Megiddo, and Hazor, suggesting one or more workshops located somewhere in the Jezreel Valley or Eastern Galilee region.[10] This workshop would appear to have been active from LBIIA down to the early Iron Age, and may have exported its products to Cyprus and Syria.[11]

The stone vessel repertoire at Pella was dominated by Palestinian gypsum vessels. These are found not only in large numbers but also in a wide range of different types, appearing as early as MBIIB and becoming common during the MBIIC-LBI period. It was the quantity and variety of this assemblage which initially raised the question of whether there were workshops located at Pella itself, despite the cultural and geographical proximity of the site to Baysān, a known production centre at this time. This idea gained support from certain differences in the stone vessel repertoires of both sites, which could have been explained by the presence of multiple workshops in the region.

The most notable of these differences lay in the presence at Pella of a number of unique vessel forms alongside new subtypes which are not found at nearby sites. Some of these appear to be rare translations of ceramic forms into stone. One such example is a finely made carinated bowl with a pinched rim, concave lug handle, tall convex sides, a sharp carination towards the lower part of the vessel and a low ring base. This was found in an unusual plastered bin, associated with a number of libation funnels and miniature vessels that probably date to the LBI period (FIG. 3:1).[12] Although this shape has no good parallels in stone, comparable ceramic versions are known from Pella, Tall Dan, Gibeon and Tall Far'ah South.[13]

Another stone vessel from the site which seems to have ceramic antecedents is an unusual spouted jug found in Tomb 27, dating to the LBI period (FIG. 3:2). This is characterised by a simple pinched rim, a slightly irregular, baggy body with upright sides and a flat base, with a single strap handle extending from rim to base on one side of the body, and a long spout positioned just below the rim on the other. The spout itself may not have been functional, as the hole bored through it is extremely small. Again, this vessel has no parallels in stone, with its closest antecedents being a handful of ceramic 'teapots' found in LBI through to early LBII contexts in Palestine.[14] The shape and positioning of the handle on this vessel also

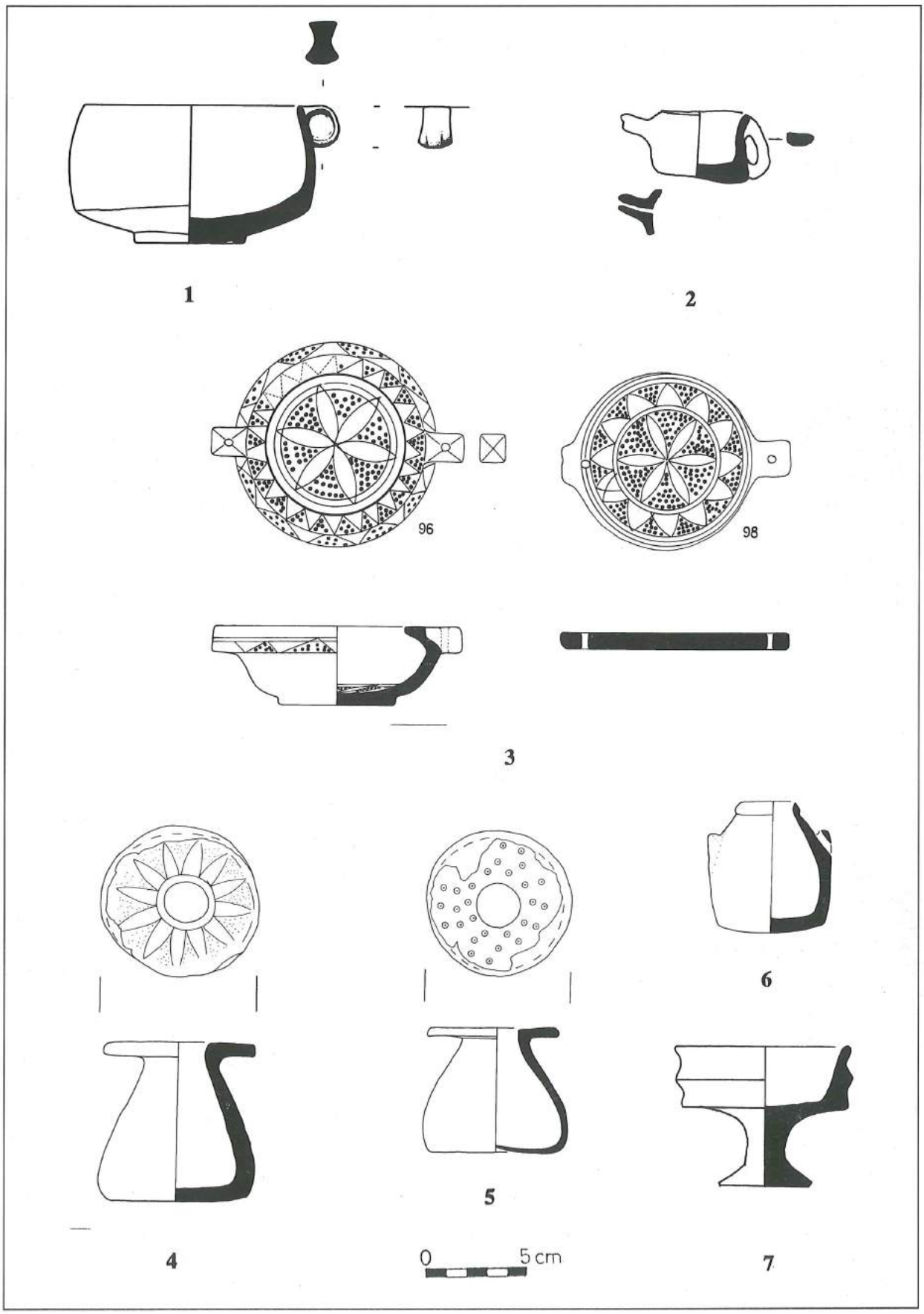
10 Bourke and Sparks (1995: 160); Rowe (1940: pl. XXII.21); James and McGovern (1993: fig. 121.1, 3, 6-7, 10); Guy and Engberg (1938: fig. 77); Yadin *et al.* (1960: pl. CXLIX.1).

11 Sparks (1998: 23, 27); Xenophontos *et al.* (1988: 181-2).

12 Bourke *et al.* (1998: fig. 23.1.12).

13 McNicoll *et al.* (1992: pl. 44.3); Biran *et al.* (1996: fig. 4.99.17); Pritchard (1963: fig. 27.4); Price-Williams (1977: figs 26.4, 35.5, 51.3).

14 Tufnell (1958: 216); Gonen (1992: 100).



3. Gypsum vessels from Pella

3.1: Carinated bowl, RN 180050, XXXIIF 11.4.
3.2: Spouted vessel, RN 42112, VI T.27.
3.3: Carinated pyxis and lid, RN 32212-3, XI T.20.
3.4: Alabastron, RN 70752, XI T.62 3E.
3:5: Alabastron, RN 70864, XI T.62 4C/D.
3.6: Lug-handled jar, RN 100135, II T.89 1.4.
3.7: Tazza, CN 5/ 126, DAJ T.2.

bears some similarity to another rare shape from the site, a handled form of the conical alabastron, known from two examples in Tomb 62 which date to the MBIIC-LBI period. This latter form is so far unparalleled outside Pella.

The strongest evidence for a local workshop is suggested by a series of gypsum vessels from Pella which form a cohesive group in terms of decoration and shape. This group consists of some twenty seven conical alabastra, two handled variants of this form, and a decorated pyxis with lid (FIG. 3:3-5). The alabastra feature broad, flat topped rims, which are usually used as a canvas for a range of incised and black inlaid motives.[15] This shape is a variation on the usual Middle Bronze Age conical alabastron, as seen in examples from Baysān and Jericho featuring a funnel-shaped mouth.[16]

This group is closely allied by its decoration, which is stylistically similar in the choice of motives as well as in their execution. In all cases decoration is used to emphasise the circularity of the vessel, focusing on either the vessel mouth, or a central, circular motif. Some examples feature a delicate floral design, made up of a series of triangular leaves radiating from the mouth of the vessel, with the areas between the petals decorated with simple dots (FIG. 3:4). This motif is elaborated in the single pyxis known from the site, where it is combined with other geometric elements (FIG. 3:3). The origin of the floral pattern is not clear. It may have been influenced by contemporary Tall al-Yahūdiyyah ware, although in the latter the colour scheme is reversed, featuring inlaid white on a black or grey slip.[17] Another popular motif is based around the dotted circle, or bulls-eye design (FIG. 3:5).

Both the floral and circle based patterns were popular decorative motives in contemporary Levantine wood, bone and ivory working, where they were also incised and inlaid with black pigment, creating a very similar 'dark on light' effect.[18] This similarity of design and technique suggest that these crafts may have made use of similar tools. Several of the shapes employed also point to stylistic interaction between the stone and bone/ivory industries, such as the low carinated pyxis with lug handles, a form more commonly seen in ivory (FIG. 3:3).[19] Such parallels serve to underline the local character of this group of vessels, which owe more to Syro-Palestinian traditions than Egyptian influence.

Elements of this style first appear during the MBIIC period, with examples known from Tombs 20 and 62, and last into the LBI in Tomb 27. Stylistic similarities within this group, and to several of the 'unique' shapes also found at Pella suggests that they came from a single workshop or school. This group appears to be concentrated at Pella, and to date only one further example is known from elsewhere in the region.[20] No parallels have been published from either Jericho or Baysān. On the current evidence Pella is the most likely place to locate this new workshop. Although there are no gypsum quarries in the region immediately surrounding the site, it seems probable that they made use of the same sources of gypsum as nearby Baysān.

During the LBII and Iron I periods, gypsum vessels continue to dominate the repertoire at Pella. At this time a new range of forms was introduced. One of the most popular of these was the lug-handled jar, a shape that developed independently of Egyptian influence. Seventeen jars and fragments of this type were found in a series of tombs and settlement debris at the Pella, ranging in date from LBII through the Iron Age (FIG. 3:6).[21] Another popular new shape of the Late Bronze Age was the Palestinian tazza, a carinated cup with a trumpet shaped stemmed foot, an adaptation of an Egyptian prototype (FIG. 3:7).[22] Nine examples and fragments were found at Pella, the majority coming from LBII funerary deposits.[23] Unlike the lug-handled jar, production of this form seems to have stopped at the end of the Late Bronze Age. These new shapes also continued to be manufactured using Palestinian techniques, with no technological input from Egyptian craftsmen evident.[24]

One notable change in the stone vessel repertoire of Pella during the LBII period is an increased similarity to assemblages at Dayr 'Allā, Tall as-Sa'īdiyyah, Tall al-Ḥuṣn and Baysān. This greater uniformity across the region makes it difficult to determine the number of workshops in operation at this time. This development may be linked to changed distribution patterns which show gypsum vessels becoming more widely dispersed during this period, particularly in areas outside the Jordan Valley. It is possible that this indicates the existence of new centres of manufacture.[25] Alternatively, improved dis-

15 24 of these alabastra were decorated; the 3 undecorated examples share the same characteristic broad everted rims and body profiles as the decorated versions.

16 Ben-Dor (1945: 101-2, type B); Kenyon (1960: figs 187.1, 187.21); Kenyon (1965: figs 171.9, 179.19).

17 Amiran (1969: pl. 36.4, 8-9, 12, 22-23, 25-27, 33).

18 e.g.: Liebowitz (1977).

19 e.g.: Tufnell *et al.* (1940, pls XIX.18, XX.30); Loud (1948, pl. 200.1-2); Miron (1990: no. 514, pl. 43.1).

20 This was sighted by the author at the Dayr 'Allā Museum in the early 1990's, and is presumed to have come from that site. It appeared to be consistent with the Pella group in terms of material, shape and decoration.

21 Walmsley *et al.* (1993: fig. 16.6); Bourke and Sparks (1995: fig. 7.8-9).

22 Ben-Dor (1945: 106, type E); Clamer 1979; Aston (1994: types 170-171).

23 Bourke *et al.* (1994: fig. 7.2); Bourke and Sparks (1995: fig. 6.1-7).

24 Sparks (1996: 56-7).

25 Tall Far'ah South may have developed as one such centre, specialising in forms such as the tazza (Sparks 1998:399,517).

tribution may be a by-product of better inter-site communication associated with increased Egyptian activity in Jezreel and western Palestine during the 20th Dynasty.

Conclusions

From as early as MBIIB, the luxury stone vessel repertoire at Pella included both imported Egyptian calcite vessels and Palestinian gypsum versions, with material recovered from both funerary and settlement deposits. The nature of the repertoire during MBIIC-LBI is sufficiently distinctive to suggest that there may have been a gypsum vessel workshop located at Pella. These products maintain generic ties to Egyptian imports, but the tool kits, decorative schemes and some of the forms used suggest interaction with contemporary Palestinian bone, ivory, wood and ceramic workshops. During the Late Bronze Age, the gypsum assemblages alter to include forms made popular by a new wave of Egyptian imports, but there is little to suggest that Egyptian craftsmen were involved directly in production, and the industry maintains a strong local character well into the Iron Age.

References

Amiran, R. 1969. *Ancient Pottery of the Holy Land.* Jerusalem.

Aston, B.G. 1994. *Ancient Egyptian Stone Vessels: Materials and Forms.* Studien zur Archäologie und Geschichte Altägyptens 5, Heidelberg.

Ben-Dor, I. 1945. Palestinian Alabaster Vases. *Quarterly of the Department of Antiquities of Palestine* XI: 93-112.

Bienkowski, P. 1986. *Jericho in the Late Bronze Age.* Warminster.

Biran, A. *et al.* 1996. *Dan I: A Chronicle of the Excavations, the Pottery Neolithic, The Early Bronze Age and the Middle Bronze Age Tombs.* Jerusalem.

Bourke, S. J. *et al.* 1998. Preliminary Report on the University of Sydney's Sixteenth and Seventeenth Seasons of Excavations at Pella (Tabaqat Fahl) in 1994/95. *ADAJ* 42: 179-211.

Bourke, S.J. *et al.* 1994. Preliminary Report on the University of Sydney's Fourteenth Season of Excavations at Pella (Tabaqat Fahl) in 1992. *ADAJ* 38: 81-126.

Bourke, S. J. and Sparks, R. T. 1995. The DAJ Excavations at Pella in Jordan in 1963/4. Pp. 149-167 in S. J. Bourke and J.-P. Descoeudres (eds), *Trade, Contact and the Movement of Peoples in the Eastern Mediterranean: Studies in Honour of J. Basil Hennessy.* Sydney.

Clamer, C. 1979. *Late Bronze Age Alabaster Vases in Palestinian Context with an Emphasis on the Tazza* (Unpublished MA thesis, Hebrew University, Jerusalem).

___ 1992. The Local Manufacture of Bronze Age Gypsum-Alabaster Vases in the Jordan Rift Valley, with an Emphasis on the MBII Finds from Jericho, *Abstract for the 5th International Conference of the History and Archaeology of Jordan (not delivered),* 1-2.

Dajani, R. W. 1962. Some of the Industries of the Middle Bronze Period. *ADAJ* 6-8: 55-75.

Gonen, R. 1992. *Burial Patterns and Cultural Diversity in Late Bronze Age Canaan.* Winona Lake.

Gorelick, L. and Gtwinnett, A. J. 1983. Ancient Egyptian Stone-Drilling: An Experimental Perspective on a Scholarly Disagreement. *Expedition* 25.3: 40-47.

Guy, P. L. O. and Engberg, R. M. 1938. *Megiddo Tombs.* Chicago.

Harrell, J.A. 1990. Misuse of the Term "Alabaster" in Egyptology. *Gottinger Miszellen* 119: 37-42.

James, F. 1966. *The Iron Age at Beth Shan: A Study of Levels VI-IV.* Philadelphia.

James, F. and McGovern, P. E. 1993. *The Late Bronze Egyptian Garrison at Beth Shan: A Study of Levels VII and VIII.* Philadelphia.

Kenyon, K. M. 1960. *Excavations at Jericho I.* London.

___ 1965. *Excavations at Jericho II.* London.

Liebowitz, H. A. 1977. Bone and Ivory Inlay from Syria and Palestine. *IEJ* 27: 89-97.

Loud, G. 1948. *Megiddo II, Season of 1935-39.* Chicago.

Lucas, A. and Harris, J. R. 1962. *Ancient Egyptian Materials and Industries.* 4th edition, London.

McNicoll, A. W. *et al.* 1992. *Pella in Jordan 2.* Sydney.

Miron, R. 1990. *Kamid el-Loz 10.* Bonn.

Price-Williams, D. 1977. *The Tombs of the MBAII Period from the '500' Cemetery at Tall Fara (South).* London.

Pritchard, J. B. 1963. *The Bronze Age Cemetery at Gibeon.* Pennsylvania.

Rowe, A. 1940. *The Four Canaanite Temples of Beth Shan.* Philadelphia.

Sparks, R. T. 1991. A Series of Middle Bronze Age Bowls with Ram's-Head Handles from the Jordan Valley. *Mediterranean Archaeology* 4: 45-54.

——1996. Egytpian Stone Vessels in Syro-Palestine during the Second Millennium B.C. and their Impact on the Local Stone Vessel Industry. Pp. 51-66 in G. Bunnens (ed.), *Cultural Interaction in the Ancient Near East, Abr-Nahrain Supplement* 5.

——1998. *Stone Vessels in the Levant During the Second Millennium B.C.: A Study of the Interaction between Imported Forms and Local Workshops* (unpublished doctoral dissertation, University of Sydney).

Stocks, D. 1986. Stone Vessel Manufacture. *Popular Archaeology* 7.4: 14-18.

___ 1993. Making Stone Vessels in Ancient Mesopotamia and Egypt. *Antiquity* 67: 109-119.

Tufnell, O. 1958. *Lachish IV - The Bronze Age.* Oxford.

Tufnell, O. *et al.* 1940. *Lachish II - The Fosse Temple.* Oxford.

Walmsley, A. G. *et al.* 1993. The Eleventh and Twelfth Seasons of Excavations at Pella (Tabaqat Fahl) 1989-1990. *ADAJ* 37: 165-231.

Yadin, Y. *et al.* 1960. *Hazor II.* Jerusalem.

Xenophontos, C. *et al.* 1988. Major and Trace-element Geochemistry Used in Tracing the Provenance of Late Bronze Age and Roman Basalt Artefacts from Cyprus. *Levant* 20: 169-183.

Piotr Bienkowski
Liverpool Museum
William Brown Street
Liverpool L3 8EN
UK

Piotr Bienkowski

The Iron Age and Persian Periods in Jordan

Historiography of Iron Age Archaeology in Jordan

The objective of this paper is to look back over the wealth of data concerning the Iron Age and Persian periods in Jordan gathered in the last twenty years—the new discoveries, new methodologies, fresh interpretations—and to assess how this data can pay out in future research. Twenty years ago the evidence available was quite different from now. Few large-scale excavations of Iron Age sites had yet been undertaken, and none were yet published. In the north there were Dayr 'Allā and as-Sa'īdiyya, in central Jordan Ḥisbān, and in the south Umm al-Biyāra, Ṭawīlān, Buṣayra and Khalayfī. Of those, today, still only Ṭawīlān, Khalayfī and as-Sa'īdiyya (Pritchard's excavations) have been published (Bennett and Bienkowski 1995; Pratico 1993; Pritchard 1985). It is rather a truism that the main aim of excavators at that time was to investigate biblical connections and firmly identify sites named in the Bible. Often there were additional aims—at Ḥisbān to broaden the archaeological picture of Jordan (Merling and Geraty 1994: 7), at Buṣayra to provide a chronology for Edom (Bennett 1973: 4 n.14)—but there is no doubt that biblical connections were foremost for excavators and sponsors: to test if Ḥisbān was biblical Heshbon (Merling and Geraty 1994: 7), if Buṣayra was biblical Bozrah (Bennett 1973: 4), if Ṭawīlān was biblical Teman (Bennett and Bienkowski 1995: 16), if Umm al-Biyāra was biblical Sela (Bennett 1966)—and of course this approach in Jordan goes right back to Nelson Glueck at Tall al-Khalayfī, which he identified, wrongly, as biblical Ezion Geber (Pratico 1993: 1-6, 17-22).

This is not to say that scholars were not interested in other aspects. McGovern's regional work north-west of 'Ammān was just beginning (McGovern 1986; 1989). The proceedings of the first of the conferences on the history and archaeology of Jordan, held in Oxford in 1980, shows plenty of interest in the Iron Age, specifically in relations with neighbouring regions: Egypt (Redford 1982), Arabia (Parr 1982), Assyria (Bennett 1982). But of course there was not much solid evidence to play with. This was recognised, especially the lack of systematic surveys of large parts of Jordan, and it is about that time that Rast and Schaub's survey of the Dead Sea Plain (e.g. Rast and Schaub 1974), Miller's survey of the Karak Plateau (Miller 1991) and MacDonald's survey of Wādī al-Ḥasā (MacDonald 1988) began to fill that gap. Since then, of course, many other systematic surveys have been undertaken, some period-specific.

It is easy to criticise some of these older excavations and to bemoan the poor excavating technique, record keeping and lack of publication. It should be remembered, though, that working conditions, and the state of the field of Near Eastern archaeology, were quite different from today. For example, interpretation of Bennett's excavations is problematic, but her excavating technique and record keeping were considered standard practice at the time, and many of the difficulties encountered in her excavations were due to still uncertain political conditions and a very different transport infrastructure than we have today (Bennett and Bienkowski 1995: 16-17). These older excavations have their problems and they are difficult to interpret, but they contain very useful data and they are still worth publishing.

The Beginning of the Iron Age

Some of the questions that are still on the research agenda now were already being broached twenty years ago, and they have still not been resolved. A major theme is the beginning of the Iron Age in Jordan: the nature and date of the formation of the Iron Age states. This subject was already of interest to Glueck (see conveniently Sauer 1986), and was later covered by Weippert (1982) and Dornemann (1982). In recent years it has been a major topic of research (Bienkowski 1992). Essentially, the question is: how, when and why were the states of Ammon, Moab and Edom formed? One aspect of this question which has clarified in recent years is that these states are no longer automatically grouped together. It is quite clear that they had different histories, and indeed the ev-

idence suggests that they originated at different times.

We have moved a long way forward since the hypothesis of Glueck, who saw all three states as beginning in about the 13th century BC and continuing to about the 6th, with a subsequent gap in the Persian period (cf. Sauer 1986). The evidence from Ammon, Moab and Edom varies considerably. It has often been pointed out that in Ammon there are several substantial walled settlements which show continuity from the Late Bronze Age to the Iron Age: 'Umayrī, Saḥāb, Ṣāfūt, Umm ad-Danānīr (LaBianca and Younker 1995: 407). Indeed, 'Umayrī is the largest fortified Iron I settlement in the southern Levant (Clark 1994; Herr *et al.* 1997: 14-15).

Perhaps just outside Ammon (Herr 1992), Dayr 'Allā (van der Kooij 1993) and as-Sa'īdiyya (Pritchard 1985; Tubb 1988) certainly show continuity from Late Bronze to Iron I; occupation at as-Sa'īdiyya continued uninterrupted possibly into the Hellenistic period, but at Dayr 'Allā there was a gap in early Iron II. Nevertheless, it is difficult to know how to deal with these northern sites. The Jordanian Iron Age is often neatly categorised as the period of the national states, Ammon, Moab and Edom, so where does the north fit in? At different times, according largely to the Bible, it was under the rule of Israel, Aram or Ammon. In the Bible the area is called Gilead, but not a single Iron Age inscription, even from Assyria, mentions the name Gilead (Bienkowski in press). It must be admitted that we are still ignorant of the political structures of the north during the Iron Age, unless we rely on the biblical record (as, for example, Herr 1997). In the far north, Tall al-Fukhār (Strange 1997: 402) and Abū al-Kharaz (Fischer 1996) also show continuity from Late Bronze to Iron I.

In Moab, the situation is a little different from the north. So far, there is no clear evidence for continuity of settlements from the Late Bronze Age into the Iron Age (Dearman 1992: 72). However, this situation is not clear-cut. Part of the problem is that the further south in Jordan you go, the less you find classic tall sites (LaBianca and Younker 1995: 406-7). The different environmental conditions—very crudely, availability of water and farm or pasture land and the nature of the landscape—give rise to different types and sequences of occupation, and so to different types of archaeological evidence. So, trying to determine continuity on the basis of superimposed strata is not that easy, because the evidence is rarely definitive. In Moab, al-Bālū' (Worschech *et al.* 1989) and al-Lāhūn (Homès-Fredericq 1992) may show continuity from Late Bronze to Iron Age, though this is still unclear, but in general the density of occupation in the Late Bronze Age was less than in Ammon. Many scholars have pointed out in recent years that this lack of continuously occupied settlements reflects a population with an economy based on pastoralism (e.g. Dearman 1992: 73). Nevertheless, there was some Late Bronze and Iron I settled occupation.

Once we get to Edom, the situation is different again. Here, there was no settled occupation at all during the Middle and Late Bronze Ages (Bienkowski 1992: 5-8). It was Manfred Weippert, at the first of these conferences in 1980, who first argued for Iron I occupation in Edom, as opposed to the accepted explosion of settlement in Iron II (Weippert 1982). In recent years this point has generated much heated discussion, leading to some problem-oriented fieldwork (e.g. Bienkowski 1992; 1995a; Bienkowski *et al.* 1997; Bienkowski and Adams 1999; Finkelstein 1992a, b). Essentially, two types of evidence were presented for an Iron I occupation of Edom: Iron I pottery found on surveys of sites in northern Edom, and Iron I collared-rim jars found at excavated sites throughout Edom (Finkelstein 1992a, b). None of this evidence has survived close scrutiny (Bienkowski 1992: 104-10). The surveyed sites, when excavated, have yielded no Iron I occupation, and the survey pottery was found to be misidentified (Bienkowski *et al.* 1997; Bienkowski and Adams 1999). The collared-rim jar has been found, based on well stratified assemblages particularly from 'Umayrī and Jāwa, to have a long history and development in Jordan, and the examples from Edom are without doubt Iron II (Herr in press; Daviau 1992: 151). It is likely that the small site of Barqa al-Hitiya in the Faynān area, dated to Iron I by its excavator, should also be dated to Iron II, based on the shape of the collared-rim jars found there (Fritz 1994: 143 Fig. 11:8-9), although admittedly that would depend on the acceptance of a longer sequence for the 'Midianite' pottery found there, as has been proposed (Bawden and Edens 1988; cf. Parr 1988).

There is little doubt, then, that published evidence shows no Iron I in Edom, and the first settlements date no earlier than the late eighth century BC. However, recent work at a cemetery site in Wādī Fīdān, an extension of Wādī Faynān in northern Edom, has provided rather a different kind of evidence. In 1997, Levy and Adams excavated fifty graves, mostly flexed burials without grave offerings but with lots of beads. One group, however, was formed of extended burials with preserved wooden bowls and pomegranates, but no pottery. An associated radiocarbon date puts this group in the tenth/ninth century BC (Levy, Adams and Shafiq 1999).

Of course, we must await proper analysis of these finds and the exact context of the radiocarbon sample. It is possible, though, that we do have here the first Iron Age burials ever found in Edom, with no pottery, and dating earlier than the Edomite settlements. If we are going to be imaginative, we might be tempted to associate these burials with the sort of pastoral nomadic groups which we know occupied the area of Edom during the second millennium BC, and are mentioned in Egyptian inscriptions (Kitchen 1992). There has never been any doubt that Edom was

occupied during the second millennium BC and the early first millennium BC, despite the lack of settlements, and these people must have died occasionally and been buried somewhere. It is possible that they have just been found.

It is less easy to pin down the reasons for increased settlement in Ammon, Moab and Edom during Iron II, and how and why they became actual states—and indeed, what sort of states were they? The origins of Ammon, Moab and Edom, and generally of Iron Age settlement, are attributed to three possible causes: the collapse of the Late Bronze Age system (McGovern 1987; Knauf 1992: 48); migrations of populations (Knauf *op. cit.*; van der Steen 1995: 68); or settlement and state formation by pre-existing populations, perhaps under external stimulus, such as the development of the Arabian trade or the effects of the *Pax Assyriaca* (Bienkowski 1992: 8). The argument that Iron Age sedentary occupation was precipitated by Canaanite migrants from Palestine has been propounded by Knauf (1992: 48-9), although there is no compelling evidence that the Iron Age inhabitants of Ammon, Moab and Edom originated outside (LaBianca and Younker 1995: 406).

Specifically regarding Edom, the re-opening of the copper mines at Faynān may well be related to renewed settled occupation and possibly even state formation (Bienkowski 1992: 8). There is no evidence for use of the mines during the Middle and Late Bronze Ages. They were certainly in use in Iron II (Hauptmann and Weisgerber 1992). Recent sherding in Wādī Faynān by Barker as part of the Faynān Project has yielded more pottery of the type recorded by Hart and Knauf (1986) as non-Edomite Iron Age pottery, which Hart and Knauf found in association with 'standard Edomite' (i.e. seventh-sixth century BC) pottery. Barker's survey suggests that the two types can be found in isolation and that there may be a chronological distinction between them, perhaps hinting at the possibility of a pre-Edomite phase at Faynān (Barker *et al.* 1999).

Exactly when Ammon, Moab and Edom became states is arguable, but there is little evidence for early state formation, certainly not before the ninth century BC in Moab at any rate, and probably later in Ammon and Edom (Bienkowski 1992: 8; Miller 1992; LaBianca and Younker 1995: 406-7). If these states had a distinctive material culture, which is still to be demonstrated unequivocally, then it was not before fairly late in Iron II—but whether a distinctive material culture has anything to do with being a centralised state is debatable (cf. Knauf 1992).

Regional Variation and the Nature of the Iron Age States

One of the most promising avenues of research in recent years has been precisely this point: what sort of states were these? The traditional picture we have inherited from the Old Testament and from our interpretation of the Assyrian inscriptions is that these were centralised kingdoms, ruled by kings, with a capital, a state god, and a centralised administrative structure. One of the biggest differences in approach to fieldwork and research compared with twenty years ago is the systematic use of anthropological and sociological techniques. This has enabled us to look more critically at these so-called states, and in particular LaBianca and Younker (1995) have very convincingly argued that these were more tribal kingdoms than nation states.

This means that, at a local level, the political organisation and the unit of subsistence was the tribe, not the state, and, as Knauf has put it, there was only ever 'a thin veneer of central administration', and this was a society functioning 'on a level not penetrated by the state' (1992: 52). This hypothesis really does have strong explanatory power when we come to consider differences in material culture between sites and between regions, the reasons behind the demise or fading away of these kingdoms, and the apparent lack of change in the material culture after the states ended.

It is probably true that twenty years ago the material culture of Jordan was still regarded as a minor regional variation of that of Palestine, and perhaps this view still persists in some quarters. Two points need to be made clear. One is that, in general, the Iron Age of Jordan has a quite different character from that of Palestine: the pottery assemblages are quite different, and, for example, there is nothing in Palestine like the Ammonite sculptures (Abou-Assaf 1980). Secondly, there is increasing evidence of distinctive regional variations within Jordan itself, not only between the recognised 'states', but within them too.

In general, pottery assemblages from Edom, Moab, Ammon, and in the north are all different from each other. Of course there are similarities, but styles of painting on ceramics are different, surface finishes are different, simple bowl shapes are different, even bases are different (cf., for example, Hendrix *et al.* 1997: 170-202).

What do these regional variations mean? Recently, Herr (1997) and Daviau (1997) have separately looked at aspects of this problem. Does pottery represent regional or national assemblages (Herr 1997: 118, 151-4), and can variations help us to locate borders between states? Khirbat al-Mudayna in the north of Moab has pottery paralleled at Dhībān to the south, in particular disc bases, and a Moabite ostracon, while Rujm al-Hiri, just 4 km to the north, has pottery paralleled at Jāwa, 'Umayrī and 'Ammān in traditional 'Ammonite' territory, in particular, characteristic 'Ammonite' double disc bases. Furthermore, structures traditionally identified as watchtowers or forts, closely associated with these northern Moabite settlements, also had 'Moabite' pottery. Perhaps these structures marked Moab's northern border (Daviau

1997: 226-7). Of course, such structures varied in size, strength and function, and were probably used for a variety of purposes, including regional security, communication, storage and even care of flocks (cf. Kletter 1991; Dearman 1997: 205). However, if these forts did mark the northern border of Moab, then these pottery assemblages are national, and so, farther north, they may help us to determine where the elusive borders of Ammon were. It is not entirely certain if Ammon ever extended beyond Wādī az-Zarqā', which seems to be the limit for 'Ammonite' pottery, although of course these borders were changeable (Herr 1992a).

Nevertheless, categorising these assemblages neatly as 'national' is not the whole story, and it masks a potentially more complex situation. Herr very carefully refers to 'regional assemblages which are nuanced by national preferences in their core territories' (1997: 154; he also notes that these 'national' groups may change over time, attributing to Israel, for example, sites such as 'Arā'ir (Aroer) V, Lāhūn and as-Sa'īdiyya X-IX, 1997: 121-3). But within the 'national' regions themselves there are also variations. In Edom, for example, painted pottery is not found on the distinctive 'mountain-top' sites in the region of Petra (Bienkowski 1995b: 52). A unique range of painted pottery and of very fine wares is found at Buṣayra (Oakeshott 1983). Particular wares are found only in the north of Edom. Particular krater or pithoi forms are measurably more common in the south than in the north of Edom (Bienkowski and Adams 1999). We cannot talk about a single 'Edomite assemblage' in pottery; each site and each area must be considered on its own merits. Within Moab too there are distinct regional differences, with different assemblages from sites such as Khirbat al-Mudayna and al-Bālū'a.

How can we explain these variations within states? At this point we can reconsider the notion of tribal kingdoms and consider what a 'national' assemblage of pottery means in these terms. Certainly in Edom, the pottery and architecture at Buṣayra constitute an exception. This was the capital, and it was impressive: it was meant to be (Bienkowski 1995b: 57-9). Compare the completely different pottery assemblage and architecture at Umm al-Biyāra in the south (Bienkowski 1995b: 56): there is little doubt that this was in theory as well as in practice part of the 'kingdom of Edom', because this is where the seal impression of Qos Gabr king of Edom was found (Bienkowski 1995b: 44). Here, precisely, is Knauf's 'thin veneer of central administration' (Knauf 1992: 52). If these were small, isolated settlements, tribally organised and probably with infrequent contact with the central administration, then what we would expect in terms of their material culture would be many local variations, especially in the more common pottery of everyday life, and a lack of the fine ware best known from the capital.

Iron Age Routes

Once the discussion turns to 'isolated' settlements and 'infrequent contact', we have to consider of course the question of communication and routes. There is still general acceptance that there was a major north-south route through Jordan in the Iron Age, termed 'the King's Highway', more or less corresponding, with some variations, to the modern road of that name (Oded 1970; Eph'al 1984: 83; Herr 1997: 171). If this route did indeed exist, then it makes a slight nonsense of the idea of isolated settlements.

In this respect, we do not seem to have moved very far in twenty years, because at the 1980 conference, Miller argued, and has continued to argue since, that there is insufficient evidence for such a route in the Iron Age (Miller 1982: 173; 1989:12). It is worthwhile looking at this point once more. The idea of an Iron Age King's Highway goes back to Nelson Glueck: his view was that the biblical book of Numbers (20:17, 21:22) mentioned a 'King's Highway' (derek hammelek) from north to south through Moab and Edom, and in his survey he noticed a concentration of Iron Age sites along that route, which was essentially the route of the Roman Via Nova Traiana (Glueck 1940: 15). Miller noted that one of the biblical references was to Sinai, not Jordan, suggesting that in fact there were various routes which might have been called 'the royal road'. Secondly, Miller's Karak Plateau Survey noticed no such concentration of Iron Age sites along the Roman road (1982: 173).

It is usually assumed that the King's Highway was the route for the Arabian trade, which was certainly functioning by the seventh century BC if not earlier (Bienkowski 1992: 9 n.7). Nevertheless, that this was the actual route is no more than an assumption. The earliest evidence for the actual routes of the Arabian trade comes from the Hellenistic period, by which time the routes had changed because at least some of the trade already went by sea (Bowersock 1983: 64; Crone 1987: 18-26). We know the Nabataean route from Petra to Gaza went through the Negev (Cohen 1982). Syria and Mesopotamia are also mentioned as final destinations, but the route is not specified. We need not envisage a major overland route—Pliny tells us that frankincense was transported in Roman times through Minaean territory 'along one narrow track' (Natural History 12, 54). It has been suggested that a possible route was via Wādī as-Sirḥān to the east, which was in fact shorter than the western route which culminated along the King's Highway (Bowersock 1983: 64, 154-9). This is a big problem, and it is clear that the route is debatable even for later times when at least there is some scanty evidence. For the Iron Age we have absolutely no evidence where it went. The relevance of this point is that we cannot use the Arabian trade as evidence for the existence of the

King's Highway in the Iron Age.

Perhaps we have to move away quite consciously from this idea of a major Iron Age north-south route, which may indeed have been an invention of Glueck's (who believed that the same north-south route was the main artery through Jordan from the Early Bronze Age to modern times). Iron Age roads were not paved, so admittedly they are difficult to trace archaeologically, but the evidence coming from more recent surveys is that there was an interwoven network of trails and optional routes. Dearman has pointed out two optional routes across Wādī al-Mūjib at 'Arā'ir and at Lāhūn, both well east of the Roman road; King Mesha of Moab claimed to have rebuilt a highway in the Arnon, also east of the Roman road (Dearman 1997: 206). In the 'Irāq al-Amīr region near 'Ammān, there may be evidence for a series of trails along the edges of wadis, marked by small 'forts' (Ji 1998). Maybe it is premature to discount completely the existence of an Iron Age road along the route of the later Roman road, since it is possible that the Romans built their paved road along an earlier trail, but it is salutary to realise that in fact there is no evidence for its existence in the Iron Age. Furthermore, considerable evidence from all periods is beginning to suggest that perhaps east-west routes were more significant than those north-south. Neutron activation analysis of pottery from Tall al-Fukhār shows that from the Middle Bronze Age to the late Iron Age/Persian period there were pottery imports from southern Palestine (McGovern 1997: 423-4), suggesting to McGovern (this volume) a route across the highlands of Palestine to either Tall as-Sa'īdiyya or Pella, and from there to Irbid and farther east. Herr too has stressed east-west contacts rather than those north-south in the Late Bronze and Iron Ages (1998; 1997: 171).

Jordan and Mesopotamia

The question of the King's Highway was further clouded by the assumption, which has gained a tenacious foothold in the literature, that it was part of the Assyrian 'royal road' system, and indeed it was from there that the biblical writers borrowed the name (Oded 1970). For too long there has been the assumption that Assyria in effect directly ruled the Jordanian Iron Age states. There is in fact no evidence at all for actual Assyrian presence anywhere in Jordan. If there was a King's Highway, it had nothing to do with the carefully maintained Assyrian royal road (Bienkowski in press); in Assyrian sources, there is no mention of the 'royal road' (harran or hul šarri) anywhere west of the Euphrates (Kessler 1997: 131). Ammon, Moab and Edom were tributary states, which paid tribute when required and performed some other tasks. They were not provinces, and they were not considered part of Assyria (Millard 1992; Bienkowski 1992: 3-5; in press). The evidence is quite clear that the Assyrian royal road ran only through Assyria proper and its provinces. Moreover, there is no evidence for the presence of Assyrian officials in Jordan. Much is made of 'Assyrian' or 'Assyrianising' pottery found at Iron Age sites, as evidence of Assyrian presence, although excavators often do not make a distinction between what they consider actual Assyrian pottery, and what is a local imitation, Assyrianising pottery. Real Assyrian pottery, of the type known especially from Nimrud, has been found at sites in Palestine, like Tall Jammah, where there is other evidence of Assyrian presence. But, to the writer's knowledge, not a single sherd of real Assyrian pottery has been found on any site in Jordan (Bienkowski in press).

The only firm evidence for Mesopotamian presence during the Iron Age in Jordan is the relief at as-Sila' (Sela), near Buṣayra (Dalley and Goguel 1997). This shows a standing king, above him a crescent and a star, and an illegible inscription. Analysis of the style of the relief identifies the figure almost certainly as the Neo-Babylonian king Nabonidus (555-539 BC). Dalley and Goguel (1997: 174) propose that the relief was carved to commemorate Nabonidus' journey through Edom towards Tayma, perhaps in years 3 or 4 of his reign (i.e. ca. 553-552 BC), and suggest that the presence of the relief in as-Sila' implies that Edom was under (direct?) Babylonian administration at that time.

Unfortunately, the administrative position of Transjordan in Neo-Babylonian times, and what happened to the kingdoms of Ammon, Moab and Edom, is not at all clear. Ammon and Moab are not mentioned in any contemporary inscriptions. According to Josephus (Antiquities 10.9:7), Nebuchadnezzar conquered Ammon and Moab in 582/1 BC, and most scholars interpret this as meaning that Ammon and Moab were annexed at this point and were henceforth ruled directly from Babylon (e.g. Ahlström 1993: 801). Josephus does not explicitly state this, however; indeed, although he mentions the exile of Jews to Babylon in the same passage, he makes no mention of the exile of Ammonites or Moabites, which might be expected to have automatically followed a full annexation.

Edom may appear in the Nabonidus Chronicle for his third year, 553 BC, but the signs are broken and the exact reading is not certain (Beaulieu 1989: 166, 169; Grayson 1975: 105, 282). What is normally restored is: 'He/they encamped against the land of Edom' or 'against the city of Edom'. This is usually understood as meaning a siege of Buṣayra, Edom's capital, and the annexation of Edom (Bartlett 1989: 157-61; Ahlström 1993: 805), but the evidence is scarcely conclusive.

Ammon, Moab and Edom may therefore have been annexed by the Neo-Babylonians, but conclusive proof is lacking, although admittedly it is unlikely that they survived as independent kingdoms into the Persian period

(Eph'al 1988: 142). Herr has recently argued that the late Iron II administrative buildings at 'Umayrī, and associated wine-producing farmsteads, were built during the Neo-Babylonian period in order to pay the increased tribute brought on by Babylonian rule (Herr 1997: 170). It is not at all clear that tribute would have been any different than under Assyrian rule (although if Ammon was under direct Babylonian rule, as perhaps implied by Josephus, technically this would have been tax, not tribute); but what the discoveries at 'Umayrī have very usefully done is to show conclusively, really for the first time, that these late Iron II sites continued through the Neo-Babylonian and into the Persian period.

The Persian Period

Twenty years ago it was still the standard explanation that the kingdoms of Ammon, Moab and Edom were brought to an end by the Babylonians, possibly with a wholesale destruction of sites, and there was little if any evidence for Persian-period occupation (e.g. Bennett 1983: 17). In fact, nothing at all was known about the organisation of Jordan during the Persian period. It was generally concluded, on very little evidence, that Edom and Moab at least were overrun by nomadic Arab tribes (cf. Eph'al 1984: 198). Archaeological evidence for Persian-period settlement in Jordan was not widespread enough to counter this view. Although there were isolated tomb deposits and a few other finds in Jordan dated to the Persian period, there was no proper excavated sequence of material that could be shown unambiguously to date to the period: the evidence from al-Mazār (Yassine 1984; 1988a, b; Yassine and Teixidor 1988), Ḥisbān (Sauer in Merling and Geraty 1994: 246-8; Cross and Geraty in Merling and Geraty 1994: 172-4; Merling in Merling and Geraty 1994: 215-6), Dayr 'Allā (van der Kooij 1987; van der Kooij and Ibrahim 1989: 89-90) and as-Sa'īdiyya (Pritchard 1985: 60-8, 86-7) was simply not secure enough.

The ongoing excavations at 'Umayrī have now provided good stratigraphic evidence for continuity from Iron II to the Persian period (Herr 1993; 1995). Two continuously occupied strata bridge the sixth century BC: alongside Attic sherds of the fifth century BC is local pottery indistinguishable from that of Iron II. Increasingly, it seems that there is continuity from Iron II, through the Persian period and perhaps into the Hellenistic period. Many surveys and excavations have identified little or no diagnostic Persian material, but in fact we should now acknowledge that in some of these at least there may be an element of continuity from Iron II into the Persian period without much of a definable change in the material culture, and this is the case over the whole of Jordan.

There is also some evidence that Ammon might have been a Persian province. Three stamped impressions on jars from 'Umayrī, written in Aramaic and dating to the late sixth or early fifth century BC, have been interpreted as the Ammonite equivalent of the Yehud stamps from Judah, which contained the name of the Persian province and probably served as a stamp on goods in the Persian provincial tax system (Herr 1992b). If this is correct, the 'Umayrī stamps may name governors or treasurers of the Persian province of Ammon. Evidence from elsewhere suggests that governors were members of the local ethnic groups (Eph'al 1988: 151-52), so there is no need to envisage a large influx of native Persians or of Persian material culture.

Of course, even if there was a Persian province of Ammon, we do not know what its borders were, nor do we know the status of Edom and Moab. The traditional views of Edom at the end of the Iron Age and into the Persian period have been that in the seventh and sixth centuries BC the Edomites took advantage of Judah's weakness and invaded the Negev and the southern border of Judah, or that from the sixth to the fourth centuries BC they were pushed westwards by invading Arabs and gradually settled in parts of the Negev. The evidence for these scenarios is the 'Edomite' pottery found at sites in the Negev, for example the 'Edomite cult site' of Horvat Qitmit, and the fact that in the Hellenistic period the name Idumaea, derived from Edom, referred to the area south of Judah (Beit-Arieh 1995).

All of this is a question of interpretation. The archaeological evidence on its own certainly does not prove any sort of Edomite domination of the Negev—Qitmit has been alternatively explained as a shrine serving a wide clientele, which included pastoral nomads, among them Edomites, Arabs and probably others (Finkelstein 1995: 139-53; Bienkowski 1995c: 139). Up to now, no building definitely identified as a shrine has been found in Edom as a comparison, nor any anthropomorphic ceramic vessels comparable to those from Qitmit (Beit-Arieh 1995) and 'En Haseva (Cohen and Yisrael 1995), although there are some similarities in figurines from Buṣayra (Bienkowski and Sedman fc). In fact, the closest parallels to the Qitmit and 'En Haseva vessels, which have been identified as Edomite, have recently been found in Moab, at Site 13 of the Regional Survey of the Wādī ath-Thamad Archaeological Project (Daviau 1997: 225-7), although their association with Moabite culture and religion is not yet understood. Clearly it is premature to link this sort of material exclusively with either Edomites or Moabites.

As for the linguistic evidence, Bartlett has recently argued that the name Idumaea actually had nothing at all to do with the Iron Age kingdom of Edom, on the basis that by the fourth century BC there was little clear, academic recollection of the ancient kingdom of Edom and its precise territory, and that the name 'Idumaea' was based on a geographical term 'Edom' which was often applied loosely to the land generally south of the Iron Age

kingdom of Judah (1998). Clearly there is a debate here (cf. Herr 1997: 173-5), but at the very least it has certainly been established that Edom was not an unsettled no-man's-land during the Persian period, into which wandered Qedarites or proto-Nabataeans or other Arab tribes, pushing out the Edomite population. As far as we can tell, population and settlements continued, if not the 'state' of Edom (Bartlett 1990). There is still no conclusive archaeological evidence concerning continuity between Edomite and Nabataean settlements (Bartlett 1990; Bienkowski 1990), although further north it appears that there was continuity of settlement from Iron II through the Persian period and into the Hellenistic period, at least at 'Umayrī (Herr 1993), as-Sa'īdiyya (Pritchard 1985), and Fukhār (Strange 1997: 403-5).

Back to Basics?

It must be admitted that the chronology of this late Iron II and Persian period is still very uncertain. We cannot say conclusively when sites were destroyed or abandoned, and of course there is a similar problem, certainly in Edom, with dating the beginning of the Iron Age. This is a question of the basics of archaeology. Basic chronology is fundamental before we can seriously ask more searching questions, and we still do not have a definitive chronology for Iron Age pottery. There is still no published stratigraphically based pottery chronology for the Iron Age to Persian periods, although in due course this will be provided by the excavations at 'Umayrī and Jālūl (Younker *et al.* 1996), as-Sa'īdiyya (Tubb 1988), Jāwa (Daviau 1992), al-Fukhār (Strange 1997) and some other sites; meanwhile the detailed interim reports of the Madaba Plains Project partly fill the gap (e.g. Herr *et al.* 1997). But we must be aware that, with the strong regional variation in Iron Age Jordan, there can never be anything like a 'type site'—that is an outmoded concept.

This strong regionalism in Iron Age Jordan leads to problems with surface surveys: if a project is surveying a relatively unknown region, then what can it base its pottery dating on? So far, most of the surveys that have included Iron Age sites have had their pottery read in a fairly subjective way (cf. Finkelstein 1998). When checked against excavated pottery, once surveyed sites were dug, very often the survey readings have been shown to be wrong (MacDonald 1996). So we cannot rely on surveys to give us a reliable picture of settlement patterns and densities through the Iron Age. For example, surveys suggested a slow build up of settlement in northern Edom, around Wādī al-Ḥasā, through the Late Bronze Age into Iron I, and this scenario became widely accepted. Excavations have shown that there was no Late Bronze or Iron I at all (Bienkowski 1995a; Bienkowski *et al.* 1997; Bienkowski and Adams 1999). Sometimes, the main value of a survey is simply to register the existence of a site, and for very large parts of Jordan we still do not have even that. This must be a priority for the immediate future. For example, large parts of the south have not been touched since Glueck's survey, and he too was highly selective.

The second priority is final publication: very little has appeared in final form for the Iron Age (Pritchard 1985; McGovern 1986; Pratico 1993; Bennett and Bienkowski 1995 appear to be the only examples). Of course, as older excavations, like Buṣayra or Ḥisbān, are eventually published, the results reflect research questions, field methodologies and recording systems that are now outmoded. We cannot expect them to answer the questions we pose now.

As a result of this lack of conclusive data, we must realise that we still do not know many of the basics, and there is a danger of erecting a huge interpretative edifice on extremely shaky foundations. Essentially, we are still creating the basic framework for understanding Iron Age Jordan: we must be realistic in judging what sort of questions present evidence can withstand.

Bibliography

Abou-Assaf, A. 1980. Untersuchungen zur Ammonitischen Rundbildkunst. *Ugarit-Forschungen* 12: 7-102.

Ahlström, G. W. 1993. *The History of Ancient Palestine from the Palaeolithic Period to Alexander's Conquest.* D. Edelman (ed.). Sheffield: Academic Press.

Barker, G. W. *et al.* 1999. Environment and Land Use in the Wādī Faynān, Southern Jordan: The Third Season of Geoarchaeology and Landscape Archaeology (1998). *Levant* 31.

Bartlett, J. R. 1989. *Edom and the Edomites.* Sheffield: JSOT Press.

——1990. From Edomites to Nabataeans: The Problem of Continuity. *Aram* 2/1&2: 25-34.

——1998. *Edomites and Idumaeans.* 10th Crystal Bennett Memorial Lecture, British Academy, London, 21 May.

Bawden, G. and Edens, C. 1988. Tayma Painted Ware and the Hejaz Iron Age Ceramic Tradition. *Levant* 20: 197-213.

Beaulieu, P-A. 1989. *The Reign of Nabonidus, King of Babylon: 556-539 BC.* New Haven/London: Yale University Press.

Beit-Arieh, I. 1995. The Edomites in Cisjordan. Pp.33-40 in D. V. Edelman (ed.), *You Shall Not Abhor an Edomite for He is Your Brother: Edom and Seir in History and Tradition.* Atlanta: Scholars Press.

Bennett, C-M. 1966. Fouilles d'Umm al-Biyشra: Rapport Préliminaire. *RB* 73: 372-403.

——1973. Excavations at Buseirah, Southern Jordan, 1971: A Preliminary Report. *Levant* 5: 1-11.

——1982. Neo-Assyrian Influence in Transjordan. Pp. 181-187 in *SHAJ* I. Amman: Department of Antiquities.

——1983. Excavations at Buseirah (Biblical Bozrah). Pp. 9-17

in J. F. A. Sawyer and D. J. A. Clines (eds.), *Midian, Moab and Edom: The History and Archaeology of Late Bronze and Iron Age Jordan and North-West Arabia*. Sheffield: JSOT Press.

Bennett, C-M. and Bienkowski, P. 1995. *Excavations at Tawilan in Southern Jordan*. Oxford: Oxford University Press.

Bienkowski, P. 1990. The Chronology of Tawilan and the 'Dark Age' of Edom. *Aram* 2/1&2: 35-44.

——(ed.) 1992. *Early Edom and Moab: The Beginning of the Iron Age in Southern Jordan*. Sheffield: J.R. Collis.

——1995a. Observations on Late Bronze-Iron Age Sites in the Wadi al-Hasa, Jordan. *Levant* 27: 29-37.

——1995b. The Edomites: The Archaeological Evidence from Transjordan. Pp. 41-92 in D. V. Edelman (ed.), *You Shall Not Abhor an Edomite for He is Your Brother: Edom and Seir in History and Tradition*. Atlanta: Scholars Press.

——1995c. The Architecture of Edom. Pp. 135-143 in *SHAJ* V. Amman: Department of Antiquities.

——in press. Transjordan and Assyria. In L. E. Stager and J. A. Greene (eds.), *J. A. Sauer Festschrift*. Cambridge, MA: Harvard University Press.

Bienkowski, P. *et al.* 1997. Soundings at Ash-Shorabat and Khirbat Dubab in the Wadi al-Hasa, Jordan: The Stratigraphy. *Levant* 29: 41-70.

Bienkowski, P. and Adams, R. 1999. Soundings at Ash-Shorabat and Khirbat Dubab in the Wadi al-Hasa, Jordan: The Pottery. *Levant* 31.

Bienkowski, P. and Sedman, L. forthcoming. Buseirah and Judah: Stylistic Parallels in the Material Culture. In A. Mazar (ed.), *The Archaeology of Israel in the Period of the Monarchy*.

Bowersock, G. W. 1983. *Roman Arabia*. Cambridge, MA: Harvard University Press.

Clark, D. R. 1994. The Iron I Western Defense System at Tell el-'Umeiri, Jordan. *BA* 57: 138-48.

Cohen, R. 1982. New Light on the Petra-Gaza Road. *BA* 45: 240-47.

Cohen, R. and Yisrael, Y. 1995. The Iron Age Fortresses at 'En Haseva. *BA* 58: 223-35.

Crone, P. 1987. *Meccan Trade and the Rise of Islam*. Princeton: University Press.

Dalley, S. and Goguel, A. 1997. The Sela' Sculpture: A Neo-Babylonian Rock Relief in Southern Jordan. *ADAJ* 41: 169-76.

Daviau, P. M. M. 1992. Preliminary Report of the Excavations at Tall Jāwa in the Madaba Plains (1991). *ADAJ* 36: 145-62.

——1997. Moab's Northern Border: Khirbat al-Mudayna on the Wadi ath-Thamad. *BA* 60/4: 222-28.

Dearman, J. A. 1992. Settlement Patterns and the Beginning of the Iron Age in Moab. Pp. 65-75 in P. Bienkowski (ed.), *Early Edom and Moab: The Beginning of the Iron Age in Southern Jordan*. Sheffield: J. R. Collis.

——1997. Roads and Settlements in Moab. *BA* 60/4: 205-13.

Dornemann, R. H. 1982. The Beginning of the Iron Age in Transjordan. Pp. 135-140 in *SHAJ* I. Amman: Department of Antiquities.

Eph'al, I. 1984. *The Ancient Arabs: Nomads on the Borders of the Fertile Crescent 9th-5th Centuries B.C.* Jerusalem: Magnes Press.

——1988. Syria-Palestine under Achaemenid Rule. *Cambridge Ancient History* 4 (2nd ed.): 139-64.

Finkelstein, I. 1992a. Edom in the Iron I. *Levant* 24: 159-66.

——1992b. Stratigraphy, Pottery and Parallels: A Reply to Bienkowski. *Levant* 24: 171-2.

——1995. *Living on the Fringe: The Archaeology and History of the Negev, Sinai and Neighbouring Regions in the Bronze and Iron Ages*. Sheffield: Academic Press.

——1998. From Sherds to History: Review Article. *IEJ* 48: 120-31.

Fischer, P. 1996. Tall Abu Kharaz: The Swedish Jordan Expedition 1994. Fifth Season Preliminary Excavation Report. *ADAJ* 40: 101-10.

Fritz, V. 1994. Vorbericht über die Grabungen in *Barqa el-Hetiye* im Gebiet von Fenan, Wadi el-'Araba (Jordanien) 1990. *ZDPV* 110: 125-50.

Glueck, N. 1940. *The Other Side of the Jordan*. New Haven: ASOR.

Grayson, A. K. 1975. *Assyrian and Babylonian Chronicles*. Locust Valley: Augustin.

Hart, S., and Knauf, E. A. 1986. Wadi Feinan Iron Age Pottery. *Newsletter of the Institute of Archaeology and Anthropology, Yarmouk University* 1: 9-10.

Hauptmann, A. and Weisgerber, G. 1992. Periods of Ore Exploitation and Metal Production in the Area of Feinan, Wādī Arabah, Jordan. Pp. 61-6 in *SHAJ* IV. Amman: Department of Antiquities.

Hendrix, R. E., Drey, P. R. and Storfjell, J. B. 1997. *Ancient Pottery of Transjordan: An Introduction Utilizing Published Whole Forms - Late Neolithic through Late Islamic*. Berrien Springs, MI: Andrews University Press.

Herr, L. G. 1992a. Shifts in Settlement Patterns of Late Bronze and Iron Age Ammon. Pp. 175-8 in *SHAJ* IV. Amman Department of Antiquties.

——1992b. Two Stamped Jar Impressions of the Persian Province of Ammon from Tall al-'Umeiri. *ADAJ* 36: 163-66.

——1993. Whatever Happened to the Ammonites? *BA* 19/6: 26-35, 68.

——1995. The Late Iron II-Persian Ceramic Horizon at Tall al-'Umeiri. Pp. 617-619 in *SHAJ* V. Amman: Department of Antiquties..

——1997. The Iron Age II Period: Emerging Nations. *BA* 60/3: 114-83.

——1998. Social Systems in Central Jordan: Moving Towards the First Millennium BC and the Earliest Iron Age Polities. Paper delivered at the 7th International Conference on the History and Archaeology of Jordan, Copenhagen, 14-19 June.

——in press. The History of the Collared Pithos at Tell el-

'Umeiri, Jordan. *Douglas Esse Festschrift.*

Herr, L. G. *et al.* (eds) 1997. *Madaba Plains Project 3: The 1989 Season at Tall* el-'Umayrī *and Vicinity and Subsequent Studies*. Berrien Springs, MI: Andrews University Press.

Homès-Fredericq, D. 1992. Late Bronze and Iron Age Evidence from Lahun in Moab. Pp. 187-202 in P. Bienkowski (ed.), *Early Edom and Moab: The Beginning of the Iron Age in Southern Jordan*. Sheffield: J. R. Collis.

Ji, C.-H. 1998. 'Irāq al-Amīr and the Hellenistic Settlements in Central and Northern Jordan. Paper delivered at the 7th International Conference on the History and Archaeology of Jordan, Copenhagen, June.

Kessler, K. 1997. 'Royal Roads' and Other Questions of the Neo-Assyrian Communication System. Pp. 129-36 in S. Parpola and R. M. Whiting (eds.), *Assyria 1995*. Helsinki: Neo-Assyrian Text Corpus Project.

Kitchen, K. A. 1992. The Egyptian Evidence on Ancient Jordan. Pp. 21-34 in P. Bienkowski (ed.), *Early Edom and Moab: The Beginning of the Iron Age in Southern Jordan.* Sheffield: J. R. Collis.

Kletter, R. 1991. The Rujm el-Malfuf Buildings and the Assyrian Vassal State of Ammon. *BASOR* 284: 33-50.

Knauf, E. A. 1992. The Cultural Impact of Secondary State Formation: The Cases of the Edomites and Moabites. Pp. 47-54 in P. Bienkowski (ed.), *Early Edom and Moab: The Beginning of the Iron Age in Southern Jordan.* Sheffield: J. R. Collis.

van der Kooij, G. 1987. Tall Deir 'Alla (East Jordan Valley) During the Achaemenid Period: Some Aspects of the Culture. Pp.97-102 in H. Sancisi-Weerdenburg (ed.), *Achaemenid History I: Sources, Structures and Synthesis*. Leiden: Nederlands Instituut voor het Nabije Oosten.

——1993. Deir 'Alla, Tell. Pp.338-42 in E. Stern (ed.), *The New Encyclopedia of Archaeological Excavations in the Holy Land*. Jerusalem: Israel Exploration Society.

van der Kooij, G. and Ibrahim, M. M. (eds.) 1989. *Picking Up the Threads...A Continuing Review of Excavations at Deir Alla, Jordan*. Leiden: University of Leiden Archaeological Centre.

LaBianca, Ø. S. and Younker R. W. 1995. 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., Adams, R. A. and Shafiq, R. 1999. The Jebel Hamrat Fidān Project: Excavations at the Wādī Fidān 40 Cemetery, Jordan (1997). *Levant* 31.

MacDonald, B. 1988. *The Wadi el Hasa Archaeological Survey 1979-1983, West-Central Jordan*. Waterloo, Ontario: Wilfrid Laurier University Press.

——1996. Survey and Excavation: A Comparison of Survey and Excavation Results from Sites of the Wādī al-Ḥasa and the Southern al-Aghwar and North-East 'Arabah Archaeological Surveys. *ADAJ* 40: 323-37.

McGovern, P. E. 1986. *The Late Bronze and Early Iron Ages of Central Transjordan: The Baq'ah Valley Project, 1977-1981*. Philadelphia: University Museum.

——1987. Central Jordan in the Late Bronze and Early Iron Ages: An Alternative Hypothesis of Socio-Economic Transformation and Collapse. Pp. 267-73 in *SHAJ* III. Amman: Department of Antiquities.

——1989. Baq'ah Valley Survey. Pp. 25-44 in D. Homès-Fredericq and J. B. Hennessy (eds), *Archaeology of Jordan* 2.1. Leiden: Peeters.

——1997. A Ceramic Sequence for Northern Jordan: An Archaeological and Chemical Perspective. Pp. 421-25 in *SHAJ* VI. Amman: Department of Antiquities.

Merling, D., and Geraty, L. T. (eds.) 1994. *Hesban After 25 Years*. Berrien Springs, MI: Institute of Archaeology/ Siegfried H. Horn Archaeological Museum.

Millard, A. 1992. Assyrian Involvement in Edom. Pp. 35-9 in P. Bienkowski (ed.), *Early Edom and Moab: The Beginning of the Iron Age in Southern Jordan*. Sheffield: J. R. Collis.

Miller, J. M. 1982. Recent Archaeological Developments Relevant to Ancient Moab. Pp. 169-73 in *SHAJ* I. Amman: Department of Antiquties.

——1989. Moab and the Moabites. Pp. 1-40 in J. A. Dearman (ed.), *Studies in the Mesha Inscription and Moab*. Atlanta: Scholars Press.

——(ed.) 1991. *Archaeological Survey of the Kerak Plateau*. Atlanta: Scholars Press.

——1992. Early Monarchy in Moab? Pp. 77-91 in P. Bienkowski (ed.), *Early Edom and Moab: The Beginning of the Iron Age in Southern Jordan*. Sheffield: J. R. Collis.

Oakeshott, M. F. 1983. The Edomite Pottery. Pp. 53-63 in J. F. A. Sawyer and D. J. A. Clines (eds.), *Midian, Moab and Edom: The History and Archaeology of Late Bronze and Iron Age Jordan and North-West Arabia*. Sheffield: JSOT Press.

Oded, B. 1970. Observations on Methods of Assyrian Rule in Transjordania after the Palestinian Campaign of Tiglath-Pileser III. *JNES* 29: 177-86.

Parr, P. J. 1982. Contacts between North West Arabia and Jordan in the Late Bronze and Iron Ages. Pp. 127-133 in *SHAJ* I. Amman: Department of Antiquities.

——1988. Pottery of the Late Second Millennium B.C. from North West Arabia and its Historical Implications. Pp.73-89 in D. T. Potts (ed.), *Araby the Blest: Studies in Arabian Archaeology*. Copenhagen: Museum Tusculanum Press.

Pratico, G. D. 1993. *Nelson Glueck's 1938-1940 Excavations at Tall al-Kheleifeh: A Reappraisal*. Atlanta: Scholars Press.

Pritchard, J. B. 1985. *Tell es-Sa'idiyeh: Excavations on the Tell, 1964-1966*. Philadelphia: University Museum, University of Pennsylvania.

Rast, W. E. and Schaub, R. T. 1974. Survey of the Southeastern Plain of the Dead Sea, 1973. *ADAJ* 19: 5-53.

Redford, D. 1982. Contact between Egypt and Jordan in the New Kingdom: Some Comments on Sources. Pp. 115-119 in

SHAJ I. Amman: Department of Antiquities.

Sauer, J. A. 1986. Transjordan in the Bronze and Iron Ages: A Critique of Glueck's Synthesis. *BASOR* 263: 1-26.

van der Steen, E. 1995. The Central East Jordan Valley in the Late Bronze and Early Iron Ages. *BASOR* 302: 51-74.

Strange, J. 1997. Tall al-Fukhār 1990-1991: A Preliminary Report. Pp. 399-406 in *SHAJ* VI. Amman: Department of Antiquities.

Tubb, J. N. 1988. Tell es-Sa'idiyeh: Preliminary Report on the First Three Seasons of Renewed Excavations. *Levant* 20: 23-88.

Weippert, M. 1982. Remarks on the History of Settlement in Southern Jordan during the Early Iron Age. Pp. 153-162 in *SHAJ* I. Amman: Department of Antiquities.

Worschech, U. *et al.* 1989. Preliminary Report on the Second Campaign at the Ancient Site of el-Balu' in 1987. *ADAJ* 33: 111-22.

Yassine, K. 1984. *Tell el-Mazar Cemetery A*. Amman: University of Jordan.

——1988a. Tell El Mazar Field I: Preliminary Report of Areas G, H, L, and M. Pp. 73-113 in K. Yassine (ed.), *Archaeology of Jordan: Essays and Reports*. Amman: Department of Archaeology, University of Jordan.

——1988b. Ammonite Seals from Tell el-Mazar. Pp. 143-55 in K. Yassine (ed.), *Archaeology of Jordan: Essays and Reports*. Amman: Department of Archaeology, University of Jordan.

Yassine, K. and Teixidor, J. 1988. Ammonite and Aramaic Inscriptions from Tell el-Mazar. Pp. 137-42 in K. Yassine (ed.), *Archaeology of Jordan: Essays and Reports*. Amman: Department of Archaeology, University of Jordan.

Younker, R. W., Geraty, L. T., LaBianca, Ø. S., Herr, L. G. and Clark, D. 1996. Preliminary Report of the 1994 Season of the Madaba Plains Project: Regional Survey, Tall al-'Umayri, and Tall Jalul Excavations. *Andrews University Seminary Studies* 34/1: 65-92.

Larry G. Herr
Canadian Union College
College Heights Alberta
Canada

Larry G. Herr

Social Systems in Central Jordan: Moving Toward the First Millennium BC and the Earliest Iron Age Polities

Introduction

Numerous surveys and excavations west of the Jordan River have produced a relatively coherent picture of the settlement of the highlands of Cisjordan during the Iron I period. It seems that many small villages sprouted up during the 12th century BC in the regions north of the Jerusalem area. Settlement spread to the south and west in the highlands during the 11th century (Finkelstein 1988). In Jordan those of us working on the Iron Age are just beginning to reap results which allow us to make similarly broad conclusions. We are slowly beginning to put the pieces of the puzzle together which will let us suggest models for the sedentary process of central Jordan during the Iron I period. The economy intensified throughout the Iron Age, ending with the well defined "national" groups we know today as Ammon, Moab, etc.

This paper will first summarize the results from Tall al-'Umayrī and the Mādabā Plains region and then compare them with those of other regions on the highlands of Transjordan and Cisjordan to help us understand sedentarization and the geopolitics of the region as it moved toward the first millennium.

Archaeological Results at Tall al-'Umayrī

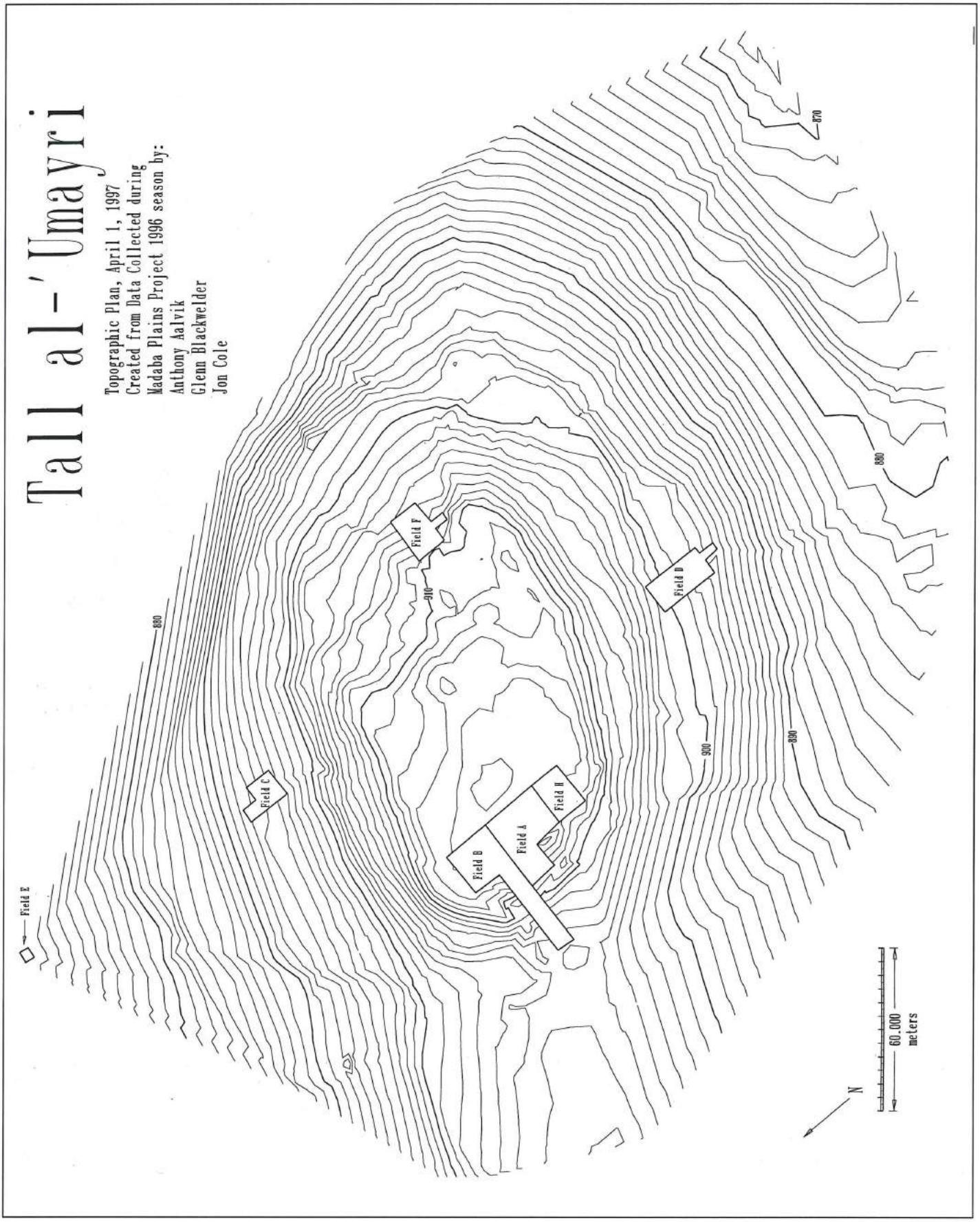
Tall al-'Umayrī was occupied during the 13th and 12th centuries BC for a period of time represented by four phases of occupation. The pottery from the first phase comes from the end of the Late Bronze Age (LB IIB--13th century BC), while that of the next three phases comes mostly from Iron Age I, although some LB characteristics still occur in the cooking pots and biconical jugs of the middle two phases (both phases, therefore, seem to straddle the 13th to 12th centuries). The last phase seems to date to the late 12th or 11th centuries. The first two phases are poorly or indirectly represented, but we have retrieved enough in controlled situations to be certain about their existence and to describe their size and material culture in a limited fashion. While the third phase is spectacularly preserved, only a storeroom containing collared pithoi has been found from the last phase.

Phase 1. Evidence for the LB occupation comes from shallow fill layers behind two terrace walls, one on the eastern slope in Field F (Low 1997: 191) and the other on the northern slope in Field C (Battenfield 1991: 82, 85) (FIG. 1). Both were most likely outside the settlement. We interpret them as terrace fill deposits brought from the settlement farther up the slope. There is no sign of a break between the Late Bronze Age settlement and the subsequent early Iron I phases. Indeed, the LB pottery is late in the period, while the Iron I pottery of the next two phases is so early some of it may be considered LB, as well. At present we hypothesize continued occupation of the site by the same inhabitants from LB IIB to Iron IA.

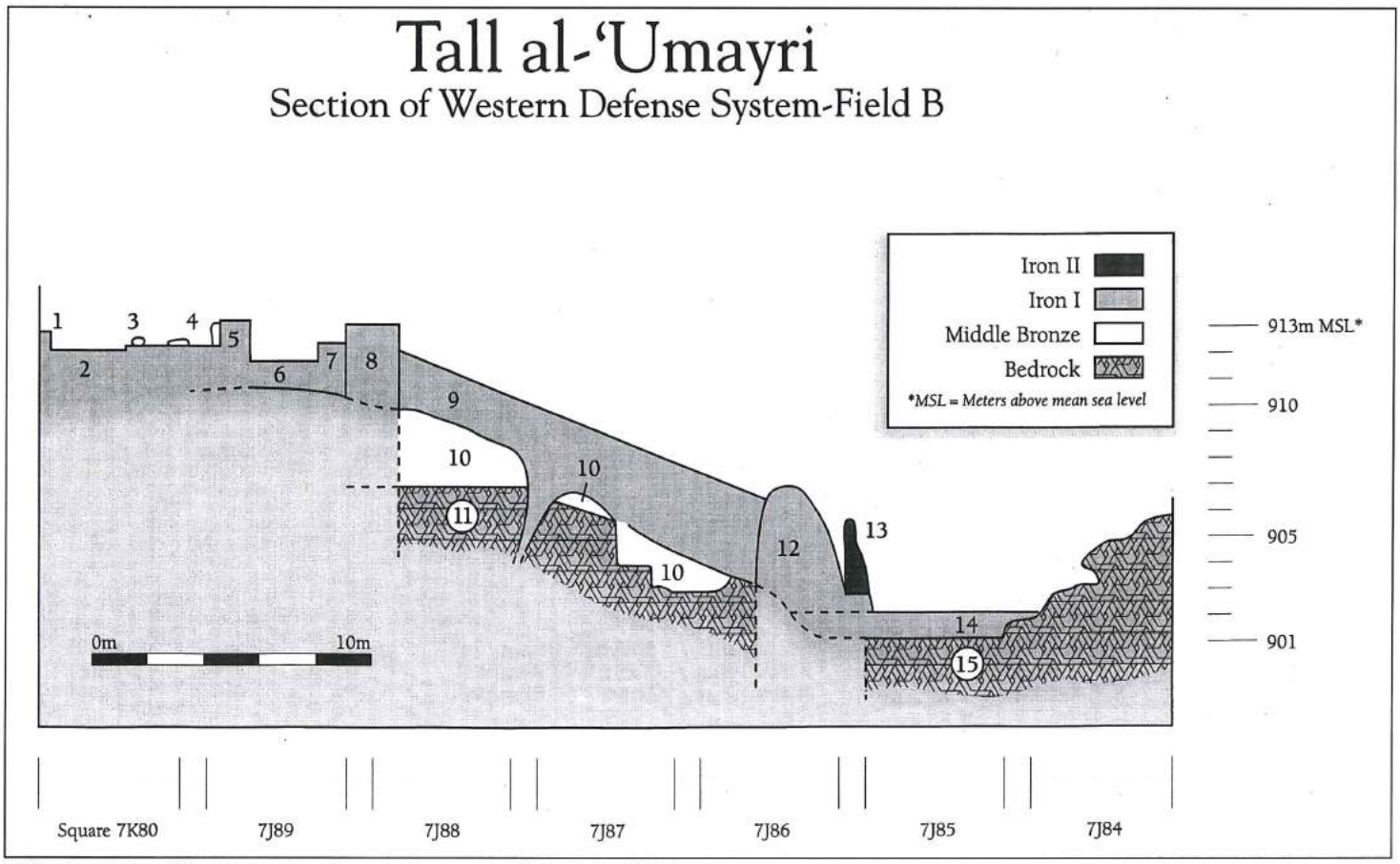
Phase 2. The primary evidence for the first Iron IA phase comes from a new rampart (FIG. 2:9) built after an earthquake that collapsed the earlier MB IIC rampart (FIG. 2:10). Within the rampart was debris that included Iron IA pottery which must have come from a settlement at the site before the rampart was built.

Phase 3. This is the phase that built the rampart in which was the pottery from Phase 2. The Middle Bronze Age moat (FIG. 2:15) at the bottom was mostly cleaned out, leaving about one meter of eroded MB rampart debris in the bottom (FIG. 2:14). A retaining wall (FIG. 2:12) supported the rampart (FIG. 2:9), which filled in the earthquake crack and raised the top of the MB rampart about 1.5-2.0 m. At the top of the rampart was what appears to be an outer wall of a partial casemate wall structure (FIG. 2:8; the inner wall is FIG. 2:5).

The partial casemate wall has been traced over a length of about 27 m and so far comprises three casemate rooms and three (or four) crosswalls (FIG. 3). Although the outer wall (1.6-2.0 m wide) is a continuous wall line, it was built in at least three parts, suggested by changes in masonry style and a slight offset at one point. Near its south-



1. Topographic map of Tall al-'Umayri with fields of Excavation through the 1996 season.



2. South section of the excavation through the western defenses in Field B.

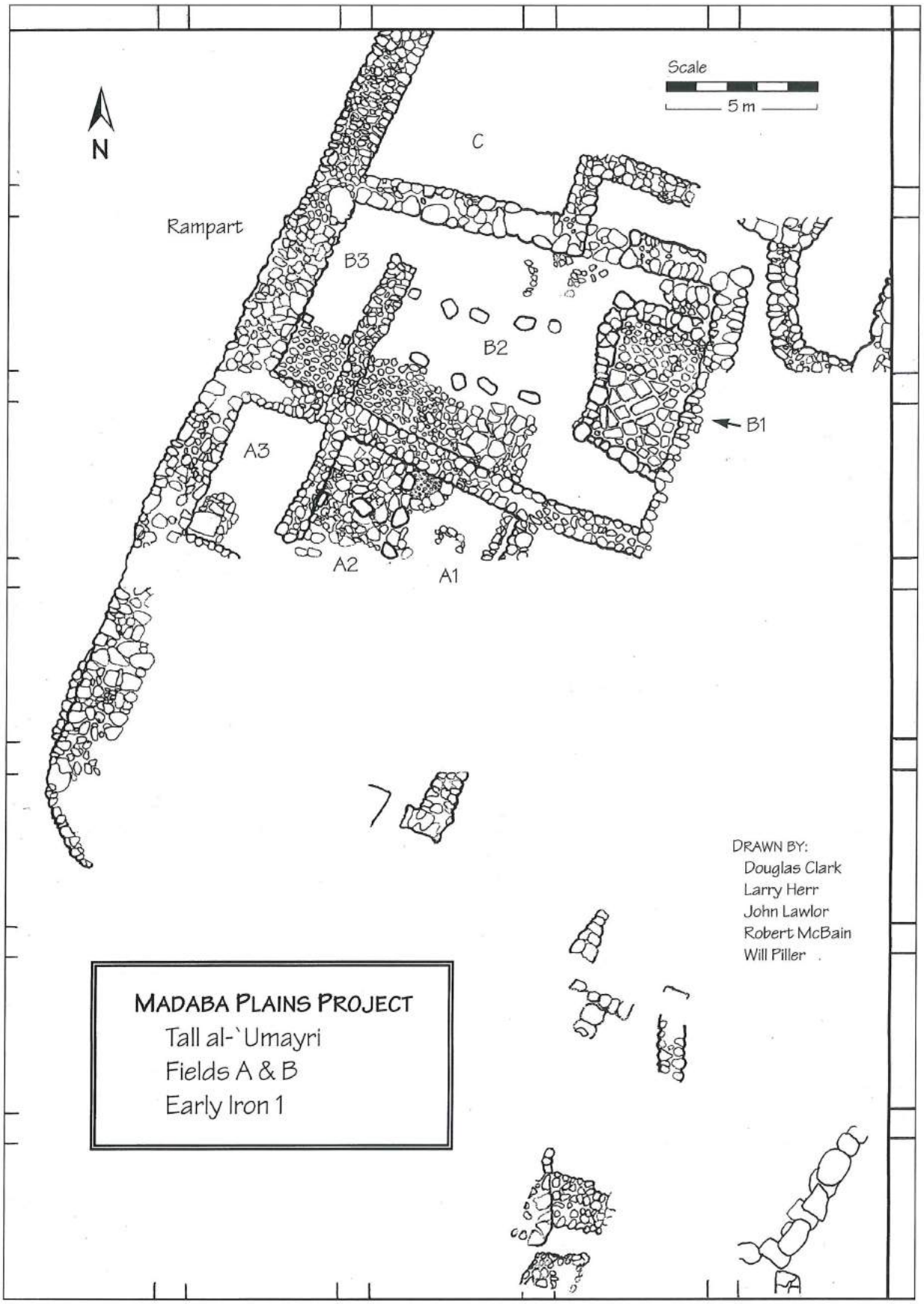
ern end the wall curves into the site beneath later walls; the curve may be part of a gate structure.

The inner wall is not a continuous line. Instead, the crosswalls continue inside the settlement as house walls and no inner wall has so far been discerned at the northern end of excavation where the outer wall also changes in style of construction. Parts of the crosswalls and inner casemate wall segments are preserved over 2.0 m high. Because the crosswalls are also house walls, it is possible to suggest that the casemate rooms should be understood as rooms in houses rather than part of a fortification system. More of the wall system will be excavated to the north and south in future seasons. That the casemate construction could be local to the western edge of the site and does not continue around the complete settlement is not known for certain, but Ground Penetrating Radar studies of the southern lip of the site show the distinct presence of two parallel lines (including crossing lines) with similar dimensions to those of our suggested casemate wall. There does not appear to have been a fortification wall in later periods.

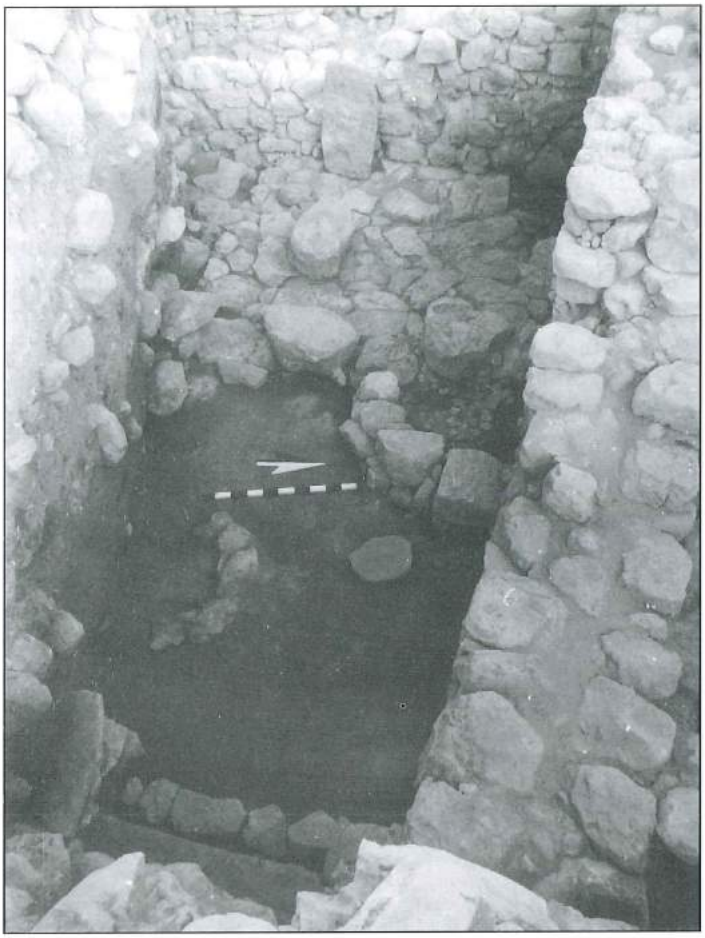
We have been able to expose portions of at least three buildings, probably domestic dwellings. In the eastern room of Building A (FIG. 3: Room A1) domestic artifacts and a hearth were found on a beaten earth floor. But west of a row of post bases and upon a flagstone floor (FIG. 3: Room A2) was an oval rock of naturally smooth limestone in front of a standing stone of the same type of limestone as the oval stone. The unique limestone (very different than the stones in the walls) and their positioning suggest a special function for the ensemble, perhaps a cultic corner (FIG. 4). However, no cultic artifacts of any kind were discovered. Indeed, no artifacts at all were found immediately on the flagstones. Mounds of burned barley were in the destruction debris above the floor suggesting grain was kept on the upper story or roof (the base of a collared pithos, still containing barley grains, was found in this destruction).

A door to the south of the standing stone led into one of the casemate rooms (FIG. 3: Room A3) where approximately 7 collared pithoi stood in the northern half of the room (FIG. 5) and a platform reached by small steps appeared in the southern half. The latter was possibly used as a base for a ladder that provided access to the second floor.

Building B was made up of a courtyard in front of a four-room house: three long rooms separated by narrowly spaced post bases (FIG. 3: Room B2) abutted a broad-room, one of the "casemates" (FIG. 3: Room B3). The outer two long rooms were paved with flagstones, but no items of material culture were found on any of the long-



3. Composite plan of the early Iron I architecture in Fields A (bottom) and B (top).



4. Standing stone and small "altar" in Room A2.



5. Collared pithoi in Room A3.

room floors. The courtyard (FIG. 3: Room B1) contained a paved area surrounded by a series of post bases with narrow stone walls between them; it possibly functioned as an animal pen. In the destruction layer above the southern long room were several reconstructable collared pithoi which probably came from the roof or upper story.

The broadroom of Building B was extremely rich in finds. Separating the southern third of the room, which was paved with flagstones, from the northern portion, with a floor of beaten earth, were two post bases along the side walls, suggesting a curtained division at one stage in the function of the room. But, ignoring this division, approximately 20 collared pithoi lined all the walls. Unfortunately, nothing was found in the pithoi. The destruction layer, representing debris from the second story or roof, was also rich in material culture: another approximately 20 collared pithoi were smashed and scattered atop those lining the walls of the lower room; a portion of an alabaster vessel suggests trade; five bronze weapons (arrowheads, javelins, and a spear) and a few stone ballistic missiles indicate that the destruction of the site was caused by military attack; and the burned bones of at least two individuals, most likely defenders, were found splattered around the room when they fell from the second story or roof after burning.

The main entry to the house was a well constructed door and anteroom in the eastern portion of the north wall. Building C (FIG. 3) has not yet been clearly exposed; its excavation awaits next season. Exactly how these three buildings relate to one another is not clearly known. No signs of a street have been found. To the east of Building B a deep pit full of organic debris, suggesting garbage, was found.

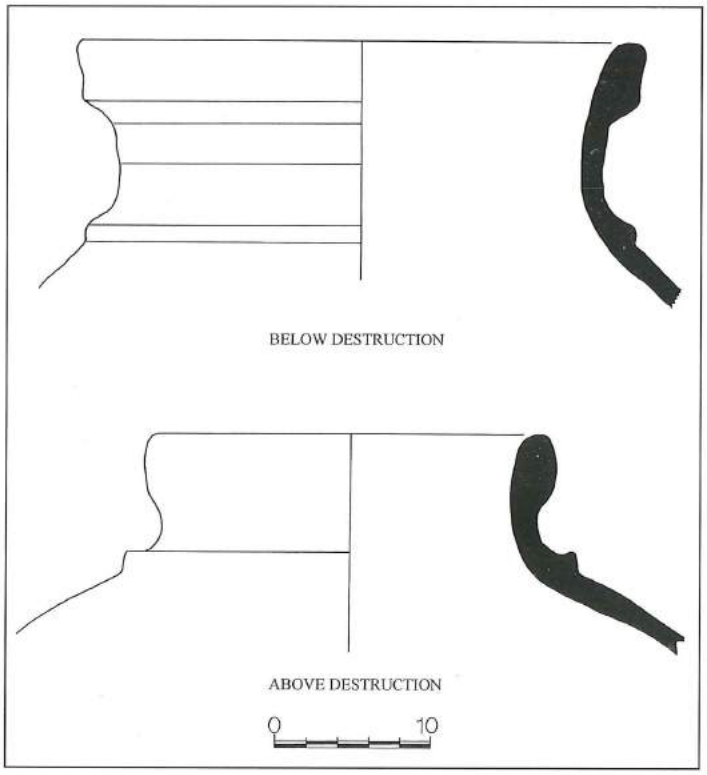
The destruction of this small city (ca. 1.5 hectares) was swift and violent. The violence is suggested by the 1.5-2.5 m of destruction debris in the rooms, the ubiquitous signs of burning including burned beams, bricks and stones (some turned to lime), as well as the weapons in the northern casemate room. That the destruction was swift is clear from the masses of food (mounds of barley and two shanks of butchered large mammals) still uneaten, and the two individuals caught in the conflagration. The pottery from the floors and the destruction layer (made up of the second story and ceilings of the houses) was virtually identical to that found in the rampart which came from the earlier phase, dating to around 1200 BCE (Clark 1997). The depth of the destruction debris was greatest over the broadrooms of the houses. The 2.0 m of brick debris above walls still standing to that height suggest a second story for at least that part of the house. In contrast, the destruction above the animal pen in Room B1 was only about .40 m, suggesting very little architecture here.

Other fragments of architecture have been excavated from this phase south of the houses discussed above (FIG. 3).

Phase 4. In 1996 a storeroom with 18 destroyed collared pithoi was found above the destruction layer (FIG. 6). These pithoi represent a distinct typological development from those below the destruction (FIG. 7). Note the more vertical rim, shorter neck, and higher collar on the example from above the destruction. These late Iron I pithoi were associated with a distinct upright cooking pot rim



6. Collared pithoi in situ above the early Iron I destruction. In the upper left corner is the top of the outer wall of Room A3.



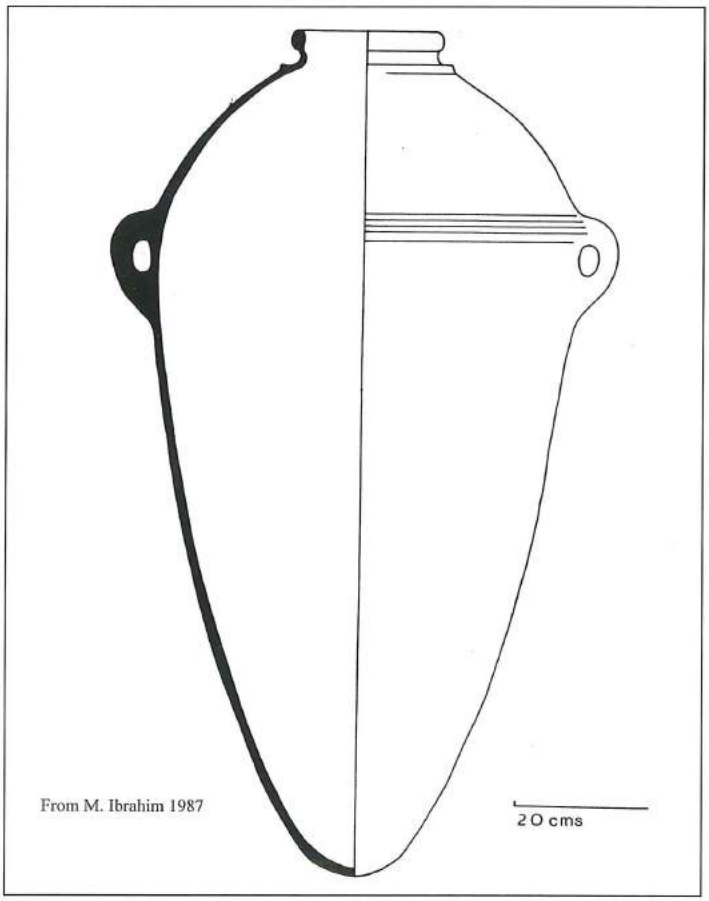
7. A comparison of two typical collared pithoi, one from below the early Iron I destruction (top) and another from above the destruction (bottom).

with two grooves in the thickened rim. This storeroom was not far beneath the surface of the site and was not well preserved.

Discussion

Although significant LB/Iron I sites have been excavated in the eastern portions of the Jordan Valley (Dayr 'Alla [Franken 1992; Franken and Kalsbeek 1969], Pella [McNicoll, *et al.* 1982; McNicoll, *et al.* 1992], and Tall as-Sa'idiyyah [Tubb 1988]), very little evidence has appeared on the plateau of Transjordan. The pottery from Saḥāb is typologically more advanced than the 'Umayrī assemblage of Phase 3 and must date no earlier than the late 12th century (personal observation confirmed by Ibrahim, personal communication, July, 1994). Indeed the collared pithos published by Ibrahim (FIG. 8) is very similar to those from our Phase 4 above the destruction (compare FIGS. 7 and 8). Saḥāb should therefore not be related to the earliest settlement process which is witnessed in Phases 2 and 3 of 'Umayrī. However, finds contemporary with our Phase 3 come from cave or tomb deposits at Mādabā (Harding and Isserlin 1953), the al-Baq'ah Valley north of 'Ammān (McGovern 1986), a small deposit in a rock-cut trench at Ḥisbān (personal observation), and secondary deposits at Jāwa (Daviau, personal communication) and Jalūl (Younker, personal communication). The finds from 'Umayrī are thus the first extensively excavated remains from the LB/Iron I transition in this area. Iron I sites in Moāb seem to be later than this period. However, a site farther away with similar finds is Tall al-Fukhār east of Irbid (P. McGovern and J. Strange, personal communication).

Although much more is known of early Iron I hill



8. One of the collared pithoi from Saḥāb (from Ibrahim 1978).

country sites in Cisjordan, they are primarily small, unfortified agricultural villages perhaps limited to a single extended family or clan social structure (Stager 1985). But 'Umayrī is very strongly fortified and larger than most (if not all) of the highland villages in Cisjordan. In terms of the sedentarization process of sites in highland areas, the settlement at 'Umayrī must be seen as richer and more advanced than contemporary sites in Cisjordan.

The 13th/12th century date of Phases 2 and 3 makes 'Umayrī one of the earliest highland Iron I sites in Palestine, contemporary with or slightly earlier than Mount Ebal (Zertal 1987) and Giloh (Mazar 1981; 1990). The ceramic assemblages from other Iron I sites, such as Ai (Callaway 1980), Raddana (personal observation thanks to Zvi Lederman), Shiloh (Finkelstein *et al.* 1993), and Izbet Sartah (Finkelstein 1986) seem to be later in date. It thus seems that there were relatively few highland sites contemporary with ours in Cisjordan, except perhaps for the eastern fringes of the hill country north of Jerusalem (Zertal 1992).

The types of pottery vessels and other finds classify 'Umayrī as a highland site. Following are the percentages (with sherd counts) of vessel types within the total assemblage of pottery published and unpublished (3883 pieces): collared pithoi: 19.19% (745); jars: 11.41% (443); jugs: 21.43% (832); juglets: 0.67% (26); kraters: 5.79% (225); bowls: 22.56% (876); cooking pots: 15.92% (618); pyxides: 0.15% (6); lamps: 2.60% (101); flasks: 0.10% (4); chalice: 0.03% (1); stand: 0.03% (1). The high percentages of utilitarian types, such as collared pithoi, jugs, cooking pots, and bowls make up approximately 75% of the total, connecting the assemblage with simple highland sites rather than the more complex coastal and valley sites (Mazar 1981:31; Zertal 1987:138; Finkelstein 1988:177-204). Moreover, 'Umayrī's location in the hilly terrain south of 'Ammān and its small size (about 1.5 hectares) make it hard to associate with the larger coastal and valley sites.

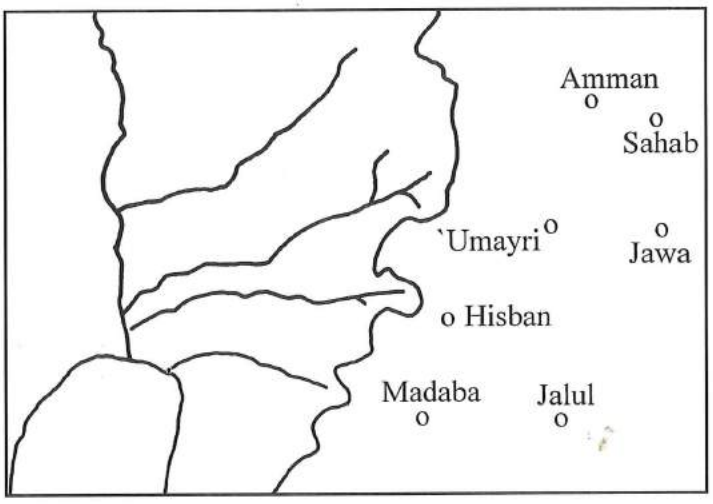
The closest parallels to the material culture of 'Umayrī come from the highlands north of Jerusalem, especially in the region of Nablus (Mount Ebal Stratum II and, to a lesser extent, Stratum I). Zertal's "Manasseh bowl" (Zertal 1987: 139, Figs. 11:1, 3, 5, 7; 14:5) is the most frequent type of bowl at 'Umayrī, as well (Clark 1991: Fig. 4.7:24, 27; 1997: Fig. 4.25:20; many more are unpublished). On a jar rim from Mount Ebal is a potter's mark in the shape of an upside-down "V" (Zertal 1987: 147) identical to the marks on two collared pithos handles from 'Umayrī. A crude trapezoidal seal from Mount Ebal (Brandl 1987: 167) is similar to several seals from 'Umayrī.

We thus have an early Iron I fortified town with a highland material culture, but which seems to date slightly earlier and is more advanced in terms of sedentarization and defensive infrastructure than highland sites in Cisjordan.

Regional Analysis

So far, we have very few excavation results from early Iron I on the central plateau of Transjordan (from the east-west section of Wādī az-Zarqā' in the north to Wādī al-Mūjib in the south). Aside from those sites mentioned above, Dornemann's Iron I pottery from 'Ammān is difficult to sort out, and there are very few similarities to ours (Dornemann 1983: Figs. 53-60). Virtually all of the published Ammān pottery is Iron II. As mentioned above, the corpus of pottery from the al-Baq'ah Valley (McGovern 1986: 151-163) seems to be roughly contemporary to ours (jugs and lamps), but frequent forms at 'Umayrī, such as cooking pots and collared pithoi, do not seem to have been found, making it difficult to connect the al-Baq'ah site with ours. A tomb at Mādabā contains some similar pottery forms as 'Umayrī, but many key forms are lacking as one would expect from a tomb (Harding and Isserlin 1953). The other Iron I tombs from Mādabā are considerably later (Piccirillo 1975; Thompson 1986). Out of these Iron I sites only the Baq'ah Valley and one Mādabā tomb may be considered contemporary with 'Umayrī. It should be noted that the finds at Tall al-Fukhār are similar to those from 'Umayrī, as well (McGovern and Strange, personal communication).

Unpublished, fragmentary, or partial evidence from sites in the 'Umayrī region is beginning to surface which may suggest a coherent series of settlements (FIG. 9). The early Iron I pottery from Tall Ḥisbān, especially the collared pithoi and cooking pots, are closely similar to those from 'Umayrī (personal observation). Similar collared pithoi have been found in secondary deposits at Tall Jāwa, about 4 km east of 'Umayrī (Daviau, personal communication, November, 1994), and Tall Jalūl (Younker, personal communication, November, 1994). Although I



9. Sketch map of the Mādabā Plains region in the early Iron I period.

must stress that these observations warrant no firm conclusion, one may entertain the possibility that the finds from these four sites (and possibly Mādabā) represent a contemporaneous regional cultural entity. The sites are within about 15 km of each other (Mādabā to Jāwa), seem to carry a similar material culture, and each site is within sight of at least one other (from Jalūl one can see Jāwa, Mādabā, and Ḥisbān, as well as the hill immediately to the south of 'Umayrī).

Historical Observations

Even if we do not insist on the early Iron I contemporaneity of 'Umayrī with Ḥisbān, Jalūl, Mādabā, and Jāwa, the significance of the finds at 'Umayrī alone demands a broadened model of the emergence of the small tribal and, later, national entities that populated Iron Age Palestine than has hitherto been presented.

I do not wish to debate the ethnicity of the groups involved with this sedentary process. I believe that, during the 13th and 12th centuries, we should speak of "tribal entities" rather than "national" ones. Tribal relationships consist of fluid coalitions or alliances that rise, fall, swap loyalties, and come and go (LaBianca and Younker 1994). A similar situation probably existed throughout Iron I. At the risk of making an extremely complex picture overly simple, I would suggest that, as tribal relationships and loyalties became more consistent and less fluid, groups of allied tribes could have developed supra-tribal structures which slowly grew into nations. Thus, there would be no "national" groups called Ammon, Moāb, or Israel in early Iron I. Instead, there were tribes and tribal alliances. The biblical remembrances of these tribes as "nations" in premonarchic times are anachronisms, placing the Iron II concepts of monarchy and nationhood onto the earlier tribal entities.

It is at the beginning of this process, characterized by fluid tribal allegiances, that the settlements at 'Umayrī and its neighboring contemporary sites should be placed. Their presence must be accounted for by models which seek to understand the emergence of the tribal relationships which later became the national groups of the first millennium (Bienkowski 1992; Knauf 1992; Miller 1992). Indeed, the biblical remembrances of erstwhile kinship between Israel, Ammon, Moab, and Edom may reflect temporary tribal alliances that dissolved prior to nation formation. If so, the tribes in Transjordan that later became part of Israel (Reuben, Gad, Gilead, and Machir) may have been, at some point in Iron I, allied with Ammon, Moab, and/or Edom and may not have always been part of the tribal confederacy known as Israel on the Merneptah Stele. For some reason, these alliances broke down prior to nation formation and some of the tribes of Transjordan moved their associations westward, taking with them, however, the remembrances of old relationships expressed in terms of kinship in the Bible.

But unfortunately, because archaeology does not usually provide evidence for finely tuned tribal distinctions in the finds that we make, we cannot be certain which tribal group settled at 'Umayrī. There are three possibilities which come most easily to mind. First, 'Umayrī could represent the settling process of the tribe or tribal alliance that became Ammon. But there is no literary hint that this was so other than the textual evidence that 'Umayrī was in Ammonite territory in Iron II. Moreover, the Iron I finds from the 'Ammān region itself seem to be somewhat later than ours (Saḥāb); are extremely fragmentary (Ammān Citadel); or come from sites whose finds are, while contemporary, completely different than ours (al-Baq'ah). Other possibilities include the tribe of Reuben which would ultimately become part of the Israelite confederacy (Cross 1988; Herr 1997) The presence of highland material culture, however, does not identify a site with a specific tribal alliance, but, as London has pointed out (1989), reflects a highland tribal lifestyle or culture rather than specific tribal allegiances.

Conclusion

The question of who these people were cannot be known for certain, though I have made tentative suggestions elsewhere (Herr 1997). Instead, we should identify them as partakers in a process of tribal settlement that was similar to many other groups in the highlands of both Transjordan and Cisjordan. 'Umayrī and its neighboring sites were most likely part of a coherent group that began the settlement process in the late 13th century BC in the region along the Kings' Highway south of 'Ammān. They prospered because of trade on that route and may have been violently destroyed because of it, as well. The similar finds from Tall al-Fukhār in the north may also indicate the active movement of goods along this route.

Following the destruction, 'Umayrī was reduced in size and importance, but continued on, as did Ḥisbān and most likely the other sites of the region.

Acknowledgments

The Mādabā Plains Project is sponsored by Andrews University in consortium with Canadian University College, LaSierra University, East Africa University, and Walla Walla College. I wish to thank my Co-Directors for their support and encouragement: Larry Geraty (Senior Project Director); Douglas Clark (Consortium Director); Oystein LaBianca (Hinterlands); and Randall Younker (Tall Jalūl); I am responsible for the excavations at Tall al-'Umayrī.

Bibliography

Battenfield, J. R. 1991. Field C: The Northern Suburb. Pp. 74-86 in L. G. Herr, *et al.* (eds), *Madaba Plains Project 2: The 1987 Season at Tall al-'Umeiri and Vicinity and Subsequent*

Studies. Berrien Springs, MI: Andrews University.

Bienkowski, P. 1992. The Date of Sedentary Occupation in Edom: Evidence from Umm el-Biyara, Tawilan and Buseirah. Pp. 99-112 in P. Bienkowski (ed.), *Early Edom and Moab: The Beginning of the Iron Age in Southern Jordan.* Sheffield: National Museums and Galleries on Merseyside.

Brandl, B. 1987. Two Scarabs and a Trapezoidal Seal from Mount Ebal. *Tel Aviv* 13-14: 166-172.

Callaway, J. S.1980. *The Early Bronze Age Citadel and Lower City at Ai (et-Tell).* Cambridge, MA: American Schools or Oriental Research.

Clark, D. R. 1991. Field B: The Western Defense System. Pp. 53-73 in L. G. Herr, *et al.* (eds), *Madaba Plains Project 2.* Berrien Springs, MI: Andrews University.

___ 1997. Field B: The Western Defensive System. Pp. 53-98 in L. G. Herr, *et al.* (eds.) Madaba Plains Project 3. Berrien Springs, MI: Andrews University.

Cross, F. M.1988. Reuben, First-Born of Jacob. *Zeitschrift für die altestestamentliche Wissenschaft* 100 Supplement: 46-65.

Dornemann, R. H.1983. *The Archaeology of the Transjordan.* Milwaukee: Milwaukee Public Museum.

Finkelstein, I. 1986. *'Izbet Sartah: An Early Iron Age Site near Rosh Ha'ayin, Israel.* BAR International Series 299. Oxford: British Archaeological Reports.

___ 1988. *The Archaeology of the Israelite Settlement.* Jerusalem: Israel Exploration Society.

Finkelstein, I., (ed.) 1993. *Shiloh: The Archaeology of a Biblical Site.* Monograph Series of the Institute of Archaeology 10. Tel Aviv: Institute of Archaeology of Tel Aviv University.

Franken, H. J. 1992. *Excavations at Tell Deir 'Alla: The Late Bronze Age Sanctuary.* Louvain: Peeters.

Franken, H. J. and Kalsbeek, J. 1969. *Excavations at Tell Deir 'Alla.* Leiden: Brill.

Harding, G. L. and Isserlin, B. S. J. 1953. An Early Iron Age Tomb at Madeba. *Palestine Exploration Fund Annual* 6: 27-41.

Herr, L. G. 1997. Tall al-'Umayri and the Madaba Plains Region during the Late Bronze-Iron Age I Transition. Pp. 251-264 in S. Gitin, A. Mazar, and E. Stern (eds.), *Mediterranean Peoples in Transition: In Honor of Professor Trude Dothan,* Jerusalem: Israel Exploration Society.

Ibrahim, M. 1978. The Collared-Rim Jar of the Early Iron Age. Pp. 117-126 in R. Moorey and P. Parr (eds.), *Archaeology in the Levant,* Warminster.

Knauf, E. A. 1992. The Cultural Impact of Secondary State Formation: The Cases of the Edomites and Moabites. Pp. 47-54 in P. Bienkowski (ed.), *Early Edom and Moab: The Beginning of the Iron Age in Southern Jordan.* Sheffield: National Museums and Galleries on Merseyside.

LaBianca, Ø. S. and Younker, R. W. 1994. 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.

London, G. A. 1989. A Comparison of Two Contemporaneous Lifestyles of the Late Second Millennium B.C. *BASOR* 273: 37-56.

Low, R. 1997. Field F: The Eastern Shelf. Pp. 188-221 in L. G. Herr, *et al.* (eds), *Madaba Plains Project 3: The 1989 Season at Tell el-'Umeiri and Vicinity and Subsequent Studies.* Berrien Springs, MI: Andrews University.

McGovern, P. E. 1986. *The Late Bronze and Early Iron Ages of Central Transjordan: The Baq'ah Valley Project, 1977-1981.* Philadelphia: The University Museum, University of Pennsylvania.

McNicoll, A. W., *et al.* 1992. *Pella in Jordan 2.* Sydney: Meditarch.

McNicoll, A. W., Smith, R. H., and Hennessy, B. 1982. *Pella in Jordan 1*: Plates. Canberra: Australian National Gallery.

Mazar, A. 1981. Giloh: An Early Israelite Settlement Site near Jerusalem. *Israel Exploration Journal* 31: 1-36.

___ 1990. Iron Age I and II Towers at Giloh and the Israelite Settlement. *Israel Exploration Journal* 40: 77-101.

Miller, J. M. 1992. Early Monarchy in Moab? Pp. 77-92 in P. Bienkowski (ed.), *Early Edom and Moab: The Beginning of the Iron Age in Southern Jordan.* Sheffield: National Museums and Galleries on Merseyside.

Piccirillo, M. 1975. Una tomba del ferro I a Madaba. *LA* 25: 199-224.

Stager, L. E. 1985. The Archaeology of the Family in Ancient Israel. *BASOR* 260: 1-36.

Thompson, H. O. 1986. An Iron Age Tomb at Madaba. Pp. 331-364 in L. T. Geraty and L. G. Herr (eds), *The Archaeology of Jordan and Other Studies Presented to Siegfried H. Horn.* Berrien Springs, MI: Andrews University.

Tubb, J. N. 1988. Tall as-Sa'idiyeh: Preliminary Report on the First Three Seasons of Renewed Excavations. *Levant* 20: 23-88.

Zertal, A. 1987. An Early Iron Age Cultic Site on Mount Ebal: Excavation Seasons 1982-1987. *Tel Aviv* 13-14: 105-65.

___ 1992. *The Manasseh Hill Country Survey.* Jerusalem (Hebrew).

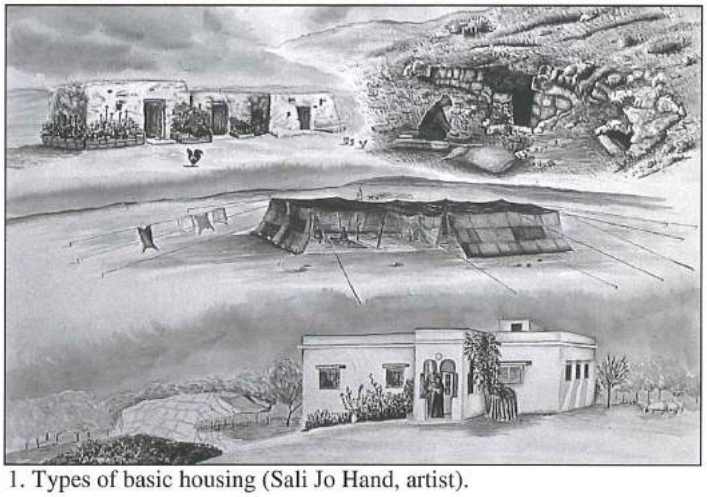
Douglas R. Clark
School of Theology
Walla Walla College
College Place WA 99324
USA

Douglas R. Clark

Laboring to Build a House: The Human Investment in Iron Age Construction in the Mādabā Plains

While archaeologists have studied the architectural remains of domestic buildings in the ancient Near East for decades, they seldom explore the human expense involved in the construction process. From the pre-historical periods of the stone ages we know of houses and villages constructed of mudbrick, wood or stone at least back to the sixth and seventh millennia BC. Jericho is a good example, as are Jarmo in Mesopotamia (Forbes 1967a: 22), Bayḍa in Petra, settlements in Anatolia (Hodges 1970: 39) and Merimde in the western Nile delta (Bradford: 304). What can we discover of the building process itself? And what might this tell us not only about building in Iron Age Jordan, but about construction across the millennia from Pre-pottery Neolithic to modern times.

With this paper I wish to investigate human building investment in terms of the time and energy expended constructing four-room houses during the early Iron I period. The recently excavated pillared house at Tall al-'Umayrī immediately north of the Mādabā Plains will provide the primary example and test case. Textual, archaeological, architectural, ethnographic and historical analyses, along with physiological considerations, will contribute to this examination into what it meant for ancient laborers to bring a house to completion and to maintain it.



1. Types of basic housing (Sali Jo Hand, artist).

Building in Antiquity

Next to food procurement, transport, use and disposal, the quest for living quarters protected against intrusions by natural and human agents certainly occupied a major portion of the attention of the ancients who inhabited the ancient Near East across the millennia (FIG. 1). At the outset of this investigation, it might prove helpful to explore two general notes which will inform our work: 1) the connection between agriculture and building activity and 2) basic considerations regarding human investments in household construction.

1) Archaeology in Palestine and Jordan has shed a good deal of light on agricultural connections to housing. First, the original impetus for early house construction was certainly tied to agricultural pursuits. "Generally, house-construction started with the beginning of agriculture; during the hunting and gathering stage of human history, people sought shelter in caves or under cliffs" (Khammash 1986 [citing A. E. Knauf]: 9). Natural rock enclosures, fabric tents and open windbreaks likely constituted most housing prior to buildings of wood, stone or clay, since food-procurement strategies based on hunting and gathering and even the herding of sheep and goats do not demand permanent housing in the same way settled farming does. All of this points to comparatively minimal human investment prior to the agricultural revolution in the ancient Near East. Second, major cycles of intensification and abatement in settlement patterns throughout the history of Jordan and Palestine (LaBianca 1990) remind us that human building activity never remained stable or static. Periods of abatement brought more relaxed commitments of time and energy to house and city construction. However, during times of intense occupation and increased urbanization, examples of which include the Iron Age, construction expanded and took on greater complexity than in periods of abatement.

2) Considerations surrounding building construction itself are complicated and extensive. These include several phases of activity: planning and fund-raising; provision for or reconnoitering of labor; locating, collecting, transporting and preparing materials; preparation of site; purchase or manufacture of appropriate tools; lifting, leveling and adhering building materials into place; finishing surfaces for pragmatic and aesthetic purposes; maintaining, reusing and renovating when necessary; and enduring heat, humidity, long hours, physical debilitations, pests and varying degrees of difficulty and danger in the process.

Considerations also include a variety of building types: homes (urban and rural), expanded family dwellings with courtyards, villages, cities (with buildings like monumental temples, palaces, and public structures as well as plazas, streets and markets), fortified towers and cities (some with defensive moats, ramparts, protective walls and gates). In addition, there are many and varied components of building construction (which also demand repair): rooms formed by walls of brick, stone and plaster, floors of dirt and stone, ceilings and roofs of wood and mud, and stone and wooden furnishings. We will want to keep all of these in mind as we delve specifically into the construction of Iron I domestic housing.

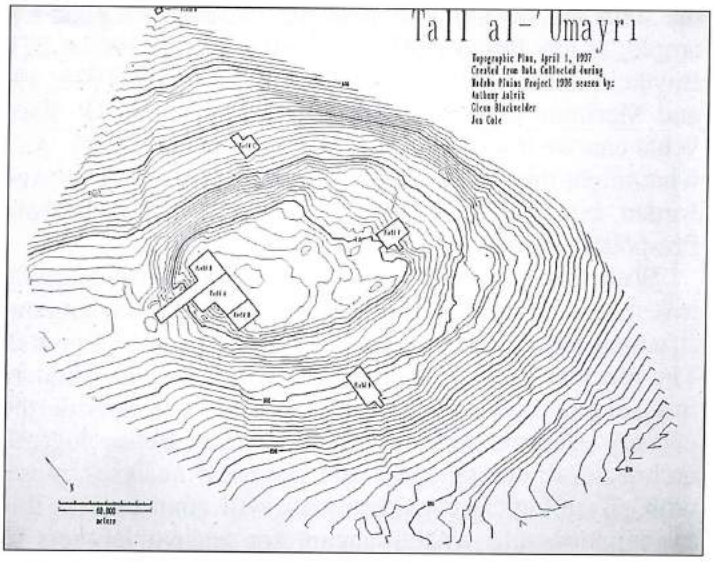
Stone House Construction During Iron I in Palestine and Jordan

Although we do not have any direct textual descriptions of the building activities or construction design of houses from the Iron I period, archaeological research has focused a good deal of attention on so-called "four-room" houses and small agrarian villages from this period. Their connections with early tribal entities we currently call Ammon, Moab, Israel, etc., have occupied archaeologists and biblical scholars with some intensity of late and will likely continue to do so for some time. A growing consensus today suggests that these tribal entities initially settled in small agricultural villages in the hill country of Palestine and Jordan, often building "four-room" houses and constructing terraces, cisterns and wine and olive presses.

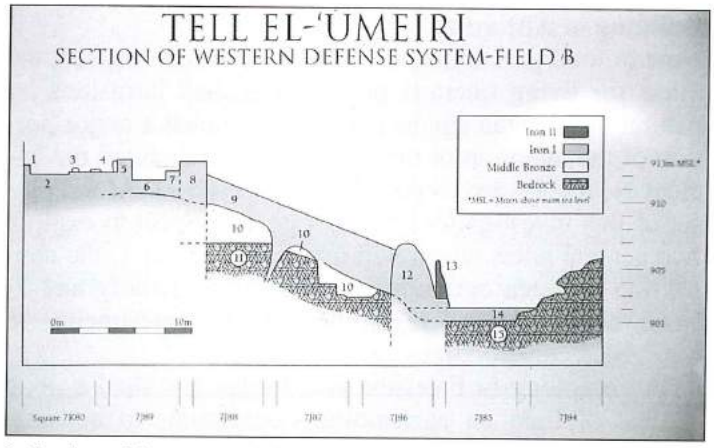
We might hope that the biblical book of Judges could prove helpful to us, given its accounts of Iron I tribal leaders and activities. Unfortunately, while it mentions "house" (*bayt*) nearly 70 times, 39 of which occurrences refer to domestic buildings or homes, it offers precious little about what these houses must have looked like and what it would have taken to construct one or a small village of them. Normally, the texts simply mention a house or houses in passing. We do read of doors on two occasions, a threshold and a household shrine. Otherwise, we are totally dependent on archaeological and anthropological resources for answers to our questions about human labor.

The Iron I four-room houses discovered by archaeologists throughout the hill country of Palestine and Jordan typically measured 10-12 m long and 8-10 m wide. The broad room, extending across the back end of the building, may have been 2 m wide and opened into an area containing three long rooms, each separated from the others by a wall or a row of pillars or posts which also supported the ceiling or roof. The two side rooms normally housed animals, leaving the central long room to serve as a courtyard for domestic activities surrounding food preparation and consumption.

This pattern is clear in likely one of the earliest and best-preserved examples of this type of house, excavated in Field B at Tall al-'Umayrī, south of 'Ammān, Jordan (perhaps the Abel-Keramim of *Jud* 11:33) (FIG. 2). The Late Bronze/Iron I city was extremely well defended with a moat, rampart and double (proto-casemate?) wall construction (FIG. 3). Interestingly, the builders utilized the broad rooms of the two adjacent buildings exposed to this point in excavation (Buildings A and B) as an integrated



2. Topographic map of al-'Umayrī.

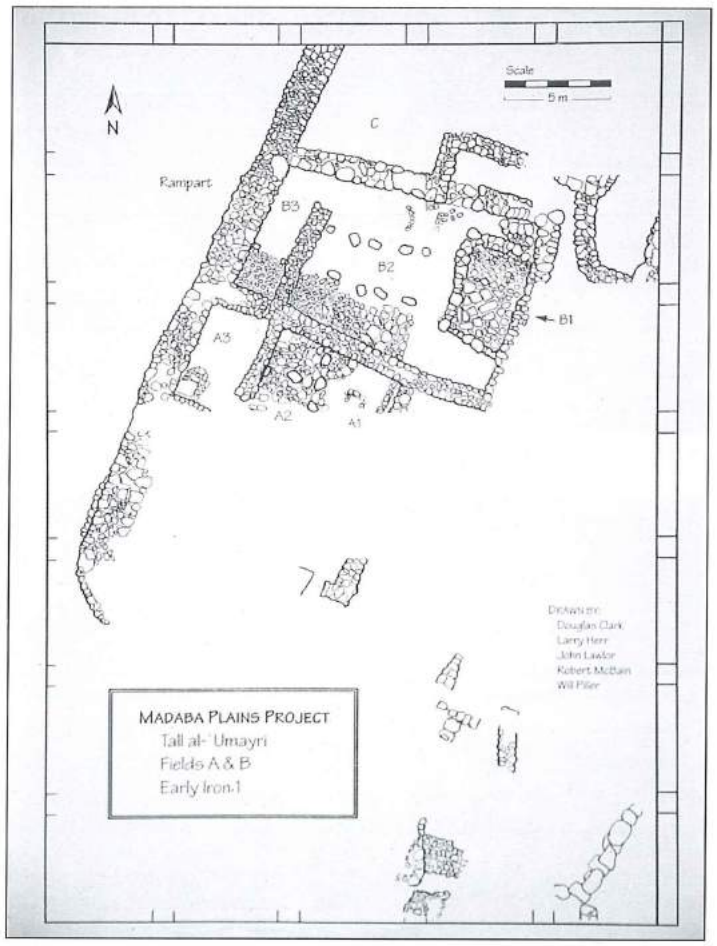


3. Section of the western defensive system.

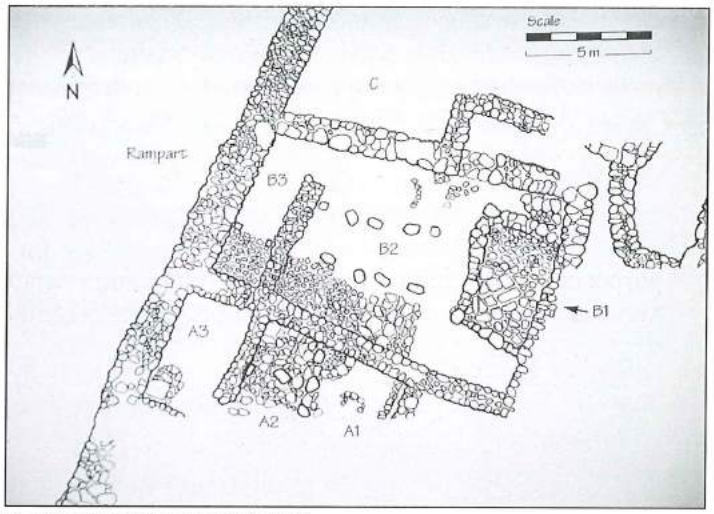
part of the double-wall defenses (FIG. 4). They thus served for storage of the householders' grain and to enhance protection of the city (FIG. 5). An animal pen extended the length of one house by 3-4 m off the long rooms.

Of the two al-'Umayrī buildings, one has been completely excavated and suggests a one-story construction for much of its extent and two stories over at least the broad room, thereby raising the height of the city wall (FIG. 6). Building (and repair) demands from the ground up would include 1) flooring, 2) exterior walls, 3) interior walls and dividers, 4) ceiling/roof and 5) the upper story with its own roof. The articles on Palestinian house construction by T. Canaan from the 1930s and Larry Stager on the family have been particularly instructive in what follows.

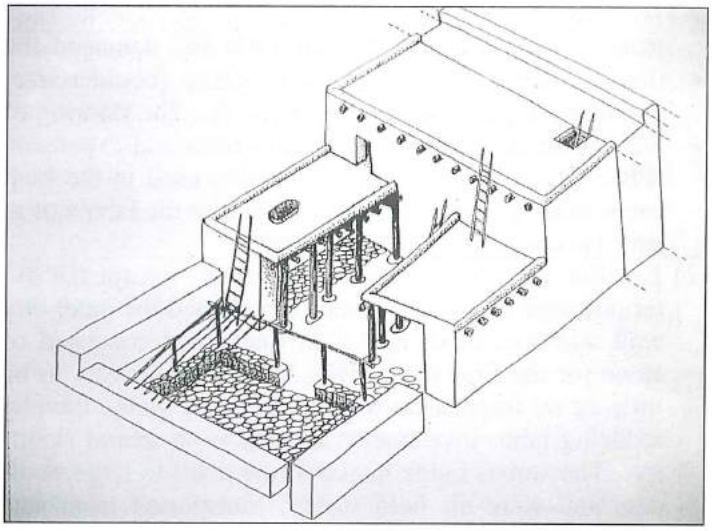
1) Both beaten-earth and flagstone floors are present in the al-'Umayrī four-room house. Although not appearing to demand much by way of human labor, the dirt floors often reveal more attention to composition and installment than one might expect.[1] The fine layers of flooring, some laid contemporaneously and others accumulated over time, show ash and enough clay content to keep the surface smooth and basically level (FIG. 7). Of course, the sections of stone flooring require greater investment in the installation process. One third of the broad room was paved by flat large cobbles and small boulders, as was one of the side long rooms (FIG. 8). This task was back-bending work and demanded time and effort to locate and collect the flat



4. Topographic map of Fields A and B.

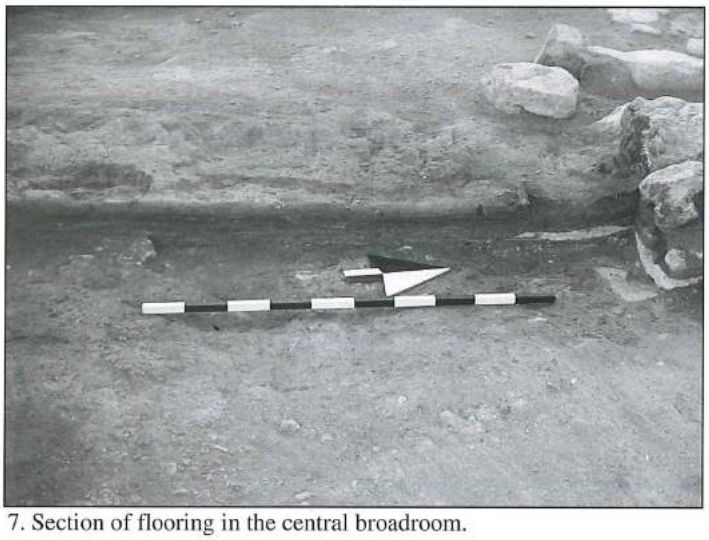


5. Topographic map of Field B.



6. Artist's rendition of Field B pillared building (Rhonda Root).

[1] Iron Age floor construction at Beersheba illustrates to what degree laborers improved on the process over time. Upon a bed consisting of "debris, gravel and pebbles, broken bricks, etc." (Itzhaki and Shinar 1973: 19), those laying the floor deposited an underlayer measuring up to 1 m in depth, made up of "alternating and interfingering layers and lenses of brown loess (containing the remains of ash and charcoal), which alternate with a grey mixture of silty soil and ashes" (19). The surface (.05-.10 m thick) consisted of "thin laminated layers of loess, cobble stones, plaster sheaths, or a firm grey mixture of silt and ashes" (19). The ashes were taken from wood burned especially for this purpose.



7. Section of flooring in the central broadroom.

stones. An earthquake around 1200 BC damaged the floors, necessitating repairs with larger (boulder-size) and more angular flag stones (FIG. 9). The flooring of the animal pen also showed renovation and expansion (FIG. 10). Most of the repair stones used in the long room and the animal pen would require the labors of at least two men to transport and lay.

2) Exterior walls were around 1 m thick, except the exterior broad-room wall, which constituted the outer city wall and measured over 2 m thick, and consisted of stone for the first story (FIG. 11). There appears to be little or no foundation to most of these walls, thereby reducing labor investments as well as structural stability. The stones range in size from small to large boulders and were all field stones, transported from surrounding slopes or robbed out of nearby buildings from earlier periods. These would be chinked with cobbles to stabilize the wall.

Calculations based on 85% volume of the space the walls occupy, given the specific gravity of typical lime-



8. Pavement of broadroom flooring.

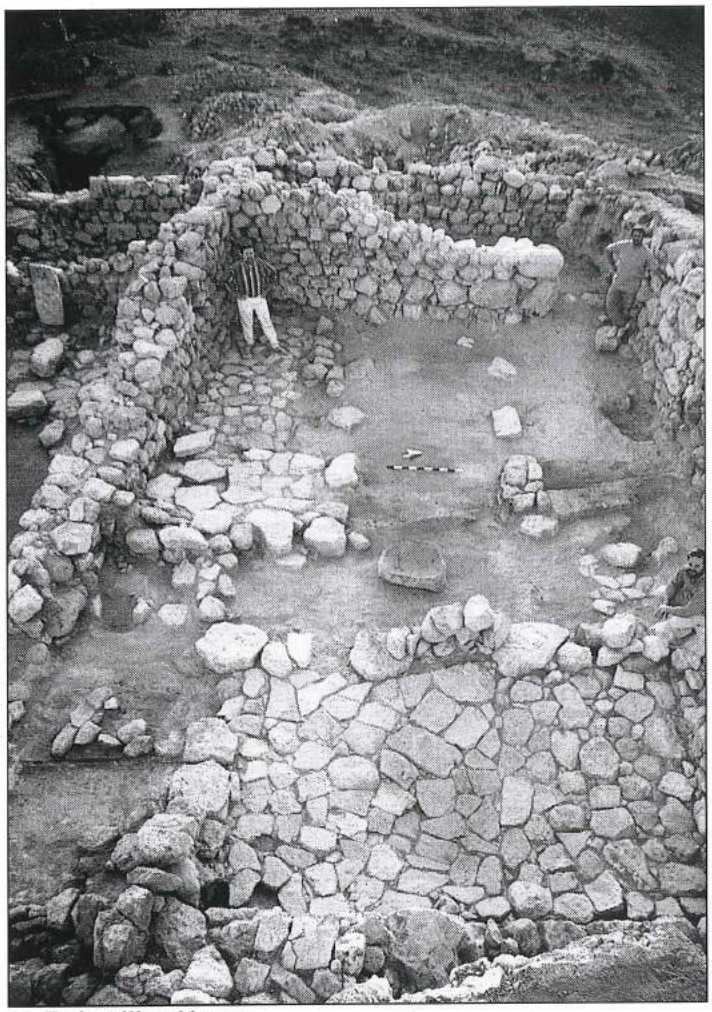


9. Pavement repairs.



10. Eastern animal pen floor.

stone wall stones used in central Jordanian construction, suggest a cumulative weight of the outer wall stones of 250.69 tons (TABLE 1). These figures speak profoundly of the huge mass of stone being moved and put in place



11. Entire pillared house.

during this operation.

On the basis of personal communication with Dr Raouf Abujaber, landowner at Tall al-'Umayrī and Jordanian historian, it would require two men, a builder and a porter, one long day to construct an unfinished stone wall of this nature, 1 m wide, 2 m high and 3 m long. One should add another day's labor for two additional men and a donkey if the stone was not already on site. It would thus have taken four men and a donkey, if one accounts for the thickness of the broad-room outer wall at al-'Umayrī, the extension encompassing the added animal pen, and the height from the ground level up, approximately one month of concentrated labor to collect stones for and construct the exterior walls of the first story. The project would certainly take longer, however, if home owners did most of the work themselves since they would need to build during times free from other tasks (like plowing, planting, harvesting) required for subsistence.

At the same time, the evidence suggests a fairly hurried attempt to rebuild the city following the earthquake of 1200. And, given the integration of these buildings into the defenses of the town, the entire population held a stake in this construction at the point on the site most vulnerable to military assault.[2]

Exterior walls were also likely plastered over to prevent erosion from the annual rainfall which can be heavy and intense during the winter and early spring months. This demanded significant amounts of lime plaster and assumes all the labor involved in the manufacture of lime along with its application and maintenance.

The production of lime was, by all counts, a demanding process. If modern practice is any guide, work-

TABLE 1. Wallmass for four-room pillared building at Tall al-'Umayrī.

	width	length	height	volume	mass (w/0.8)	mass (w/0.85)
outer wall	2 m	8.5 m	2 m	34 m3	69100 Kg	73400 Kg
north wall (w)	1 m	7.5 m	2 m	15	30500	32400
north wall (e)	1 m	4.25m	2 m	8.5	17300	18400
south wall	1 m	14 m	2 m	28	56900	60500
divider wall	0.9 m	5 m	2 m	9	18300	19400
east wall	1 m	10 m	2 m	20	40600	43200
animal pen wall	0.4 m	6.2 m	0.6 m	1.5	3000	3200
total				**116**	**235700**	**250500**
outer walls	227900Kg X 2.2		= 501380 lbs	= 250.69 tons (non-metric)		
total walls	250500 Kg X 2.2		= 551100 lbs	= 275.55 tons (non-metric)		

[2] Fortifying a site with a beaten-earth rampart and casemate wall system, to take an example from the varying defense systems apparent in this period, represents another major undertaking. It involves the location and collection of appropriate kinds of earth, clay, crushed nari chunks and charcoal pieces for the rampart, the preparation and mixing of these elements, the deposition of lensing layers which interlocked for better bonding, and the never ending task of maintaining the steeply sloping rampart against annual, seasonal erosion. Also encompassed is the daunting task of constructing a wall system. Locating and either quarrying or collecting, then transporting, large boulders is demanding, back-breaking labor, however many pack animals might be utilized. Digging foundation trenches for and laying the courses of the outer wall (2-4 m or more in thickness and perhaps two to three stories high) and the inner and cross walls engages architects, masons and laborers for months. Wall towers, the gate system and construction of a citadel added to the complexity of the task and the length of time it took to complete it.

ers dug lime kilns deep into the ground with a circular design, then lined them with stones and built them so they extended above ground in a roughly vaulted dome (FIG. 12). Their depth was typically greater than their diameter and ventilation was achieved through a vent on the windward side. Wood or thistles and weeds, gathered over several days and placed in direct contact with the stone, fueled the fire which normally burned steady for three to six days.

In the process of manufacture, limestone is heated to ca. 900°C, causing its decomposition into quicklime. The lime is then hydrated and mixed with temper such as sand to form an adhesive paste which, when molded and allowed to air-dry, hardens and maintains its shape (Christopherson 1991: 343). To accomplish this process, the ancients paid dearly:

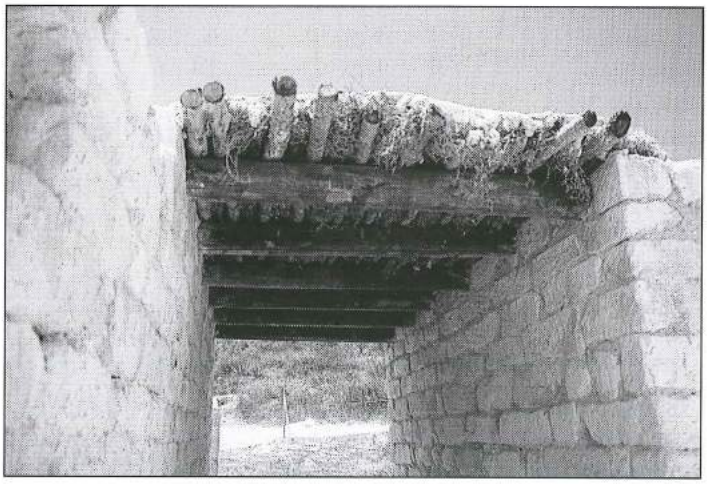
> Although the technology involved in the production of lime plasters is relatively simple, the expense in raw materials and manpower is great. In order to produce 1.00 ton of lime plaster, 1.50 to 2.00 tons of limestone and 2.00 tons of wood are necessary (William Kingery 1988, personal communication). Add to this the manpower involved in building the kiln, collecting the tons of limestone and fuel, firing of the kiln, removing the burned lime, mixing the lime with water and temper, and finally using the plaster in construction. It is obvious that the lime plaster industry was a very labor/energy intensive operation and its product would have been expensive. In fact, the amount of labor involved makes it likely that lime plaster was in some respects a luxury item, especially during the earliest periods of its use (Christopherson 1991: 344).

While Iron Age builders usually utilized wood for kilns in the Mādabā Plains region (common oak was likely the dominant tree at the time [Younker 1989]), one example from Palestine illustrates use of a locally abundant shrub (*Sarcopoterium spinosum*, thorny burnett). It burns hot and rapidly, but it takes from 5000 to 7000 bundles in order to produce two tons of quicklime (Christopherson 1991: 345).

3) The interior stone walls would demand the same kind of labor, although some interior walls were not as thick as exterior ones and some apparently did not reach the ceiling, nor would they require the same degree of maintenance. This is true at al-'Umayrī of the animal pen walls, which stood less than 1 m high and were built rather sloppily. It is also true of the divider walls between the three long rooms. These were comprised of five wooden posts each, resting on stone post-bases set into the floor. Sometimes mangers separated animal from human areas, but, if they existed at al-'Umayrī, they must have been wooden because nothing remains of them following the massive fire which destroyed the town in ca. 1150. In any case, the ancient builders needed to locate, fell, transport, trim to size and install the posts.
4) Large amounts of wood were also required for the beams spanning between walls and posts, for rafters between beams, and for additional ceiling/roof support, as the reconstruction at Tall Marisha demonstrates (FIG. 13). Atop the wood, workers laid smaller brush and then thick layers of mud, clay or plaster. Because of potential erosion due to heavy annual rains, maintenance and repair of roofs were particularly important. Normally, house holders utilized large stone rollers (approximately 1 m long and perhaps 0.3 m in diameter) to flatten and resolidify roofs following rainstorms.
5) The second story of the four-room house at al-'Umayrī consisted of walls built entirely of large mudbricks (FIG. 14). These contained temper of straw and sand. They demanded the same time and energy as bricks



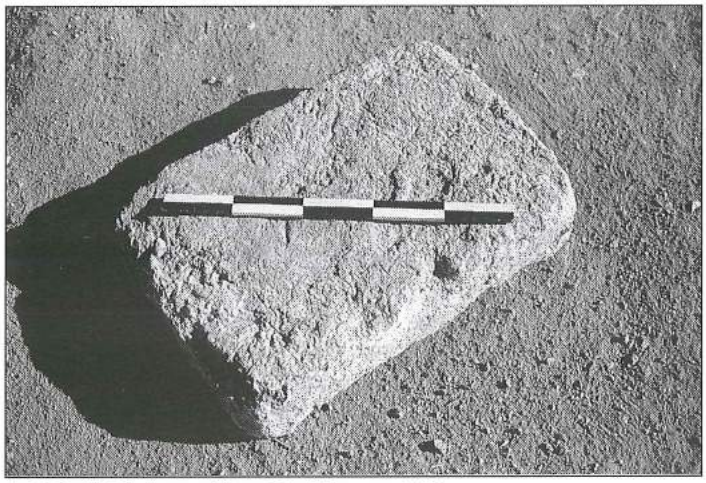
12. Local lime kiln.



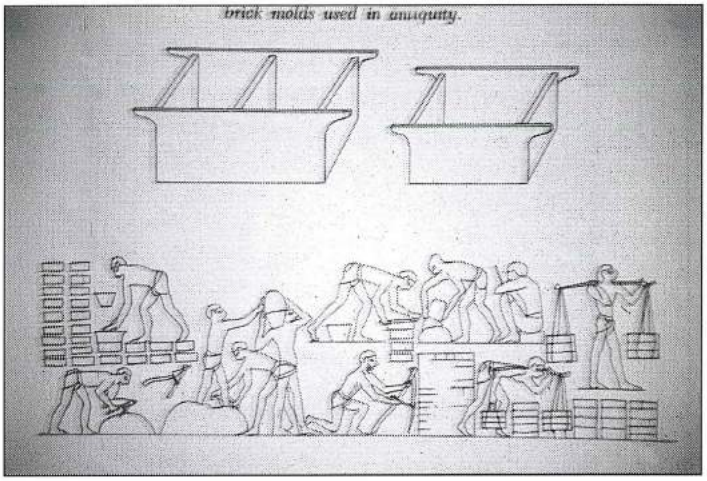
13. Wooden ceiling at Tall Marisha.

made in Mesopotamia or Egypt (FIG. 15), although sources of clay were not as plentiful locally as along the Nile and Euphrates or Tigris Rivers. Measuring approximately 0.5 m long, 0.4 m wide and 0.15 m thick, these were laid with mortar and evidently plastered over to form smoothly finished surfaces (FIG. 16). Thus, the labor-intensive processes involved in the production of quicklime (for mortar) and slaked lime (for plaster) added to the heavy work loads of those involved in this aspect of the construction of domestic buildings.

Mesopotamian brick-making with sun-baked mudbricks, while time- and labor-intensive, demanded little native talent or skill. Likely every villager was engaged in the practice at one time or another (Moorey 1994: 305). The process involved three major operations: digging out and collecting the raw material, mixing the mud with straw or dung and molding the bricks. Firing, of course, would be added to the job description of laborers in the case of kiln-baked bricks. "The preferred brick manufacturing month was the 'third' (May-June), immediately after the spring rains, when water would be plentiful and the whole summer lay ahead, if necessary, for drying. Chaff or straw was easily available at this time" (Moorey 1994: 304). On the basis of recent calculations by Oates,[3] 100 bricks would require about 60 kg of straw or the amount harvested from one eighth of a hectare of barley. Thus, in addition to collecting available clay, huge amounts of straw were also needed.



14. Mudbrick from pillared building at al-'Umayri.



15. Brick making according to Egyptian tomb relief.

The temper and clay are then thoroughly mixed in large puddling basins, from which the combined materials are taken and "shaped, usually two at a time, in a rectangular wooden mould with no top or bottom; and were afterwards left to dry, being turned over from time to time" (Derry and Williams 1961: 158).[4]

Laborers on the four-room house also raised another roof of similar construction to the one mentioned above for the second story, with concomitant demands on labor and material. As well, people accessing the upper story appear to have constructed and utilized a stone platform supporting a wooden ladder.

---

3 See Oates, D. Innovations in Mud-Brick: Decorative and Structural Techniques in Ancient Mesopotamia. *World Archaeology* 21: 388-406 as cited in Moorey 1994: 305.

4 Brick-making in Egypt is well illustrated on tomb reliefs and ethnographically. The process was extensive, extremely exhausting and seemingly eternal. It included the following stages: locating, collecting and preparing materials (water, clay and temper-straw was steeped for several days in order to distribute the cellulose uniformly throughout the mud [Goyon: 153]), mixing the materials thoroughly, shaping the bricks in molds and drying them for a week or so, turning them midway through. Of course they then had to be transported to the construction site. All of this activity took place in the Nile delta where heat; humidity; endless hours of backbreaking, repetitive labor; and insect-borne diseases and other health hazards added to the affliction of conscripted laborers. A modern description of brick-making captures the process well:

The brick maker, called *ṭawwāb* in Arabic, searches for a deposit of Nile mud of a suitable consistency for his purpose, and clears as large and flat a space as possible. His assistants dig up the mud and put it into a smallish hole in the ground (*ma'gana or makhmara*), where water is added to it until it has the consistency of a very thick paste. The mixing is done with the aid of a cultivator's hoe (*fās* or *ṭūria*), the feet assisting in the operation. If chaff (*tibn*) is available, it is mixed in varying quantities with the mud paste; if there is no *tibn* the bricks are made without it, but sand is often added with good effect. Having thoroughly mixed up the paste, an assistant takes a round or oval mat (*bursh*) made of strips of palm leaf (*khawṣ*), having handles on either side, and, having dusted it over with fine mud to prevent sticking, he puts as much of the paste on it as he can carry and leaves it beside the brick maker. The brick maker squats down, holding an oblong wooden mould fitted with a handle—of which examples are known in the XIIth and the XVIIIth dynasties—the mould being of the size of the bricks he wishes to "strike" (*ḍarab*). Having filled the mould with the mud paste, the brick maker scrapes off the surplus and lifts off the mould, leaving a sticky mud brick, just sufficiently hard to retain its form. He continues "striking" a series of such bricks, one alongside the other, until all his available space is filled. The bricks must then be left to dry until they are hard enough to be stacked and a new series made. In ancient Egypt the method was identical with that used to-day, the only difference being that in the old scenes the mud is carried in a pot instead of on a mat (Clarke and Englebach 1990: 208-209).



16. Brick with plaster and mortar.

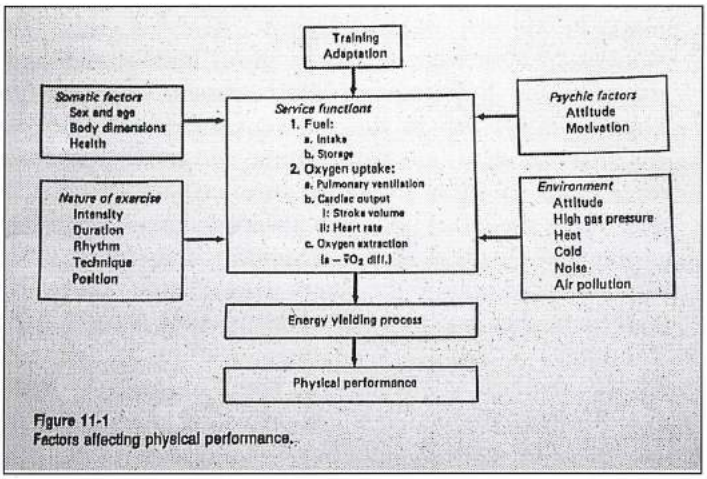


Figure 11-1
Factors affecting physical performance.

17. Physiology chart.

The Physiology of Human Labor

Assessing the physiological investment of human energy in a task like building a house of stone, wood, plaster and clay requires the expertise of a variety of people in a wide range of disciplines. I lay no claims here beyond mere acquaintance with areas worth investigation if we are to study and understand this important aspect of human endeavor which occupied the time and attention of ancient tribal groups in the hill country of Jordan and Palestine during Iron I. However, a few notes to supplement what the archaeological data have suggested to this point might prove useful, if not in providing answers to our questions, at least in proposing avenues for further research.

The chart on training adaptation, drawn from one of the standard textbooks in the field on work physiology, that by Åstrand and Rodahl (1986: 489), demonstrates the range of considerations one must keep in mind (FIG. 17). Factors involving the body and the nature of the exercise (on the left), the mind and the environment (on the right), and the functions of fuel and oxygen utilization (center) all contribute to an assessment of energy invested and performance realized.

With the aid of these lines of research into the physiology of human labor, we should be able to calculate more precisely the time and human effort invested in the construction of houses, the nutritional drain and oxygen uptake of builders, and, from these, say something about dietary needs and aerobic demands. Current measuring technologies allow us to evaluate all kinds of chemical changes during work, heart rate, loads on single muscles or groups of muscles, hormonal responses to stresses, emotional engagement. Energy output estimates derive from monitoring heart rate, time-activity measurements of all types of activities, and assessments of food intake necessary to maintain body weight.

Beyond the basic energy needs for basal metabolism, eating and the necessary expenditures of energy, the body, by the estimates of some physiologists, needs around 2000 kilocalories per day to support hard labor like construction. The expenditure, however, will vary depending on all the factors noted above—internal and environmental.

Hopefully, by comparing these data with what we know archaeologically (the results of human labor and the evidences for the dietary makeup of the Iron Age hill-country populations of Palestine and Jordan), we may be in a position to explain further human endeavors in antiquity, especially those involving investments in the construction of buildings. Clearly, further study awaits our attention.

Conclusion

The construction of stone four-room houses in the Iron I period was a labor-intensive endeavor, involving a variety of tasks. Earth, stone, wood, lime and clay all demanded significant effort and time in their collection, preparation/production, transportation and application to house building. This was especially demanding for villagers whose subsistence-level income forced them to do most of the work themselves in addition to the tasks they performed simply to stay alive and feed their families. For the most part, building construction was difficult, dangerous and demanding for the ancients. Theirs was a hard lot and only remnants of their work remain. At the same time, this human investment was not only essential for their survival, but exemplary in demonstrating the persistence and perseverance, the ingenuity and innovation, the strength and stamina of our forebearers in this region.

Selective Bibliography

Aberbach, M. 1994. *Labor, Crafts and Commerce in Ancient Israel.* Jerusalem: The Magness Press.

Abujaber, R. S. 1989. *Pioneers Over Jordan: The Frontier of Settlement in Transjordan, 1850-1914.* London: I. B. Tauris & Co. Ltd.

Aharoni, Y. (ed.) 1973. *Beer-Sheba I: Excavations at el Beer-Sheva, 1969-1971 Seasons.* Tel Aviv: Institute of Archaeology.

Åstrand, P.-O. and Rodahl, K. 1986. *Textbook of Work Physiology: Physiological Bases of Exercise.* New York: McGraw-Hill Book Company.

Briggs, M. S. 1954. Building Construction. Pp. 397-448 in C. Singer, E. J. Holmyard and A. R. Hall (eds), *A History of Technology,* Vol. II. Oxford: The Clarendon Press.

Canaan, T. 1932-33. The Palestinian Arab House: Its Architecture and Folklore. *Journal of the Palestine Oriental Society* 12: 223-47 and 13: 1-83.

Christopherson, G. L. 1991. Limekilns From the Regional Survey. Pp 343-352 in L. Herr *et al.* (eds), *Madaba Plains Project 2: The 1987 Season at Tell el-'Umeiri and Vicinity and Subsequent Studies.* Berrien Springs, MI: Andrews University Press.

Clark, D. R. 1994. The Iron I Defense System at Tell El-'Umeiri, Jordan. *BA* 57/3: 138-148.

___ 1996. Early Iron I Pillared Building at Tall al-'Umayri. *BA* 59/4: 241.

Clarke, S. and Englebach, R. 1990. *Ancient Egyptian Construction and Architecture.* Original copyright, 1930. New York: Dover Publications, Inc.

Contenau, G. 1969. Mesopotamia and the Neighboring Countries. Pp. 114-141 in M. Daumas (ed), *A History of Technology & Invention: Progress Through the Ages,* Vol. I (The Origins of Technological Civilization). Trans. E. B. Hennessy. New York: Crown Publishers, Inc.

Crump, D. J. *et al.* 1981. *Splendors of the Past: Lost Cities of the Ancient World.* Washington, D.C.: National Geographic Society

Derry, T. K. and Williams, T. I. 1961. *A Short History of Technology From the Earliest Times to A.D. 1900.* New York: Oxford University Press.

Dever, W. G. 1995. Palaces and Temples in Canaan and Ancient Israel. Pp. 605-614 in J. M. Sasson *et al.* (eds), *Civilizations of the Ancient Near East,* Vol. I. New York: Charles Scribner's Sons.

Eyre, C. J. 1987. Work and the Organization of Work in the New Kingdom. Pp. 167-221 in M. A. Powell (ed), *Labor in the Ancient Near East.* New Haven: American Oriental Society.

Forbes, R. J. 1967a. The Beginnings of Technology and Man. Pp. 11-26 in M. Kranzberg and C. W. Pursell, Jr. (eds), *Technology in Western Civilization,* Volume I. New York: Oxford University Press.

___ 1967b. Mesopotamian and Egyptian Technology. Pp. 26-47 in K. Melvin and C.W. Pursell, Jr (eds), *Technology in Western Civilization,* Vol. I. New York: Oxford University Press.

Heltzer, M. 1987. Labour in Ugarit. Pp. 237-250 in M. A. Powell (ed), *Labor in the Ancient Near East.* New Haven: American Oriental Society,

Herr, L. G. 1997. The Iron Age II Period: Emerging Nations. *BA* 60/3: 114-183.

Hodges, H. 1970. *Technology in the Ancient World.* New York: Alfred A. Knopf.

Houben, H. and Guillaud, H. 1994. *Earth Construction: A Comprehensive Guide.* London: Immediate Technology Publications.

Itzhaki, Y. and Shinar, M. 1973. Dust and Ashes as Floor Stabilizers in Iron Age Beer-Sheba. Pp. 19-22 in A. Yohanan (ed), *Beer-Sheba I: Excavations at Tel Beer-Sheba, 1969-1971 Seasons.* Tel Aviv: Tel Aviv University Institute of Archaeology.

Ji, C. C., Jr. 1997. A Note on the Iron Age Four-Room House in Palestine. *Orientalia* 66/4:387-413.

Khammash, A. 1986. *Notes on Village Architecture in Jordan.* Lafayette, LA: University Art Museum, University of Southwestern Louisiana.

LaBianca, Ø. 1990. *Sedentarization and Nomadization: Food System Cycles at Hesban and Vicinity in Transjordan. Hesban 1.* Berrien Springs, MI: Andrews University Press.

Landels, J.G. 1978. *Engineering in the Ancient World.* Berkeley: University of California Press.

Leroi-Gourhan, A. 1969a. Primitive Societies. Pp. 18-58 in M. Daumas (ed), *A History of Technology & Invention: Progress Through the Ages,* Vol. I (The Origins of Technological Civilization). Trans. E. B. Hennessy. New York: Crown Publishers, Inc.

___ 1969b. The Technological Complex of the Neolithic Period. Pp. 65-76 in M. Daumas (ed), *A History of Technology & Invention: Progress Through the Ages,* Vol. I (The Origins of Technological Civilization). Trans. E. B. Hennessy. New York: Crown Publishers, Inc.

Lloyd, S. 1954. Building in Brick and Stone. Pp. 456-494 in C. Singer, E. J. Holmyard and A. R. Hall (eds), *A History of Technology,* Volume I. Oxford: The Clarendon Press.

London, G. A. and Clark, D. R. (eds) 1998. *Ancient Ammonites and Modern Arabs: 5000 Years in the Madaba Plains of Jordan.* Amman: American Center of Oriental Research.

Mazar, A. 1995. The Fortification of Cities in the Ancient Near East. Pp. 1523-1537 in J. M. Sasson *et al.* (eds), *Civilizations of the Ancient Near East,* Vol. III. New York: Charles Scribner's Sons.

McNeil, I. (ed) 1990. *An Encyclopaedia of the History of Technology.* London: Routledge.

Moorey, P. R. S. 1994. *Ancient Mesopotamian Materials and Industries: The Archaeological Evidence.* New York: Oxford University Press.

Rosen, A. M. 1986. *Cities of Clay: The Geoarchaeology of Tells.* Chicago: The University of Chicago Press.

Stager, L. E. 1985. The Archaeology of the Family in Ancient Israel. *The Bulletin of Oriental Research* 260 (Fall/

November): 1-35.

Wright, G. E. 1974. *Great People of the Bible and How They Lived.* Pleasantville, NY: Reader's Digest Association, Inc.

Yarwood, D. 1990. Building and Architecture. Pp. 855-901 in I. McNeil (ed), *An Encyclopaedia of the History of Technology.* London: Routledge.

Younker, R. W. 1989. Present and Past Plant Communities of the Tell el-'Umeiri Region. Pp. 32-40 in L. Geraty *et al.* (eds), *Madaba Plains Project 2: The 1984 Season at Tell el-'Umeiri and Vicinity and Subsequent Studies.* Berrien Springs, MI: Andrews University Press.

Gerrit van der Kooij
Faculty of Archaeology
University of Leiden
The Netherlands

Gerrit van der Kooij

The Vicissitudes of Life at Dayr 'Allā during the First Millennium BC, Seen in a Wider Context

Introduction

The excavations of Tall Dayr 'Allā in the Jordan Valley have revealed a site chosen for settlement during the Late Bronze Age and the Iron Age. This paper is concerned with the Iron Age, in particular the Iron II and III periods, represented at Dayr 'Allā in the phases X-III, as distinguished preliminarily by the Joint Expedition of the Department of Antiquities of Jordan, Yarmouk University and Leiden University, Holland[1] (TABLE 1).

These Iron Age periods were partly excavated by the Leiden Expedition (mainly in 1967), directed by Henk Franken, and especially by the later Joint Expedition, co-directed by the author and Dr. Moawiyeh Ibrahim, succeeded by Dr. Zeidan Kafafi since 1996. The excavated area dealing with this period is on the east-top, most of its northern half (totalling at maximum 1200m^2 at the lowest levels) and a 5x10m exploration trench to the south. In this area phase X is partly excavated, phase IX is stratigraphically best preserved and the other phases have suffered a lot from later disturbances.

The archaeological results indicate a wide variety of settlements during this period. Alternating intensive and weak uses are shown, with six wave peaks during the 600 years concerned (TABLE 1).

This paper presents a short preliminary result of the archaeological study of these phases and seeks to explain the short term alternating degrees of intensity of use through economic, but especially political forces that act in the wider region. This will be done in three steps:

1. Description of the vicissitudes of life at Dayr 'Allā and some neighbouring sites.
2. Archaeological explanation of this alternation, taking two basics: the environment and some explanatory models.
3. Historical connections.

1. Description of the Vicissitudes of Life at Dayr 'Allā and Some Neighbouring Sites during Iron Age II and III

Let us now look chronologically at the use of the site from the tenth till the fourth century BC (phases X-III). It should be kept in mind that the archaeological datings used are not yet very well fixed, but based mainly upon several carbon-14 analyses and a number of artifact chronotypologies.

Systematically reference will be made to the character of the settlements as well as to the beginning and end of each phase—it being abrupt or gradual.

The six peaks of more or less intensive use are the following:

(see FIG. 1 for a sample of the stratigraphy: "exploded view" of phases IX-III in square B/A8, see Van der Kooij, and Ibrahim 1989), using preliminary characterizations (for more details see the literature referred to in note 1).[2]

1. = *phase X*; it is still unclear in which way this settlement began on the site, which was already a *tall*, more than 20 m above the plain at that time;
- the settlement was a village with relatively heavy mud brick building constructions, densely built; during its use some fire destruction with roof collapse occurred;
- abrupt ending by a sudden destruction (partly with fire); 13 clay-closed jars filled with organic liquid were left untouched.
= the phase was followed by no use of the site for some time;
= finally a round pit was made, well constructed, with 12 m diameter and 5 m depth.
2. = *phase IX*: mud brick buildings were erected, probably as one activity, on only partly levelled ruins, and over the gradually filled large pit just mentioned;
- the settlement consisted of complexes of lightly built

[1] A review of the excavations unto and including the 1987 season is given in G. van der Kooij and M. M. Ibrahim, (eds) 1989. The report of the 1994 season appeared in *ADAJ* 41 (1997); the report of the 1996 and 98 seasons is to be published shortly — short reports appeared in the 1996 and 1998 issues of the *Newsletter of the Institute of Archaeology and Anthropology of Yarmouk University*.

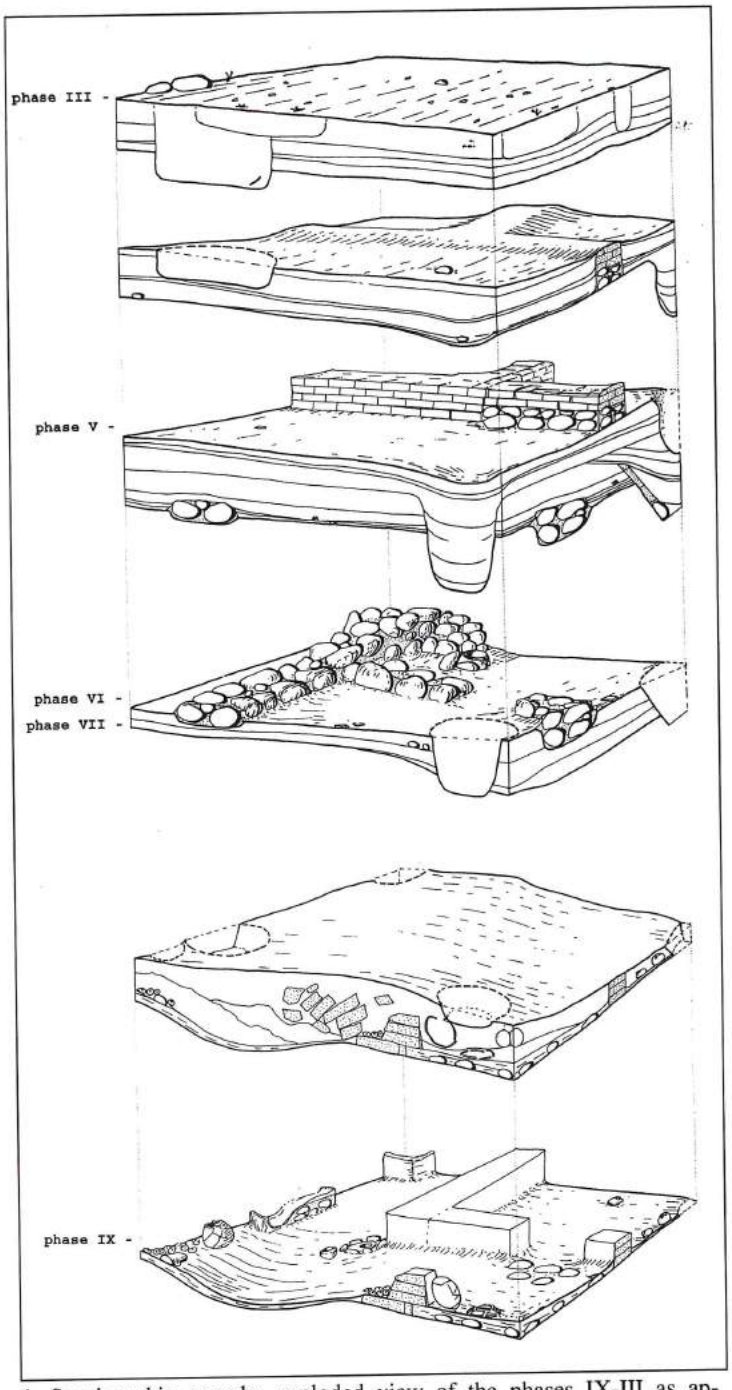
[2] It should be stressed, that the characterizations are preliminary here, because several of the systematic studies of the remains of the distinguished phases have not yet been completed. This is also valid for the botanical and zoological remains.

TABLE 1. Phasing of Tall Dayr 'Allā; for the Iron Age II & III periods the rather intensive uses of the site are indicated.

strata	(sub)phases	kind of inhabitation and use of space	time & period
I		graveyard on top and slopes	13-16th c.AD
II		huge pit made and filled on E-top	4th c.BC
III *	buildings	building; storage pits	**Iron Age III (Babylonian-Persian)**
IV	courtyard-accumulation	top of tell used as sheeps' pen during and after slow disintegration of village of ph.V	
V *	2.rebuilding 1.building	village; courtyards with many pits for fodder	500BC
VI *	4.no bldng 3.no bldng 2.rebuilding 1.building	large yard; many pits mainly for fodder large courtyard; large constructed pits (5m diam.) new buildings, restored court-wall; fire destroyed farmhouses with fodder barn and heavy courtyard wall; fire destruction	**Iron Age IIC** **(Neo-Assyrian)**
VII *	building	erosion and egalisation village; destroyed by earthquake and fire	700BC
VIII	building	large building with yard on ruins of IX/ deserted	**Iron Age IIB**
IX *	2.rebuilding 1.building built pit	village; destroyed by earthquake and fire living compounds with weaving; religious 'centre'	800BC
X *	erosion 2.rebuilding 1.building	village with solid buildings; large storage basement and rubbish-heap	**Iron Age IIA** 1000BC
(Iron A) E-L	L building K J H building G F E building	village village; rounded tower with wall some heavily built walls village; lightly built walls	**Iron Age IB** 1100BC
(Iron A) A-D	D some bldng C B some bldng A	some houses large ovens (metal); storage pits for fuel/fodder flimsy buildings and tents? seasonal use	**Iron Age IA**
(L.B.A) A-H	F-H rebldng E B,C,D rebld A building	fragmentary rebuilding of walls fierce destruction by earthquake and fire rebldng:N quarter: temple with mainly store rooms S quarter: storage/trade, metal work city: S quarter with town wall N quarter: temple (only parts excavated) N quarter: artificial extension; temple terrace	**Late Br. II** 1200BC **Late Br. I** 1500BC
(M.B.A) I-IV	I building II III building IV building	(SE quarter+ E foot) walls; fire destroyed yard and pits some buildings; fire destroyed heavy walls; rooms; city; walls also to E, S and W natural hill of Lisan marl/clay + löss	**MB-LB** **Middle Br. II** 1700BC

* means: phase of rather intensive use (Iron Age II and III only)

NB: the indications of strata/phases are partly preliminary and not yet made uniform; only the Late Bronze Age and Iron Age I strata excavated in the 1960s, are published in a final way.



1. Stratigraphic sample: exploded view of the phases IX-III as appearing in square B/A8.

small rooms and few open spaces; intensive agriculture was practised and other local exploitation used; much weaving activity, religious text, etc.; partial fire destruction and rebuilding;
- ending by an earthquake and fire destruction; c. 800 BC (14C);
= some local rebuilding occurred (phase VIII), but hardly used — in fact rather abruptly ending;
= some time no use and erosion.

3. = *phase VII:* building on levelled surface, probably as one activity;
- many mud brick rooms; layout of the settlement preserved with many gaps, but probably densely built; a solid separate mud brick wall was made, funded deeply into the preceding ruins and bordering the settlement to the north; traces of a strong agricultural economic component;
- abrupt ending by fire and probably also by earthquake;
= some time no use; much levelling.

4. = *phase VI*: building partly in stages on levelled surface;
- the settlement is preserved with many gaps, but some domestic rooms with stone funded walls and a storage room for "fodder"[3] are clear as well as much space for courtyards; a solid separate mud brick wall to the north; one partial collapse (with fire) occurred, followed by rebuilding;
- abruptly ending by fire destruction; no rebuilding;
(the following sub-phases are often referred to as phase V/VI in preliminary reports)
= washed layers levelling the surface, and courtyard accumulation indicating use of space with life stock;
= construction of several 5m diameter lined pits, without clear traces of use;
- pits getting out of use and filled; washed layers and courtyard accumulations;
= digging of many small pits, often bell-shaped and generally filled with "fodder" (see previous note);
- getting out of use, some washed accumulation (from apparently some constructions or debris around on a higher level, of which nothing was found).

5. = *phase V*: building (possibly in stages), but on unstable surface over the earlier small pits with their soft fill;
- several mud brick built rooms with courtyards, and pits for fodder; not tightly built; some rebuilding;
- gradual destruction or disintegration.
= *phase IV*: courtyard accumulation continues, going over the slowly levelling ruins of phase V.

6. = *phase III:* building with a probably abrupt start;
- poorly preserved (surface erosion): some stone foundations, pits, and small parts of the living surface; not very tightly built settlement;
- kind of destruction not clear, but probably sudden.

Theoretically the periods of little or no use at the partially excavated eastern top may mean contemporaneous intensive uses of the lower western top. However no traces from stratigraphy indicate this, and only very few sur-

[3] The identity of the silica remains of thick layers of plant leave material is not established: phytolith analyses are not done. The same applies to the limy remains of plant leaf material stored in pits and covering the bottom of them. In any case seeds are not involved. All this material is hypothetically taken as fodder.

face sherds from this part of the top and slope are to be connected with any of the later periods (mainly with the intensive phase III).

Taking the beginnings and ends of the intensive uses we see the following:

The intensive uses end abruptly by destruction with the phases X, IX, VII and VI and possibly III. In one case a rebuilding started, be it short living. Also in one case a fading out occurred: phase V to IV.

The start of more or less intensive uses is quite abrupt in a number of cases; with phases IX, VII (both: most intensive use), phase VI, possibly with phase V and probably with phase III.

How do we have to understand this fluctuation?

At first we have to assume that this fluctuation is not an autonomous process for the site only. However if we compare the Dayr 'Allā phasing with those of the few excavated sites in the neighbourhood we see only partially a probably synchronous parallelism.[4]

The synchronous parallel development seems clear, based upon artifact typology (mainly pottery), at Tall al-Mazār, 3 km north of Dayr 'Allā, excavated by Kheir Yassine (University of Jordan).

Its top phases are (see especially Yassine 1983 and 1988):

stratum V:	// DA VII
III+IV	// DA VI
II	// DA V+IV

The nearby Iron IIC cemetery (Yassine 1984) is (unexpectedly) not connected with just one of these phases, but possibly with all of them, unless the pottery added cannot be phased that strictly. It is possible to suppose a close but alternating use of Dayr 'Allā and Tall al-Mazār, but, especially in periods of intensive agriculture with irrigation (Dayr 'Allā phases IX and probably VII), a contemporaneous use is to be expected (see below).

A synchronous parallel development is also quite possible at Tall al-Ḥammah, at the az-Zarqā' hot spring, 2 km east of Dayr 'Allā, excavated on a very limited scale by the Joint Expedition of Dayr 'Allā, supervised by Eveline van der Steen (see her 1998). A contemporaneity of peaks of use is partly clear and expected, because of the hypothetic importance of the site for the irrigation system for the region of Dayr 'Allā and possibly Tall al-Mazār (see below). Of course the site had reasons for existence beyond the irrigation system as well such as iron production (unpublished MA thesis, Leiden 1998, by A. E. Veldhuijzen), probably during the Dayr 'Allā phase VII, c. 700 BC.

On the other hand a synchronous parallel development is not clear at Tall as-Sa'īdiyya, 7 km north of Dayr 'Allā, close to the Jordan River, excavated by James Pritchard (University of Pennsylvania) and Jonathan Tubb (British Museum), see especially Pritchard 1985 and Tubb 1988 mainly. The pottery assemblages of the phases are difficult to compare. The suggested difference of rhythm of use of the site may be — partly — explained by another agricultural situation, using the nearby Zor-lands with their high ground water table, and probably another crossing point of the Jordan River.

2. Archaeological Explanation

In order to explain this fluctuation we may consider some narrow local factors — both physical (e.g. bad building surface) and cultural (e.g. religious reason), but they may have an incidental effect only. In order to explain the short term, but strong fluctuation, and considering the geographic situation (see below), we better assume that this pattern is not a local autonomous development, but is embedded in or part of structures and processes in the wider region.

As a main basis for the structures and processes I like to take the *environmental situation*, with its impact on economic behaviour.

This middle part of the Jordan Valley is and was a steppe region, that extends further south, turning into a desert zone there (see Zohary 1982; Van Zeist 1985: esp. 203; Neef 1989). Partly the soil is and was good, but precipitation gives meagre, in any case unreliable, dry farming potential. To the west and to the east, however, in the woodlands of the mediterranean zone, dry farming could provide a reliable economic base.[5]

In this sense, and compared to other famous river valleys like Nile and Euphrates, one may call the Jordan Valley a reversed valley: agriculture based societies would not concentrate on this valley, but rather on its higher banks; furthermore the river cannot be used adequately as a means of transport and communication. On the other

[4] As neighbourhood is chosen a small region in this middle part of the Jordan Valley. Only sites excavated or under excavation are selected, because survey data (mainly Ibrahim, Sauer and Yassine 1976; 1988) cannot show the detailed specifications needed for this study — "Iron II" not being sufficiently specified and "Persian Period" not being sufficiently defined for our purpose. On another occasion it would be useful to look for parallelism in a wider region, but too little is excavated to be specific enough. The exception is Tall Abū al-Kharaz at Wādī al-Yābis (22 kms north of Dayr 'Allā), under excavation by Peter Fisher, but so far the Iron II period is not sufficiently specified to be useful for this purpose (a.o. Fisher 1991; 1997).

[5] See Zohary 1982 for a general survey of the vegetation in the southern Levant and Al-Eisawi 1985 specific to Jordan. Possibilities for agriculture in the Jordan Valley are studied in a number of development reports, see for example the voluminous Dar Al-Handasah and Nedeco 1969 report; Vol. III (Annex E), p. 34f gives the yield for 1965/66: irrigated wheat: average about 105-110kg per dunum (some regional differences), non-irrigated wheat (in the northern part of the East Valley only) 35kg per dunum (the 1965/66 season was a rather dry one); p. 38: the highest and lowest yields of wheat (taking all areas of the valley in the years before 1965) were reported to be 250kg and 30kg per dunum respectively; the difference was mainly depending on availability of rain and irrigation water, but also on diseases.

hand the Jordan Valley is very attractive for pastoral activities in winter and spring.

However, this middle part of the Valley could be made suitable for reliable agriculture by irrigation, using water from the nearby river az-Zarqā' and perhaps from Wādī Rājib (with Tall Ammata at the entrance into the Valley). We do not know the system that has been used, but the most profitable (and possibly best defendable) irrigation system might have been the one used until the 1950s: a system taking water from the az-Zarqā' somewhere east of Tall al-Ḥammah (possibly protecting this entrance) and bringing water to the north-west (as far as al-Mazār) and west, Dayr 'Allā.[6]

Considering this environmental basis we have to understand, on the one hand (A) the varieties of use of the site, and on the other hand (B) the developments that brought those results.

In order to systematize our thoughts we need models that make it possible to further describe and explain hypothetically the colourful variety of human existence at Dayr 'Allā.

The proposed models are based partly upon the local geographic and social situation, as ethnologically and ethnohistorically described (cf. summarizing Van der Kooij, Ibrahim 1989: 11-14, and ethnohistorically more detailed: Van der Steen 1995 and Tarawneh 1989), partly upon observations and abstractions from elsewhere, with comparable geographic and social situations.

A. At first a model of this variety of existence on a site, from little or no use to intensive use of site and region, should be formulated. It is useful to look at a.o. the models proposed by LaBianca 1990 (based upon food-systems theory) and Cribb 1991: both dealing with nomadization and sedentarization. Also for our case the different intensities of use should not be considered in steps, but rather measured on a "sliding scale" from one extreme end to the other; from little use till intensive use.

   The extreme ends would be:

- lowest intensity: the use of the site is limited to grazing and resting grounds for life stock within the framework of pastoral nomadism, with people staying in the valley in winter and spring, alternating with the foothills and uplands; no fixed structures on the site. A slightly higher intensity would show some pits for fodder and pen structures.
- highly intensive use: permanent stay on the site with many fixed and densely built structures as well as intensive agricultural and horticultural exploitation of the surrounding fields, using irrigation.

At all stages on the scale some hunting and gathering of plants is included, as well as some trade, by both "unsettled" and settled people. This is especially true in this middle Jordan Valley area, which could be not only a border, but also a bridge between the two mediterranean zones, by its fords[7] and access to the mediterranean zones through or alongside Wādī az-Zarqā' and Wādī al-Farah.

This model helps to describe (mainly economically) the different intensities of use.

B. Secondly we need a model for the processes that lead to intensification and to weakening of use, or the start and desertion of a settlement.

Two general models are proposed now for the situations at Dayr 'Allā, but we have to consider some specific backgrounds as well.

1. Processes of sedentarization of pastoral nomadic people, and those of (a return to) nomadization. In practice this means a group living seasonally in a region and deciding freely or forced to settle there, generally to promote agriculture and reach both a more complete subsistence economy and possibilities of varied trade. Sometimes — especially in case of gradual transitions - the structure of a house and a settlement reflects the nomadic customs and use of space (Cribb 1991), but in other cases another structure is adopted.

   Nomadization may have the opposite cause and may occur for other reasons as well. If the process includes a complete giving up of settlement it has to do with security and stability in a wider region, or with a disaster.

At Dayr 'Allā the gradual intensification with phases VI and V, and the gradual release of use with phase V may be connected with these processes of sedentarization and nomadization respectively. However lack of knowledge about contemporaneous nomadic life ("tent" and camp) makes it difficult to be more precise, yet the presence of large courtyards with accumulations with plant remains is an indication of animal keeping and herding - dealing with sheep and goats according to the bone remains.

The abrupt endings observed may also have led to nomadization, but this is difficult to check.

2. The second model has stronger connections with a wid-

[6] Royal Air Force Levant photograph, published by Glueck 1951: fig. 101 (a copy of the RAF Levant-based map is printed in Van der Kooij and Ibrahim M. 1989: 11). The system is also visible on a German photograph from 1917/18 as published by Dalman 1925: Pl. 84, and indicated on 1918 topographic maps of the Survey of Egypt (see note 7). This system takes az-Zarqā' water 1 km east of al-Ḥammah at c.190m below sea level, close to Tall Mghanni West, which has traces from the Iron Age but mainly from Hellenistic and Roman times (survey Gordon, Villiers 1983).

[7] The sub-recent situation is shown on two maps of the Survey of Egypt, both from 1918 (scale 1 inch to mile, 1:63,360; I am grateful to Dr Edward LaGro for showing them to me). Two roads passing Dayr 'Allā are crossing the river Jordan, one going west and crossing at "a good ford" at Abū Sidrah; the other one going south-west and crossing at Dāmiya with a ferry or bridge. Opportunities to cross the river Jordan must have changed a lot during time, because certainly its curves did change considerably. Possibly however the existence of Tall Abū Sidrah close to the spot may indicate an early use of this crossing point. The crossing at Dāmiya is taken to be part of an old road system.

er regional process. Social or economic over-population or over-exploitation in the mediterranean ecological zones may guide parts of the population to exploit agriculturally (especially) the marginal areas, including the steppe border zones, and live there permanently. This process may be labelled expansion or migration; the word "colonization" would be sometimes applicable as well.

A special kind of expansion is the one that leads to exploitation of the region for a specific economic product as is historically and archaeologically known about for example the Mamluk period: promotion of sugar (cane) production in the Jordan Valley by the Egyptian Mamluks (cf. Hamarneh 1977-1978, a.o.), also close to Dayr 'Allā: e.g. Tall Abū Ṣarbūṭ (De Haas, LaGro and Steiner 1992).

The decrease of intensity and remigration to the mediterranean zones will take place during or after a decrease of population or a disease (malaria in this region), and also when a protecting organization in this marginal zone has weakened — often after the first hostilities are experienced!

In the case of Dayr 'Allā this model is especially applicable to phases IX and VII, but also possible with phases VI, V and III.

3. Other factors for settlement or abatement could be abstracted into models as well. For example religious forces: the settlement at Abū 'Ubaydah (3.5km north of Dayr 'Allā) started because of the effect of the existence of the famous general's tomb there.

Or the abandonment of a site after being made desolate by a natural force (earthquake, disease) or by human hostilities, because this was seen as an act of divine powers and as a punishment. This may be applicable to phase IX with the abortive rebuilding of phase VIII.

These factors could be a reason by themselves or a catalyst for the two processes mentioned earlier.

3. Historical Connections

The final step is the connection of these proposed archaeological processes with historical information and chronology. For this purpose we have to find compatible archaeological and written data.

At first the archaeological data from Dayr 'Allā have to be taken out of isolation and connected with a wider context - with other sites and regions and more or less also with a chronological framework.

Next the processes have to be connected with historical information.

In the following the two stages of the approach will be introduced and synthesized into a (still preliminary) integrated view of situations and chronology.

A. The archaeological information includes some 14C dates for a first indication, but here mainly the cultural identities of the peak phases of Dayr 'Allā will be dealt with (in a limited way and mainly concerning pottery and some other artifacts), showing connections with wider cultural units.[8]

B. Written information about the region has to be found through some topographical identifications. This middle part of the Jordan Valley has to be identified with the "valley of Succoth", or the region of Makir, as part of Gilead, in the Old Testament (cf. Lemaire 1981). The specific identification of the site of Dayr 'Allā has not yet been definitely settled.

In the period of concern written sources with information about the small region are rare. A survey of the sources concerning Trans-Jordan is given by Bienkowski 1992, for many details and discussion relating to northern Trans-Jordan see Hübner 1992 (cf. also MacDonald 1994).

Roughly the following references should be given:

- Egyptian source) Pharaoh Shoshenk's list dealing with his campaign into the region (c .925 BC);
- (Old Testament) importance of Jeroboam I and Jeroboam II (787-747 BC), kings of Israel, that included the East Bank of the Jordan into their state (cf. Donner 1986);
- Neo-Assyrian sources refer to the wider region and population groups, like Ammonites, concerning tribute, etc.

Avoiding on this occasion many of the historical details and problems, my proposal is now to equate hypothetically the periods of intensive use of Tall Dayr 'Allā and close surroundings with periods of some political stability and some wealth. Often with some independence as part of a wider region, but with the obligation to pay tribute to the main lord.[9] This tribute demands extra efforts for surplus production of any kind. The stability and surplus production would give respectively the possibility and necessity to expand to this part of the Jordan Valley.

The following connections between archaeological and historical data are now proposed.

Phase X: the pottery partly consists of the group of 14 vessels, 12 of which being liquid containing store jars and one jar with false spout as well as a spherical "pilgrim's flask"; these last local ceramic objects had "Cypro-

8 Apart from the usual reference works the publications of a.o. Dornemann 1983 and Routledge 1997 (especially in connection with Dayr 'Allā phases VII-IV) are useful for this purpose.

9 It has been made clear for several tribute paying vassal states, that the main lord (i.e. the Assyrian King) not only demanded a lot of wealth for himself, but also tried to guarantee the influx of tribute by promoting the economy of the state concerned. This is clearly applicable to the Phoenician cities (cf. already Röllig 1982) and also to some south Levantine regions, especially that of the Edomites (see e.g. Weippert 1982: 295; Knauf-Belleri 1995 and Na'aman 1993; cf. also Bienkowski 1992).

Phoenician" decorative motives.[10] This pottery (especially that with the decorative motives) is easily connected with (a.o.) the assemblage uncovered by Jane Cahill and David Tarler at the large Tall al-Ḥammah (23km north of Dayr 'Allā, west of the river Jordan near the edge of the Valley plain along the road to Baysān), from Terrace L (rooms 129-117) dated to the tenth century BC (see Cahill *et al.* 1989).

- The archaeological information does not yet allow a close historical connection, although Cahill *et al.* (1993) suggest a destruction by Sheshonk, but leaving other possibilities as well.[11]

Phase IX (14C-cal. century 800 BC) shows pottery traditions general in Palestine, as well as some apparent Trans-Jordanian elements (Mādabā tomb-group, see Thompson 1986), but also some traded pottery (containing plant and shell products) from the Phoenician coast (for a short comparative study see Ibrahim and Van der Kooij 1991 and a detailed evaluation by Wenning and Zenger 1991).[12]

- Thus the phase could be connected with the Aram-Damascus expansion of Hazael (842-800 BC) into Trans-Jordan, but too little is known about the situation (and Damascene archaeology!) to be sure about a period of peace and prosperity and about connections with Phoenician cities.

On the other hand such circumstances may be assumed with the incorporation of this part of Trans-Jordan into the northern kingdom of Israel by its king Jeroboam II (787-747), who was benefitting from some military power vacuum from the north.

However, attribution to this period is not the only possibility, because those favourite circumstances cannot be excluded from earlier ones.

Phase VII shows the continuation of local elements as well as a very strong presence of so-called "Neo-Assyrian" pottery, with its well thrown jars, bowls and cooking pots (see Ibrahim and Van der Kooij 1997: 101; for a generally applicable discussion of "Assyrian influence" on pottery from Jāwa, see Daviau 1997; cf. also Gitin 1995, for Tel Miqne stratum IC). Also other "foreign" artifacts are represented in this phase, such as an iron dagger with complex handle.

- Thus the phase has to be connected with circumstances of Assyrian supremacy, which was valid since Tiglath-Pilezar III's campaign to the west till Egypt in 735-732 BC, demanding tribute from Ammon, Moab and Edom.[13] Assyrian policy to transplant elements of population (a.o. craftsmen) to elsewhere in the empire may be behind the strong presence of foreign culture. The "two-way" deportations occurred especially under Sargon II and Esarhaddon (see Na'aman 1993; cf. also Hübner 1992: 187f).

Phase VI has also quite a variety of pottery,[14] like phase VII, though less sharply distinguished, and now with the cosmopolitan elements of the "Neo-Babylonian" situation, as well as "seventh/sixth century Ammonite" materials, including script (see preceding note).

- Thus the two building phases could be connected with the seventh century Ammonite state as it was a loyal vassal, paying tribute, and using interregional contacts; the sixth century is less clear, and apparently more problematic economically (cf. Hübner 1992: 197, 207 a.o.).

The following interruptions of the rather intensive use of the site may have to be connected with the release of Assyrian power, the Egyptian supremacy and Nebukadnezzar's establishment of power in the Levant in 605 BC.

Phase V (*with IV*) continues with Ammonite materials (black and white bands and other decorations), but also fifth century BC Aramaic script on ostraca showing the influence of Persian central administration.[15]

---

10 Only some of the pottery is to be seen in publications; see Van der Kooij and Ibrahim 1989: reg. no.14, p.81f for context, p. 41 for ants from one of the jars; see also Ibrahim and Van der Kooij 1997: 103.

11 Recent surveys in the Jordan Valley, west of the river Jordan, have some interesting results concerning (probably?) the tenth century BC in this region, including the discovery of some "fortresses" (see Zertal 1995).

12 The pottery of phase IX has some exceptional elements. The burnished askos (see Van der Kooij and Ibrahim 1989: cat. no. 42, fig. 53, Ibrahim and van der Kooij 1991: fig. 2f) is a rare jar, in this region connected with Phoenician pottery traditions. The red slipped and burnished type is often connected with tenth-ninth century BC dates (see Gal 1992: 17f, with references). The spherical jugs (o.c. cat. no. 32 - with short Aramaic text, 39, 46 and fig. 2e) are hardly found elsewhere, as are the two bowls on high foot (Franken 1976: 15, Pl. 16b), cf. 'Ammān tomb C. For other types see the same literature and Ibrahim and Van der Kooij 1986; and especially Vilders 1992.

13 It is interesting to connect the activities of iron production at Tall al-Ḥammah (through the pottery assemblage probably connected with Dayr 'Allā phase VII) with the tribute that was listed by the Assyrian king Tiglath-Pileser III (list for 738) as provided by the Levantine kings (including the three of the Trans-Jordanian kingdoms): besides gold, silver and tin, iron is included.

14 Some pottery is published in Ibrahim and Van der Kooij 1979; 1983, and in Van der Kooij and Ibrahim 1989: cat. no. 117, 118 and the thick "carrot" bottle 119 (the narrow carrot occurs only in phases V and IV). One of the ostraca (reg. no. 2755) is published (partly) by Hoftijzer and van der Kooij 1989: cat. no. 123, see pp. 66 and 69, and in Ibrahim and Van der Kooij 1983: Pl. 128.2. For palaeographic dates see Van der Kooij 1987. It is interesting to compare some types from the assemblage with those from the chronological key-site Tall ad-Duwayr/Lachish, especially Level II, decanters (see Zimhoni 1990/1997).

15 Little of the pottery has been published so far; characteristically the long narrow "carrot" bottle occurs. See a.o. Van der Kooij and Ibrahim 1989: cat. no. 149. One of the ostraca is cat. no. 151 (DA reg. no. 2600, see also Franken and Ibrahim 1977-8: Pl. 29, below), cf. Van der Kooij 1987 for some palaeography.

- Thus phase V can be easily connected with the Achaemenid-Persian hegemony, starting in 539; the region being part of the fifth satrapy and of its province Ammon (cf. Hübner 1992: 210-216 and Herr 1992).

Phase III characteristically has some Attic ware, including the fish bowl; no Hellenistic diagnostics are found.

- Thus phase III would be the result of a flourishing period under Ammonite and Persian hegemony of the fourth century BC.

During later peaks of intensive use of the place the high tall of Dayr 'Allā was no longer settled. Nearby spots were chosen for villages: Tall Qa'dān (or Tall Dayr 'Allā-East) during the Ayyubid-Mamluk period (in order to exploit the Valley for sugar production) and the area south of the tall for the 20th century village, when irrigation agriculture had started as well.

Conclusion

It may be said that the proposed general models to interpret the fluctuation of use-intensity of the site of Dayr 'Allā are helpful by providing a framework for understanding the archaeological data. However many more archaeological data have to be brought into the discussion in order to get a clearer picture of the characters of the different uses and of the cultural, chronological and historical connections and thus give a more firm basis to the interpretation.

Yet it may be added, as a working hypothesis, that this agriculturally marginal region of the "reversed valley" can be considered a measure of political and economic stability in the surrounding mediterranean zones.

Bibliography

Al-Eisawi, D. M. 1985. Vegetation in Jordan. Pp. 45-57 in *SHAJ* II. Amman: Department of Antiquities.

Bienkowski, P. 1992. The beginning of the Iron Age in Southern Jordan: A Framework. Pp. 1-12 in P. Bienkowski (ed.), *Early Edom and Moab.* Sheffield.

Cahill, J. *et al.* 1989. Tell el-Hammeh in the Tenth Century BCE. *Qadmoniot* 22: 33-38.

___ 1993. *NEAEHL* s.v. Hammah: 561-2.

Cribb, R. 1991. *Nomads in Archaeology.* New Studies in Archaeology. Cambridge.

Dalman, G. 1925. *Hundert deutsche Fliegerbilder aus Palästina.* Gütersloh.

Dar al-Handasah & Netherlands Engineering Consultants (Nedeco) 1969. *Jordan Valley Project; Agro- and Socio-Economic Study.* Beirut/ The Hague.

Daviau, M. 1997. Technological Change and Assyrian Influence at Tall Jawa, Jordan. *Bulletin* 32 (The Canadian Society for Mesopotamian Studies) March: 23-32.

Donner, H. 1986. *Geschichte des Volkes Israel und seiner Nachbarn in Grundzügen* 2. Göttingen.

Dornemann, R. H. 1983. *The Archaeology of the Transjordan in the Bronze and Iron Ages.* Milwaukee.

Fisher, P. M. 1991. Tall Abū al-Kharaz; the Swedish Jordan Expedition 1989; First Season Preliminary Report from Trial Soundings. *ADAJ* 35: 67-104.

——1997. Tall Abū al-Kharaz; the Swedish Jordan Expedition 1995-1996; Sixth and Seventh Season Preliminary Excavation Report. *ADAJ* 41: 129-144.

Franken, H. J. 1976. Archaeological Evidence Relating to the Interpretation of the Text. Pp. 3-16 in J. Hoftijzer and G. van der Kooij (eds), *Aramaic Texts from Deir* 'Alla. Leiden.

Franken, H. J. and Ibrahim, M. M. 1977-8. Two Seasons of Excavations at Tell Deir 'Alla, 1976-1978. *ADAJ* 22: 57-80.

Gal, Z. 1992. Hurbat Rosh Zayit and the Early Phoenician Pottery. *Levant* 24: 173-286.

Gitin, S. 1995. Tal Miqne-Ekron in the 7th Century B.C.E.: the impact of economic innovation and foreign cultural influences on a Neo-Assyrian vassal city-state. Pp. 61-80 in S. Gitin (ed.), *Recent Excavations in Israel; A View to the West.*

Glueck, N. 1951. *Explorations in Eastern Palestine IV.* Part I: text (*AASOR* 25-28). New Haven.

Gordon, R. L. and Villiers, L. E. 1983. Telul edh Dhahab and its Environs Surveys of 1980 and 1982; a preliminary report. *ADAJ* 27: 275-289.

Haas, H. de, LaGro, H. E. and Steiner, M. L. 1992. Second and Third Seasons of Excavations at Tell Abū Ṣarbūṭ, Jordan Valley (preliminary report). *ADAJ* 36: 333-343.

Hamarneh, S. 1977-8. Sugarcane Cultivation and Refining under the Arab Muslims during the Middle Ages. *ADAJ* 22: 6-18 (Arabic), 19 (English summary).

Herr, L. G. 1992. Two Stamped Jar Impressions of the Persian Province of Ammon from Tall al-'Umeiri. *ADAJ* 36: 163-166.

Hoftijzer, J. and Kooij, G. van der (eds), 1989. Inscriptions. Pp. 62-76 in G. van der Kooij and M. M. Ibrahim.

Hübner, U. 1992. *Die Ammoniter; Untersuchungen zur Geschichte, Kultur und Religion eines transjordanischen Volkes im 1.Jahrtausend v.Chr.* Wiesbaden.

Ibrahim, M., Sauer, J. A. and Yassine, K. 1976. The East Jordan Valley Survey, 1975. *BASOR* 222: 41-66.

——1988. The East Jordan Valley Survey, 1976. Pp. 189-207 (Part Two), in K. Yassine (ed.).

Ibrahim, M. M., Kooij, G. van der 1979. Excavations at Tall Dayr 'Allā, Season 1979. *ADAJ* 23: 41-50.

——1983. Excavations at Tell Deir 'Alla, Season 1982. *ADAJ* 27: 577-585.

——1986. Excavations at Deir 'Alla, Season 1984. *ADAJ* 30: 131-143.

——1991. The Archaeology of Deir 'Alla Phase IX. Pp. 16-29 in J. Hoftijzer and G. van der Kooij (eds), *The Balaam text from Dayr* 'Allā *Re-evaluated.* Leiden.

——1997. Excavations at Tall Dayr 'Allā; Seasons 1987 and 1994. *ADAJ* 41: 95-114.

Knauf-Belleri, E. A. 1995. Edom: The Social and Economic History. Pp. 93-117 in D. V. Edelman (ed.), *You Shall not Abhor an Edomite for He is Your Brother; Edom and Seir in History and Tradition.* Atlanta.

Kooij, G. van der 1987. The Identity of Trans-Jordanian Alphabetic Writing in the Iron Age. Pp. 107-121 in *SHAJ* III. Amman.

Kooij, G. van der and Ibrahim, M. M. 1989. *Picking up the Threads...; A Continuing Review of Excavations at Deir* 'Allā, *Jordan.* Leiden.

LaBianca, Ø. S. 1990. *Sedentarization and Nomadization; food system cycles at Hesban and vicinity in Transjordan (= Hesban 1).* Berrien Springs.

Lemaire, A. 1981. Galaad et Makir; remarques sur la tribu de Manassé à l'est du Jourdain. *Vetus Testamentum* 31: 39-61.

MacDonald, B. 1994. *Ammon, Moab & Edom; early states/ nations of Jordan in the Biblical Period (end of the 2nd and during the 1st millennium B.C.* Amman.

Na'aman, N. 1993. Population Changes in Palestine Following Assyrian Deportations. *Tel Aviv* 20: 104-124.

Neef, R. 1989. Plants. Pp. 30-37 in G. van der Kooij and M. M. Ibrahim (eds).

Pritchard, J. B. 1985. *Tell es-Sa'idiyeh; Excavations on the Tell 1964-1966.* Philadelphia: University Museum Monograph 60.

Röllig, W. 1982. Die Phönizier des Mutterlandes zur Zeit der Kolonisierung. Pp. 15-28 in H. G. Niemeyer (ed.), *Phönizier im Westen.* Mainz.

Routledge, B. 1997. Mesopotamian "Influence" in Iron Age Jordan: issues of power, identity and value. *Bulletin* 32 (The Canadian Society for Mesopotamian Studies): 33-41.

Steen. E. J. van der 1995. Aspects of Nomadism and Settlement in the Central Jordan Valley. *PEQ* 127: 149-158.

——1998. Archaeological Excavations at Tell el-Hammeh. *Occident & Orient* 3.1: 12-14.

Tarawneh, M .F. 1989. *Aspects of Rural Transformation in the Jordan Valley: The Case of Dayr* 'Allā.. Irbid (unpublished MA thesis).

Thompson, H. O. 1986. An Iron Age tomb at Madaba. Pp. 331-363 in L. T. Geraty and L. G. Herr (eds), *The Archaeology of Jordan and other Studies Presented to Siegfried H. Horn.* Berrien Springs.

Tubb, J. N. 1988. Tell es-Sa'idiyeh: preliminary report on the first three seasons of renewed excavations. *Levant* 20: 23-88.

Vilders, M. M. E. 1992. The Stratigraphy and the Pottery of Phase M at Deir 'Alla and the Date of the Plaster Texts. *Levant* 24: 187-199.

Weippert, M. 1982. Edom und Israel. *Theologische Realenzyklopädie* Bnd 9. Berlin: 291-299.

Wenning, R., Zenger, E. 1991. Heiligtum ohne Stadt - Stadt ohne Heiligtum? Anmerkungen zum archäologischen Befund des Tell Der 'Allā. *Zeitschrift für Althebraistik* 4: 171-193.

Yassine, K. 1983. Tell el Mazar, Field I; preliminary report of Area G, H, L, and M: the summit. *ADAJ* 27: 495-513.

——1984. *Tell el Mazar I: Cemetery A.* Amman.

——1988. *Archaeology of Jordan: Essays and Reports.* Amman.

Zeist, W. van 1985. Past and Present Environments of the Jordan Valley. Pp. 199-204 in *SHAJ* II. Amman.

Zertal, A. 1995. Three Iron Age Fortresses in the Jordan Valley and the Origin of the Ammonite Circular Towers. *IEJ* 45: 253-273.

Zimhoni, O. 1990/97. Two ceramic assemblages from Lachish Levels III and II. *Tel Aviv* 17 1990: 3-52; repr.: O. Zimhoni, *Studies in the Iron Age Pottery of Israel.* Tel Aviv 1997.

Zohary, M. 1982. *Vegetation of Israel and Adjacent Areas. TAVO Beihefte* A7. Wiesbaden.

Peter M. Fischer
Dörjeskärsgatan 37
SE-421 60 Västra Frölunda,
Sweden

Peter M. Fischer

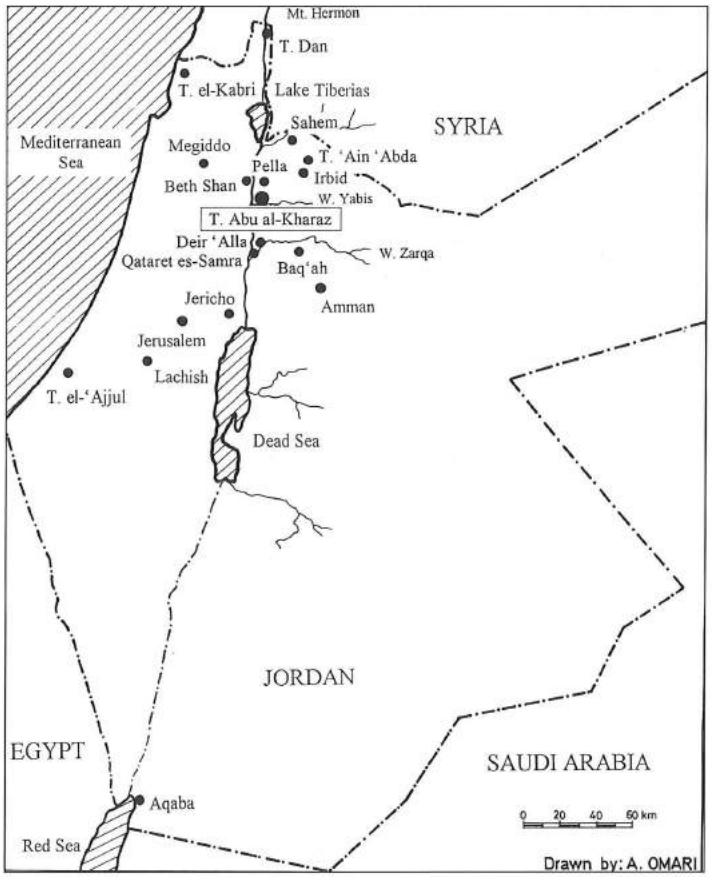
The Iron Age at Tall Abū al-Kharaz, Jordan Valley: The Third Major Period of Occupation. A Preliminary Synthesis

Introduction

Tall Abū al-Kharaz is located in Gilead in the Jordan Valley north of the perennial stream of Wādī al-Yābis and approximately 4 km east of the Jordan River (E206.197 and N200.623 according to the Palestine Coordinate System; FIG. 1). A Swedish team headed by the author from the University of Göteborg, has after ten seasons of excavations and a survey uncovered substantial urban remains from three major occupational periods: the Early Bronze Age IB-II/III, the late Middle Bronze Age IIB - Late Bronze Age II and the Iron Age (Fischer 1991-1997; in press a-c).

The present paper should be considered as a brief synthesis of Iron Age finds which were uncovered at Tall Abū al-Kharaz, i.e. the finds from a period which covers a time span of approximately 1200-550 BC. It is, however, a very preliminary synopsis taking into account the large amount of finds from the Iron Age in general and particularly those from the period after 1000 BC. which are generally known as the Iron Age II finds: further processing including a refined chronological division based on changes in the material culture is in progress. Therefore the conclusions concerning the social, commercial, political and territorial situation are provisional.

The presentation of archaeological material from an excavation needs a chronological framework. The problem in presenting not only Transjordanian but also Cisjordanian Iron Age material within a chronological framework lies in the fact that there are a number of periodizations rather than a single generally accepted one (see the synthesis of the different prevailing chronologies in Herr 1997: 116). Most of these are based on political/historical events which affected certain areas within Palestine (the archaeological designation "Palestine" includes here roughly Cis- and Transjordan, and the southern parts of Lebanon and Syria) and may therefore justify some of the proposed Iron Age I (A-B) and II (A-C) divisions in certain areas, but are hardly applicable to the whole of Palestine. A solution to this problem would be to present



1. The position of Tall Abū al-Kharaz.

the material according to a chronological framework, which is based on absolute dates alone. However, the present state of scientific absolute dating of artifacts from an excavation—with the exception of dendrochronology—does not provide such a precision, as is, for example, demonstrated in the lengthy time span of the absolute radiocarbon dates from our site (see below). In order to avoid confusion by presenting wide-spread absolute dates, i.e. a rough periodization by centuries, the author will use a loose periodization of the Iron Age (TABLE 1), which is in fair agreement with that suggested by Stern (1992:

1529) and Herr (1997: 116). It has been pointed out above that the comprehensive material from the Iron Age at Tall Abū al-Kharaz needs further processing in order to refine the interior archaeological framework of the Iron Age. Therefore the finds from the Iron Age at the site are presented in two parts: Iron I - IIA and Iron IIB - IIC.

TABLE 1. Iron Age periodization

Iron I	1200 - 1000 B.C.
Iron IIA	1000 - 900 B.C.
Iron IIB	900 - 700 B.C.
Iron IIC	700 - 550 B.C.

It has been a common practise in the past to discuss the Biblical identity of sites in the "Holy Land" which have been surveyed or which are under excavation. It has, for example, been suggested that Tall Abū al-Kharaz is identical with the Biblical town of Jabesh Gilead and that it may be the burial place of King Saul (Glueck 1951: 261-75; 476-7). Jabesh Gilead is mentioned frequently in the Old Testament (Judges 21:8-10, 12 and 14; 1 Sam. 11:1,9, 0, 31,11-13; 2 Sam. 2:4,5; 21:12; 2 Ki. 15:10,13,14; 1 Chron. 10:11,12) amongst other events in connection with King Saul's and King David's battles against the Philistines and Ammonites (e.g. King Nahash), which may correspond to the period around 1000 BC. The current excavations at Tall Abū al-Kharaz may possibly throw light on the Biblical identity of this town, even if the primary goal of the expedition is not to prove or to disprove Glueck's positive identification of Tall Abū al-Kharaz with Jabesh Gilead. Additional manifest archaeological evidence during future excavations may also perhaps disclose the site's possible Biblical identity. In the author's opinion, however, the present state of research does not allow any definite conclusions.

The Absolute Chronological Limits

Chronology is beyond any doubt the backbone of archaeology. It is essential to be able to define the chronological limits of a certain archaeological period in relative and/or absolute terms. Relative dating is based on the internal sequence, i.e. the stratigraphical sequence within the site, together with the external evidence, i.e. parallels from other stratified sites. In many cases, which include Tall Abū al-Kharaz, relative dating must be utilized in order to achieve a site-related chronological sequence. There are serious drawbacks in this relative method, which is so common in comparative archaeology, where authors, sometimes uncertain of the date of a specific context, refer to other publications suffering from the same problem, mentioned or not mentioned (cf. the discussion in Fischer 1997: 84). The true age of a certain layer or object is certainly not defined by an abundance of references to "fitting" parallels and the datings—"the more parallels the more reliable the date"—chosen in a publication to support the "absolute" chronology of another site. We know very little about the life span of, for example, certain Iron Age pottery shapes in different areas: the dating of a certain shape/ware may be true for one area but not valid for another. A consequence of a chronological framework which is based solely on secondary evidence, i.e. parallels which are not supported by firm absolute dates, may be the creation of a *circulus vitiosus,* with authors referring to each other without the support of absolute dates based on scientific methods. This is why the cultural material from Tall Abū al-Kharaz is for the time being presented here within such a loose periodization.

The chronological limits of the Iron Age at Tall Abū al-Kharaz are suggested by two of a total of 18 radiocarbon dates from Tall Abū al-Kharaz, namely OxA-4337 and OxA-5088. One sample (OxA-4337) was taken from a very early Iron Age context and the other (OxA-5088) from the latest occupational phase within the Iron Age:

OxA-4337:
1σ (68.2% confidence) = 1166-998 BC with 91% probability
2σ (95.4% confidence) = 1267-911 B.C. with 99% probability
OxA-5088:
1σ(68.2% confidence) = 698-536 BC with 88 % probability.
2σ(95.4% confidence) = 796-481 BC with 96% probability.

From these two dates it seems very possible that Tall Abū al-Kharaz was occupied throughout the Iron Age.

Iron Age I and IIA

Architecture

The upper part of the tall was intensively occupied during the Iron Age. The architectural remains from the first half of the Iron Age are scarce because of the intensive building activities during the second half of the Iron Age: building materials or parts of buildings from the older periods were reused for the construction of new buildings. The principal building technique during the entire Iron Age is unchanged compared with that of the previous Late, Middle and Early Bronze Ages: all buildings, including domestic and defensive constructions, consist of stone foundations of different heights with superstructures of sun-dried mudbrick which were reinforced with wooden elements. Roofs were constructed of parallel laid wooden beams which were covered with straw and sometimes with straw carpets or wattle, and clay. The foundations of the successive city walls from the Early to the Late Bronze Ages were used for defensive constructions.

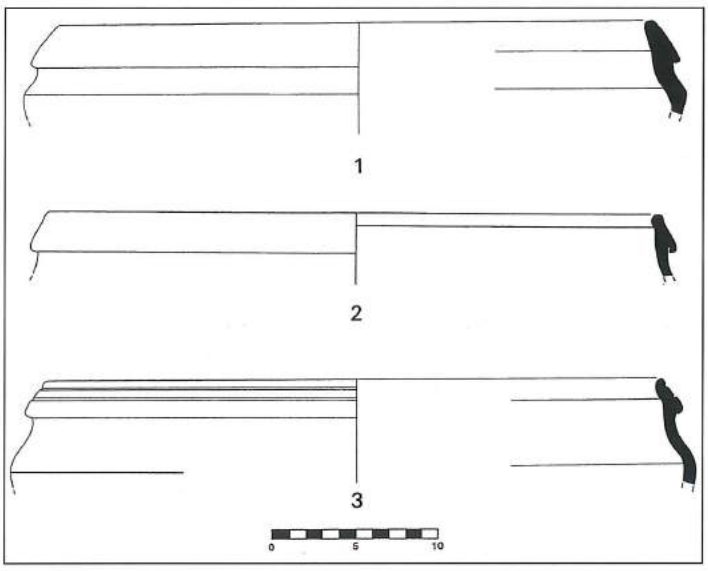
Pottery

There are just a few pottery shapes from Tall Abū al-Kharaz, which can be considered typical of Iron I and IIA. Amongst them are cooking pots with folded over rims of roughly triangular sections of different shapes (FIG. 2:1-3). These types occur in Iron I contexts (cf. e.g. Taanach, Rast 1978: 67, fig. 2:8; or Dayr 'Allā, Franken 1969: 120, fig. 27, 123: fig. 28), but may have had a long life span, i.e. that they may have been produced during Iron IIA as well (see the suggested 10th-9th century date for similar shapes from Tel Jezreel, Zimhoni 1997: 20, fig. 1.5:1-5; 26, or from Taanach, Rast 1978: 169, fig. 49:1). However, this type is absent from Phase M at Dayr 'Allā, which is tentatively dated between 850-700 BC (Vilders 1992: 195-198). Examples of the "collared-rim jar", which is considered one of the most typical early Iron Age ceramic shapes (e.g. Weippert 1988: 396-397) have not yet been found, nor has Philistine pottery. In general, the unpretentious pottery repertoire of the early Iron Age reflects the decline in the people's economic status compared with the Late Bronze Age: coarser wares with rarely applied decoration and, so far, an absence of imported material from outside Palestine are typical of the period. This may point to the fact that the people of this period were mainly concerned to survive and had little margin for aesthetic items and luxury.

Iron Age IIB and IIC

Architecture

There are at least three principal architectural phases from the second half of the Iron Age. The majority of the buildings are aligned on a north-west/south-east axis; however, variations in the alignment are more frequent than during earlier periods. Domestic buildings from these periods were found in remarkably good condition considering the fact that they were on or just below the surface. A typical domestic building from this period of occupation is a house approximately 9 x 9 m in area (FIG. 3). A centrally placed rectangular courtyard is usually bordered by two rooms on each side. Remains of roof constructions suggest that the courtyard was partly covered (see e.g. Fischer 1995: 100-102). It is likely that there was a second storey. Clay-built sewers were found attached to the outer walls of the houses.



2. Early Iron Age cooking pots.

A number of square and rectangular constructions are interpreted as watch towers. A monumental building, named the "White Building", which measures approximately 12 m x 11 m, was exposed on the summit of the tall (FIG. 4). The axes of the building are oriented strictly north-south and east-west. It is constructed of ashlar masonry and of rubble stone directly on bedrock, i.e. all earlier remains were removed. Mortar was not used. The walls are approximately 1.50-2 m wide and neatly constructed with relatively flat surfaces. Well preserved white plaster of lime and sand, which gave the building its name, covers the walls on the outside. The building contained four small rooms within walls approximately 2 m thick. An ostrakon was found in the north-western room (Fischer 1997: 136-137, Fig. 11:1). It has not yet been deciphered satisfactorily, but it may represent a writing exercise of letters resembling those of different origins, such as Moabite, Hebrew, Ammonite and Aramaic (Al-Ghul and El-Khoury 1998: 155-161). A preliminary date according to similar letters from other areas is the ninth - sixth century BC. The function of this building is debatable; however, it may represent the foundation of a tower, which was possibly integrated within a larger complex, not so far exposed. The latest Iron Age occupation was ended by a general conflagration.

A well-constructed cistern, over 4 m deep, was exposed on the western outer limits of the Iron Age settlement which faces the Jordan Valley. It is oval, approx. 4 m x 3 m, stone-built, sealed with clay between the stones, and carefully plastered. It could hold 30 cubic metres of water as preserved. An estimate of the original water capacity is 50 cubic metres. The cistern was approached from the north-west via a stone- and mudbrick-paved road, which ended with a 1 m wide step of hard clay leading up to the cistern. The cistern is surrounded by a stone pavement, which obviously represents part of a glacis. The position of the cistern on the lower western part of the tall suggests that rain water was collected which came from sewers (see above) and channels from the settlement higher up the tall.

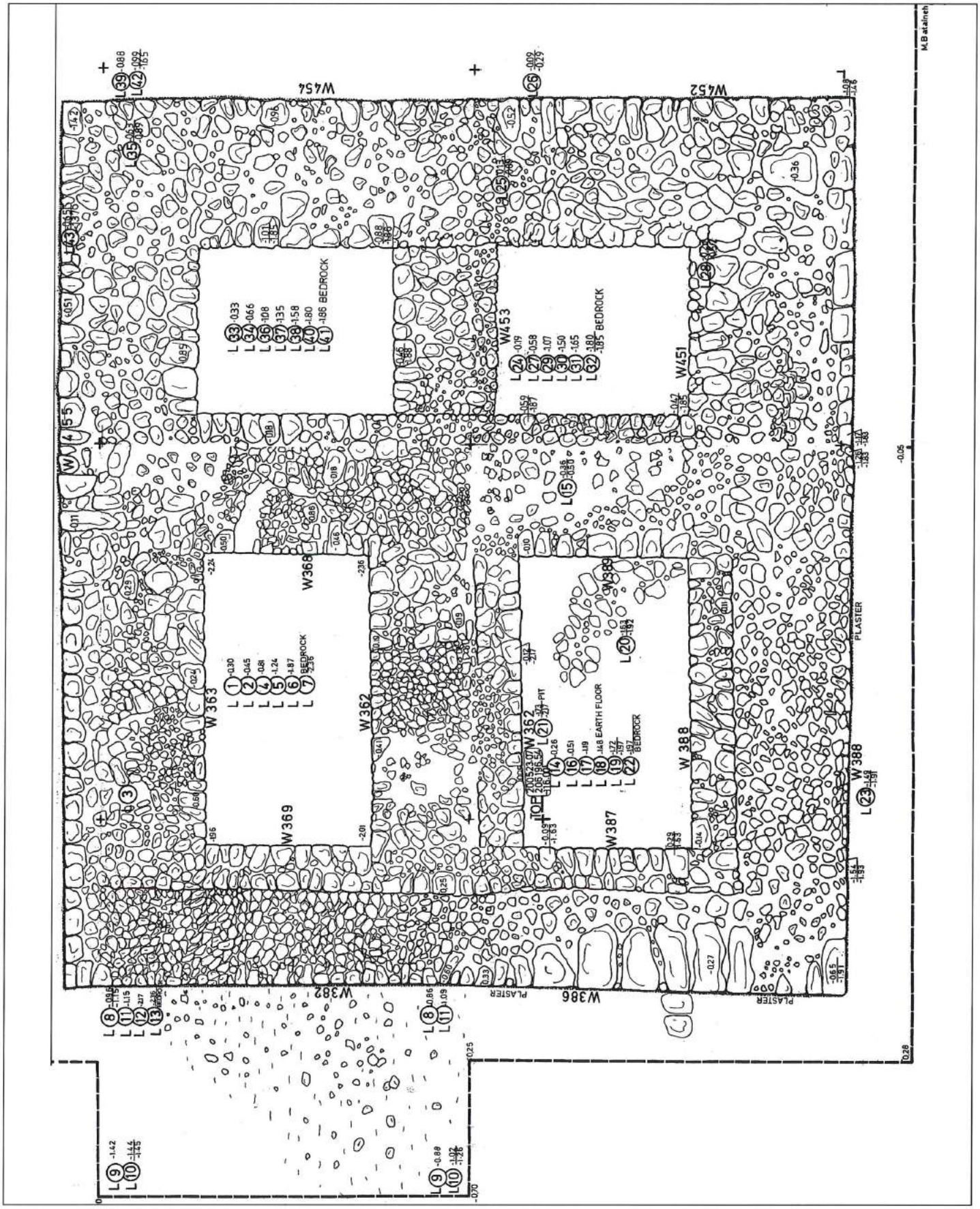
Pottery and other Finds

A variety of Cisjordanian and locally produced pottery, exemplified by jugs and juglets, is shown in FIG. 5: a-b. Imports are again attested by finds from the second part of

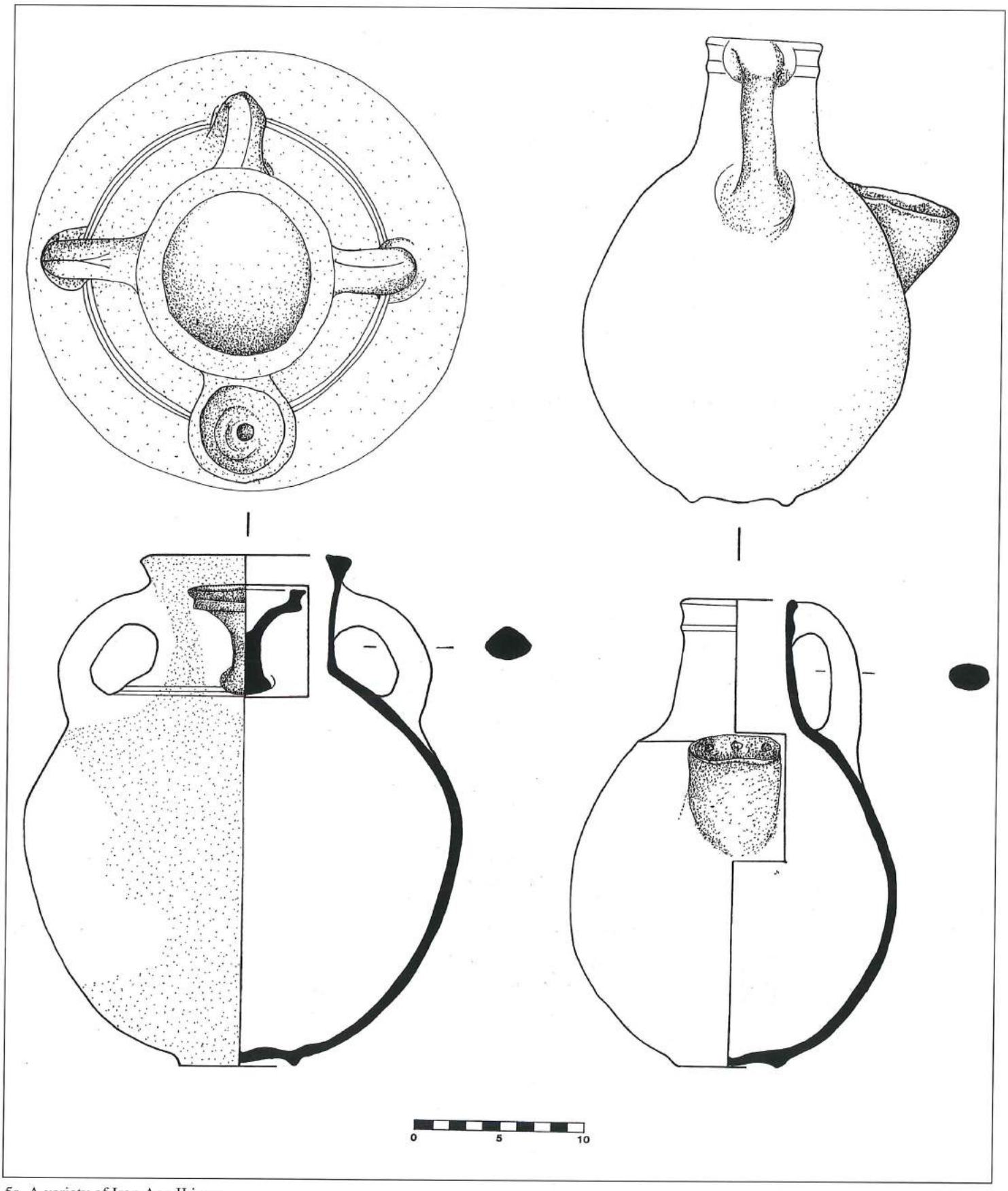


3. Iron Age II house.

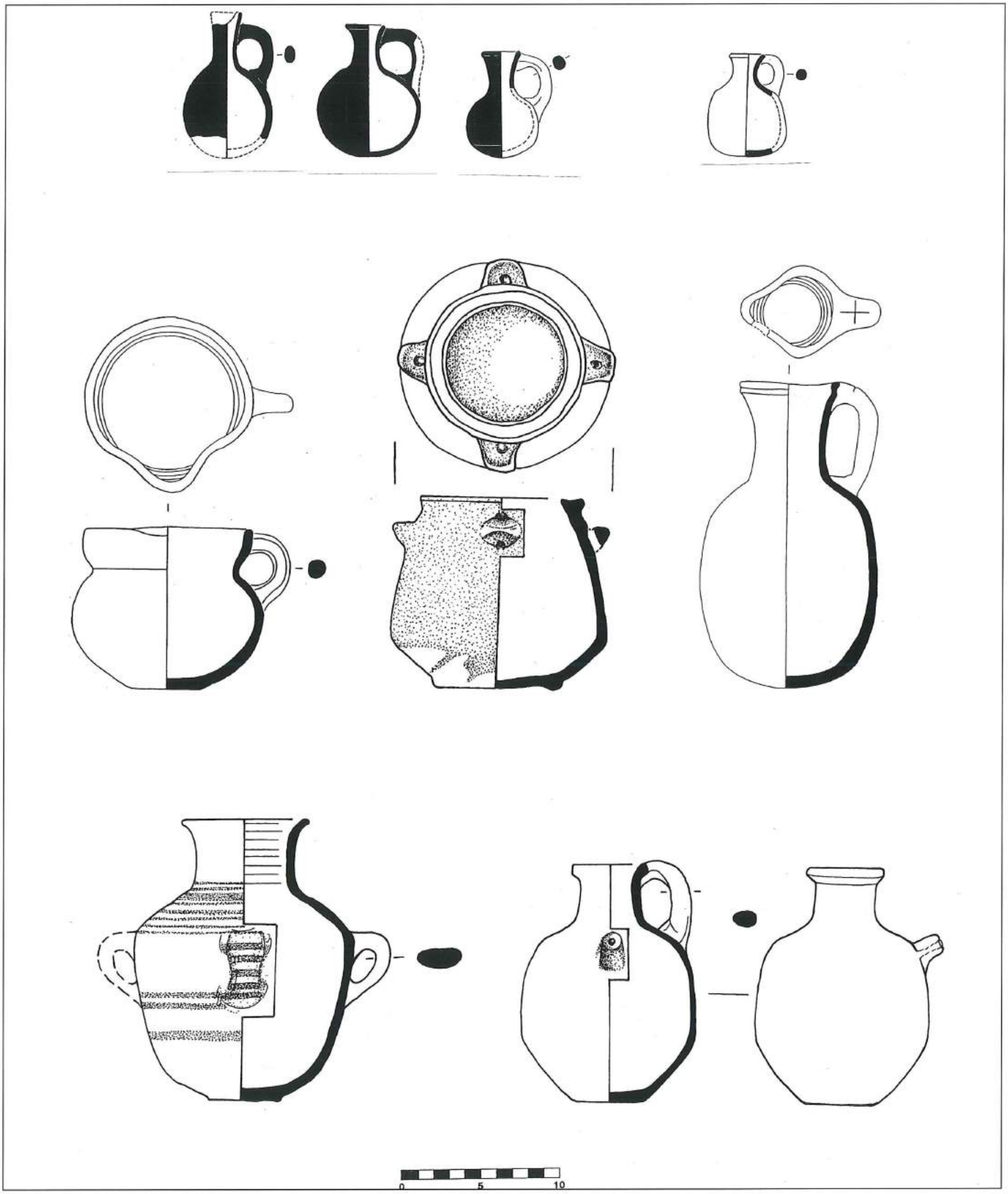
the Iron Age, for example, Cypro-Phoenician Black-on-Red pottery (Fischer 1996: 103, fig. 2:4; de Crée 1991). A thin-walled, hard fired, monochrome or bichrome decorated and burnished ware came likely from Phoenicia (FIG. 6: 1-3). Among the finds from the second part of the Iron Age period is an exquisitely decorated bone handle with a motif of two sphinxes (FIG. 7). It has provisionally been dated within Iron Age IIB period, or around 800 BC (Fischer 1994: 135, fig. 4; 1999: 56; Fischer and Herrmann 1995: 145-163). Parallels with this object have come from Hazor in northern Palestine and Nimrud in Assyria, but it is very likely the product of a Palestinian workshop. Other interesting finds include an earthenware head of a smiling young male painted in red, attached originally as a decorative element to an earthenware vessel (FIG. 8; Fischer 1994: 137, fig. 6:1), and an almost complete earthenware rhyton of a donkey(?) with two attached vessels (FIG. 9; Fischer 1998: 587, fig. 15) and a bridled horse (FIG. 10). Other clay figurines of females include a tambourine player (FIG. 11). Two decorated stone cosmetic plates,



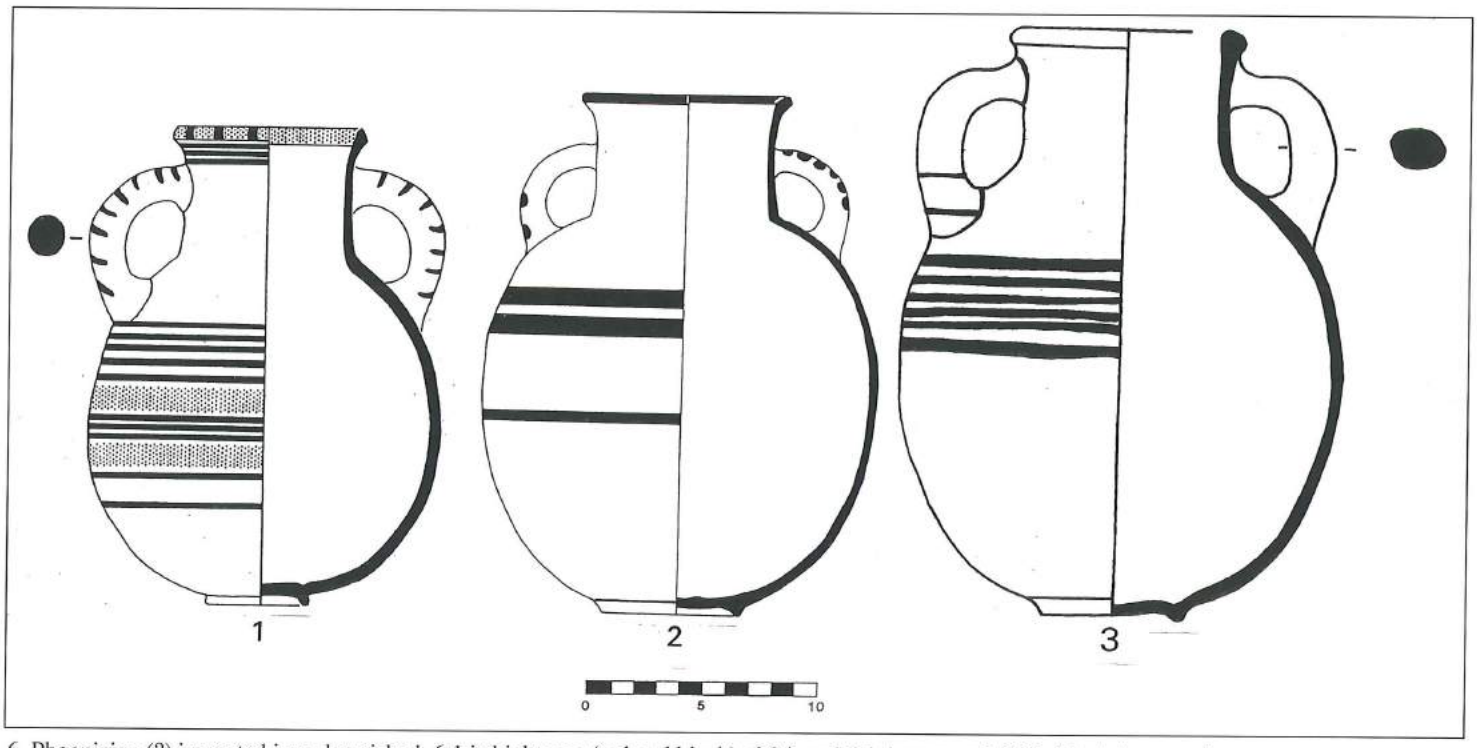
4. The White Building from the summit of Tall Abū al-Kharaz.



5a. A variety of Iron Age II jugs.



5b. A variety of Iron Age II juglets.



6. Phoenician (?) imported jugs, burnished. 6:1 is bichrome (red and black), 6:2 is reddish-brown and 6:3 is black decorated.

one of which has inlays of blue paste, should also be mentioned (one in FIG. 12). An Egyptian-blue faience scarab is dated at 620/600 - ca. 550 BC. Amongst the metal objects those of iron dominate, especially different types of arrow heads, but objects were also found in which iron and bronze was used, e.g. a fibula. Finds of stone include basalt bowls on three legs.

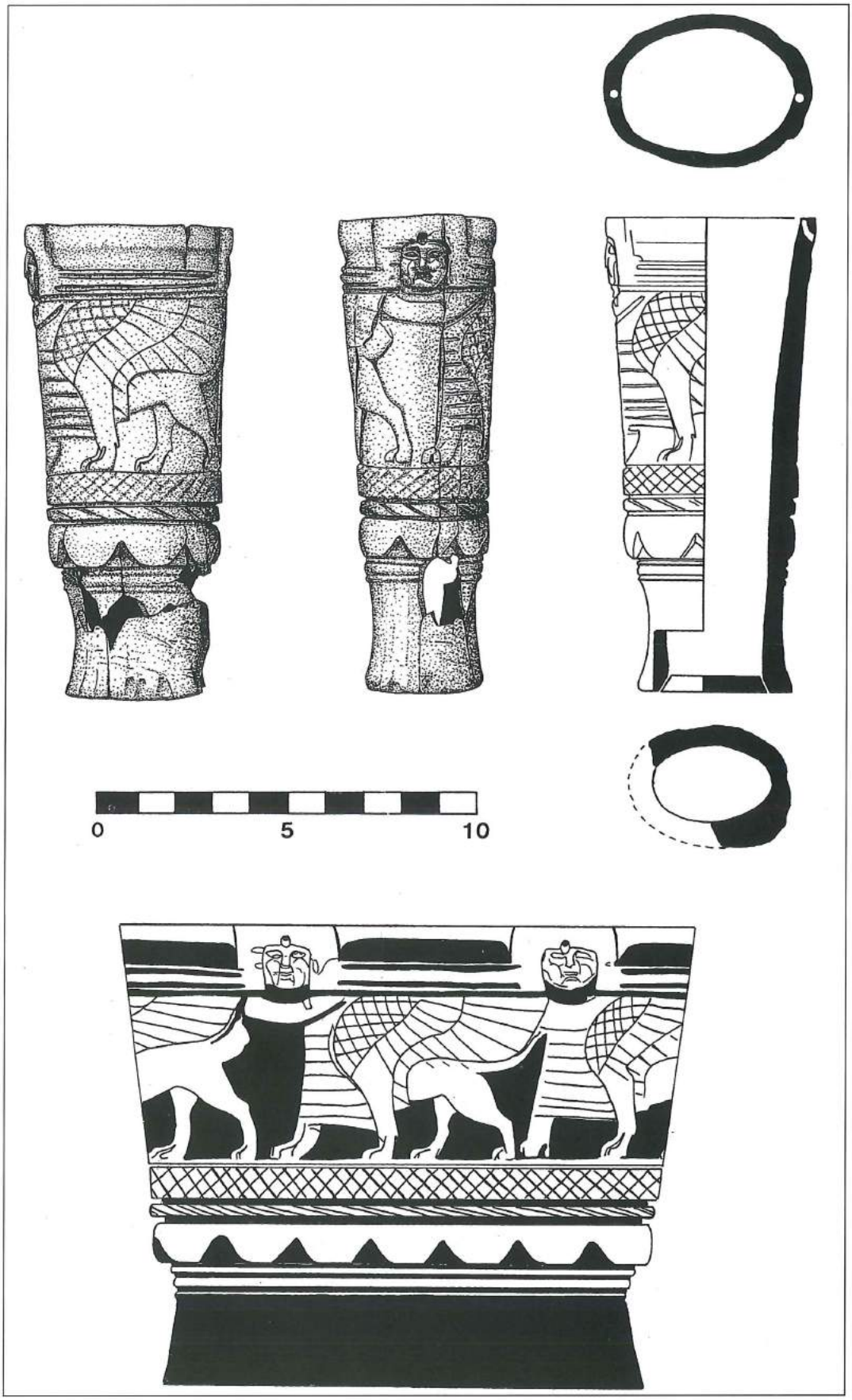
A well preserved bronze figurine of a male warrior-god comes from an obviously religious context, an offering pit outside a house (FIG. 13). The cat-faced or lion-faced god is dressed in a thin kilt. He has a cobra on his forehead and his head is covered by ostrich feathers. The raised right hand holds a scourge-like weapon behind the head and the left hand a papyrus scroll (?). One leg is leonine, the other human. The whole appearance and all the attributes resemble the Egyptian goddess Sechmet. However, the figurine seems to be a local male copy of the Egyptian female original. Although it was found in a context from the first half of the Iron Age, it almost certainly dates originally from the Late Bronze Age, judging by its style (cf. Negbi 1976: 29 - 33; cf. also the female figurines in Seeden 1980: Pl. 102, 1722 - 1724).

Preliminary Conclusions

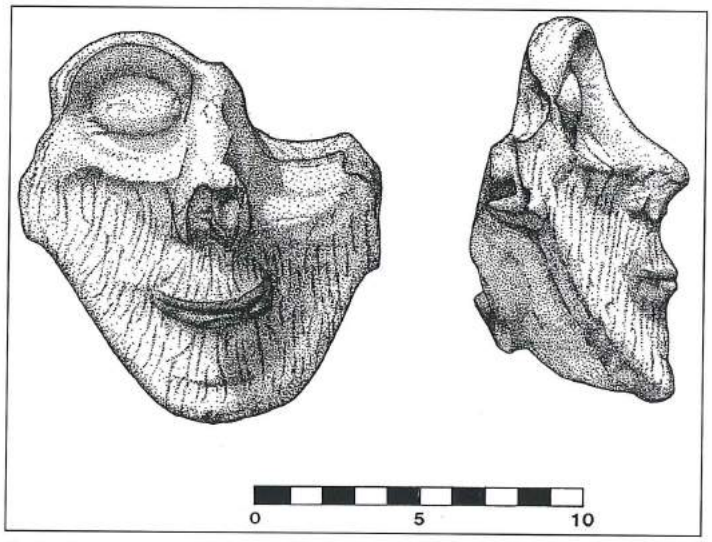
One may be inclined to conclude that Tall Abū al-Kharaz was occupied throughout the Iron Age on the strength of the radiocarbon dates with their outer chronological limits 1267-481 BC (2σ with >95% probability) and 1166-536 BC (1σ with >87% probability). However, these dates merely define, and only to a certain extent, the outer chronological limits of the Iron Age occupation. The radiocarbon dates from the site do not provide any information about possible breaks in occupation.

It has been suggested that one of the differences between the Late Bronze Age and the first part of the Iron Age is in the occupational pattern, i.e. the transition from large urbanized centres to minor, often unfortified villages in many parts of Palestine and that a renewed urbanization process took place again during the Iron Age II period, although the average size of settlement never reached the dimensions of the Late Bronze Age cities (Weippert 1988: 352). This proposition to some extent fits Tall Abū al-Kharaz. The ten seasons of excavation of the site have given quite reliable evidence that the city of the Early Bronze Age was the largest settlement, the Late Bronze Age town being the next in size, and the Iron Age settlement the smallest (Fischer 1997c: 159-160).

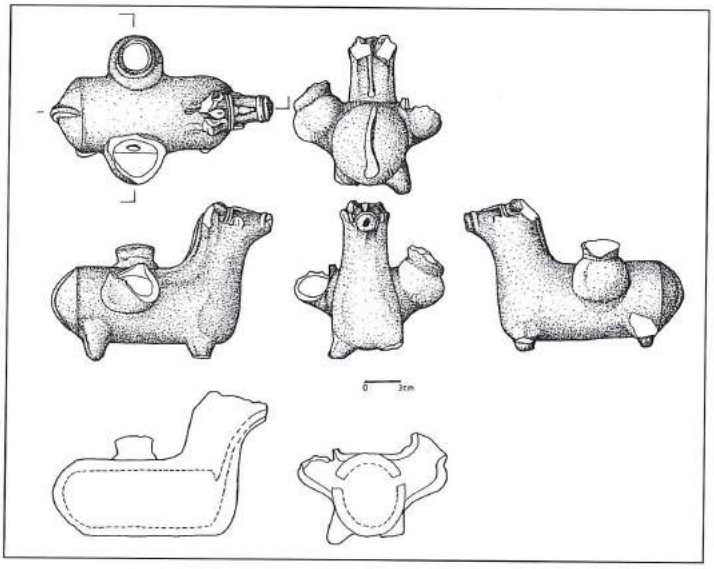
The economy of the Iron Age societies of Tall Abū al-Kharaz was almost certainly based on agriculture, cattle breeding and trade with the surplus from farming. Imported goods are, however, only attested in the second half of the Iron Age. The charred plant remains from Tall Abū al-Kharaz include different types of grain, among which are emmer, einkorn and barley (Fischer 1997b: 161-165). Other cultivated species are broad bean, lentil, flax, olive, grape including dried fruit, fig and pistachio. The osteological remains are mainly of caprines, i.e. sheep and goats, and cattle. Pigs were found but they are of subordinate economic value. Other animal remains include fallow deer, gazelle, dog, equid, rodent, cat, fox,



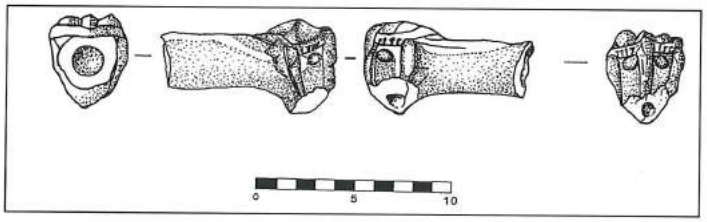
7. Carved bone handle with two sphinxes.



8. Red painted young male with beard, originally attached to an earthenware vessel.

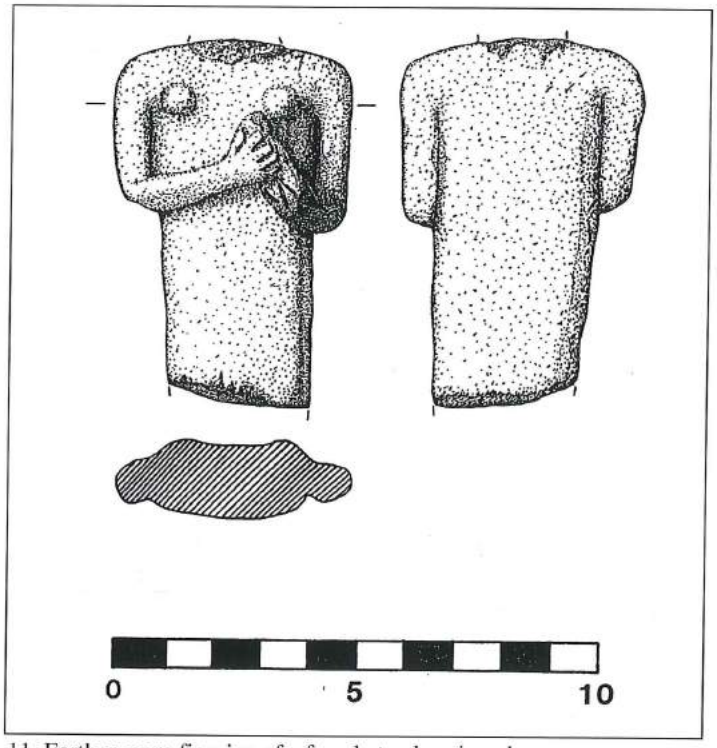


9. Earthen ware rhyton of donkey (?) with attached vessels.

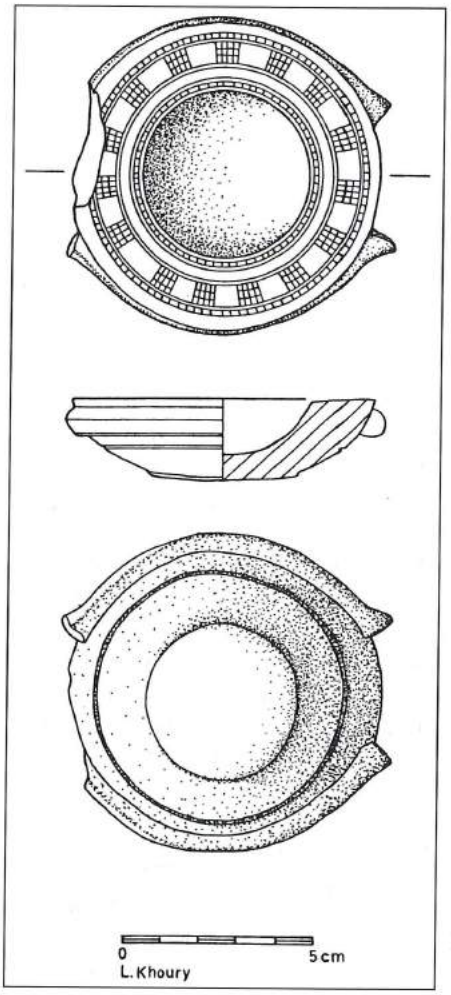


10. Earthen ware figurine of a bridled horse.

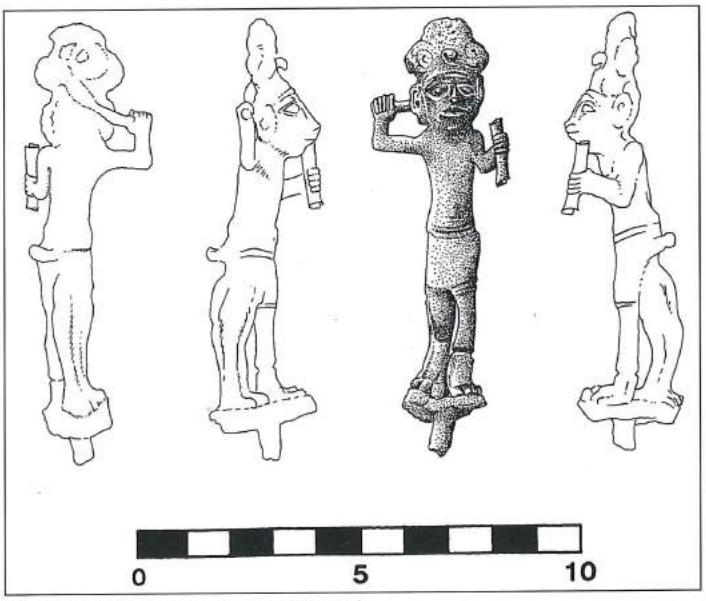
brown bear, various birds and hippo (ivory). A total of three worked objects of hippopotamus ivory (bones were not found) have so far been excavated at the site (cf. Fischer 1997b: 160-161). The ivory was certainly traded inland from not too remote coastal sites rather than imported from Egypt or the Orontes basin (Horwitz and Tchernov 1990:67-76). A small amount of fish remains were also found, deriving very likely from the Jordan



11. Earthen ware figurine of a female tambourine player.



12. Cosmetic palette of limestone.



13. Bronze figurine of a warrior-god.

River, and possibly also from the Nile, the Mediterranean and the Red Sea.

It has been mentioned above that surplus from agriculture and cattle breeding was of importance as regards trading for coveted goods. An additional source of income may have been the trade in incense. Tall Abū al-Kharaz lies strategically near the crossing point between two important trading routes: the north-south Transjordanian main road and the route running north-west through the Jezreel Valley. The former connects the site with the Sea of Galilee, 35 km north of the site, and further to the north with Lebanon and Syria, and with the Dead Sea some 70 km south of the site. The latter connects Tall Abū al-Kharaz with Beth Shan, Megiddo and the Mediterranean Sea in the Mount Carmel area, a distance of approximately 80 km or a journey of 2-3 days for traders. The Mount Carmel area contained important harbours from where goods from, for example, Cyprus and Lebanon were imported: imported "Cypro-Phoenician" wares demonstrates this. Imports from Egypt are extremely rare and only attested at the end of the Iron Age. One of these rare examples is a Naukratis scarab of Egyptian Blue which is dated between 620/600-550 BC (personal communication G. Hölbl). Another sort of income may have been tribute: the rulers of the site who could take advantage of the site's strategic position, from which all movements through the Jordan Valley could be controlled, may also have claimed tributes from caravans passing the Jordan Valley on the eastern road.

Bibliography

Al-Ghul, O. and El-Khouri, L. 1998. Ein Grafitto aus Tall Abu Haraz. *ZDPV* 114, 2: 155-161.

de Crée, F. 1991. The Black-on-Red or Cypro-Phoenician Ware. Pp. 95-102 in E. Lipinski (ed.), *Phoenicia and the Bible.* Studia Phoenicia 11. Orientalia Lovaniensia Analecta 44. Leuven: Department Orientalistiek and Peeters.

Fischer, P. M. 1991. Tell Abu al-Kharaz. The Swedish Jordan Expedition 1989. First Season Preliminary Report from Trial Soundings. *ADAJ* 35: 67-104.

__ 1992. A Possible Late Bronze Age Sanctuary at Tell Abu al-Kharaz, Transjordan. *Journal of Prehistoric Religion* 5: 42-47.

__ 1993. Tell Abu al-Kharaz. The Swedish Jordan Expedition 1991. Second Season Preliminary Excavation Report. *ADAJ* 37: 279-306.

__ 1994. Tell Abu al-Kharaz. The Swedish Jordan Expedition 1992. Third Season Preliminary Excavation Report. *ADAJ* 38: 127-145.

__ 1995. Tell Abu al-Kharaz. The Swedish Jordan Expedition 1993. Fourth Season Preliminary Excavation Report. *ADAJ* 39: 93-119.

__ 1996. Tell Abu al-Kharaz. The Swedish Jordan Expedition 1994. Fifth Season Preliminary Excavation Report. *ADAJ* 40: 101-110.

__ 1997a. Tell Abu al-Kharaz. The Swedish Jordan Expedition 1995 and 1996. Sixth and Seventh Seasons Preliminary Excavation Report. *ADAJ* 41: 129-144.

__ 1997b. *A Late Bronze to Early Iron Age Tomb at Sahem, Jordan.* Abhandlungen des Deutschen Palästina-Vereins 21. Wiesbaden: Harrassowitz.

__ 1997c. Tall Abū al-Kharaz: Occupation Throughout the Ages. The Faunal and Botanical Evidence. Pp. 159-165 in *SHAJ* VI. Amman: Department of Antiquities.

__ 1998. Bronze and Iron Age. Pp. 586-587 in V. Egan and P. Bikai (eds), Archaeology of Jordan. *AJA* 102, 3.

__ 1999. Prize Find. Carved Bone Handle, Tell Abu al-Kharaz. *Biblical Archaeological Review* 25, 1: 56.

__ in press a. Chocolate-on-White Ware: Typology, Chronology and Provenance. The Evidence from Tell Abu al-Kharaz, Jordan Valley. *BASOR.*

__ in press b. *The Early Bronze Age at Tell Abu al-Kharaz, Jordan Valley: A Study of Pottery Typology and Provenance, Radiocarbon Dates, and Synchronism.* Sheffield: Academic Press.

__ in press c. *White Slip I and II from Tell Abu al-Kharaz, Jordan Valley: Pottery Synchronism and Datings.* Nicosia: Leventis Foundation.

Fischer, P.M. and Herrmann, G. 1995. A Carved Bone Object from Tell Abu al-Kharaz in Jordan: A Palestinian Workshop for Bone and Ivory? *Levant* 27: 145-163.

Franken, H.J. and Kalsbeek, J. 1969. *Excavations at Deir 'Alla. I. Stratigraphical and Analytical Study of the Early Iron Age Pottery.* Documenta et Monumenta Orientis Antiqui 16. Leiden: Brill.

Herr, L. 1997. The Iron Age Period: Emerging Nations. *Biblical Archaeologist* 60,3: 114-183.

Horwitz, L.K. and Tchernov, E. 1990. Cultural and Environ-

mental Implications of Hippopotamus Bone Remains in Archaeological Contexts in the Levant. *BASOR* 280:67-76.

Negbi, O. 1976. *Canaanite Gods in Metal. An Archaeological Study of Ancient Syro-Palestinian Figurines.* Tel Aviv: Tel Aviv University.

Rast, W. E. 1978. *Taanach I. Studies in the Iron Age Pottery.* American School of Oriental Research. Excavation reports.

Seeden, H. 1980. *The Standing Armed Figurines in the Levant.* Prähistorische Bronzefunde, Abteilung I, Band 1. München: Beck'sche.

Stern, E. 1992. *The New Encyclopaedia of Archaeological Excavations in the Holy Land,* E. Stern *et al.* (eds), 1529. Jerusalem Israel Exploration Society: Jerusalem and New York.

Vilders, M. M. E. 1992. The Stratigraphy of the Pottery of Phase M at Deir 'Alla and the date of the Plaster Texts. *Levant* 24: 187-200.

Weippert, H. 1988. *Palästina in vorhellenistischer Zeit.* Vorderasien II, Band 1. München: Beck'sche.

Zimhoni, O. 1997. *Studies in the Iron Age Pottery of Israel. Typological, Archaeological and Chronological Aspects.* Journal of the Institute of Archaeology of Tel Aviv University. Occasional Publications 2. Tel Aviv: Institute of Archaeology.

P. M. Michèle Daviau
Wilfrid Laurier University
Waterloo,
ON N2L 3C5 Canada

P. M. Michèle Daviau

New Light on Iron Age Religious Iconography The Evidence from Moab

Introduction

A new discovery can add significantly to our knowledge of the past or radically alter our perception of a people's culture. Such is the case with the recent discovery of an isolated shrine site near the northern frontier of ancient Moab. With the discovery of Wādī ath-Thamad Site WT 13 in 1996 and its partial excavation in 1997, our knowledge of Iron Age religious practices and of the corpus of cultic artifacts from Transjordan is greatly expanded. This study is an attempt to classify the anthropomorphic figurines and statues from Moabite sites located on the Transjordanian plateau, from the region of Mādabā to Wādī al-Ḥasa, and to categorize their iconographic characteristics. Finds from sites in the Jordan Valley are not included here since their cultural affinities seem to be more diverse.

The State of the Question

The religious beliefs and practices of the inhabitants of Moab during the Iron Age are still little known in comparison to the religion of Moab's neighbours in Palestine and Syria. This point has been made most recently by Mattingly (1989:213) who reviewed the Mesha inscription and Hebrew texts to put together a preliminary overview of Moabite religion. At the same time, Mattingly recognized that there is limited archaeological evidence and what does exist lends itself to a variety of interpretations. In fact, the archaeological record has been silent in regard to temples and their furnishings, religious festivals and cultic practices. Only with the recent excavation of town sites is material becoming available that can be associated with domestic cults. During the past 50 years, excavation of Iron Age sites in the territory of ancient Moab has gradually increased so that all areas of Moab are currently being studied. Prior to this decade, archaeological evidence for Iron Age religion has been limited to surface finds of figurines, to a small number of monumental sculptures, principally the Mesha inscription, and to finds in tombs. The best examples are Dhibān (Tushingham 1972: Figs. 14-24) where tombs yielded vessels sometimes associated with religious activities, such as tripod perforated cups, Cypro-Phoenician juglets and lamps in significant numbers and Tomb 84 at Mount Nebo where both anthropomorphic and zoomorphic figurines were present (Saller 1966: Fig. 28). In 1978, Weinberg published an assemblage of cultic artifacts which included female figurines, a model shrine, perforated cups, animal figurines and lamps. Unfortunately, there is no known provenience for these artifacts except the suggestion that they originated in the area of Mādabā.

Recent excavations at al-Bālu' and the work of the Wādī ath-Thamad Project at Khirbat al-Mudayna and WT 13, have doubled the number of known figurines from Moab and has begun to situate these artifacts within their use context, both domestic and cultic. At al-Bālu', three figurines were found *in situ* on the floor of a house (Worschech 1995:185) providing clear evidence for an Iron Age domestic cult. During two seasons of excavations at Khirbat al-Mudayna, 4 fragments of anthropomorphic figurines have been recovered, adding to the number reported by Glueck (1934, 1939). More important is the corpus of finds from Site WT 13,[1] an isolated shrine site ca. 4.0 km west of Khirbat al-Mudayna where 24 intact and broken figurines were associated with 8 (or more) anthropomorphic clay statues and a group of ceramic fragments including faces, noses, ears, pieces of hairdo, arms,

[1] Site WT #13 was identified by Dearman, Field Supervisor of the Wādī ath-Thamad Survey in 1996. At the beginning of the 1997 field season, a salvage excavation was carried out for 8 days. Team members included the author, L. Cowell, A. Damm, J. A. Dearman, R. Levesque, H. Wilson, A. Olson (on occasion), and A. Abu Schmeis, representative of the Department of Antiquities of Jordan.

Funding for this project was provided by a grant from CAP/ASOR Endowment for Biblical Arachaeology for the 1997 season. As well, the author gratefully acknowledges that travel to the Seventh International Confernce on the History and Archaeology of Jordan was funded by a grant from the WLU Operating Fund and partly by the SSHRC General Research Grant awarded to WLU.

and legs.

This corpus of ceramic and stone figurines and anthropomorphic statues, along with other figurines from excavations and surveys in Moab, contains sufficient examples that we can undertake a study of the range of types and their iconographic features. Careful analysis should also enable us to define those elements of Moabite religious iconography which can serve as distinguishing marks of cultural integrity and indicate the degree of syncretism present in Moabite cultic material. Finally, this classification should help to clarify the position of Moabite religion in the cultural sphere of eastern Palestine.

Figurines

By far, human and animal figurines constitute the largest single group of artifacts that served as correlates for religious activities.[2] Among the 68 identifiable human figures known from Moab, only half that number have been found during excavation. Fortunately, the great similarity among female figurines, whether from excavated sites or from surface surveys, makes it possible to incorporate all of these figures in a single typological study. In view of their greater number, we will present the anthropomorphic figurines first and then the more fragmentary ceramic statues. For the purposes of iconographic typology, each type of female figure within the class of clay figurines is defined first on the basis of the style of its body, and secondly by its iconographic details in order to identify the characteristics which distinguish one sub-type from another.

Preliminary Types

The discovery of numerous Iron Age figurines from Moab that were each made in a single mould and finished simply on the back and were not part of a tablet or plaque enables us to refine the current terminology which classifies female figures as either pillar figurines or plaque figurines. Tadmor (1982: 140), Holland (1977) and now Kletter (1996) used these categories to classify all cermaic figurines and did not distinguish between figurines made in a mould or hand modelled in high relief from figures moulded in low relief onto a plaque or tablet.[3] Hachlili alone (1971: 126) describes clearly the formation processes for fashioning solid figurines that were made in a mould and finished by hand and goes on to distinguish these artifacts from figurine plaques.[4]

Using Hachlili's formulation, the anthropomorphic figures from Moab can be divided into three principal types; fully modelled figurines, pillar figurines, and anthropomorphic statues of which the greatest number represent females.[5] Fully modelled figures can be further defined as free-standing figurines (Type A1), as attached figures (Type A2) or as protomes (Type A3). Plaques with a female figure in relief are not represented.

Free-Standing Modelled Figures (Type A1): Type A1 consists of free-standing figurines, less than 15 cm tall, that were formed by hand or in a mould.[6] These figurines represent the complete human body with details of head, torso, limbs and, in some instances, clothing. For the most part, these features were formed in high relief with little or no detail on the back side (#11; FIG. 6) although figures in Type A1 could be completely designed in the round (for example, head #17, legs #37, and probably head #58; TABLE 1).[7] Several Type A1 figurines retain a significant amount of clay around their feet and could not actually be set upright without support. The feet themselves are not completely perpendicular to the legs giving the impression that the figure is not standing upright. This is not an unusual position and is seen in figurines from Megiddo (May 1935: Pl. XXVII:M 65, M810) that were certainly intended to represent standing figures. In both cases, no supports for these figures have been recognised among the archaeological remains although, like round bottom juglets, the figurines may have been set up on a beaten earth surface or bench.

Among the female figurines within Type A1, we can distinguish three sub-types; A1/a) those that hold their breasts, A1/b) those that hold a disc at the waist in front of their breasts, and A1/c) those that hold a disc between their breasts and their neck.[8] The differences in these po-

[2] Holladay (1987:291, n. 109) has shown definitely that such figures in Israel and Judah were associated with domestic and non-conformist religious practices and were not toys (see also Kletter 1996:73, 78).

[3] As a result of our classification of modelled figurines as either free-standing or attached but not as plaques, we have assigned those figurines found in Moad and studied by Holland and Kletter to various types, including free standing modelled figures and pillar figurines (see below).

[4] In his analysis of the figurines from 'Aiy Dara, Abu 'Assaf (1996) classified them as mould made or hand made. Within these two classes, he defined various types on the basis of the position of the hands and on the general appearance, including the details of clothing and adornments.

[5] Apart from the female figurines of Type A, there are only two ceramic figurines representing males that appear to be fully modelled, free-standing figures. These are classed separately in Type D.

[6] All such figures examined by the author are solid although hollow-bodied figures appear in the zoomorphic corpus. Although some of these fragments may indeed be anthropomorphic figurines, they remain distinct from anthropomorphic vessels and clay statues.

[7] All figurines and statues have been numbered so that those finds from various surveys can be referred to by number (see Table 1).The head of figurine WT/092=#17 is so worn that it is practically impossible to determine whether it was male, female, or animal. By contrast, the back is very clearly incised showing the hair and the folds of the upper part of a garment.

[8] Fragments of female figures have been assigned to a separate category.

TABLE 1: Catalogue of Anthropomorphic Figurines from the region of Moab.

Figure #	Registration #	Type	Reference
1	WT/015	A1	Daviau 1997:227
2	WT/021	A1	Daviau 1997: Fig. 1
3	WT/021	B	WT 13
4	MT/020	A1(?)	Daviau 1997: Figs. 3-4
5	MT/061	B(?)	Daviau 1997: Fig. 2
6	MT/263	B	WT 13
7	WT/035	A1	WT 13
8	WT/042	A2	WT 13
9	WT/053	B	WT 13
10	WT/064	A2(?)	WT 13
11	WT/068	A1	WT 13
12	WT/072	B	WT 13
13	WT/086	A2	WT 13
14	WT/088+89	A2	WT 13
15	WT/094	A2	WT 13
16	WT/099	A2(?)	WT 13
17	WT/092	A1	WT 13
18	WT/104	A3	WT 13
19	Al-Bālū' A	B	Worschech 1995: Fig. 2
20	Al-Bālū' B	A2	Worschech 1995: Fig. 4a
21	Al-Bālū' C	A2	Worschech 1995: Fig. 4b
22	MT	B(?)	Glueck 1970: Fig. 94 (right)
23	Karak	A1(?)	Harding 1937: Pl. X, Fig. 8
24	Al-Bālū'	B(?)	Glueck 1970: Fig. 94 (left)
25	Diban	B(?)	Morton 1989: Fig. 15
26	al-Meshed	A1(?)	Glueck 1939: Fig. 18a
27	Diban	B(?)	Morton 1989: Fig. 16
28	Mount Nebo	B	Saller 1966: Fig. 28:2
29	Mount Nebo	B	Saller 1966: Fig. 28:1
30	WT/125+156	B	WT 13
31	WT/095	A1	WT 13
32	WT/097	A1	WT 13
33	WT/076	A1	WT 13
34	WT/077	A1	WT 13
35	WT/155	A2	WT 13
36	WT/110	A1	WT 13
37	WT/013a+b	A1	WT 13
38	WT/011	C	WT 13
40	WT/123+145	C	WT 13
41	WT/048	C	WT 13
42	WT/047	C	WT 13
43	WT/119	C	WT 13
44	WT/093	C(nose)	WT 13
45	WT/058	C(nose)	WT 13
46	WT/165	C	WT 13
47	WT/166	C(base)	WT 13
48	WT/167	C(base)	WT 13
49	WT/168	C(base)	WT 13
50	WT/169	C(base)	WT 13
51	WT/170	C(base)	WT 13
52	WT/171	B	WT 13
53	WT/164	C(nose)	WT 13
54	MT	A3	Sauer (1981:64)
55	WT/113	C(nose)	WT 13
56	Al-Bālū'	B(?)	Glueck 1934: Fig. 12(left)
57	MT	C(?)	Glueck 1934: Fig. 12(right)
58	MT	C	Glueck 1934: Fig. 6=1970: Fig. 96
59	MT	C	WT 13
60	Mādabā	A3	Weinberg 1978:33(left)
61	Mādabā	A3	Weinberg 1978:33(right)
62	Al-Bālū'	D	Worschech 1989: Pl. 8:2
63	Mādabā Tb	A1	Thompson 1986: Fig. 5:24
64	Al-Bālū'	A1	Worschech 1992: Fig. 5
65	Karak	A2	Zayadine 1986: Fig. 128
66	Karak	A2	Zayadine 1986: Fig. 128
67	Al-Bālū'	A1	Worschech 1992: Fig. 4
68	Kh. 'Atarās	A1	Niemann 1985: Fig. 1

sitions are important to note since each position may reflect a particular activity.[9] Comparison with figurines from other Levantine sites will demonstrate the degree to which a figure with a particular pose is an example of a common type.[10]

Within each of these types, the female figures can be distinguished further by their appearance, especially their hair style. Two distinct styles are represented, one apparently local (TABLE 2) and the second in the style of an Egyptian wig. In both cases, the hair is shown in locks that reach to the shoulder. The distinguishing characteristic is seen in the shape and detail of the locks. The Egyptian wig style is shown with vertical lines that end in a horizontal cut (#7).[11] Variation is seen in the case of one figurine (#2) with a local hair style that also has pellets of clay on her head, probably representing curls.

Other features that are present consist of a clearly defined pubic area and well formed legs (#1; #2; #31). By contrast, the breasts are not shown on those figures that hold a disc at or above the waist and there is only minimal indication of clothing (see below). Two figurines, one from al-Meshed near Mount Nebo (#26) and a second from al-Karak (#23), both have grooves just below the

TABLE 2. Classification of Anthropomorphic Figurines.

A. Fully-modelled Figures:		**B. Pillar Figurines**	**C. Statues**
A1. Free-standing	**A2. Attached**		
WT/015=#1	WT/042=#8	MT/001=#3	WT/011=#38
WT/021=#2	WT/086=#13	MT/263=#6	WT/020+044=#39
WT/035=#7	WT/088+89=#14	WT/053=#9	WT/123+145=#40
WT/068=#11	WT/094=#15	WT/072=#12	WT/048=#41
WT/092=#17	WT/155=#35	WT/156=#30	WT/047=#42
WT/076=#33	Al-Bālū'= #20	Al-Bālū' =#19	WT/119=#43
WT/077=#34	Al-Bālū'=#21	Nebo Tb= #28	WT/165=#46
WT/095=#31	Karak=# 65	Nebo Tb =#29	WT/166=#47
WT/097=#32	Karak=# 66		
WT/110=#36		(Probable)	(Probable)
WT/013a+b=#37	MT/061=#5	MT(G)=#57	
	(Probable)	MT(G)= #22	
(Probable)	WT/64 =#10	Al-Bālū'(G)= #24	
MT/020=#4	WT/099=#16	Diban(G) =#25	
Kerak (G)#23		Al-Bālū'(G)=#56	
Al-Meshed(G)=#26			
Diban #27	**Protomes**	**Pillar bases**	**Statue bases**
Mādabā Tb=#63			
Al-Bālū'=#64	WT/104=#18	WT/171=#52	WT/167=#48
Al-Bālū'=#67	MT (S)=#54		WT/168=#49
	Mādabā=#60		WT/169=#50
(Male heads, torsos	Mādabā=#61		WT/170=#51
MT(G)=#58			
WT/078=#59			
Al-Bālū'=#62			(Sigla)
Al-'Atarus=#68			G = Glueck
			S=Sauer

9 The position of the hands was the second determining characteristic in the classification of the figurines from 'Ain Dara (Abu 'Assaf 1996).

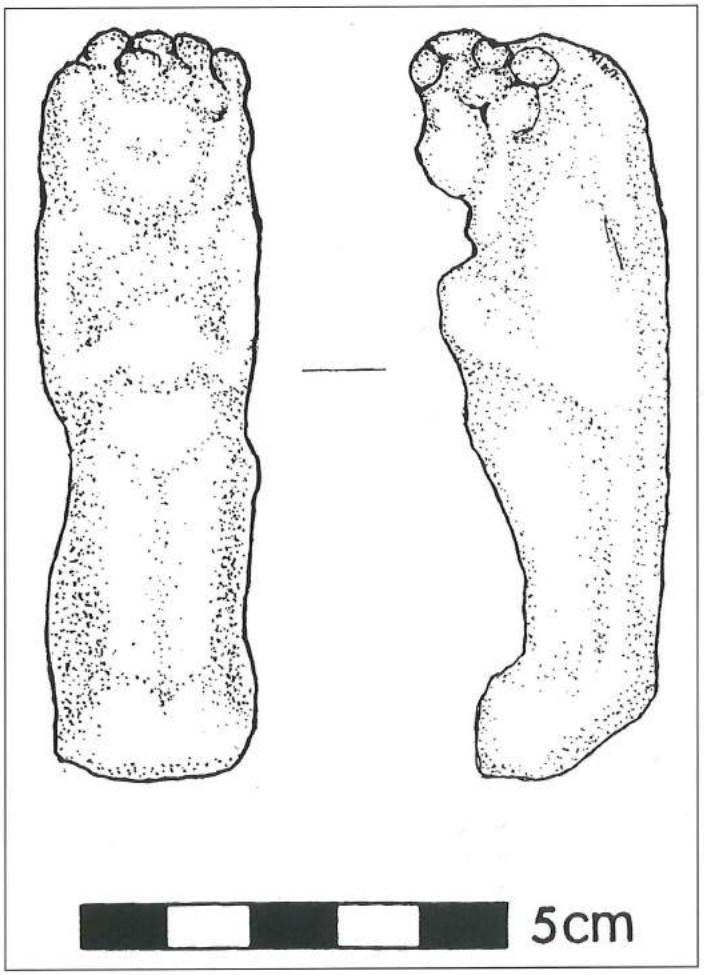
10 Kletter (1997:29) points out the importance of the "common type" which may constitute the largest number of examples in any given assemblage and thus serve as a key to understanding the meaning and function of these figures.

11 There is a certain lack of consistency in the depiction of the local style. An example of hair locks with vertical grooves and rounded ends (WT/068=#11) is clearly an example of the local style since it lacks the horizontal end typical of the Egyptian style wig.

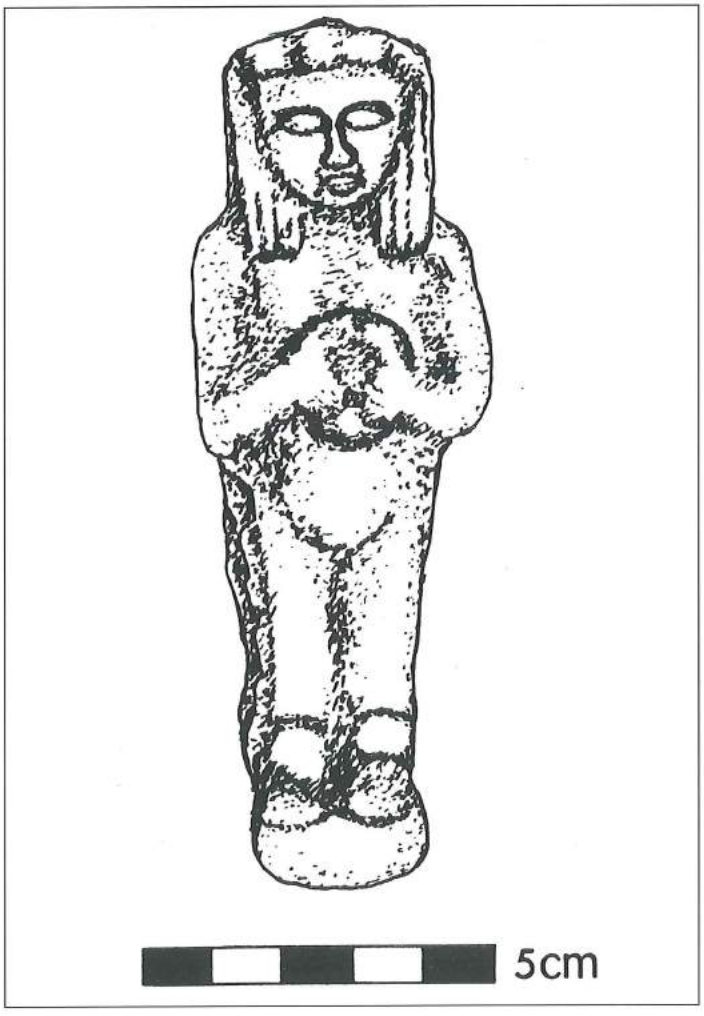
waist that indicate the top of the belly. Similar grooves appear on a free-standing figurine from WT 13 (#1) suggesting that all three figures were free-standing since such grooves never appear on pillar figurines.[12] Additional support for this view is the illustration of the al-Meshed figurine (#26) by Glueck (1934: Fig. 8) where the slightly rounded back of the head and shoulders is visible. Such a position is not seen on pillar figurines but does appear on other free-standing figurines (see #2).

Modelled Attached Figures (Type A2; FIG.1):Type A2 figurines are those with evidence of attachment to another artifact such as a model shrine or ceramic stand. The evidence for this attachment may be seen only along one side of the body (#13) or along the entire length of the back of the figure (#15). Into this type fall the figurines that retain extra clay all around their body which was used to seal them to a flat surface as well as those figures that are gray in colour on their back side. This colour change, due to reduction, is evidence that the figure was attached even if the extra clay is now missing. These female figures share the same characteristics as the fully-modelled Type A1 figurines both in the details of their hair styles and in the position of their hands. In certain cases, there is evidence of a bow at the neckline that suggests clothing (#15) although the lower torso and legs appear bare.

Protomes (Type A3; FIG. 2)*:* A third type of modelled figurine consists of protomes which represent the head and, on occasion, the upper body. The protome is attached to a larger object but was first formed independently and then pressed into place like an attached figurine or was tapered to fit on a support.[13] The best examples of this type are twin female protomes (#60, 61) attached to the facade of a model shrine, reportedly from the Mādabā area (Weinberg 1978:33).[14]



1. Free Standing female figurine (#2); drawn by K. Watson.



2. Attached female figurine (#13); drawn by Victor Bush.

[12] Both figurines #23 and #26 were identified by Kletter (1996:268) and Holland (1977: Fig. 1) as "plaque" figurines.

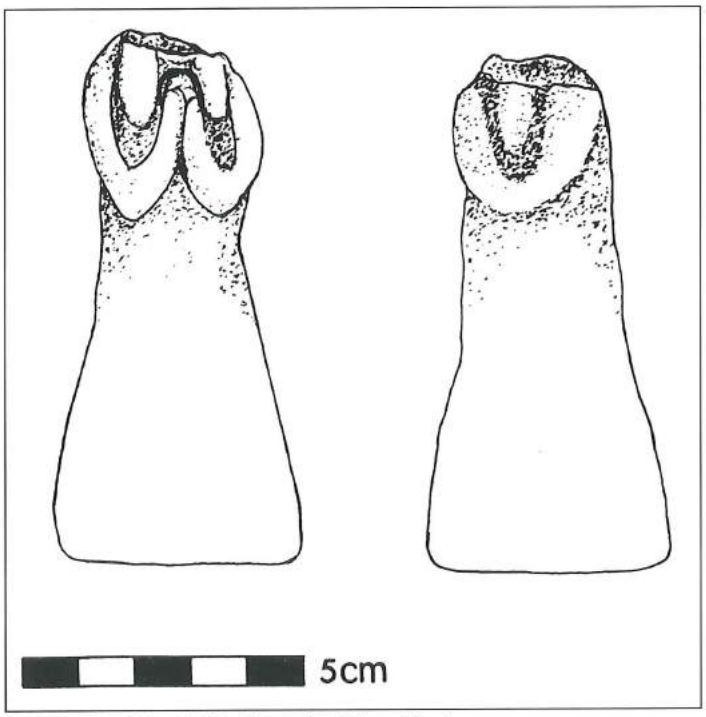
[13] One example (MT(S)=#54) reported by Sauer (1981:64) is difficult to classify but has been included here.

[14] Although he cited Weinberg properly in his bibliography as "A Moābite Shrine Group", Kletter says in his text that this cultic assemblage originated in Edom (1996:239).

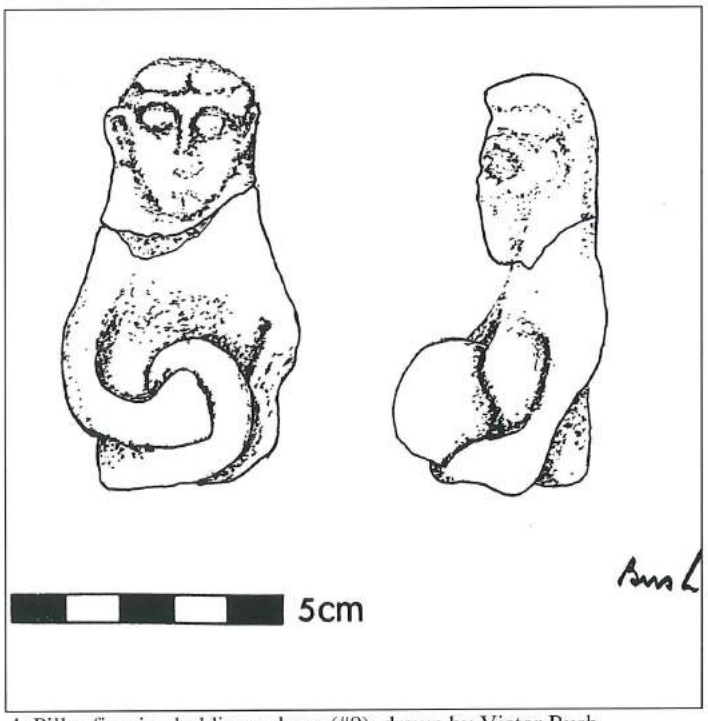
Pillar Figurines (Type B; FIG.3): Type B consists of pillar figurines which depict the head and upper torso of a human form above the waist while below the human shape is not shown (#19). Instead, a hand made cylindrical "pillar" or cone of clay supports the figure. In most cases, the pillar is hollow although examples of solid pillars do occur. The head and upper body may be mould made, hand made or a combination of these two techniques. Differences in appearance and secondary features, allow us to further separate such figures into sub-types. Type B1 represents a female figure with a local hair style, her locks with diagonal grooves resting on her shoulders (Mt Nebo=#26). Unfortunately, Type B1 is poorly represented in this corpus because the heads are often missing (MT 001=#3; MT 263=#6).

Type B2 includes heads that appear to be "veiled" so that the details of the hair are visible only above the forehead and what appears to be a shawl is shown falling onto the shoulders. In these examples, the shoulders are not usually defined but are a continuation of the shawl that forms a single unit with the neck. This shape may have been a means of strengthening the connection between a mould made head and the hand made body and pillar. In one case (#22), there is an actual peg preserved in the neck which indicates another method for assuring a firm attachment.[15] In this group of pillar figurines, each female figure holds a disc in her hands in front of her breasts. In only three instances do the females hold a disc perpendicular to the body,[16] suggesting a different object than that carried by the majority of figures (see analysis below).

Hollow Statues (Type C; FIG.4): Hollow figures were initially formed as an open bottomed vessel or stand to which human features and limbs were added. Such statues could be used as free standing figures or as supports for a bowl or lamp (Beck 1995:43-45; Fig. 3.17). To date, no complete statues have been found intact or have been reconstructed from Moab although WT 13 has yielded large fragments of 8 recognizable statues, 4 possible bases and 4 noses. The size range of these statues is much greater than that for figurines, measuring between 10.00-20.50 cm, shoulder to base. Five statues[17] were sufficiently well preserved to see that they represented females, one holding her breasts (#40). The lower body was cylindrical or oval, in most cases without visible limbs or details of elaborate clothing (Beck 1995: Fig. 3.16).[18] However, in



3. Pillar figurine (#12); drawn by Victor Bush.



4. Pillar figurine holding a drum (#9); drawn by Victor Bush.

15 Glueck (1934:24) published two "male" heads of veiled figures, one head from al-Bālu' and a second from al-Mudayna on the Wādī ath-Thamad. It was this second head that Glueck described as having a "prong by which it was attached to the body". Unfortunately, the caption under the illustration of these heads (Fig. 7a, b) does not agree with the text. In his later work, Glueck (1970) identified these same heads as representing a female fertility goddess and again repeated his description of the head with the prong as the one found at Khirbat al-Mudayna. This time, the caption (Fig. 94) is in agreement with the text. (Worschech (1995) appears to have copied the illustration from Glueck (1934: Fig. 7a, b) where the captions were not in agreement with the text).

16 In the three cases where the disc is perpendicular to the body, the breasts are visible (Mount Nebo tomb, #28, #29 and WT-13/53).

17 Several statues from WT 13 (#38, #39, #41, #39; # 47) had a least one breast preserved.

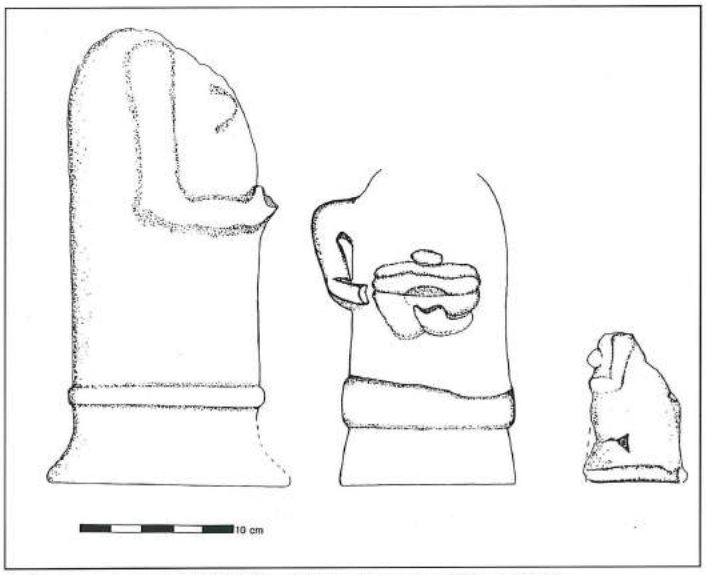
18 The lack of decoration on the body of most of the ceramic statues from WT 13 is in contrast to the row of cowrie shells attached to Figure No. 23 from Horvat Qitmit (Beck 1995).

two cases (#38, #50), there were painted lines and bands visible on the back that may represent clothing and one statue had attached legs (#42).

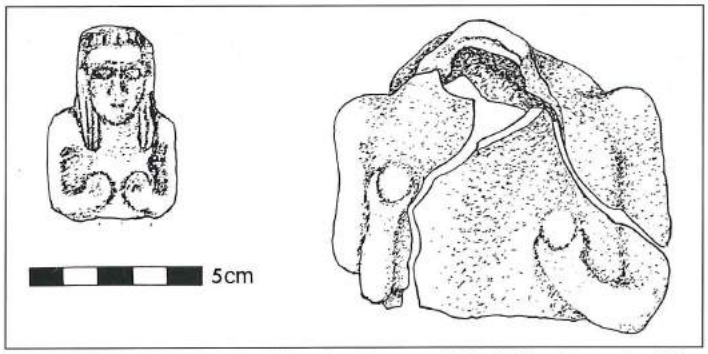
In all examples where the arms were preserved, they were flush against the body with the hands on the abdomen or holding the breasts. In one case (#47), the hands appear to be holding a stack of offering breads. Since no restorable heads have been identified that could be associated with these statues, few details of hair style and facial features can be subject to analysis. The closest parallels to the body shape of the Moabite statues are those from 'En Haseva (Cohen and Yisraeli 1995) and Horvat Qitmit (Beck 1995), tentatively identified with Edomite culture.[19]

Male Figures (Type D)*:* A very small number (2) of ceramic male figures have been recovered from Moabite sites, each with its own distinguishing characteristics. The first male head discovered by Glueck (1934: Fig. 6) at Khirbat al-Mudayna (#58) represents a male wearing a headband to keep his hair in place, similar in appearance to the Ammonite stone statue of Yarah-'ezer (Abou Assaf 1980: Pl. VI). A male torso from al-Bālū' (#62; Worschech 1989: Pl. 8:2) is more difficult to identify iconographically due to the way it was broken. Nevertheless, these two finds are evidence of a tradition of depicting both men and women in art.

Stone Figures (Type E)*:* At present, the class of stone figures includes only one human head (WT 78=#59; Daviau



5. Hollow statues (#38, #47, #41); drawn by Victor Bush.



6. Female figures, each holding her breasts (#11, #40); drawn by Victor Bush.

1997: 251) carved from limestone.[20] This is a distinct type with no parallels at present to constitute a recognized group.

Analysis

Among the 68 ceramic figures and figurine fragments that have been reported from sites and surveys in the region of Moab, 63 are suitable for analysis (TABLE 2). Among these anthropomorphic figures, all but three represent females.[21] On the basis of their types, 17 (29.8%) are free standing, 9 (15.8%) can be classed as attached figures and 4 (0.7%) as protomes. There are at least 14 (24.6%) pillar figurines and fragments of 13 ceramic statues (22.8%), not counting the isolated arms and noses. Among these body types, modelled figurines, free-standing and attached, outnumber pillar figurines, 45.6% vs. 24.6%. On the other hand, there are almost an equal number of ceramic statues as there are pillar figurines. These numbers will change, of course, with additional finds, but at present, fully modelled figurines appear to be the "common" type.

Iconography

Three aspects of their appearance provides evidence for interpreting the function and meaning of the female figurines and statues; the position of the hands, the treatment of the hair, and the details of the pubic area. A minor aspect is the evidence for jewelry or clothing.

Position of the Hands (TABLE 3)

The most common position for the hands is that of holding a disc flat against the body, either in front of the breasts, or slightly higher between the breasts and the neck. This position is seen on 68.9% of the modelled and pillar figurines. In only three instances (al-Meshed #26) is the disc held against the left shoulder. For the most part,

[19] Beck (1993:233) made note of certain features which suggest contact with Amman and sites in the Jordan Valley, especially the chin beard which she identifies as a feature typical of cultures located in eastern Palestine.

[20] Two additional figures, both broken, were recovered from WT Site #13 in 1998. This small group does not figure in the analysis presented below. Also omitted is a torso from 'Atarus (Niemann 1985: Fig. 1); my thanks to Dr F. Benedettuci for this and other references.

[21] Several figurine legs probably belong to female figures since they share characteristics of better preserved female figures. These legs include #37 which have anklets, leg section #32, and leg and foot #36.

TABLE 3. Iconographic Analysis: Position of Hands

Holding disc	Holding Breasts	On Abdomen	Holding Bread	Other*
WT/015=#1	WT/035=#7	WT/020=#39	WT/166=#47	WT/156=#30
WT/021=#2	WT/068=#11			Al-Balu'=#21
MT/001=#3	WT/123=#40			WT/ 011=#38
MT/263=#6				WT/ 048=#41
WT/042=#8				WT/ 165=#46
WT/053=#9(per)				Al-Balu' (G)=#56
WT/072=#12				MT(G)=#57
WT/086=#13				Madaba=#60
WT/88=#14				Madaba=#61
WT/094=#15				Al-Balu'=#62
WT/099=#16				Madaba Tb=#63
Al-Bālū'=#19				
Al-Bālū'=#20				
Karak(G)=#23				Sigla
Diban=#25				(per)=perpendicular
Al-Meshed=#26				
Nebo Tb=#28(per)				
Nebo Tb=#29(per)				
Karak=#65				
Karak=#66				

* Other includes those figures that are damaged or incomplete but are clearly not holding their breasts.

the disc is small and undecorated, not much larger than the hand itself. Two positions are represented, either holding the edge of the disk with both hands or supporting the disc with one hand and covering it with the other. The form of the hands themselves occurs in three styles; fully formed with individual fingers indicated (Karak=#23), simply formed with two distinct sections suggesting the thumb and fingers (#8), or as a palm without any detail. This last style is seen most clearly on figurine #9 from WT 13 that held the disc perpendicular to the body. Figurines from Ashdod (Dothan 1977:38) and from Cyprus that represent musicians, especially women playing hand drums (Meyers 1991:18) also depict hands without details of individual fingers. In all of these examples, the disc or drum is held perpendicular to the body. Two additional figurines from Mount Nebo (Nebo Tb=#28, 29) also hold a disc perpendicular to the body. Meyers (1991:19) makes a clear distinction between these musicians and figurines that depict a female holding a disc flat against her body. Although she does not identify the flat disc with certainty, suggesting a "loaf of bread, a sun disc," or "a plate?", Meyers (1991: 19) is certain that such discs did not represent musical instruments. This opinion is probably correct in the case of those figurines shown holding the disc by its edge since the position of the hands does not suggest the striking of a drum or tambourine.[22] At the same time, a small number of figurines are shown with the left hand supporting a disc held flush against the body with the right hand covering it. The interpretation of this position leaves uncertain the identification of the disc and requires additional evidence before a judgment can be formed.

Only three figures (10.3%) are shown holding their breasts (TABLE 3). This position, so common among Judean pillar figurines, is rare in the iconography of Moab. Even less well represented is the position of the hands on the abdomen (10.3%) or holding a stack of bread loaves or other objects as an offering (10.3%). Ten additional figurines have evidence for the position of the hands at or near the waist but are so broken that the exact style cannot be determined.

Hair Styles: The dominant hair style, identified in this study as a local style, is represented by hair locks that frame the face and fall onto the shoulders with rounded ends. This style is present on 23 figurines (74.2%). Three versions of this style are apparent, simple locks (56.5%), locks with diagonal grooves (30.4%),[23] and locks with vertical grooves (13.0%). The style identified as an Egyptian wig was found on only 3 figures (9.7%). In most of these examples, the ears are hidden behind the front locks of hair.[24] The only exceptions are a figurine (#17) with a unique hair style (3.2%) and those figurines that appear to be wearing a shawl where the hair is shown above the forehead and the ears are visible (12.9%).

Adornment: There is very little evidence that suggests jewellery and clothing on the female figurines. On two figurines (#8, #15) there is the appearance of a bow at the neckline even though the lower body appears nude. In addition, three figurines are wearing a necklace, one wears bracelets, one wears armbands and five figures wear anklets. Remains of paint on two of the ceramic statues suggests clothing although others appear undecorated. This limited evidence indicates that clothing and jewellery were not important iconographic elements.

[22] Comparison of the depiction of the disc common on Moābite figurines with figurines from the Jordan Valley and western Palestine reveal significant differences. Most apparent is the total lack of decoration on the disc itself. A simple design can be seen on discs held by figurines found at Dayr 'Alla (van der Kooij and Ibrahim 1989:V:128) and Tall as-Sa'idiyyah (Tubb, Dorrell and Cobbing 1996: Fig. 22) while an elaborate design appears at Beth Shan (Glueck 1970: Fig. 93, right) and at Gezer (Macalister 1912: Fig. 499). A female holding an elaborate disc was reported by Harding (1937: Pl. X:9); unfortunately this figurine is without provenience but may have come from Transjordan.

[23] Similar diagonal grooves are seen on a pillar figurine of a woman drum player from Cyprus (Meyers 1991:18) indicating that this style may have had a wider range than just the region of Moāb.

[24] This is in contrast to the Egyptian style figurine head from Tall Miqne where the ears are clearly defined (1995: fig. 4.17).

Interpretation

Determining the identification and function of the female figurines and statues is the most challenging aspect of any iconographic study. In view of the lack of clearly identifiable divine characteristics, we can start with the assumption that the ceramic figurines represented human figures rather than a god or goddess although their appearance may have been similar to human images (Connelly 1989:211). Among the figurines of females that hold a disc, certainly the easiest to understand are those whose disc is held perpendicular to their body. That such figurines, especially common in Cyprus, Phoenicia and Palestine (Meyers 1987:120-121), represent women musicians is generally accepted since women and their instruments are widely illustrated on Egyptian tomb paintings and stelae (Erman 1971:249). The social position of women who performed music during various ceremonies, both public and religious, has been studied by Meyers (1991). The question here is what function these figurines played in the religious life of the Moabites in view of the fact that two of the three pillar figurines with drums were found in tombs.

Studies of votive statues and figurines suggest that representations of devotees need not be exact portraits of the individual since the purpose of the image is to continue the prayer or religious actions of the believer in the presence of the god or goddess (Beck 1995:181; Connelly 1989:211). The evidence from Moab suggests that holding a drum was one of these actions. This same action may be represented by those figurines shown holding the bottom of the disc in their left hand with their right hand against the outer surface which is parallel to the body.[25]

Those figurines that hold the disc on its edge remains unexplained since this position does not appear to represent musical activity. A clue as to the identification of the disc in this position may come from one of the ceramic statues (WT/166=#47) that appears to hold a stack of bread loaves, the uppermost being a small round loaf. Such an offering is known from textual references of neighbouring Iron Age cultures (1Kgs 7:48) and from depictions on north Syrian stelae (Dion 1997: Figs. 11, 16).

Figurines and statues that have their hands on their breasts depict a well known type, especially common among Judean pillar figurines. However, the Moabite figures are different in two respects; first, the breasts are small in size and second, the hands of the figurines cover the breasts, rather than support them (except for statue #40). At this stage in our study of Moabite religious iconography, it may be premature to attempt to identify these figurines with a particular goddess as Kletter has done for the Judean pillar figurines. The same is true for the ceramic statue with its hands on its abdomen (#39), a position that is rare in our corpus.

The statues themselves have parallels principally at Horvat Qitmit and 'En Haseva, two sites in the Negev that have been associated with Edomites living in that region. These statues depict humans holding bowls or standing in a position of prayer (Beck 1995; Cohen and Yisraeli 1995). At present, the number of statues from WT 13 appears greater than that reported from both of the Negev sites. However, at Horvat Qitmit, there were 20 ceramic stands with evidence of attached figures (Beck 1995:180), a type of artifact that has not been identified at WT 13. Thus, it is premature to plot the distribution and identify the ethnic affinities of this style of figure since additional excavation in Jordan in the near future may quickly alter the evidence.

Conclusion

The figurines and statues recovered from the surface of Iron Age settlements, in houses and in tombs, and at WT 13, present a glimpse of Moabite religious practices. The majority of these figures appear to have been votive images, a type which has had a long history in the Levant (Connelly 1989:216). Playing musical instruments, making bread offerings and standing in the presence of the divine were clearly important ritual acts that were carried out in both temple worship and the domestic cult. Such evidence places Moab in the common cultural milieu of the Iron Age with its own characteristic articulation of its religious beliefs and practices.

TABLE 4. Iconographic Analysis: Hairdos

Diagonal grooves	Vertical Grooves	Simple Locks	Shawl
MT/020=#4	WT/064=#10(?)	WT/015=#1	MT/061=#5
WT/042=#8	WT/068=#11	WT/021=#2	WT/053=#9
WT/094=#15	WT/88=#14	MT/001=#3	MT(G)=#22
Karak(G)=#23		MT/263=#6	Al-Balu'=#24
Diban=#27		WT/072=#12	
Nebo Tb=#28	Egyptian Style	WT/104=#18	
Nebo Tb=#29		Al-Bālū'=#19	Unique
	WT/035=#7	Al-Bālū'=#20	
	WT/086=#13	Al-Bālū'=#21(?)	WT/092=#17
	WT/099=#16	Diban=#25	
		Al-Meshed=#26	
		Karak=#65	
		Karak=#66	

TABLE 5. Types

	N	%
--free-standing figurines (A1)	21*	33.3%
--attached figures (A2)	11	17.4%
--protomes (A3)	4	6.3%
--pillar figures (B)	14	22.2%
-ceramic statues (C)	13**	20.6%

* not including limestone male head; ** not including 4 noses

[25] These numbers are too few for meaningful analysis.

TABLE 6. Position of hands.

	N	%
--females holding a disc	20	68.9%
--females holding their breasts	3	10.3%
--females holding some object	3	10.3%
--females with hands on stomach	3	10.3%

TABLE 7. Hair styles.

	N	%
Ceramic female heads:		
--local hair style	23	74.2%
--shawl	4	12.9%
--Egyptian style wig	3	9.7%
--Unique	1	3.2%

TABLE 8. Adornment.

	N	%*
--bow at neckline	2	*
--necklace	3	*
--bracelets	1	*
--armbands	1	*
--anklets	5	*

* Too few for meaningful quantification analysis.

Bibliography

Abu Assaf, A.1980. Untersuchungen zur Ammonitischen Rundbildkunst. *Ugarit Forschungen* 12:7-102.

___ 1996. Die Kleinfunde aus 'Ain Dara (Taf. 15 26). *Damaszener Mitteilungen* 9: 111.

Beck, P. 1993. Transjordanian and Levantine Elements in the Iconography of Qitmit. Pp. 231-36 in *Biblical Archaeology Today 1990. Proceedings of the Second International Congress on Biblical Archaeology* (June-July 1990). Jerusalem: Israel Exploration Society.

___ 1995. Catalogue of Cult Objects and Study of the Iconography. Pp. 27-197 in *Horvat Qitmit. An Edomite Shrine in the Biblical Negev.* Monograph Series of the Institute of Archaeology, 11. Tel Aviv: Tel Aviv University.

Cohen, R. and Yisrael, Y.1995. The Iron Age Fortresses at 'En Haseva. *Biblical Archaeologist* 58:223-235.

Connelly, J. B. 1989. Standing Before One's God: Votive Sculpture and the Cypriot Religious Tradition. *Biblical Archaeologist* 52:210-218.

Daviau, P. M. M. 1997a. Moab's Northern Border: Khirbat al-Mudayna on the Wadi ath-Thamad. *Biblical Archaeologist* 60:222-228.

___ 1997b. Excavations at Mudayna. *Biblical Archaeologist* 60:251.

Dion, P.-E. 1997. *Les Araméens à l'âge du fer: histoire politique et structures sociales.* Études bibliques (NS No. 34). Paris: Lebrairie Lecoffre. J. Gabalda.

Dothan, M. 1977. The Musicians of Ashdod. *Biblical Archaeologist* 40:38-39.

Erman, A. 1971. *Life in Ancient Egypt.* trans. H. M. Tirard. 1894 rpt. New York: Dover Publications, Inc.

Glueck, N. 1934. Explorations in Eastern Palestine I. AASOR 14 (1933-1934). Philadelphia: American Schools of Oriental Research.

___ 1939. *Explorations in Eastern Palestine* III. *AASOR* 18-19 (1937-1938). Philadelphia: American Schools of Oriental Research.

___ 1970. *The Other Side of the Jordan.* Cambridge, MA: ASOR.

Gitin, S. 1995. Tel Miqne-Ekron in the 7th Century B.C.E.: The Impact of Economic Innovation and Foreigh Cultural Influences on a Neo-Assyrian Vassal City-State. Pp. 59-79 in S. Gitin (ed.), *Recent Excavations in Israel. A View to the West.* Reports on Kabri, Nami, Miqne-Ekron, Dor & Ashkelon. American Institute of America, Colloquia & Conference Papers, No. 1. Boston: AIA.

Hachlili, R. 1971. Figurines and Kernoi. Pp. 125-135 in *Ashdod II-III. The Second and Third Seasons of Excavations 1963, 1965.* 'Atiqot IX-X (English Series). Jerusalem.

Harding, L. 1937. Some Objects from Jordan. *PEQ* 69:253-355.

___ 1950. An Iron-Age Tomb at Meqabelein. *Quarterly of the Department of Antiquities of Palestine* 14:44-48, Pls. XIII-XVII.

Holladay, J. S., Jr. 1987. Religion in Israel and Judah Under the Monarchy: An Explicitly Archaeological Approach. Pp. 249-299 in P. D. Miller, P. D. Hanson, and S. D. McBride (eds.), *Ancient Israelite Religion.* Phila.: Fortress Press.

Holland, T. A. 1977. A Study of Palestinian Iron Age Baked Clay Figurines, with special reference to Jerusalem, Cave 1. *Levant* IX:121-155.

Kletter, R. 1996. *The Judean Pillar-figurines and the Archaeology of Asherah.* BAR International Series 636. Oxford: Tempus Reparatum.

Macalister, R. A. S. 1912. *The Excavation of Gezer (1902-1905, 1907-1909).* II. London: John Murray.

Mattingly, G. L. 1989. Moabite Religion and the Mesha' Inscription. Pp. 211-238 in A. Dearman (ed.), *Studies in the Mesha Inscription and Moab.* Archaeology and Biblical Studies, No. 2. Atlanta, GA: Scholars Press.

May, H. G. 1935. *Material Remains of the Megiddo Cult.* OPI XXVI. Chicago: University of Chicago Press.

Meyers, C. L. 1987. A Terracotta at the Harvard Semitic Museum and Disc-Holding Figures Reconsidered. *Israel Exploration Journal* 37:116-22.

___ 1991. Of Drums and Damsels. Women's Performance in Ancient Israel. *Biblical Archaeologist* 54:16-27.

Niemann, H. M. 1985. Ein Statuettentorso von der *Hirbet 'Ataraus. ZDPV* 101:171-177.

Saller, S. J. 1966. Iron Age Tombs at Nebo, Jordan. *LA* 16:165-298, Figs. 1-38.

Tadmor, M. 1982. Female Cult Figurines in Late Canaan and Early Israel: Archaeological Evidence. Pp. 139-73 in T. Ishida (ed.), *Studies in the Period of David and Solomon and Other Essays.* Winona Lake: Eisenbrauns.

Thompson, H. O. 1986. An Iron Age Tomb at Madaba. Pp. 331-363 in L. T. Geraty and L. G. Herr (eds), *The Archaeology of Jordan and Other Studies Presented to Siegfried H. Horn.* Berrien Springs, MI: Andrews University Press.

Tubb, J. N., Dorrell, P. G. and Cobbing, F. J. 1996. Interim Report on the Eighth (1995) Season of Excavations at Tell es-Sa'idiyeh. *PEQ* 128:16-40.

Weinberg, S. 1978. A Moabite Shrine Group. *Muse* 12:30-48.

Worschech, U. 1989. Preliminary Report on the Second Campaign at the Ancient Site of El-Balu' in 1987. *ADAJ* 33:111-121.

___ 1992. Pferd, Göttin und Stier. Funde zur moabitischen Religion aus el-Balu' (Jordanien). *Ugarit-Forschungen* 24:385-391.

___ 1995. Figurinen aus *el-Balu'* (Jordanien). *ZDPV* 111:185-192.

Zayadine, F. 1986. Fer I. In *La Voie Royale. 9000 ans d'art au royaume de Jordanie.* Paris: Musée de Luxembourg.

Margreet Steiner
Archaeological Center
University of Leiden
P. O. Box 9515
2300 RA Leiden
The Netherlands

Margreet Steiner

I am Mesha, King of Moab, or: Economic Organization in the Iron Age II

I am Mesha, son of Kemosh[yat], king of Moab, the Dibonite.
My father ruled over Moab thirty years, and I ruled after my father.

Although the Iron II period may easily be called the most extensively excavated era of ancient Palestine, not much is known of the economic background of its societies. Most scholarly surveys are content to rely on the picture presented in the biblical sources, which depict king Solomon as a wealthy ruler, head of a well organised state, he himself heavily engaged in economic activities.[1] These stories are supposed to 'explain' the economic base of his government and those of his successors as well. Even recent works find it hard to abandon this approach completely.[2]

My interest in ancient economy stems from a workshop I have held with graduate students. We decided to concentrate on the economy of the ninth and eighth centuries BC, the period for which some reliable historical sources exist, but before the Assyrian usurpation of the country. Our research ranged from the domestic mode of production to the Samaria ostraca, and from the organisation of pottery production to the possible occurrence of gateway communities.[3] By analysing excavation reports we tried to gain some insight into the economy of ancient Israel and its neighbours, trying to discover not only what was produced but more importantly how this production was organized; not only the distribution of goods, but the hows and whys of it.

Our aim was to find answers to such simple questions as: when a farmer was in need for a new iron axe, where did he go: to his neighbour, to the next village, the city? And how did he pay for it? Did local markets exist, were there traveling traders? How did the king get the copious meal he desired on his table? Did he have his own lands, did he receive gifts, or taxes, and how was that organized? And what about the many loom weights found in domestic contexts? Were the ladies of the house weaving clothes for their own families only, were they working to sell items on the local markets, or was the material meant for the elite? And who made the exquisite fabrics the Assyrians demanded as tribute from the kings of Israel?[4]

It turned out that it was very difficult to obtain answers to these questions from excavation reports, as the archaeological record is often biased, incomplete, and not quantified. Worse still is that much of the material has not, or not yet, been published.

However, suddenly King Mesha stepped forward to assist us. The inscription on the stele that bears his name is well-known and needs no further introduction here.[5] When we first analysed this inscription there seemed disappointedly little economic information in the text: none on taxes, trade routes, import commodities and the like. But Mesha is very insistent on some points: he is a king, his father was a king, he is a war lord, he is a builder.

It is possible to approach this text with the model of the Early State as developed by Claessen, Skalnik and others on the basis of empirical studies of more than 20 societies all over the world.[6] Claessen and Skalnik are

1 See for instance E. Neufeld, The Emergence of a Royal-Urban Society in Ancient Israel. *Hebrew Union College Annual* 31 (1960), and M. Silver, *Prophets and Markets: the Political Economy of Ancient Israel*. Hingham (1983).

2 J. S. Holladay, The Kingdoms of Israel and Judah: Political and Economic Centralization in the Iron IIA-B (ca. 1000 - 750 BCE). In T. E. Levy (ed.), *The Archaeology of Society in the Holy Land*. London (1995).

3 See for introductions to these subjects: M. Sahlins, *Stone Age Economics*. London (1974); I. T. Kaufman, The Samaria Ostraca. An Early Witness to Hebrew Writing. *BA* (1982), 229 ff.; S. van der Leeuw, Towards a Study of the Economics of Pottery Making. Pp. 68-76 in B. L. Van Beek, R. W. Brandt and W. Groenman-van Wateringen (eds.), *Ex Horreo*. Amsterdam (1977); K. G. Wirth, Interregional Trade and the Formation of Prehistoric Gateway Communities. *American Antiquities* 43 (1978), 35-45.

4 See J. Kah-jin Kuan, *Neo-Assyrian Historical Inscriptions and Syria-Palestine*. Hong Kong (1995).

5 A. Dearman (ed.), *Studies in the Mesha Inscription and Moab*. Atlanta (1989).

6 H. J. M. Claessen and P. Skalnik (eds.), *The Early State*. The Hague (1978).

cultural anthropologists, not archaeologists, and they used mostly historically recent or still existing societies to build their model. When they compared these societies, who were experiencing statehood for the first time in their history, they found that early states reveal some typical characteristics. For these characteristics I quote Claessen:[7]

* Early states have a definite territory, but their outer boundaries are very loosely marked. They are politically independent.
* The ruler is military commander in-chief foremost, more than supreme law maker and judge.
* State ideology is important, and the ruler has to legitimize himself.
* As in all states, early states have monopoly of force. According to Tainter[8] this is what sets states apart from chiefdoms or less complex societies in general. This means that the ruler has the authority to mobilize resources and draft personnel for war or work, levy and collect taxes, and decree and enforce laws.
* The early state comprises two classes at least: the ruling elite (the sovereign, his clan, his court, the administration, and some specialist functionaries such as priests or scribes) and the ruled, the people living in the old communities (be they described as villages or clans of kinships), who are economically autonomous.
* Early states have a definite administrative apparatus. This, however, is small, especially in the beginning of the early state.
* Neither literacy nor urbanization are a necessary condition for an early state, but both develop in the course of time.
* In most cases the sovereign has a capital where his court resides, although in the earlier stages he may have no fixed court and will have travelled around the country to live of tribute or tributary gifts.
* The ruler has temples and irrigation works built, and roads constructed.
* Prestige goods, obtained by long-distance trade, are in great demand by the ruler and his court, and function to enhance and legitimate their status.

If we search for these characteristics in the stele of king Mesha, we find remarkable similarities. Mesha legitimates himself, is a war leader foremost, and builds quite considerably: mention is made of fortifications, temples, irrigation works and the road through the Arnon. More importantly, he has monopoly of force and is able to draft people for war and work. It seems acceptable to infer that his Moab was not a chiefdom, but an Early State.

Lately, it has been questioned whether Moab reached statehood at any time during the Iron Age,[9] but Mesha's stele indicates otherwise. Please note that Claessen and Skalnik, who provided this list of characteristics, did not know this inscription, and did not use any examples from the Levant.

I am aware of the pitfalls of taking this inscription at face value. But, for whatever reasons Mesha wrote his text,[10] he could not possibly make up the characteristics of a society more complex than the one he was living in. He may have exaggerated his accomplishments and made himself larger than he was, the very fact that he was able to erect a stele proclaiming his deeds is an indication that he was the head of an (early) state.

Concentrating now on the economic aspects of the model of the Early State we are able to learn from Claessen and Skalnik that the influence of the ruler on the ruled is not extensive; the local communities are required to pay some form of tax or tribute on irregular basis and may be summoned up to supply labour for the building projects of the sovereign and for the army. The interest of the ruler in economic matters is small; the state concerns itself foremost with political and ideological matters, not with economic exploitation.

Systematic tax paying by the communities is not usual. In the earlier stages tribute is levied on 'voluntary' irregular basis, and only if the ruling class needs it. Later on, taxes have to be paid on a more regular basis, but real economic exploitation of the productive communities is scarce. Redistribution is an important function of early states, but is ordinarily limited to the distribution of surplus to the (small) administration and to the furnishing of sacrifices. The ruler receives food and labour, while his returns are in the ideological sphere: he 'guarantees' fertility, peace and prosperity. The amounts of goods distributed in these early states are limited.

The local communities make a living by agriculture combined with the part-time practicing of crafts and trade. They are more or less self-sufficient. Land ownership is communal; private land ownership is rare and occurs only in the latest phase of the early state. The sovereign (and the ruling class) live off tribute/ tributary gifts and the returns of their own land. This land is cultivated by members of their families or by tenants. The state has a direct interest in the returns from interregional long-distance trade which served the growing demand for luxury objects. In most cases, however, the state did not organize this trade, but restricted itself to the taxation of traders and merchants. Local trade is commonly practiced, markets are commonly found, but pro-

[7] H. J. Claessen, The Early State: A Structural Approach. In Claessen and Skalnik 1978 (see note 6), chapter 25, pp. 533-597.
[8] J. A. Tainter, *The Collapse of Complex Societies*. Cambridge (1988).
[9] R. W. Younker, Moabite Social Structure. *BA* (1997), 237-248.
[10] See for instance J. F. Drinkard, The Literary Genre of the MI. In Dearman 1989 (note 5).

fessional traders were not a common characteristic and neither was the use of money.

It seems that in early states, and thus also in Moab, we can expect that two economic zones or circuits have existed side by side. However, the tendency evidenced in many studies[11] to create a dichotomy between towns, where the elite was housed and industries would be practiced, and countryside, dependent on these towns for its basic needs and exploited by them, seems not to do justice to the actual situation. These societies were not urbanized or urban-based as other, more fully developed states were.

I propose a different classification of these two zones. The first one consists of the royal economy. The king and the small elite lived off the returns of their own lands, of irregular taxation of the local communities and the taxation of inter-regional trade. The king held court in his capital, probably a fortified town, where specialized crafts as ivory and gold working and the production of luxury pottery were concentrated. Here one can expect to find palaces and temples, but no large-scale storage facilities, nor an extensive bureaucratic apparatus creating a lot of economic texts, nor a king actively involved in industries and trade.

The other economic zone is made up of the local communities, be they farmers or pastoralists. These people, if farmers, lived in villages or small towns, which may also have been fortified. Here we can also expect workshops for pottery and metal working, and the local markets.

The interaction between these two circuits would have been limited as taxes were levied on irregular basis and the local communities had their own industries and markets. There was not so much a deep split between 'town' and 'countryside', but rather a relative difference between the towns, lands and crafts of the local communities on the one hand, and the towns, lands and crafts of the elite on the other hand, whereby those of the elite, of course, where richer, larger and more luxurious. Towns did function as a place for living and working for both elite and rural people — 'real' cities were non-existent — and agriculture was the main source of income for all.

To apply this model to the archaeological record of the small Iron Age states in the southern Levant will be the next step in our research. But what about the questions I asked in the beginning: where did a farmer go if he needed a new axe? How did the king get his copious meals on the table? And was weaving done for the household only, for the elite, or as tribute for the Assyrians?

In all probability we can say that:

- the farmer went to the nearest market and paid with a bottle of his best wine;
- the king had his own lands which provided him with whatever he wanted;
- weaving in the villages was done mostly for the household.

[11] See for instance Neufeld 1960 (note 1) and D. Hopkins, Bare Bones: Putting Flesh on the Economics of Ancient Israel. In V. Fritz and P. R. Davies (eds.), *The Origin of the Ancient Israelite State*. Sheffield (1996).

Magnus Ottosson
University of Uppsala
Skilgatan 23, 753 12 Uppsala
Sweden

Magnus Ottosson

In Quest of the Arameans in Northern Jordan

Aram is a term which calls forth many associations, ethnic, linguistic, geographical and historical. Here I prefer to speak about the geography and archaeology of Aram—laying chief stress upon the area north and south of the Yarmūk—in order to draw certain historical conclusions the results of which will be compared with the "history" of Aram given in the Old Testament.

From handbooks you will get the impression that the Arameans were Semitic settlers in the fertile areas on both sides of the River Euphrates, and that they had come from the Syrian-Arabian desert around 1200 B.C.[1] Perhaps such statements were formulated with the biblical stories of the emergence of Israel in mind, first the wanderings of the Patriarchs and then the Exodus out of Egypt.[2] In Amos 9,7 we are told that the God of the Israelites brought up Israel from Egypt, the Philistines from Caphtor and Aram from Kir. Naturally this is an ideological and simplified way of writing history, but there is something in it.[3] The three main peoples living in the western part of Near East are given an origin, and, whichever gods the Philistines and Arameans may have had, the God of the Israelites gave each of them their countries (Deut 32,8). But then history is directed by the same god and the peoples are punished for their sins. The Israelites are brought out of their country to places east of the Euphrates (2 Kgs 25,11), and so are the Arameans. The Assyrians conquered Damascus and brought the people to Kir east of the Euphrates (2 Kgs 16,9), the place from where they were said to have come. The Philistines are not mentioned in such a punishment.

The Bible tells us another difference between these three peoples. Israel succeeded in creating a kingdom first through Saul and then David,[4] a kingdom split into a northern and southern part. The Philistines and the Arameans are never said to have held together a unified kingdom in the same way; they were but city states. Aramean states such as Damascus[5] and Hamat[6] were certainly vast. Names like Geshur, Ma'acah,[7] Aram - So-

---

1 See H. Donner, Geschichte des Volkes Israel und seiner Nachbarn in Grundzügen *ATD* 4/1 (1984) 57: "Eine 'aramäische Völkerwelle' allerdings, die aus den Einöden der Wüste gegen die Kulturländer brandete, hat es sicherlich nicht gegeben."

2 How to interpret the OT traditions from an historical point of view is still an enigma. All interpretations rest on one's understanding of the age and the character of the texts. See f.i. J. van Seters, *Abraham in History and Tradition* (1975), who maintains that the Abraham traditions were written in the time of the Exile. A diffuse figure of Abraham was associated with fairy tales and legends of different ages and origins. Hence it follows that the Yahwistic traditions cannot be regarded as historical documents. N. P. Lemche, *Early Israel* (1985) 416ff. has followed up van Seters' opinion and also strengthened it: "a saga or legend is ahistorical until the opposite has been proved; it is not historical until its 'historical' contents have been proved." We cannot enter here the often enflamed debate, but my impression is that the Patriarchal traditions—they may be legendary—describe the Israelite consciousness of Aramean origin. The activities of the Patriarchs are understood in light of subsequent history, at the same time later history is legitimated by the deeds of Israel's ancestors. Thus Laban and Jacob's settlement in the mountains of Gilead (Genesis 31) not only describes the Israelite break with their Aramean origin but also substantiates the Israelite claim of the area west of the mountains of Gilead—by Jacob's wrestling with "the god of the area" (Genesis 32). See M. Ottosson, *Gilead: Tradition and History* (1969) 36ff. Concerning the history and background of the biblical Patriarchs, see the thorough investigation by G. G. G. Reinhold, *Die Beziehungen Altisraels zu den aramäischen Staaten in der israelitisch-judäischen Königszeit* (1990) 39ff.

3 The hegemony of these three peoples covers an area equal to the Israelite Land of Promise. Naturally the Israelite god governs it. See M. Ottosson, "Eden and the Land of Promise," *VT Supp* 40 (1988) 177-188; *idem*, Ideology, History and Archaeology in the Old Testament, *SJOT* 8(1994), 206-223 and R. Sollamo, Ideology, Archaeology and History in the Old Testament. A Brief Response to Magnus Ottosson's Paper, *SJOT* 8, 224-235.

4 David's political and military rise has been analyzed by B. Mazar, *BA* 25 (1962) 98-120; A. Malamat, *BA* 21 (1958) 96-102; *idem, JNES* 22 (1963) 1-17; *idem, Sitzungsberichte der Akademie der Wissenschaften in Wein . Phil.-hist. Kl.* Bd. 407 (Wein, 1983), 4-42.

5 Cf. H. Klengel, "City and Land of Damascus in the Cuneiform Tradition," *Annales Archéologiques Arabes Syriennes* 35 (1985) 49-57.

6 H. Sader, *Les états araméens de Syrie depuis leur fondation jusqu'à leur tranformation en provinces assyriennes* (1984) 235ff.

7 B. Mazar, "Geshur and Maacah," *JBL* 80 (1961) 16-28, and now M. Kochavi, "The Land of Geshur Project: Regional Archaeology of the Southern Golan (1987-1988 Seasons)," *IEJ* 39 (1989) 1-17. Kochavi suggests that al-'Amarna letter No. 256 mentioning "the cities of the land of Garu" refers to "the land of Ga(su)ru." So also W. Moran, *Les Lettres d'El Amarna* (1987) 597.

bah[8] are more difficult to judge. Certainly Damascus was the head of the Aramean states, at least from an Israelite point of view (Zech 9,1; Isa 7,1ff). Rezin is called "King of Aram" (2 Kgs 16,5) and "Head of Damascus" (Isa 7,8), and Damascus the head of Aram (Isa 7,8).

There are reasons to believe that in the wars fought between North-Israel and Aram, Damascus was the main Aramean center north of the River Yarmūk. This river is never mentioned in the OT and therefore we do not know if it was regarded as a frontier to the Arameans in the same way as Wādī az-Zarqā' (Jabbok) was to the Ammonites (Num 22,5). But I would suggest that this was the case. The conception "Aram" is very general, telling us nothing about frontier points of the Aramean kingdoms. Once it is mentioned that Sobah's King Hadad'ezer extended his dominion as far as "River..." (2 Sam 8,3). Usually this is thought to be the River Euphrates. That seems to be the right interpretation, as the chapter in the following verses describes David's wars against the Arameans and when To'i, the king of Hamat,[9] asks for peace, it means that ideologically David has extended his dominion until the northern ideal border point of the Israelite empire. We know very little about the geography of the southern Arameans. We have only a vague idea where names such as Ma'acah, Geshur, Tob, Beth Rehob[10] and Sobah could be localized. Geshur was just "in Aram" (2 Sam 15,8). The OT is the main geographical source for the areas of the Arameans, but as the mentioning of cities and landscapes functions as a description of an Israelite dominion within the frames of the Davidic empire, we do not get much information about the groups of peoples living there. In the OT these peoples are named "Amorites" living throughout the area east of the Jordan governed by the two kings Sihon and Og. The latter had two capitals, Edrei and Salkah, usually identified with Dar'a and Ṣalkhad. Then we are told about Kenat, a city which was given an Israelite name (Num 32,42). The landscape is named Bashan (Num 32,33 etc.). Two other cities mentioned are Golan and Astaroth (Deut 4,43 and Deut 1,4). The latter is to be identified with Tall Ashtara.[11] This is just to underline that the OT-tradents did not know much about the geography of Aram, not even of southern Syria and northern Jordan. David's wars against the Arameans were fought on the east side of the Jordan at Helam (2 Sam 10,17). The Arameans were then in coalition with the Ammonites. The cities Betah and Berotai producing copper belonged to Hadad'ezer (2 Sam 8,8).

Historically we are on firmer ground when the OT tells us about the perpetual wars between Aram and North-Israel.[12] Although the traditions are written from a Jerusalemite point of view—*id est* they contain an ideological trend negative toward the north-Israelite kings—there is certainly a kernel of real history in these confrontations. In any case from the Assyrian inscriptions we get for the first time a historical source outside the OT telling about the relationship between Israelites and Arameans around 850 B.C., and then it is interesting to notice how history has been interpreted differently. According to the OT there are several skirmishes between Israelites and Arameans from the time of King Omri until the so called Syro-Ephraimitic war around 740 B.C. During this period of around 100 years the Arameans are said to have besieged both Samaria (1 Kgs 20,1 ff.) and Jerusalem (2 Kgs 12,17 ff.) without success. There are battles at Aphek (1 Kgs 20,26) and at Ramoth in Gilead which town is besieged by Hazael also without success (2 Kgs 9,1 ff.). But here the Israelite kings Ahab and Joram are wounded (1 Kings 22; 2 Kings 9). According to 2 Kgs 13,22 ff. the Aramean King Hazael had oppressed Israel but his son Ben-Hadad was beaten three times and the Israelite cities conquered by Aram were taken back. The only time a covenant between Israel and Aram is mentioned is in the legendary story of the war at Aphek (1 Kgs 20,34).[13] In this connection we are told that the Aramean king gave back to Ahab the Israelite cities which had been taken from Omri (v. 33). Cities were al-

8 Aram-Sobah was a mighty kingdom which extended its borders from Anti-Lebanon towards Tadmur between Ḥamāh and Damascus. It is impossible to draw exact borders as the sources are silent.

9 For the extension of the land of Ḥamāh, see the discussion in H. Sader, *op. cit.*, 235ff.

10 Beth Rehob has traditionally been identified with Rihab, 20kms northeast of Gerasa, but after his survey of northern Jordan S. Mittmann prefers Tall al-Mu'allaqa, 2kms northeast of Irbid. The old name could be preserved in the modern names Wādī ar-Rāḥūb and Kh. ar-Rāḥūb, and the suggested site holds a very strategical position; cf. S. Mittmann, *Beiträge zur Siedlungs- und Territorialgeschichte des Nördlichen Ostjordanlandes* (1970) 226ff. I should like to verify an Aramean kingdom south of the Yarmūk, but it does not seem probable that it could be the Rehob mentioned in 2 Sam 10,8; cf. M. Weippert, *Edom* (1971) 270 and H.-J. Stoebe, *ZDPV* 93 (1977) 242ff. who place the site in the Valley of al-Biqā', and this is also Reinhold's opinion (*op. cit.*, 80f) when discussing a real union between Aram Sobah and Bet Rehob (see his footnote no. 71 on p. 324). E. Lipinski thinks there has been a confusion in 2 Samuel 10 between Beth Rehob in al-Biqa' and a city Rehob situated south of Beth-Sean, *TRE* 3 (1978) 593.

11 See D. Kellermann *ZDPV* 97 (1981) 45-61.

12 Reinhold gives in his dissertation (see note 2) the hitherto most ambitious analysis of the OT versions of the wars between Israel and Aram which were frequent. The battle accounts are intermixed with legendary material and we would not know much at all about the Omrides were it not for the appearance of Elijah and Elisha. On 1 Kings 22 see especially H. Weippert, *Biblica* 69 (1988) 457-479; J. M. Miller, *JBL* 85 (1966) 441-454; *idem, VT* 17 (1967) 307-324; *idem, ZAW* 80 (1968) 337-342; G. W. Ahlström, "The Battle at Ramoth-Gilead in 841 B.C.," *Wünschet Jerusalem Frieden. Collected Communications to the XIIth Congress of the IOSOT* (1986) 157-166.

13 The coalition between Israel, Aram-Damascus, Hamat, and eight other city states at the Battle of Qarqar in 853 B.C. is never mentioned in the OT, nor also in any Aramaic inscription found thus far. For discussion about the identification of Qarqar see H. Sader (*op. cit.*, 237) who suggests that it is modern Ḥamāh.

ways the most outstanding target. Seldom do we hear about areas in this connection.

If we accept "Aram" as an ethnic term in the same sense as Israel, Moab, and Edom we also get a general geographical idea. The borders of Aram are vague, but we do get from the OT the impression that the term "Aram" covers at least all land north of the Yarmūk River. But since the wars between Aram and Israel were fought at "Ramoth" in Gilead[14] we may suspect that the borders between Aram and Ammon were fluctuating. Indeed there are traditions which tell us that Aram from time to time was able to keep her hegemony down to Wādī al-Mūjib (2 Kgs 10,32 f), yes, to the very town of Elath/ 'Aqaba (2 Kgs 16,6). In the last text scholars mostly read Edom insted of Aram.[15] From the OT we also get some chronological idea about when the Arameans kept political and cultural pressure on the area of present-day Syria and Jordan, namely around 900–600 B.C.[16] As I said earlier the term "Aram" in the OT is used in a general way. Sometimes it appears to mean a special city or kingdom like Damascus par préference, and the OT-tradents knew about an Aramaean language which the Assyrians could speak (2 Kgs 18,26; Rab-Shaqe knew "the Jewish language", v. 28 ff.). I have the impression that "Aram" and "Arammim" in 2 Kgs 8,28 ff. are simply terms for the peoples living to the northeast, as "Sidonim" is a term for the peoples living to the northwest (Deut 3,9 etc.). Damascus and Sidon, from an Israelite point of view, are the leading centers of opposition to Israel representing the worship of alien gods (2 Kgs 16,6).

In comparing the OT traditions with texts outside the OT mentioning the same area and peoples, we soon notice that early sources do not offer any certain references to "Aram" or the "Arameans" and their origins.[17] In the Annals of Tiglath-Pileser I (1115–1077 B.C.) the king praises himself for having beaten "Ahlamû(mat)armaia". The word-pair has been the object of intensive discussions as to how it should be understood.[18] The Arameans referred to in the Annals of Tiglath-Pileser I lived in the country of Amurru,[19] a term which covers the area of Syria. Their main area seems to be in the north and middle parts of Syria, but geographically Aleppo, Ḥamāh and Damascus were the natural centers for the rise of Aramean states. There is some congruence between "Amurru" and "Aram". According to Deut 3,9 "the Amorites" called Mount Hermon "Senir". The name "Senir" is mentioned in one of Shalmaneser III:s (858–824) inscriptions where it says King Hazael made Senir his fortress. Shalmaneser says in the same inscription,[20] "I besieged Hazael in Damascus. I marched as far as the mountains of Hauran destroying innumerable towns. At that time I received tribute of Tyre, Sidon and of Jehu, son of Omri." I quote these lines in order to show the Assyrian terms used for the same area and people which are suggested by the OT term "Aram". The Assyrian apprehension of the geography west of the Euphrates is further elucidated in one of Adad-Nirari III's (810–783) inscriptions.[21] The king captured in this order "from the banks of the Euphrates, the country of the Hittites, Amurru-country in its full extent, Tyre, Sidon, Israel (mat Humri), Edom, Palestine (Palastu), as far as the shore of the Great Sea of the Setting Sun." The Assyrian term "Amurru" seems more or less to be synonymous with the OT term "Aram".

The king of Damascus seems to be the strongest and richest of all his colleagues.[22] Tiglath-Pileser III (744–727) took from Rezon "592 towns ... of the 16 districts of the country of Damascus sa-Imeri-su...".[23] In subsequent inscriptions of Sennacherib (704–681) and Ashurbanipal (668–633) there are no further Assyrian terms which can elucidate the OT term "Aram". It is a pattern in the Assyrian texts just to use the names of the cities and their kings. This is also common in the OT, but in the Hebrew there seems very often to be a need to add "Aram".

If we look at the old Aramaic texts known thus far, there is very little historical information which connects with "Aram" of the OT traditions. The major corpus of inscriptions belong to the area of northern Syria. There are some common linguistic features which can now be dated to the ninth century B.C.[24] From a geographical point of view there is very little material here in common

14 See now Reinhold, *op. cit.*, 153ff.
15 J. R. Bartlett, *Edom and the Edomites*. JSOT Supp. 77 (1989) 127.
16 Cf. Num 23,5 and Num 22,5 as to whether Dayr 'Allā is the home site of Balaam. On the Dayr 'Allā Inscription see H. and M. Weippert, *ZDPV* 98 (1982) 77-103, and J. A. Hackett, *The Balaam Text from Deir 'Allā* (1984); cf. additional references in S. C. Layton, "Old Aramaic Inscriptions," *BA* 51 (1988) 183.
17 Reinhold, *op. cit.*, 23ff.
18 Reinhold, *ibid.*, 34ff. Armaia is regarded as a gentilicum Arameans.
19 *ANET*, 275; A. Haldar, *Who Were the Amorites?* (1971); Reinhold, *ibid.*, 41ff.
20 *ANET*, 280.
21 *ANET*, 281.
22 See H. Sader, *op. cit.*, 285ff. and W. T. Pitard, *Ancient Damascus: A Historical Study of the Syrian City-State from Earliest Times until Its Fall to the Assyrians in 732 B.C.E.* (1987). The history of the early period of the Iron Age until the Assyrian attacks in the 9th century B.C. is sketched out only in the OT. For the first time in the Omride period can we critically judge the OT traditions, and then the biblical story is mostly misleading.
23 *ANET*, 283a.
24 The Tall Fakhariyah Inscription throws some light on "loaded" terms in Gen 1,26; 2,8ff., viz., *slm, dmwt* and *'dn* ; see J.C. Greenfield, "A Touch of Eden" in *Hommages et Opera Minora IX. Orientalia J. Duchesne-Guillemin Emerito Oblata* (1984) 219-224 and A. R. Millard, "The Etymology of Eden," *VT* 34 (1984) 103-105; A. Abou-Assaf, P. Bordreuil and A. R. Millard, *La statue de Tell Fekheryé et son inscription bilingue assyro-araméenne* (1982).

with the OT. Disregarding names such as Hazrak (cf. Mic 9,1) and Ḥamāh (common in OT in the phrase lebo' hamath) only Damascus is once mentioned: in a phrase "from Damascus to Assur".[25] The Aramean kings never described the frontiers of their kingdoms. Especially in the Sefire texts do we learn to know the word *'rm*.[26] There we are told of a political treaty entered into by the king of Ktk and other kings from "all Aram" and "all Upper and Lower Aram". Both expressions suggest that although there were many small Aramean kingdoms or city states, there seemed to be among them some consciousness of affinity. How "Upper" and "Lower" Aram are to be understood is unclear. It is tempting to think in northern and southern categories.[27]

In the OT Rezin, the king of Damascus, was called "the king of Aram", and we also find this expression used by Bar-Hadad in his dedication to Melqart. We do not know where Bar-Hadad was king. Although this name—in the OT "ben Hadad"—is always connected with Damascus, the opinion by W. T. Pitard is that Bar-Hadad of the Melqart stele ruled the Aramean tribes in northern Syria.[28] From this part of the country nearly all the Aramaic inscriptions have come. From southern Syria there are no inscriptions at all, just a handle with the consonants *lmr'*[29] (site unknown) and a sherd announced from 'Ein Gev with the word *lšqy*.[30] Very few extensive excavations have been done in southern Syria, one season at Tall aṣ-Ṣāliḥiya in 1952[31] and two seasons at Tall Ashtara in 1966–67.[32]. The situation was the same in Jordan until excavations on several sites revealed remains from large and important settlements, also inscriptions, which, while they do not throw any light on the history of the Arameans show nevertheless Aramaic influence (Dayr 'Allā). In Num 23,5 we are told that Balaam was brought "from Aram", and when the texts found at Dayr 'Allā described Balaam as a domiciled prophet in this place it was tempting to see a relationship between the OT and information in these texts. "Aram" in the OT is then a very vague term and could be a synonymous with "the mountains in the east" (v. 5). The inscriptions found at Tall al-Mazār just north of Dayr 'Allā are late and throw no light on the Arameans, though the language is judged Aramaic (and Ammonite).[33]

The East Jordan Valley Survey, 1975, included 106 sites between the River Yarmūk and Wādī Rājib, which is about six kms north of Wādī az-Zarqā' (the Jabbok).[34] Of these only six sites show remains from the Late Bronze Age, and it has not been possible to determine if the sites were fortified during this period. There was a clear decline of settlements from the Middle Bronze Age II (14 sites). In the Iron Age 19 sites represent Iron IB and nearly the same number of sites show continued settlement in Iron II. The Ghawr was inhabited all during this period. Most settlements were very prosperous. The area just north of Wādī az-Zarqā' seems to have been somewhat of a crossroads. The main roads passing the Jezreel Valley reached the Ghawr between Wādī az-Zarqā' and the Yarmūk, and here as in the valleys running up into the Gilead mountains are many large sites which were certainly important road stations and commercial centers. In the area between Wādī al-Yābis and the Wādī az-Zarqā', 14 LB-sites are reported, and some are settled also in the Iron I–II. But the Iron Age sites seem mostly to be spread along Wādī az-Zarqā'.[35] Their number was doubled (25) in the Iron II. The results of these important surveys are not yet published in detail but recently there have been extensive excavations on Tall Dayr 'Allā,[36] Tall al-Mazār[37] and Tall as-Sa'īdiya.[38] On the last-named site J. N. Tubb reports at least eight Iron Age strata between 1100–800 B.C. Tall as-Sa'īdiya showed in the Iron I–II well developed city planning with streets and houses of "Three Rooms-type". A water stairway belonged to Stratum XII. It is impossible to tell what people lived in the Ghawr at this time, but there are cultural relations with the Cisjordan and Stratum XII is said to represent "a significant pre-Philistine Sea Peoples element." The pottery repertoire anticipates Iron II especially with regard to the cooking pots, and still others reflect the final traditions of the Late Bronze Age. Contemporary with the graves on Tall as-Sa'īdiya at-Taḥta, Stratum XII falls into the Late Bronze-Iron I transition of the 13th–12th centuries B.C.

The survey in the Maqārin area just south and on the slopes of the Yarmūk included 31 sites.[39] Of these only "Site 6", situated between the Yarmūk and Nahr al-Harir,

---

25 *KAI* Nr. 215, 18.
26 *KAI*, Bd 3, 60.
27 Cf. *KAI*, 244f.
28 Pitard, *op. cit.*, ch 5.
29 See M. Heltzer, "An Old-Aramean Seal-Impression and Some Problems of the History of the Kingdom of Damascus" in *Arameans, Aramaic and the Aramaic Literary Tradition.* Ed. M. Sokoloff. (1983) 9-13. Cf. G. Reinhold, *op. cit.*, 194ff.
30 B. Mazar *et al.*, "'Ein Gev Excavations in 1961," *IEJ* 14 (1964) 27ff.; cf. G. Ahlström, *Tel Aviv* 12 (1985) 93-95.
31 H. H. von der Osten, *Svenska Syrienexpeditionen 1952-1953: Die Grabung von Tell Eṣ-Ṣaliḥiyeh*, I Skrifter utgivna av Svenska Institutet i Athen, 4°, IV. (1956).
32 A. Abou Assaf, Tell-Aschtara in Südsyrien: Erste Kampagne 1966 and Tell-Aschtara 2. Kampagne 1967. *Annales Archeologiques Arabes Syriennes,* Tome 18, 103-122 and *Annales Archeologiques de Syrie,* Tome 19 (1969) 101-108.
33 K. Yassine, *Archaeology of Jordan: Essays and Reports* (1988), 137-142.
34 M. Ibrahim, J. A. Sauer, K. Yassine, *BASOR* 222 (1976) 41-66.
35 *ADAJ* 22 (1977-1978) 126ff.
36 H. J. Franken, *Excavations at Tell Deir 'Allā* I (1969); continued by M. Ibrahim.
37 See note 33.
38 J. B. Pritchard, *Tell es-Sa'idiyeh: Excavations on the Tell, 1964-1966* (1985); J. N. Tubb, "Tell es-Sa'idiyeh: Preliminary Report on the First Three Seasons of Renewed Excavations," *Levant* 20 (1988) 23-88.
39 *ADAJ* 22 (1977-78) 114f., 119-126.

showed Iron Age pottery, predominately Iron IB. "The site" seems thereafter to have been un-occupied until Hellenistic and Early Roman times. This pattern is very interesting. Nelson Glueck reported also Iron Age sherds from Tall Qurs, No. 28, but we are told nothing more. Al-Baidar, No. 19, was littered with pottery of the Late Bronze Age and visible on the surface was a circular wall built with large boulders and basalt blocks. This survey gives the impression that the southern slopes of the Yarmūk and its side valleys were very sparsely inhabited in the Iron Age. Especially in the Iron II when the Arameans reached their political peak, this area did not interest many settlers. The land usable for settlements and cultivation is to be found north of the Yarmūk. I would thus suggest that the Yarmūk more or less served as a magnificient Aramean "moat of defense" to the south.

In the Wādī al-'Arab area just three sites are reported. None show Iron Age material.[40]

If we want to get an idea of the Iron Age settlements in the northern part of Jordan we have to refer to the extensive and detailed survey by S. Mittmann.[41] He has made a very useful division of the area he surveyed using the points of the compass. For his area "der Norden" he used the asphalt road between ash-Shūna - Irbid and Tall ar-Rumayth as the southern border, delimited further by the Jordan to the west and the Yarmūk-Syrian border to the north and east. In this area he reported 88 sites; of these nine show LBII-pottery, 22 Iron I and 22 Iron II sherds. Naturally several periods are represented at the different sites, but when following the Iron Age periods of this area, I want some geographical subdivisions in order to find out whether there are any chronological differences between the settlements along the valleys of Wādī al-'Arab, Wādī ash-Shallāla and the concentration of sites in the area north of Irbid along the asphalt road between Irbid and Umm Qays. Along Wādī al-'Arab there are around 30 sites surveyed and of these four are said to show a multitude of Iron Age pottery. Most of the sherds are of early Iron type belonging to the 12th century B.C. Sites No. 70, Sawm, and 81, Khirbat Umm al-Ghuzlān, have all had a long Iron Age settlement running to the seventh and sixth centuries B.C. Sawm is just northwest of Irbid and Umm al-Ghuzlān further to the northwest, next to Kufr Asad. These circumstances, with only two sites of certain Iron IIB Age, will be of interest below when we attempt to draw some historical conclusions.

North of Irbid are at least seven sites judged to contain Iron I–II remains from the 12th to the ninth centuries. Site No. 64 is littered with pottery from Iron I, and although the ninth century is mentioned we get the impression that sherds are all of early Iron type.

Irbid itself, which lies in northern Jordan, must have been a center in ancient times. Salvage digs done by C. J. Lenzen *et al.* show major gaps in the stratigraphic profile.[42] But the period around 1200 B.C. was one of the high points of occupation. Lenzen counts three phases: I ca. 1150–800 B.C.; II ca. 1300–1150; and III ca. 3200. The city wall was built in Phase II; how then the transition between Late Bronze and Iron Age took form it is not possible to describe. If the date "ca. 800 B.C." is correct, Irbid could have been a main center for an Aramean civilization in the Iron IIA–B. Still it is interesting to note that the Late Bronze II was such a prosperous time in this area. In the absence of evidence, however, we can not say much about the early Iron Age.

The Wādī ash-Shallāla, running north-south from the Yarmūk for at least 40kms in length must have been an important link for cultural communication with peoples in southern Syria. Let us suggest that they were Arameans. Mittmann's survey of the sites representing the Iron Age in this meandering valley gives this impression, so also the areas west of Wādī ash-Shallāla. Pottery of the earlier periods of the Iron Age preponderates, although sites No. 1, 8, 10, 12 and 33 especially are said to represent later phases of the Iron II.

A very interesting area of Mittmann's survey is "der Westen". Here 151 sites were surveyed south of the road Irbid-Umm Qays down to Wādī Rājib on the western range of 'Ajlūn. Four sites showLBII sherds, 40 sites Iron I, and 23 sites Iron II. This area is situated just north of Wādī az-Zarqā', which is the main nerve in the historical evolution of central Transjordan. In the beginning of the Iron Age this valley and the area around it were densely settled, but the number of settlements in Iron II was reduced nearly 50 per cent.

Mittmann's area "der Süden" lies east of Gerasa and goes west as far as to the middle part of Wādī az-Zarqā'. Seventy sites are counted, namely those not visited by Nelson Glueck. It is difficult to get any reliable statistical material from here as I do not know how many sites there really are in the area. But of the 70 sites one shows LBII sherds, ten represent Iron I, and six Iron II. This area belongs to the central part of Transjordan and it was certainly during most of the Iron Age governed by the Ammonites.[43] It is not likely that the Arameans laid any political claims to it. The pressure may have come from the west.

The area "der Osten" would be central in a discussion

40 *ADAJ* 22, 129f.
41 S. Mittmann, *op. cit.*
42 C. J. Lenzen *et al.*, *ADAJ* 29 (1985) 151-159; idem, *LA* 36 (1986) 361-363; *idem, BN* 42 (1988) 27-35; D. Homès-Fredericq and J. B. Hennessy (eds.), *Archaeology of Jordan II 1.* Field Reports. Surveys & Sites A-K (1989) 298ff.
43 In Gerasa F. Braemer made two campaigns and found remains of settlements from LBII-Iron II. The site seems to have been deserted after the seventh century B.C. until the second century B.C. Fragments of collar rim jars are reported in *ADAJ* 31 (1987) 525-530.

on the "Jordanian Arameans". It covers the mountains north of the Midwar-Mafraq road and the plains next to Irbid. Here Mittmann counted 25 sites. One represents LBII, and another one Iron II, but two sites show remains from Iron I. The number of sites counting Late Iron Age pottery is very low. And sketching Mittmann's survey results over the entire area north of the line ash-Shūna - Irbid – Tall ar-Rumayth we get the impression that the Iron Age II is not abundantly represented. It is very difficult--not to say dangerous--to write history using survey results only. But all the areas surveyed in northern Jordan give obvious hints about the time when they were densely settled, which is the early Iron Age. It is a time when written sources so far are missing and the moves of people are not known. The survey results anyway tell us that there was a stationary tendency in the social structure, people settled upon or in the ruins of the LB II-cities. Here seems to be a consensus among the scholars. The transition period is well known on nearly all sites in both Trans- and Cisjordan, also further to the north in Syria.

But how to interpret the term "Iron II" used by Mittmann? It seems to cover a long period of nearly 500 years. He is completely right to offer such a general picture of the settlements in the late part of the Iron Age and leave it to the excavations to give the detailed stratigraphy of a site. According to Mittmann's "Preface" the late Dr. Paul Lapp co-operated with him in reading the pottery. We have to assume that he at the time knew the Transjordanian Iron Age pottery from his excavations at Tall ar-Rumayth.[44] Mittmann's survey was done more than 20 years ago, and after Nelson Glueck he has to be regarded as one of the pioneers among the surveyers of Jordan. In a survey without stratigraphical proofs it is impossible to tell if Iron II pottery is early or late. The forms do not change that much and the red burnished slip is common over the whole period. It seems to be a scholar's "Fingerspitzengefühl" which sometimes turns the scales. In our quest for the Arameans I would suggest that the Iron Age II period is the main era of their hegemony—according to both the Old Testament and Old Aramaic inscriptions. Therefore precision in the pottery of the Iron II together with stratigraphy on several sites is highly needed. I will pick up on this discussion below in a short report of the excavations at Tall al-Fukhār.

It is not easy to delimit a "Land of the Arameans" in northern Jordan and southern Syria. Again the Old Testament speaks geographically in very vague terms, and only some city names without any definite borders can be combined with "Aram". The ethnic term "the Arameans" appears in plural form only as the enemy defeating the North-Israelite king Joram at Ramah. The singular is used for the Patriarchs and once for Naaman of Damascus, also interestingly for the mother of Macir, father of Gilead. She was an Aramean. The geographical terms Bashan and Gilead are otherwise never mentioned together with the Arameans, only together with the Amorites. The Amorites are regarded as the earlier population of the area. One of their two kings is Og who governs over Bashan from three main cities: Ashtaroth, Edrei and Salcah. These cities can be localized with rather fine precision. This area is more or less identical with the term *ša-Imeri-šu*; it is (the land of) Damascus.[45]

Because of the modern political situation it has not been possibile for archaeologists in the last twenty years to do any fieldwork in the area west of the main road between Dar'a and Damascus. We have to rely therefore on older investigations, especially on results of the excavations at Tall Ashtara.[46] Some survey has been done by the Syrians, but mostly by F. Braemer[47] in an area east of Buṣra. It seems as if the historical remains are scantier the further we go east of Ḥawrān. And remains from the Iron Age are either few or not to be found. We know that the Assyrians divided the southern part of Syria into two districts in 723 B.C.: Haurina to the east and Qarnaim [48] to the west. The most outstanding site in Haurina is Tall Dabba situated about 15kms north of Suwayda. Still visible are strong and well-preserved walls of defence, and according to the layout of the site a city seems to have been built in the Middle Bronze Age and then reused in Hellenistic and Roman times. But no Iron Age pottery is reported. It is very tempting to accept Abou-Assaf's suggestion that Dabba hides the name Du-bu in Amarna letter No. 205.[49] In this connection it can be mentioned that Qanawāt, 10kms southeast of Tall Dabba, is traditionally identified with Kenath (Num 32,42). Braemer reports some circular structures without dating them.[50] Such type of architecture is always spectacular but hard to judge. These will be commented upon below together with similar structures found in Golan and in Jordan.

The western part of southern Syria has naturally been very central in the history of the Near East, and here we also find remains from both the Bronze Age and the Iron Age. The continuation of "the Kings' Highway" running up to Damascus passed through this area. Here are some

[44] See D. Homès-Fredericq and J.B. Hennessy, *Archaeology of Jordan II 2* (1989) 494-497. P. Lapp made his first excavation on Tall ar-Rumayth in 1962.

[45] For the meaning of the word—possibly it has something to do with the breeding of donkeys—see H. Sader, *op. cit.*, 279ff. The term is mentioned for the first time in the Annals of Salmaneser III. How large an area the term sa-Imeri-su covered it is difficult to say. Sader suggests up to Hums in the north and down to Ḥawrān in the south.

[46] See note 32.

[47] F. Braemer, "Prospections Archeologiques dans le Ḥawrān (Syrie)," *Syria* 61 (1984) 219-250.

[48] The city of Qarnaim is suggested to be Shaykh-Sa'ad north of Tall Ashtara.

[49] A. Abou Assaf, *Baghdader Mitteilungen* 7 (1974) 17.

[50] *Syria* 61, 228ff.

important sites which unfortunately have not been the object of extensive fieldwork. Egyptian texts from the Bronze Age mention several places in this area and some ancient names are still preserved in Buṣra (ancient Busruna),[51] Ṭayyiba (ancient Tubja), Dar'a (ancient Edrei), Tall Ashtara (ancient Ashtaroth), and Shaykh Sa'd north of Tall Ashtara which is identified with Qarnaim.

The most extensive excavations have been carried out on Tall Ashtara by A. Abou-Assaf in 1966–67, and these really looked promising. But the war in 1967 stopped further fieldwork and the possibilities nowadays for survey are limited or impossible. Two short seasons naturally could not offer much material. Recalling also that this work was done more than twenty years ago without any excavated sites nearby to compare with, we cannot draw very profound conclusions. The material anyway shows that there was a settlement on Tall Ashtara during the Iron II, dated through the red polished ware. Abou-Assaf calls this pottery "aramäische Keramik",[52] and since in recent years he has directed fieldwork at 'Ayn Dar'a north of Aleppo—definitely an Aramean/Neo-Hittite site—he is inclined to maintain that both sites show generally the same type of pottery.

One area mentioned in the Old Testament in relation to the appearance of the Arameans is the eastern shore of the Sea of Galilee and the southern Golan. Some trial soundings were taken up at 'Ein Gev by B. Mazar *et al.* in 1961,[53] and in 1967 Israeli scholars made a survey of 209 sites over a vast area.[54] Around ten sites mostly situated along the road between Fīq and Rafīd show remains from the Iron Age. This pattern fits well with the texts of the OT telling us that the Arameans and the Israelites fought several battles along this road (1 Kgs 20,26 ff. and 2 Kgs 13,17 ff). There is one common denominator for all the areas so far mentioned: Investigations began there in the sixties—B. Mazar at 'Ein Gev, A. Abou-Assaf at Tall Ashtara, P. Lapp at Tall ar-Rumayth, followed by the extensive surveys of northern Jordan in 1963–66 and southern Golan in 1967-68.

At that time there was a tendency to read OT history into the results. The terminology used indicates this fact. 'Ein Gev Stratum V, founded on virgin soil, is said to belong to David's time and the first half of Solomon's reign, and Stratum III to an Aramean settlement dated to 886–841. In the next 100 years the settlement was thought to have been re-conquered by the Israelites until it came to an end in connection with Tiglath-Pileser III's campaigns against Israel. The earliest Stratum had a city wall some 1.85m wide built of medium-sized field-stones filling in between. There were no Late Bronze remains or any signs of a transition period. The pottery was compared mostly with finds from Megiddo, Hazor and Samaria. The cooking pots had no handles and were of the shallow carinated type with concave rim. There is no explanation why Stratum V is dated to David's time. An earlier date is therefore not out of question. It can at least be suggested that the southern Golan was in the same cultural sphere as south Syria. At Tall Ashtara the same type of cooking pot appears as at 'Ein Gev. Stratum III is said to represent an Aramean settlement. There is a new layout of the site. In this period it is impossible to say if the settlers of a site were Israelites or Arameans. They used the same type of pottery (cf. Tall Ashtara) and certainly maintained the same cultural traditions. An inscription on a storage jar consisting of one horizontal line, inscribed before the jar was fired, reads *lšqy*, "belonging to the cupbearers". It is Aramaic and paleographically dated to about 850 B.C. We may thus suggest that the language spoken in this area at this time was Aramaic. That could have been the case for centuries.

Ten years ago M. Kochavi presented "The Land of Geshur Project"[55] and so far reported trials and excavations at four sites, three of them very interesting for our quest of the Arameans. Stratum V at 'Ein Gev was founded on a site without any settlement traditions into the Bronze Age, but at Tell Soreg, situated about 5kms east of 'Ein Gev, people settled in the Intermediate Bronze Age and continued there without interruption until the Hellenistic period. In both the transition periods the pottery shows resemblances with types found in Jordan and the Jordan Valley. Finds of collared rim jar fragments date the beginning of the Iron Age at the site to about 1100 B.C. There are no Iron Age fortifications before Iron IIB, and although they are described in just a preliminary report the layout of the site seems to be the same as in other places from this time. This means that the settlement is assembled inside a rectangular citadel or fortress. Only sections are uncovered so far.

Extremely interesting is the report from Tall Ḥadar. This site was settled also in the Bronze Age, but the preliminary report devotes all of its interest to two strata of the Iron Age. Stratum II is dated to the end of the eleventh century B.C. Remains of a major building were uncovered, and according to the finds it had been used as a storage house for agricultural products. This building was surrounded by concentric double walls.[56] The distance be-

51 M. Kadour and H. Seeden, *Damaszener Mitteilungen* 1 (1983) 77-94. No Iron Age remains are reported so far.
52 *Tell Aschtara* (1967) 105f.
53 See note 30.
54 *Judaea, Samaria, and the Golan: Archaeological Survey 1967-1968* (1972) 244-298.
55 See note 7.
56 This pattern of double walls for defence is reported from several sites in Syria. One wall ran around the city and the inner wall around the acropolis. H. Sader (*op. cit.*, 287) says Sendjirli and probably also Tall Ashtara had a similar system of defence.

tween them seems to be about 20m. In Stratum I, dated to the eighth century B.C., the outer wall was used as the only wall of defence. Tall Ḥadar is situated on the shore of the Sea of Galilee, 7kms north of 'Ein Gev. It seems to have been an administrative center in the area. The concentric double walls are an original pattern of defence, so we have to be aware of an early date. They could be typical for the Arameans. In the beginning of the Iron Age settlements often had an elliptic layout, simply to avoid building towers in the outer walls.[57] So perhaps it was most practical to defend Tall Ḥadar with walls that followed the terrain. The hill is circular. Without knowing any date—as no excavations have been done on the site—al-Baidar situated south of the Yarmūk across from the Zayzūn station shows a similar structure. A circular wall, approximately 45m in diameter surrounds the hill. On the east side is a gateway of dressed basalt blocks. According to the survey report the pottery belongs predominantly to the Late Bronze Age.[58] The area is somewhat isolated. Looking at the picture of the site there is room for another circular wall at the foot of the hill, but the report does not mention anything about that. In the transition period between the LBII and Iron I, we have to expect original layouts of the sites. Isolated as Tall Ḥadar and al-Baidar and built up in the same way are some sites in Ḥawrān. Khirbat aṭ-Ṭwāl has two concentric walls, the outer one 24m in diameter. The distance between the walls is about 5m. It is impossible to say anything for certain about the date except "certains fragments font penser à des formes de l'age du Bronze". There are other circular structures such as 'Ayn al-Jadīda, diameter 25m, Kafr Lawfa, diameter 18m. etc. Some of these structures may have been built for the storage of grain; at the same time they were built strongly enough so they might be a defence for the grain supply.[59]

It is tempting to mention the sites of Khanāṣirī and Aydūn[60] in this connection. Less than 20kms west of al-Mafraq, Khanāṣirī holds a strategic position of the first order and is well fortified by a circular structure with a diameter of 65m. A moat 10m wide and still 6m deep surrounded the place. Date is unknown but pottery of the Early Iron Age has been found on the surface. Aydūn, situated about 3kms from al-Mafraq and al-Fidayn, has a circular construction of 90m diameter. The inner space is divided by radiating walls and vast cisterns have been cut into the rock on which the walls rest. The area around these two sites is very fertile and these sites too seem to have been built as easily defensible centers for the storage of grain.[61]

Tall al-Fukhār

A Scandinavian project on the Arameans was initiated by Professor Magnus Ottosson, University of Uppsala, who, together with Professor Svend Holm-Nielsen, University of Copenhagen, in 1989 drew up a plan to begin excavations in Syria. Due to practical circumstances, however, the project was moved to Jordan, and after discussions with Professor Dr. Moawiyah Ibrahim of Yarmouk University, Irbid, and Professor Dr. Siegfried Mittmann of Eberhard-Karls-Universität, Tübingen we were advised to open field-work on Tall al-Fukhār which was included in Dr. Mittmann's survey of northern Jordan in 1963–66. Excavation began on May 6, 1990, and the team included Professor Dr. John Strange, University of Copenhagen, and Professor Dr. Hans Barstad, University of Oslo. We were fortunate that Dr. Patrick McGovern, University of Pennsylvania, Philadelphia, could join as pottery expert along with Mr. Flemming Andersen, University of Copenhagen, as typologist. The main intention of our work was to throw light on living conditions in northern Jordan during the Iron Age, especially in the Iron II, a period when according to the traditions in the Old Testament we could expect to find eventual proofs of an Aramean culture.

The excavations of Tall al-Fukhār went on for four seasons in 1990-1993. In the last two seasons Professor John Strange was the director of the excavations, financially supported by the University of Copenhagen. A final report is forthcoming.

Tall al-Fukhār may not have been the most central town or village in the area, but situated as it was about 6kms west of ar-Ramthā on the route to Irbid, remains there could tell us when the area was settled and how people made a living. The site is found at a sharp bend of the Wādī ash-Shallāla. It could easily be defended on the southern, western and northern sides which create natural glacis, and a gate system to the northeast would make the place fairly safe. There was certainly also a moat. On the north side there are remains of a solid wall dated to the LBIIB. The western slope is heavily eroded and bedrock is visible. On the southern very steep slope are cisterns cut into the bedrock, possibly for water although there are excellent water supplies in the valley to the southeast. Here tunnels—the length of which is as yet not known—have been cut into the hill next to the neighbouring site, Tall Umm Jurayn, about 250m southeast of Tall al-Fukhār.

[57] For a comparison see E. Olávarri, "La campagne de fouilles 1982 à Khirbet Medeinet al-Mu'arradjeh près de Smakieh (Kerak)," *ADAJ* 27 (1983) 165-178.

[58] *ADAJ* 22 (1977-1978) 122f.

[59] F. Braemer, *Syria* 61, 228ff.

[60] See Homès-Fredericq and Hennessy, *op. cit.*, 347f. (Khanāṣirī) and 125f. (Aydūn).

[61] Silos have a long tradition of being circular; see the very impressive system of nine circular structures with diameters between 7-9m in a building covering an area of 1200m^2 built of basalt at Kh. Karak, west of the Sea of Galilee. This building has most probably been a terminal for grain or a public granary, *IEJ* 2 (1952), 89-103. The same type of structures have been found in the Greek islands and in Egypt.

About 2kms north of the site is a concentration of ancient settlements with Khirbet ar-Rāḥūb as the center. Wādī ash-Shallāla has offered possibilities for people to settle from oldest times. Large fields in the area are convenient for cultivation. We can thus suggest that people living here have been agrarians. According to Professor Mittmann's survey we could expect to find remains from both the Bronze Age and the Iron Age.

We started excavating in three areas, two on the top of the site, and a third trench was made on the northeast side. On top of the site the main structure, a villa, belongs to the Hellenistic period which can also be confirmed by the find of a coin dated to 240 B.C. Well-dug, stone-dressed and deep circular pits belong to the pattern of the Iron IIC period when the site was a threshing area.

On the northeast side of the site was a hill-like section which could easily be noted on the surface. Since we suspected that the east side, Area B, must have been the entrance way, we started to excavate there. After only two days we reached stone pavements along with robbed or broken stone walls laid directly on the ground. The humus level was sometimes very thin and naturally contained mixed pottery. The stone pavements next to the surface could be dated through a lamp found *in situ* on the floor and ovens made of two storage jars, one put inside the other, to the Iron IA-B period. The ovens had never been used. A beautifully dressed grinding stone or weight gave a complete picture of one floor section, dated by the lamp to about 1050 B.C. Stone pavements showed up, one above the other, laid in heavy clay material. The earliest ones are dated to the Transitional period, LBIIB-Iron IA. They were built up of material from the looted LBIIB town[62] and the builders used mostly the same floor level. The very hard clay was typical for all layers on the site. During rainy seasons the settlers must have had enormous problems living in this clay, and we could easily understand that preparing the ground with stone pavements was the only reasonable way to exist. All the stone pavements next to the surface in Area B could be dated to Iron IA-B. Half a meter below them there were the pavements laid in the Transitional period when the LBIIB walls had been looted and levelled out. A scarab of late Hyksos type, dated to around 1500 B.C, was found on stone pavement 8.[63] Some EBII–III sherds appeared. It seems as if the site was deserted for some time between the pavements. Heavy layers of reddish-burnt material had washed down the slope. A 150cm wide wall builtof large boulders with cobble chinking running east-west was excavated to a length of around 15m. In one section it was combined with a casemate which formed a corner joining a southern wall to a strong defence system of the LBIIB period. The joint wall running south was robbed down to the level of a stone pavement of the LBIIB-Iron IA period. Then the area looked like a camp site. The stones in the pavements were taken from previous structures, and parts of circular columns were "reused" to carry an eventual "roof". No remains of roof material were found. Fragments of pottery and tools of stone showed the repertoire of agrarian settlers. They had used cooking pots, storage jars of collared rim jar type, and bowls along with grinding stones, stone bowls, mortars, spinning whorls and loom weights. Most of the stone pavements from the different periods showed irregular lines.

As the name of the site is Tall al-Fukhār, "the hill of pottery", we expected to find remains of kilns and potters' work shops. Indeed there was very little pottery.

Tall al-Fukhār may not be a site where the remains can tell us all the history of the area east of Irbid and next to ar-Ramthā. There had been a beautifully built town in the LBIIB period, the Amarna time, but completely robbed and converterd to a campsite in the following period. There was a small four-chambered gate with a narrow entrance way 110cm wide which had served the settlers of the Transitional period. In the Iron IA-B period the town followed in its layout the pattern of the LBIIB town with a city wall, 90cm wide, thus continuing the living traditions of the Bronze Age. In the periods Iron IIA–B nobody settled the site.

It is in these periods, however, that the Arameans should have governed the area according to the Old Testament. In the pottery repertoar on Tall al-Fukhār there was nothing indicating an Aramean presence. The red polished ware typical for the Arameans and the period (cf. Tell Ashtara) was totally missing. Instead there were sherds of western and south-western import. Only one body sherd covered by incised lines forming squares, possibly a game board, could be compared with a similar object in an Aramean context found at Ḥamāh (cf. B. Otzen, The Aramaic Inscriptions in P. J. Riis and M.-L. Buhl, *Hama. Fouilles et recherches de la Fondation Carlsberg 1931-1938, II 2. Les objets de la période dite Syro-Hittite (Age du Fer)*, 316. Köbenhavn 1990).

Since the excavations already in the first week were so negative regarding the Aramean period, we made a very thorough but limited survey on the west side of the site in order to find out if the result of the excavations thus far was locally limited, but all the Iron II sherds found there were judged as late from Iron IIC/Persian period, about 650–350 B.C. It can be said that there is relatively little change in pottery styles during the Iron II period, and the amount of pottery found in a limited survey cannot give exact information. Although it can also be said that the ex-

62 See J. Strange, Tall al-Fukhār 1990-1991: A Preliminary Report, *SHAJ VI*, 399-406. 1997.

63 M. Ottosson, *Syria*. Chronique Archéologique Jordanie 70 (1993), 214-217.

cavations done thus far are very limited, nevertheless both stratigraphy and pottery ware types show no traces of Iron IIA–B. Excavation in other areas may reveal missing periods but I doubt it. A definite result, however, of the limited survey was the very great number of LBII sherds in comparison with the number of Iron Age specimens.

Since the survey results from about 32 sites —including Tall al-Fukhār—in northern Jordan are reported to show sherds from the periods Iron IIA–B, the excavators of Tall al-Fukhār are at this moment a bit confused. Our intentions were simply to reveal these periods as we thought they might be representative for an Aramean culture. But so far remains of the Iron IIA–B are totally missing. After four seasons we need to stress that our results are still preliminary, but there is no chance to find a settlement of the Iron IIA–B on the top of the *tall*. The strong erosion could naturally be an explanation. Further attention to this problem. will be given in the future. Now we should be aware that the surveys of northern Jordan and the excavations at tell er-Rumeith are nearly 25 years behind us. And we have not had any opportunity to compare the pottery of the surveys with our own from Tall al-Fukhār. A complete "gap" of 500 years' settlement in such a fertile area during the Iron Age must be regarded as very strange.

The main impression is that Tall al-Fukhār in th Late Bronze, LBIIB-Iron IA, Iron IA-B, Iron IIC/Persian and Hellenistic periods was an agrarian center. To judge from the small finds in the Transitional period the settlers had been breeeders of sheep. Three teeth of a camel (domesticated?) were found next to an oven.

The heavy wall at Tall al-Fukhār can clearly be dated to the LBIIB and it was not used for defence in the Transitional period. A small section of it was used as support for a "citadel" and a glacis in the Iron IA-B. Possibly we can compare it with structures excavated at a couple of sites to the east in order to get an approximate idea. I am thinking of Tall ar-Rumayth and al-Fidayn. At the latter site Professor J.-B. Humbert reports a cyclopean fortress of large dimensions, about 70x45m dated to the Iron Age (11th–10th century?).[64] The stratigraphy thus far is preliminary, but Professor Humbert thinks that the region around al-Fidayn attracted the interest of the Arameans when they episodically penetrated into northern Jordan in the beginning of the Iron Age. Even if such a reconstruction of the history cannot yet be definitely proved, the existence of a fortress from the early Iron Age gives substance to the theory that during this time the area had a role of some importance. It is not so unusual that fortresses were built in fertile areas in the Iron Age; they were in fact built to house garrisons, provide safety for the people, and for the storage of necessaries.

The layout of an Iron Age site the same as al-Fidayn is found at Tall ar-Rumayth, situated some 10kms south of ar-Ramthā and 25kms northwest of al-Fidayn. This places the site in a suggested "Aramean" area. Here a fortress measuring 37x32m was constructed in Stratum VIII, considered to be Solomonic.[65] The next layer, Stratum VII "is attributed to the Arameans as the ceramic evidence indicates". Conflicts between the Israelites and the Arameans as reported in the Old Testament are then read into the result of the excavations: "Pottery of the Syrian tradition dates to the middle of the 9th century. B. C." A mudbrick fortress was strengthened by a stone fortress in the middle of the 9th century B.C. The destruction of the site is credited to Israelite kings, but Stratum VI is attributed to Aramean control. According to the excavator ar-Rumayth is the site where the Arameans are to be found. I have not succeeded in finding out what is meant by "pottery of Syrian tradition" since very little archaeological work was done in southern Syria until Abou-Assaf started his excavations at Tall Ashtara. According to the discussion held at the symposium on Jordanian archaeology in 1984, Professor M. Ibrahim expressed a similar sentiment. The bulk of the Iron I pottery at Saḥāb, southeast of Amman, showed connections with Palestine and northern Syria.[66] Such a statement gives the impression that a settlement in northern Jordan ought not be called "Aramean" until we find material which can be said to be typical for the Aramean culture, that is, inscriptions and maybe a special layout of structures surrounded by elliptic walls. But elliptic walls mostly surround a limited area scarcely fit for a settlement of town type, therefore the most natural explanation for them is that they were used as storage houses for grain. This cannot be typical just for Arameans but for any agrarian people. Silos are by tradition circular already in the Early Bronze period.[67] The finds made thus far do not give us any special ethnic hint, but if any guess in an ethnic direction is to be made, it is the Ammonite culture which has leavened the northern part of Jordan. But since the Kings' Highway passed through the area foreign influences could be expected, and "cultural pressure" from the north is not out of question; it is in fact rather likely. North of the Yarmūk is naturally Damascus, the main Aramean center, and we can imagine that to the south it was important to keep strongholds in order to prevent enemies from this direction to entry into the Aramean area. From the OT we are informed that the Arameans now and then widened their political hegemony by attacks in southern Golan and along the Kings' Highway in northern Jordan, and naturally they tried to go as far south as

64 J.-B. Humbert, "(El)Fedein" in Homès-Fredericq and Hennessy II 1, 221-224.

65 See picture of a section of the fortress in Homès-Fredericq and Hennessy II 2, 495.

66 Report in *Syria* 64 (1987) 335.

67 See note 61.

possible. But such forward moves were certainly very sporadical as the east side of the Jordan was governed by the Ammonites, Moabites and Edomites. Only infiltrating Israelites tried to prevent the Arameans from advancing south of the Yarmūk.

Leaving the OT outside the archaeological discussions we get the impression from the recent excavations in northern Jordan that the transition periods between Late Bronze II and Iron I and early Iron Age seem to show the most substantial remains. This is the case at Tall as-Sa'īdiya in the Jordan Valley, Tall al-Fukhār and maybe al-Fidayn. Modern archaeological research has paid great attention to these periods in order to get some idea about human history during this time in the Near East. In many ways this is when the formative period of subsequent history began. The old system of city states suffered for many reasons: the climate of the area changed, rain failed,[68] and the economy weakened as the Egyptian influence on Cis- and Transjordan waned. The situation was such for about 300 years. As dry farming was the traditional way of cultivation we may expect that people would gather in places where there was moisture. People living on the fringes of the deserts with herds of cattle and sheep would suffer as the farmers could not produce enough bread for them; they therefore had to leave their anonymity "in the deserts" and organize themselves together with farmers of the Canaanite city states to become Habiru. Possibly some of them settled in the mountains and were strong enough to conquer the towns. We can expect that the area of northern Jordan with its valleys running into the River Jordan and into the Yarmūk would be convenient for starting a "new" sedentary life of agriculture. The pattern is nearly the same over all the Near East. It was not a peaceful time, and if we are engaged in a quest for the early history of the Arameans we should certainly start in the Transitional period LBII–Iron I. The "Ahlamu Arameans" appear in the inscriptions of Tiglath-Pileser I (1115–1077) as living in villages on the upper and middle Euphrates and in Syria. From here they made raids into the Assyrian area and often became lords of the caravan routes.[69] We do not know how far south the Ahlamu reached in the early beginnings of the Iron Age, but since some of them are described as Shasu[70] there could be early connections with the South and especially with southern Syria where they founded kingdoms. In their early history the Arameans appeared as raiders,[71] but in the second half of the Iron Age their economy was based on animal husbandry and agriculture. Each Aramean tribe, land, or city was governed by a Nasiku , *a shaykh.*[72] The Arameans themselves used the word *mlk*, "king", and possibly *mr'*, "lord" or "king". But although the Assyrians mostly called them "raiders", the Arameans lived in villages and certainly got their income being peaceful farmers. If we imagine that Aramean groups both invaded and settled in the area south of the Yarmūk in the LBII-Iron I period, the remains on the stone pavements of Tall al-Fukhār indicate that they were rather poor agrarians and must have been shepherds rather than raiders.

Maybe the finds at Tall al-Fukhār are too early to represent a genuine Aramean culture, and perhaps also too late—when, according to OT traditions and the Assyrian and Aramaic texts there was hectic political activity in Syria and Palestine. During the Iron IIA–B Tall al-Fukhār seems to have been unsettled (cf. Fidayn). My proposal is that the Arameans lived mostly north of the Yarmūk in these periods and used the deep wadi to the south as a "moat of defence". According to the OT nearly all the battles between the Arameans and the Israelites were fought in the area south of the Yarmūk. This must mean that the Arameans made sporadic attacks south of the Yarmūk and then withdrew to their safe homeland.[73] Lacking Aramaic inscriptions and other finds said to be typical of an Aramean culture south of the Yarmūk, there is little likelihood that a sophisticated Aramean culture existed in the area. Historically informative texts have not even been found in Ḥamāh, one of the main Aramean centers in Syria.

Postscript

Since this article was written, two monographs on the Arameans in the Iron Age had been published. P. E. Dion, *Les Araméens à l'age du fer: histoire politique et structures sociales.* Paris 1997 and Carl-Johan Axskjöld, *Aram as the Enemy Friend. The Ideological Role of Aram in the Composition of Genesis-2 Kings.* Uppsala 1998.

Dion's book is a very comprehensive work and offers the reader an analysis of everything which so far is known about the Arameans through inscriptions and archaeolog-

68 See E. Olausson, "Tephochronology and the Late Pleistocene of the Aegean Sea," in A. Strid (ed.). *Evolution in the Aegean . Opera Botanica* 30. (1971) 29-39. W. A. Ward and M. Sharp Joukowsky (eds.), *The Crisis Years: The 12th Century B. C. From Beyond the* Dānube *to the Tigris.* 1989, 13 ff. and 19 ff. M. Ottosson, The Iron Age of Northern Jordan, *History and Traditions of Early Israel. Studies Presented to Eduard Nielsen,* May 8th 1993. Edited by André Lemaire and Benedikt Otzen. 1993, 90-103.

69 J. A. Brinkman, *A Political History of the Post-Kassite Babylonia 1158-722 B.C.* (1968) 277ff.

70 See Reinhold, *op. cit.*, 29ff.

71 J. A. Brinkman, *op. cit.*, 267.

72 See most recently Ran Zadok, Some Problems in Early Aramean History *ZDMG Supp* 6, 22; *Deutschen Orientalistentag* (1985) 81-85.

73 The modern monographs hitherto edited which analyze the archaeological and historical situation of Transjordan have not even mentioned the Arameans. I think of R. H. Dornemann, *The Archaeology of the Transjordan in the Bronze and Iron Ages* (1983); R. G. Boling, *The Early Biblical Community in Transjordan* (1988); P. E. McGovern, *The Late Bronze and Early Iron Ages of Central Transjordan: The Baq'ah Valley Project,* 1977-1981 (1986).

ical finds. The results of previous authors are scrutinized and commented on in very substantial footnotes, as are all inscriptions also those found outside Syria. In the Iron IA-B-period the Arameans are characterized more or less as breeders and villagers with cultural traditions emanating from Amorite times. Sometimes it is difficult to give a definition of genuine Aramean culture. Dion divides the Arameans in a northern and a southern group with the demarcation line drawn east-west on a level with the sources of the Orontes at Libwa south of Ḥamāh. The main groups of the Arameans lived in northern and northeastern Syria but in a very complex world until they were subjugated by the Assyrians around 850 B.C. With the fall of Ḥamāh in 720 the southern part of Syria and the roads to Palestine and Jordan were opened for the Assyrian armies. From Dion's book we get an impression how little historically is known about the southern Arameans from sources outside the Old Testament. Dion will not fall "in the OT-trap". He is very conscious about the tendencial history writing of the Israelites. His book is an enormous work of scholarship.

Concerning the "southern" Arameans we have so far to refer to the archaeological work in the Golan and in northern Israel, especially Tall Dān with the inscriptions recently found. The language is Aramaic, but what is the difference between an Israelite and Aramean culture?

Carl-Johan Axskjöld was one of my students and he joined the Tall al-Fukhār project in 1990 in order to get material for his dissertation on the Arameans. He soon found out that the only possibility to be fair to the Hebrew text was to use it in an ideological way. Mostly the Arameans in the OT are regarded as unreasonable enemies but they are also collaborators. The investigation shows that the function of Aram is more often positive than not. But although there are some geographical names and historical episodes mentioned in the confrontations between the Arameans and the Israelites, Axskjöld finds it impossible to use this material in order to draw a realistic history of the period of the IronII A-B. On Tall al-Fukhār we had the same situation. But I am inclined to judge the looters and settlers of the LBIIB town as Shasu or Ahlamu/ Arameans.

Osamah Abu-Qorah
Department of Archaeology
University of Jordan
Amman - Jordan

Osamah Abu-Qorah

Who Were the Hebrews and Israelites? A Scholarly Perspective from Jordan

One has to admit that this topic raises more questions than answers, and scholars often come up with more opinions or theories than their number. It is probably one of the most difficult subjects to deal with in ancient Near Eastern studies, for the researcher must be acquainted with various disciplines on Near Eastern and Biblical studies and languages in addition to the voluminous secondary literature.[1] He also must be eclectic in his approach and cautious with his conclusions. The sources of the material that will be dealt with are somehow scarce, ambiguous and controversial.[2]

The most important though not totally accurate source of information about the Hebrews and the Israelites is the Old Testament. However, the development of Biblical studies including criticism, archaeological field excavations, and modern historical and linguistic scholarship made it possible to clarify the picture and shed some light on the issue of the Hebrews and Israelites.[3]

This paper as its title reads will deal briefly with the history and archaeology of the Hebrews and Israelites (including the Judahites), as an essential part the political and cultural history of Jordan and the whole region of geographic Syria/Syria-Palestine if not the whole world. The study covers the beginning of Hebrew/Isrealite history (supposedly) from the Middle Bronze to the Iron II Ages (i.e. to the development and crystallization of both of the Samaritan and Jewish identities as purely religious identities from the Iron II onwards).[4]

I will try to present my own approach which hopefully will be as eclectic as possible benefiting from the various schools of thoughts, for I believe that there is a certain amount of truth in each of the approaches whether it was the fundamental, traditional, archaeological, historio-critical or socio-economic. One has to be careful not to be hasty nor become lured into being too critical, secular and scientific in contrast of becoming solely fundamental or traditional in his/her approach.[5]

The historical or pseudo-historical stages or phases of Hebrew/Israelite history goes back in time to the "patriarchal period" that started up in the second millennium BC (MB). Though this is not verified with external evidence archaeologically speaking, albeit (if possible) some texts that mentioned names of tribes or persons that were similar to the names of patriarchs or their tribes. In any case scholars as usual disagree on what those names (whether from Mari or elsewhere) signify with respect to the Hebrews/Israelites. In addition to some of the social customs of that time (such as the ones found in the Mari, Alalakh, Ugarit, and Nuzi, tablets) have some connections with the patriarchal narratives or traditions.[6]

The other two historical and archaeological facts from text of the second millennium (BC), that two possibly may have had some relation with Hebrews and Israelite were the movements of the pastoral (semi-) nomads most probably the nomadic segment of the Amorites (the proto-Arameans?) with their famous designations Shasu/Sutu. The other fact is about the Habiru/Khabiru (b/p), and Sa-Gas.[7]

Scholars as usual are divided up on this issue. In my opinion, I believe that material and data from both the pastoralists and then Habiru could be used for reconstruction of the history of the Hebrews/Israelites given that one should abide by some conditions such as time, place, and circumstance and correlate the data with the Old Testament (OT) material.[8]

The connection between Hebrews and the Israelites is very obvious in the OT books, though some distinctions are valid, as scholars would agree or disagree.[9] However,

[1] Ahlstroem 1982: 133-8; 1986; Alt 1925/66; Thompson 1973.
[2] Meek 1960: 1-48; Albright 1963; Van Seters 1975; Miller and Hayes 1986.
[3] Albright 1932; Soggin 1985: 139; Kenyon 1979; Cornfeld and Freedman 1976.
[4] Miller and Hayes 1986; Meek 1973; Geus 1977; Albright 1946.
[5] Soggin 1985; Jagersma 1981; Noth 1960; Bright1980.
[6] Wright 1979; Van Seters 1978; Sarna 1977: 5-9.
[7] Bright 1980; Albright 1963; Wright 1979.
[8] Miller 1976; Geus 1977; Burrows 1983.
[9] Ahlstroem 1986; Miller / Hayes 1986; Noth 1960.

the bottom line is that the first stage of the history of the Hebrews/Israelites extended time and place from their movement or migration from northeast geographic Syria (across the upper Euphrates and the "northern" Ur) to its southwest (i.e. from northeastern Aram to southern Canaan.), then to Egypt.[10] The second stage is their sojourn in Egypt that lasted for several centuries.[11]

The writer accepts the notion that the Hebrews/ Israelites traveled along as one of the Amorite movements from the Syrian steppe down to Egypt then they were driven out of Egypt after the Egyptian revolt against the Amorite/Hyksos from the mid-sixteenth century BC the transitional period from MB to LB.[12] They were probably expelled from Egypt as one of the western Semitic groups under the title of Hyksos (i.e. foreign rulers [or shepherds] of Egypt). That probably explains the designation in OT "mixed multitude". That must have taken place at successive times that were probably crowned by the last Exodus at the time of Moses in the thirteenth century BC. Historically valid in my opinion by the Egyptian names of some of the exodees in addition to the Egyptian texts from the second millennium including the Amarnah letters, plus the texts that mentioned the Habiru.[13]

The social structure of the Hebrews/Israelites was tribal and pastoral that mostly was common for the Semitic ethnic background (Amorite and/or Aramacan). That is to say that their origin was northwest Semitic to be specific. That is reflected by their names and language before they adapted the Canaanite language upon their return to (southern) Canaan. Their religion was monotheistic, Elohist as documented in the Old Testament books (even though they were redacted many times long after most of the historical stages of the Hebrews/Israelites).[14]

Upon their return to southwest of Amoru amid the havoc and chaos that swept through the entire region (geographic Syria including Transjordan and Palestine). The gradually occupied parts of the hill country in (southern) Canaan. Some of their settlement patterns including military activities were certainly not as narrated in the Old Testament from the book of Number 13 to Joshua 12, according to the results archaeological excavations. Nevertheless, the excavations have also showed the emergence of primitive settlements with certain characteristics and of a little destruction of towns that rarely matches up with the Old Testament narratives. That led to the fact that new elements of settlements and population emerged in the specified regions.[15]

Biblical scholars are also divided on the third stage of the history of the Hebrew/Israelites (i.e. there entrance into Canaan) whether it was a conquest, peaceful infiltration of semi-nomads, or peasant revolt aided by incoming exodees according to some.[16]

Most scholars believe that the emergence of Israel in Canaan is the most difficult issue in dealing with "biblical history". Again, in my opinion which is not in a full agreement with any of the theories or hypothesis of the three schools of thought regarding this issue. I believe that there was a kind of conquest (a dwarf conquest if you will), that involved some military activities and violence admittedly not as narrated in the OT books (from Number 13 to Joshua 12 which also contradict other narratives from Joshua and Judges regarding the settlement).[17]

One can deduce from the three schools mentioned above that they vary in their recognition of military activities and violence (i.e. conquest?), if one examines each of them thoroughly.[18]

During the second and the third stages of the Hebrew/ Israelite history (i.e. exodus and conquest), I think that their social and ethnic composition was less homogenous and more heterogeneous in comparison with the first stage. Linguistically speaking they must have adopted the Canaanite language and (later) system of writing as mentioned in the OT narratives, as obvious in their late inscriptions, in addition to the language of most of OT books. Their social structure was still semi-nomadic, tribal, and less advanced in social economic, and political terms than their neighbors. Their religion was much influenced by the Midianites that became known to be the Yahwistic phase in contrast to the previous Elohist. Their territorial extent spread through out some of the hill country in Transjordan and Cisjordan documented not only by the OT narratives, but rather by texts from the area, such as the Merneptah stela (ca. 1220-30's) and the Mesha stone (ca. 840's BC).[19]

The Latter stages of the history of the Hebrews and Israelites involve the periods of the Judges, the united kingdom, then the division of the united kingdom into two, until their consecutive destructions in 712/1 and 587/6 BC, by the Assyrian and Chaldeans/Neo-Babylonians respectively.[20]

During the latter periods, their social status have changed from mostly pastoral to sedentary. Their ethnic composition became more mixed though it maintained its Semitic character, although some scholars have their

---

10 Gordan 1978: 20-52; Sarna 1977: 5-9; Van Seters 1974; 1978: 6-8; Meek 1973.
11 Albright 1946; Alt 1925/66; Bright 1980; Soggin 1985.
12 Noth 1960a; Moscati 1959; 1960; Jagersma 1981.
13 Exodus 12.38; Josh 8.33-35; see also Aharoni 1976: 55-76; Alt 1925/66; Mendenhall 1962; Bright 1980.
14 Miller and Hayes 1986; Noth 1960; Buccellati 1967; Bright 1980.
15 Ackerman 1975: 5-13; Aharoni 1976; Albright 1961; Mendenhall 1962: 66-87.
16 Same as above note.
17 Miller 1976; Soggin 1985; Burrows 1983.
18 See Soggin 1985 and above notes.
19 Bright 1980; Mendenhall 1962; Ahlstroem 1986; Albright 1963.
20 Bright 1980; Buccellati 1976; Noth 1960.

doubts about ethnicity in the region during ancient times.[21] Their language was Canaanite with heavy Aramaic influence (especially in the later periods). Their religion underwent some kind of transformation that resulted in the development and later crystallization of two factions and /or religions, the Samaritan and the Jewish. Politically speaking, they became more advanced during the time of the two kingdoms (Israel and Judah).[22]

The significance of the ancient Hebrews and Israelites to Jordanian/Transjordanian history and culture (in my opinion) is inseparable from the rest of the geographic Syria especially its southern part Palestine. For the ancient Hebrews and Israelites constituted a part of Jordan's west Semitic population in ancient times, as shown in the previously mentioned Mesha stone (among other texts), in addition to the OT narratives. Moreover, the writer of this paper believes that the ancient Hebrews and Israelites from their early "historical" stages to the time of Moses (who died in Jordan), through the time of the monarchy and its division, and afterwards, make up an important cultural and historical development of the Levant region not excluding Jordan. For the ancient Hebrews and the Israelites considered by me as a part of local mostly native population of the region whose social, ethnic, linguistic, religious and cultural existence make up one of the most important highlights in the history of the region, the other two were the coming of Christianity and the emergence of Islam.

Finally the ancient Hebrews/Israelites were part of the indigenous population of Jordan. Their history, archaeological remains, and culture do greatly concern us in Jordan as they concern our western collogues and scholars.

Bibliography

Ackerman, J. S. 1975. Prophecy and Warfare in Early Israel: A study of the Deborah-Barak Story. *BASOR* 220: 5-13.

Aharoni, Y. 1976. Nothing Early and Nothing Late: Re-writing Israel's Conquest. *BA* 39: 55-76.

——1979. *The Land of the Bible: A Historical Geography.* Tr. A. F. Rainey. 2nd rev. edn. London: Burns & Oates.

Ahlstroem, E. W. 1982. Where Did the Israelites Live? *Journal of Near Eastern Studies* 41: 133-138.

——1986. *Who Were the Israelites?* Winona Lake: Eisenbrauns.

Albright, W. F. 1932. *The Archaeology of Palestine and the Bible.* New York: Fleming H. Revell Company.

——1946. *From the Stone Age to Christianity: Monotheism and the Historical Process.* 2nd edn. Baltimore: John Hopkins.

——1961. Abram the Hebrew: A New Archaeological Interpretation." *BASOR* 163: 36-54.

——1963. *The Biblical Period from Abraham to Ezra: an Historical Survey.* New York: Harper Torchbooks.

Alt, A. 1925/66. Die Lndnahme Der Israeliten In Palaestina. *Reformations-programm der Universitaet Leipzig,* 1925= (ET) "The Settlemenof the Israelite in Palestine." Pp. 173-221 in *Essay on Old Testament History and Religion.* Tr. R. A. Wilson. Garden City, N.Y.: Doubleday, 1986 [copyright 1966 by Basil Blackwell].

Anati, E. 1963. *Palestine Before the Hebrews: A History, from the Earliest Arrival of Man to the Conquest of Canaan.* New York: Alred A. Knope.

Baly, D. 1957. *The Geography of the Bible: A Study in Historical Geography.* New York: Harper & Brothers.

Bright, J. 1980. *A History of Israel.* 3rd edn. Philadelphia: Westminster.

Buccellati, G. 1967. *Cities and Nations of Ancient Syria: An Essay on Political Institutions.* Rome: University of Rome.

Burrows, M. 1983. Ancient Israel. Pp. 99-131 in R. Dentan (ed), *The Idea of History in the Ancient Near East.* New Haven: American Oriental Society.

Cornfeld, G. and Freedman, D. N. 1976. *Archaeology of the Bible: Book by Book.* San Francisco: Harper & Row.

de Geus, C. H. J. 1977. *The Tribes of Israel.* Tr. G. E. van Baaren-Pape. Assen: Van Gorcum.

Gordon, C. H. 1978. Were is Abraham's Ur? *The Biblical Archaeology Review* III/2: 20-21, 52.

Jagersma, H. 1981. *A History of Israel: in the Old Testament Period.* Philadelphia: Fortress.

Kenyon, K. 1979. *The Bible and Recent Archaeology.* Atlanta: John Knox.

Meek, T. J. 1973. *Hebrew Origins.* Gloucester, Mass.: Perter Smith.

Mendenhall, G. E. 1962. The Hebrew Conquest of Palestine. *BA* 25/ 3: 66-87.

Miller, J. M. 1976. *The Old Testament and the Historian.* Philadelphia: Fortress Press.

Miller, J. M. and Hayes, J. H. 1986. *A History of Ancient Israel and Judah.* Philadelphia: Westminster.

Moscati, S. 1959. *The Semites in Ancient History: An Inquiry into the Settlement of the Beduin and Their Political Establishment.* Cardiff: University of Wales Press.

——1960. *Ancient Semitic Civilizations.* New York: Capricorn Books.

Noth, M. 1960. *The History of Israel.* 2nd edn. Tr. P. R. Akroyd from German. London: Adam & Charles Black.

——1960a. *The Old Testament World.* Tr. V. I. Gruhn from German. London: Adam & Charles Black.

Sandars, N. K. 1984. *The Sea Peoples: Warriors of the Ancient Mediterranean 1250-1150 BC.* Rev. edn. New York:

[21] Alt 1925/66; Buccellati 1967; see Thompson 1979: "Hidden Histories and the Problem of Ethnicity in Palestine", aquired personally.

[22] See the above notes plus bibliographys.

Thames & Hudson.
Sarna, N. M. 1977. Abraham in History. *The Biblical Archaeology Review* 3/4: 5-9.
Smith, G. A. 1972. *The Historical Geography of the Holy Land.* With an Introduction by H. H. Rowley. Gloucester, Mass.: Peter Smith. [1st edn. 1894].
Soggin, J. A. 1985. *A History of Ancient Israel.* Philadelphia: Westminster.
Thompson, T. L. 1973. *The Historicity of the Patriarchal Narratives.* Berlin: Walter de Gruyter.
Van Seters, J. 1974. *Abraham in History and Tradition.* New haven: Yale University Press.
——1978. Dating the Patriarchal Stories." *Biblical Archaeology Review* 4/4: 6-8.
Wright, G. E. 1962/79 *Biblical Archaeology.* Philadelphia: Westminster.

Niels Peter Lemche
Københavns Universitet
Institut for Bibelsk Eksegese
Købmagergade 44-46
1150 København K
Denmark

Niels Peter Lemche

Jordan in the Biblical Tradition: An Overview of the Tradition with Special Reference to the Importance of the Biblical Literature for the Reconstruction of the History of the Ancient Territories of the State of Jordan

Next to Palestine, the territories of the present Hashemite Kingdom of Jordan may be the best known from the literature of the Old Testament. Already in the Book of Genesis, several passages allude to the early history of this part of the Near East. We may mention the ethnic jokes in Gen. 19 about the origins of the nations of the Moabites and the Ammonites both considered the offspring of an illegitimate connection between Lot and his daughters. The Edomites are believed to be the descendants of Esau, the brother of Jacob. In the following books of the Pentateuch these three nations continue to play a role — mostly not a very positive one — in the role of biblical Israel, right down to the very end of the petty states of Juda and Israel in 722 and 587 BC respectively.

Thus the Edomites deny the Israelites, when they escaped from Egypt the right to pass through their territory, forcing them to circumvent the Edomite territory and to wander in the desert to the east of Moab (Numbers 20-21). Following this diversion, the Israelites were forced to confront Sihon, the king of the Amorites living next to the Moabites. Sihon was totally defeated and his country colonized by the Israelites (Num. 21). In the same passage a poem is quoted that is supposed to draw on Sihon's conquest of Heshbon and the surrounding territory (Num-21:27-30). Heshbon had been destroyed, but was now being rebuilt. As a consequence of their victory, the Israelites settled in the area formerly controlled by Sihon, and soon proceeded to also conquer Bashan to the north of Sihon's country (Num. 21:31-35). Balakh, the king of the Moabites, when frightened by Sihon's fate called upon the sorcerer Balaam that he should curse Israel, that he might be able to chase them out of his country (Numbers 22-24). It is well known how Balaam's black magic worked. His cursing Israel turned into a blessing of Israel. After the conclusion of the migrations in the desert, the Israelites distributed the territory to the east of the River Jordan between their kinsmen. This area became the tribal homes of the tribes of Reuben, Gad, and parts of Manasseh (Numbers 32, cf. also Joshua 13).

After their settlement in Canaan the Israelites continued to fight against their neighbors to the east, all of them — according to the Book of Judges — oppressors of Israel. Thus the fat king of the Moabites, Eglon, was killed by the Israelite champion Ehud (Judges 3). Also the Ammonites are said to have oppressed Israel, but were soundly beaten by another Israelite hero, Jephta (Judges 10-11). The Ammonites were also active when Saul, the first king of Israel was elected. Saul liberated the people of the city of Jabesh from the attack of Nahash, the king of Ammon (1 Samuel 11). This defeat did not satisfy the Ammonites. Soon after another king of Ammon provoked David to attack and conquer his land (2 Samuel 10-12). This was indeed a very convenient act because it provided David with the opportunity of getting rid of his rival, Batsheba's husband Uriah, who was killed before the walls of Rabba, present day 'Ammān. David also conquered Moab and slaughtered a large percentage of its male population.

These ancient nations of Jordan never went into total oblivion. However, after David's time the Aramaeans come into focus of the attention of the biblical historiographers. Thus in the days of Hazael of Damascus the Aramaeans are supposed to have conquered the country of Gilead, and every single Israelite possession to the east of the Jordan River (2 Kgs. 10:32-33).

This is plain bible story and in itself rather unproblematic. More details could be called upon to illustrate the relationship between biblical Israel and its eastern neighbors. This relationship also had its bright moments. Thus the Moabite woman Ruth became the ancestress of David, the future mighty king of Israel. The problems arise as soon as we begin to ask if this is real history or "only" — in quotation marks — a story?

This question can be answered in two different ways. One way to go will take a long time and involve a meticulous comparison of the many biblical passages concerning the east with mostly archaeological evidence from Jordan.

I shall confine my discussion of this point to a couple of examples. King Sihon ruled Heshbon at the time of the Israelite exodus. According to traditional scholarship this exodus happened shortly before 1200 BC. As far as I known, no substantial evidence has been found of a LBA city at Tall Ḥisbān.[1] This is a situation often encountered by biblical archaeologists working in Palestine. Locations that according to the Bible relate to the history of Israel did not exist at exactly the time and place indicated by the biblical narrative. I only have to mention the case of Jericho, which the Israelites are supposed to have conquered ca. 1200 BC in spite of the fact that Tall as-Sulṭān — ancient Jericho — in the Late bronze Age was not inhabited at all. This would of course have made the conquest of Jericho much easier.[2]

The second case has to do with the sorcerer Balaam, now also known from the Dayr 'Allā inscriptions, probably dating from the seventh century BC.[3] It seems likely that the central figure of the narrative in Numbers 22-24 did not belong to the Late Bronze Age. It is far more reasonable to think that he lived sometime during the first part of the first millennium BC. Moreover, the poems attributed to this Balaam end with a note about the kittim who will on ships come and conquer Assyria. An otherwise unknown German professor, Karl Ilgen, said already two hundred years ago: This note can hardly refer to anybody else except Alexander the Great and his Macedonians and their conquest of Syria and Mesopotamia.[4] The reformer Martin Luther understood it to be a prophecy about the Romans.[5]

It will be possible to deal with the many biblical references to the territories of present day Jordan in the same manner. As a matter of fact, biblical information has little to do with the realities of the southern Levant at the end of the Bronze Age or in the beginning of the Iron Age. Let us just refer to one example that shows the lack of any precise historical information among the biblical references to the territory of the state of Jordan in the Iron Age. According to the narrative in 2 Kings 22 an anonymous king of Israel of the house of Omri was killed in a battle against the Aramaeans, who are described as the lords of Gilead. If this really happened, it would have been many years before this territory came under the sway of the Aramaeans. Something that only happend in the days of Hazael (cf. 2 Kgs. 10:32-33).

I will, however, leave the subject and address the problem of historical information in the Bible from the angle of modern investigations into the ancient territories of Palestine. Any person, who is acquainted with the present climate of biblical historical studies will know of the North American archaeologist William G. Dever's many complaints because of the so-called "revisionists".[6] Apart from the author this tag covers scholars like Thomas L. Thompson from Copenhagen, Philip R. Davies from Sheffield in England, or Keith W. Whitlam from Stirling in Scotland.[7] I can only say that within biblical studies the debate has become so acrimonious that it is at the present difficult to discuss historical problems at all. The discussion turns really acid when the subject has to do with the historicity of the Old Testament. The fundamental recent criticism of the concept of historicity in combination with the literature of the Old Testament has been dubbed anti-Jewish, bordering on anti-Semitism.[8] It has been seen to be politically dangerous because it questions the right to use the Hebrew Bible to legitimize their claim on the soil of Palestine as is common in certain Jewish and Christian circles.

It is true that recent developments in the study of an-

[1] Cf. for convenience Lawrence T., Geraty, art. "Hesban", in *OEANE*, 3, pp. 19-22. Because of this evidence Geraty proposes to look for ancient Heshbon elsewhere.

[2] Jericho is probably the most extensively excavated place in Palestine. So far three expeditions have been active here, a German one led by Ernest Sellin and Watzinger, two British, one led by John Garstang, the second by Kathleen Kenyon. At the present a fourth expedition is active, a joint Palestinian-Italian venture. Cf. on the first season Nicolo Marchetti and Lorenzo Nigro (eds.), *Quaderni di Gericho I* (1998). *Scavi a Gerico, 1997: Relazione prelminare sulla prima campagna di scavi e prospezioni archeologiche a Tell es-Sultan, Palestine* (Università di Roma "La Sapienza", 1999).

[3] Cf. on this Jacob Hoftijzer and Gerrit van der Kooij, *Aramaic Texts from Deir 'Alla (Documenta et Monumenta Orientalia Antiqui*, 19; Leiden: E.J. Brill, 1976).

[4] On Ilgen (1763-1834) cf. Bodo Seidel, *Karl David Ilgen und die Pentateuchforschung im Umkreis der sogenannten Urkundenhypothese. Studien zur Geschichte der exegetischen Hermeneutik in der späten Aufklärung (Beihefte zur Zeitschrift für die alttestamentliche Wissenschaft,* 213; Berlin: De Gruyter, 1993). Ilgen on Num. 24:24, quoted in Seidel, *Karl David Ilgen*, p. 173.

[5] In his note in the margin to his translation of the Old Testament (Wittenberg, 1545).

[6] Dever's contributions are far too many to list in this place. Among the recent attacks on the "revisionist" I may mention his "Archaeology, Ideology, and the Quest for an 'Ancient' or 'Biblical' Israel", *Near Eastern Archaeology* 61:1 (1998), pp. 39-52.

[7] Representative works by these scholars include Philip R. Davies, *In Search of "Ancient Israel"* (JSOTS, 148; Sheffield: Academic Press, 1992); Niels Peter Lemche, *Prelude to Israel's Past. Background and Beginnings of Israelite History and Identity* (Peabody, MA: Hendrickson, 1998), and *The Israelites in History and Tradition* (Library of Ancient Israel; London/Louisville, KY: SPCK/Westminster John Knox, 1998), Thomas L. Thompson, *Early History of the Israelite People. From the Written and Archaeological Sources (SHANE*, 4; Leiden: E.J. Brill, 1992), *The Bible in History. How Writers Create a Past* (London: Jonathan Cape, 1999), and Keith W. Whitelam, *The Invention of Ancient Israel. The Silencing of Palestinian History* (London: Rutledge, 1996).

[8] To illustrate the "level" of the recent debate I may refer to William G. Dever in his "Revisionist Israel Revisited: A Rejoinder to Niels Peter Lemche", *CR:BS* 4 (1996), pp. 35-50, p. 42, denouncing the revisionists because of "their antipathy to Judaism (akin to Wellhausen's jaundiced view)" — a remark that takes for granted that Julius Wellhausen was an anti-semite, a view of Wellhausen commonly held in conservative academic circles but none the less contrary to evidence. He characterizes Whitelam in this way: "several of Whitelam's statements border dangerously on anti-Semitism; they are certainly anto-Jewish and anti-Israel", "Archaeology, Ideology, and the Quest for an 'Ancient' or 'Biblical' Israel".

cient Palestinian history will remove the historical foundation of the State of Israel. It is also true that historical Israel was no more and no less than a petty kingdom that dominated central and northern Palestine between, say 900 and 700 BC. It may have been founded by a dynasty of Arab rulers, by Omri (whether he was a historical person or not is immaterial, his name is most likely Arabic, 'Umar)[9], and Omri's famous son Ahab (also considered to be an Arabic name by the German scholar Martin Noth)[10]. After the fall of Samaria in 722 BC Israel only survived in the memory of its past greatness. It was in biblical tradition transformed into a mighty kingdom that once upon a time ruled all of Palestine, most of present day Jordan, and in the distant past large most of Syria.

Recent developments within historical studies of ancient Palestine have effectively shown that the Old Testament has little to say as far as the history of the Bronze and Iron Ages is concerned. It seems likely that historiographers of a Jewish religious and national orientation put the biblical history together in the last part of the end of the first millennium BC.[11] The main subject of the history of Israel in the Old Testament is not the past of the Jewish people. It is a story containing admonitions and prophecies that concern the generation that lived at the time when the biblical literature was composed. It is a nationalistic program. It is possible that history was invoked in order to support the nationalistic claims of the Maccabees who had revolted against their Greek masters.[12] When we study the history of Palestine we must abstain from paraphrasing the biblical narrative. The result of such a paraphrasing of the biblical text will be that we automatically side with its religious and nationalistic goals.

When and why did the change of orientation of biblical historical studies happen? A generation ago textbooks such as the histories of Israel by Martin Noth and John Bright — not to speak about the writings of William Foxwell Albright — were more or less rationalistic paraphrases of the biblical version of Israel's history.[13] The history of Israel was considered to be the history of Palestine (and of Jordan as well). Now only one generation later, all of this has to be given up.

Without first realizing it, archaeologists provided the material for a historical deconstruction of the biblical narrative because of the amount of problems created by archaeological material. The destruction of the biblical narrative understood to represent history writing followed in many steps.

The first to go were the Hebrew patriarchs, who were removed from history. North American scholars had for a long time remained loyal to the idea that there once lived an Abraham, an Isaac, or a Jacob somewhere in Palestine.[14] In the 1970s the North American situation changed dramatically,[15] rather late since it had already been accepted among German scholars as early as the beginning of the 19th century that the traditions of the patriarchs have nothing to do with history.[16] Seen in isolation the removal of the patriarchs from the scene of history has little to do with Palestinian or Jordanian archaeology. It is impossible to demonstrate the existence or non-existence of a single family on the basis of archaeology.

Archaeology did not contribute much to the dissolution of the hypothesis that claimed Israel in the Period of the Judges to have been organized as a tribal leagues consisting of twelve tribes who carried the names of the sons of the patriarch Jacob.[17] The dissolution of the league — or Amphictyony — as it was called in those days followed in the 1970s as the consequence of biblical historical studies. It was not caused by archaeological considerations.[18] It, however, taught us that the impression gained from the Old Testament of a unit-

9 Cf. Martin Noth, *Die israelitischen Personennamen im Rahmen der gemeinsemitischen Namengebung* (BWANT, III, 10; Stuttgart: W. Kohlhammer, 1928 [reprint Hildesheim: Georg Olms, 1966), p. 63, and p. 222 n. 7. Noth traces this interpretation back to Theodor Nöldeke.

10 *Die israelitischen Personennamen*, p. 63, 222.

11 Cf. Niels Peter Lemche, "The Old Testament-A Hellenistic Book?" *Scandinavian Journal for the Old Testament* 7 (1993), 163-193.

12 Cf. my proposal in "Because They have Cast away the law of the lord of hosts" — Or: "We and the Rest of the World". The Authors Who "Wrote" the Old Testament, in Thomas L. Thompson (ed.), *Changing Perspectives in Biblical Interpretation I (JSOTS/ Copenhagen International Seminar*; Sheffield: Academic Press, 1999/2000 [in print]).

13 Cf. the textbooks by Martin Noth, *Geschichte Israels* (Göttingen: Vandenhoeck & Ruprecht, 1950), and John Bright, *A History of Israel* (London: SCM, 1960). Albright's major work in this direction is his *From the Stone Age to Christianity. Monotheism and the Historical Process* (1940; Second edition with a new introduction Garden City, NY: Doubleday, 1957).

14 Cf., e.g., William F. Albright, *The Biblical Period from Abraham to Ezra. An Historical Survey* (New York: Harper & Row, 1963), and especially Bright, *A History of Israel,* pp. 60-93.

15 With the almost simultaneous publication of Thomas L. Thompson, *The Historicity of the Patriarchal Narratives. The Quest for the Historical Abraham ((Beihefte zur Zeitschrift für die alttestamentliche Wissenschaft,* 133; Berlin: De Gruyter, 1974), and John Van Seters, *Abraham in History and Tradition* (New Haven: Yale University, 1975).

16 Thus by Wilhelm Martin Lebrecht de Wette, in his *Beiträge zur Einleitung in das Alte Testament*, I-II (Halle: bey Schimmelpfennig und Compagnie, 1806), Band II, *Kritik der Bücher Mose als Quelle der Geschichte.*

17 Cf. on the Israelite Amphictyony Martin Noth, *Das System der zwölf Stämme Israels* (BWANT, 4,1; Stuttgart: W. Kohlhammer, 1930 [reprint Darmstadt: Wissenschaftliche Buchgesellschaft, 1966]). The theory was subsequently adopted by almost every Old Testament scholar with a few exceptions (notably Otto Eissfeldt and Georg Fohrer).

18 Cf. Niels Peter Lemche, *Israel i Dommertiden. En oversigt over diskussionen om Martin Noths "Das System der zwölf Stämme Israels"* (Copenhagen: G.E.C. Gad, 1972), A. D. H. Mayes, *Israel in the Period of the Judges (Studies in Biblical Theology SS*, 29; London: SCM, 1974; C. H. J. de Geus, *The Tribes of Israel. An Investigation into Some of the Presuppositions of Martin Noth's Amphictyony Hypothesis (Studie Semitica Neerlandica,* 18; Assen/ Amsterdam: Van Gorcum, 1976).

ed Israel that conquered Palestine (and parts of Jordan) has nothing to do with historical events at the end of the Late Bronze Age and in the beginning of the Iron Age.

Archaeology, however, played a major part when the Israelite conquest came into focus of scholarship. We should remember that as late as the 1960s, two major hypotheses concerning this conquest dominated the field. One hypothesis followed the biblical version of Joshua's conquest of Canaan closely. Albright and many North American scholars endorsed it.[19] The second hypothesis was further removed from the picture of the Hebrew conquest of Palestine presented by the Book of Joshua. It says that the Israelites entered Palestine as mostly peaceful semi-nomads, herders of sheep and goats. At a later stage of the Israelite settlement, they turned into conquerors. This hypothesis found favor among many European scholars — the most important being Albrecht Alt and Martin Noth.[20] Both hypotheses presuppose that Israel was a nation distinguishable from other nations of the ancient Near East, with its own religion and tradition. The North American variant of the settlement hypothesis had one major disadvantage. This hypothesis could only agree with archaeological facts if it acted like the bed of Procrustes. Thus it reckoned great cities of Palestine to have been destroyed by the invading Israelites although these cities did not exist at the time of the Israelite invasion.[21] I suppose that this is common knowledge and need not dwell on this theme at this occasion.

However, also the European variant had to be revised in light of archaeological evidence. It is an ironic fact that it was a student of Albright, George Mendenhall, who first proposed to substitute the notion of a foreign — Israelite — conquest with another model. In 1962 Mendenhall published a small study on the Hebrew Conquest of Palestine.[22] In it he argued that the Israelite community that arose in Palestine around 1200 BC did not result from a major invasion. It origined among the pre-Israelite population of Palestine and was the result of a social and religious revolt among the poor and destitute people of Canaan otherwise known as *ḥabiru*, i.e. Hebrews. It was the peasant population — by far the majority of the Palestinian society — that turned against their masters in order to establish the society of Yahweh, the God of Israel. Subsequently Mendenhall's hypothesis was revised and elaborated upon by Norman K. Gottwald.[23]

Mendenhall and Gottwald based their idea on two observations. The first one concerned the already mentioned lack of accordance between archaeology and Bible, the second had to do with the fact that the material culture of the indigenous population of Palestine did not change in a substantial way during the transition from Canaanite to Israelite dominance. Without denying the existence of many local traditions as far as the material culture was concerned, this variation did not represent the kind of ethnic change that marks out the arrival of a foreign nation, not to say a nation that traced its roots back to Egypt. And an additional note: the authors of the Book of Joshua forgot to mention that the Egyptians in those days still ruled Palestine, or at least large stretches of this country.[24]

In short, Old Testament scholarship has generally accepted that the biblical narrative about the conquest of Palestine has little or nothing to do with the events of the LB-EI transition. It is a tale from another time with its own setting and intentions.[25]

Now, it is important that the discrepancy between Bible and archaeology does not end here. The verdict that the biblical narrative is story and not history is equally valid when we proceed to the period of the Judges and the time of the Hebrew kingdoms, particularly the time of David and Solomon. The debate about the historicity of the

19 Cf., e.g. Albright, *From the Stone Age to Christianity*, pp. 276-281. Cf. also his depiction of the archaeological evidence in his *The Archaeology of Palestine* (1949; revised and reprinted; Harmondsworth: Penguin, 1963), pp. 112-120. Yehezkiel Kaufman formulated a much more crude version of he hypothesis of the Israelite conquest in his *The Biblical Account of the Conquest of Palestine* (Jerusalem: Magness, 1953).

20 Cf. Albrecht Alt, "Die Landnahme der Israeliten in Palästina", (1925; reprinted in his *Kleine Schriften zur Geschichte des Volkes Israel*, I; München: C.H. Beck, 1953, pp. 89-125) (E.T. "The Settlement of the Israelites in Palestine", in Albrecht Alt, *Essays on Old Testament History and Religion* [Sheffield: JSOT, 1989], pp. 133-169, and "Erwägungen über die Landnahme der Israeliten in Palästina" (1939; reprinted in his *Kleine Schriften* , I, pp. 126-175). Cf. also Martin Noth, *Geschichte Israels*, pp. 67-82.

21 The famous cases are Jericho, Ai and Gibeon. Jericho was not inhabited at the moment of conquest, Ai had been destroyed for a thousand years, and Gibeon had not yet been founded. A convenient review of the evidence can be found in the NEAEHL I and II. John Bright's handling of the evidence about Ai is typical of the period, *A History of Israel*, p. 119.

22 "The Hebrew Conquest of Palestine", *BA* 25 (1962), pp. 66-87 (reprint in Edward F. Campbell and David Noel Freedman [eds.], *The Biblical Archaeologist Reader,* III [Garden City, NY: Doubleday, 1970], pp. 100-120, cf. also his *The Tenth Generation. The Origins of the Biblical Tradition* (Baltimore: Johns Hopkins University, 1973).

23 Norman K. Gottwald, *The Tribes of Yahweh. A Sociology of the Religion of Liberated Israel 1250-1050 B.C.E.* (Maryknoll, NT: Orbis Books, 1979).

24 Cf. on the appearance of Israel and the end of the Egyptian presence Donald B. Redford, *Egypt, Canaan, and Israel in Ancient Times* (Princeton, NJ: Princeton University, 1992, pp. 257-280. Redford still adheres to a reconstruction of the Israelite settlement not far removed from the one proposed by Albrecht Alt.

25 The reconstruction of a very different archaeological scenario from the one proposed by Albright's generation by archaeologists like Israel Finkelstein has been most decisive. Cf. his *The Archaeology of the Israelite Settlement* (Jerusalem: Israel Exploration Society, 1988), and the collection of studies edited by Israel Finkelstein and Nadav Na'aman, *From Nomadism to Monarchy. Archaeological & Historical Aspects of Early Israel* (Jerusalem/Washington DC: Israel Exploration Society/Biblical Archaeology Society, 1994). It is an interesting fact that William G. Dever in spite of his harsh criticism of the "revisionists", side with them as far as he feels compelled to abandon the traditional immigration models. Cf. his *Recent Archaeological Discoveries and Biblical Research* (Seattle: University of Washington, 1990), pp. 37-84.

judges of the Old Testament is more or less over. The question of the united Hebrew kingdom remains.

I suppose that the present controversy between the departments of antiquity at the Hebrew University in Jerusalem and Tel Aviv University is well known. In Tel Aviv two important archaeologists, Israel Finkelstein and David Ussishkin, advocate a negative view on the historicity of this period of the Israelite empire — in spite of a sometimes ferocious opposition from their more conservative colleagues in Jerusalem.[26] This controversy has already reached the headlines in newspapers and has been mentioned in television programs. It is not yet settled. On the contrary, the recent publication of the Tel Dan inscription including its mentioning of a *byt dwd* ("House of David" or "house of Dod"?) has sharpened the confrontation between scholars who believe in the historicity of David and Solomon and those who do not find evidence for it.[27] I shall leave the debate at this point.[28]

The debate among biblical scholars has lead to a point where several Old Testament scholars can no more support the view that the Old Testament is a historical source about the ancient history of the Jewish people. Nobody can say with one hundred percent certainty that no historical information can be found in the Old Testament. However, even if such information should be present, it is placed within a narrative framework that is legendary. It makes it extremely difficult to dig out tiny bits of historical information here and there. We still have to look for criteria that will enable the scholar in a written document like the Old Testament to distinguish between historical information and literary invention. Such criteria may not exist. The conclusion is that the historian cannot use the Old Testament to "prove" that something "really happened".

On the other hand, the evidence of archaeology might not be of much help. Archaeology cannot prove, e.g. that the Israelites conquered the kingdom of Sihon, the king of Hesbon. This is certainly the case if Heshbon did not exist as a wealthy city at that time. The Old Testament has little to contribute to the history of Palestine in the Iron Age, and far less to the history of Palestine in the Bronze Age. Its contribution to the history of the territory of present day Jordan is at best negligible.

At the end of this paper I will conclude with a final example of the discrepancy between biblical story and archaeology. This note was inspired by Pat McGovern's paper included in this volume and is food for thought. According to the Old Testament, thousands of Jews returned from Babylonia after Cyrus' conquest of that city. However, if this really happened, where do we find their Babylonian cooking pots? I cannot remember having seen a single one in the Israel Museum in Jerusalem.

---

[26] Cf., e.g. Israel Finkelstein, "The Archaeology of the United Monarchy: An Alternative View," *Levant* 28, 1996, 177-87, and the rejoinder by Amihai Mazar, "Iron Age Chronology: A Reply to I. Finkelstein," *Levant* 29 (1997), pp. 157-67.

[27] Cf. Avraham Biran and Joseph Naveh, "An Aramaic Stele Fragment from Tel Dan," *IEJ* 43 (1993), pp. 81-98, and The Tel Dan Inscription. A New Fragment, *IEJ* 45 (1995), 1-18.

[28] For easiness of reference to this discussion, cf. Volkmar Fritz and Philip R. Davies (eds.), *The Origins of the Ancient Israelite States (JSOTS*, 228; Sheffield: Academic Press, 1996, and Lowell K. Handy (ed.), *The Age of Solomon. Scholarship at the Turn of the Millennium (SHANE*, 11; Leiden: E.J. Brill, 1997).

Jesper Hoegenhaven
University of Copenhagen
Copenhagen - Denmark

Jesper Hoegenhaven

The Oracles Against the Nations in the Book of Isaiah: Their Possible Value for the Study of the History of Jordan in the Iron Age

Attitudes in the Old Testament towards Moab and Moabites range from the assertion of the Moabite ancestry of the Davidic royal line, found in the Book of Ruth, to the picture drawn in Numbers 25 of Moabite women as ruthless seductresses leading the Israelites not only to adultery but also to idolatry. According to Goethe, the narrative of Ruth serves the noble purpose of providing an Israelite king with "decent and interesting ancestors".[1] The incident related in Numbers 25, on the other hand, plays a prominent part in the structure of the wilderniss narrative, illustrating the temptation of adultery as a threat to the holiness and integrity of the chosen people at a crucial point of transition before they enter the promised land. This perspective can be seen as culminating in the well-known statute of the Mosaic law which stipulates that no Ammonite or Moabite shall enter the assembly of Yahweh, even unto the tenth generation (Deut. 23:4). The Old Testament, then, in its presentation and construction of the Israelites and their past, shows itself to be highly aware of the reality and importance of the Moabites among the neighbours with whom the Israelites interact—for better or for worse. It will also appear that the Moabites may in different contexts fulfil quite diverse purposes in the Old Testament narrative and be assigned quite different roles in the theological or religious drama of the Biblical text.

This paper aims at presenting some observations on Isaiah 15-16, a textual unit that focuses on the fate of the kingdom of Moab. These chapters belong within the framework of a larger section of the biblical book containing so-called oracles against the nations. This section comprises all of chs. 13-23. The Isaianic collection of oracles against the nations is paralleled by chs. 46-51 in the Book of Jeremiah, and by chs. 25-32 in the Book of Ezechiel, and would seem to constitute a genre common to Old Testament prophetic literature. Basic features of this genre would be the arrangement of texts in immediate succession,dealing with the various foreign nations, over which doom and destruction is proclaimed.. Some interpreters of the Old Testament have argued that the oracles against the nations form part of a structure common to prophetic writings, the so-called "eschatological scheme". Within this scheme, the oracles against the nations are seen to play an intermediary role between the proclamation of divine judgment upon Israel and the promise of future salvation. Yahweh's judging the nations, it is argued, is a necessary stage leading to salvation for his own people. However, the fact that the oracles against the nations occupy different places within the structural frameworks of the various prophetic books should warn us against assigning a too rapidly conceived and too broadly or generally–phrased significance to all of these texts. Even though the oracles against the nations have a significant number of themes in common, the variability of their forms and contents ought not to be overlooked.

The textual unit with which we are here concerned has the heading "oracle of Moab" (*masa' mo'ab*). From a formal point of view, the section has a rather complicated structure. 15:1-9 contains a lament over Moab, which has been struck by disaster. In the concluding verse (9), however, the lament ends in a divine oracle of doom. 16:1-5 is a prophecy, clothed in dialogue form, in which the Moabites are adressed, and summoned to turn to Mount Zion for help and support. Then, the word is given to the Moabites themselves. Here, Zion is addressed, and told to provide shelter for the Moabites, and finally, as an answer to this plea, reference is made to the peaceful era of the future righteous ruler in the tent of David. In 16:6-12, the perspective changes again. Here we have an accusation directed against Moab, which is charged with pride and arrogance, and a proclamation of its destruction that takes the form of a description and lamentation of the afflicted land. 16:13-14, finally, constitute a comment, affirming

[1] J. W. von Goethe, *Noten und Abhandlungen zu besserem Verständnis des West-östlichen Divans, Hebräer. Goethe's Werke, Vollständige Ausgabe letzter Hand*, Bd. 6, Stuttgart/Tübingen 1827, 7; quoted by S. Timm, *Moab zwischen den Mächten. Studien zu historischen Denkmälern und Texten* (Ägypten und Altes Testament, Bd. 17), Wiesbaden 1989, 1.

the fulfilment of what has been prophesised in the words of Yahweh against Moab within three years.

There are two unmistakable dividing lines within the section. The last two verses of ch. 16 stand out as a comment to the whole preceding text; and 16:6 marks a new beginning from the point of view of both form and contents. In 16:6 a first person plural appears, and the accusation of arrogance launched against Moab constitutes a new theme.

The opening verse takes us directly into a most dramatic situation. Two exactly parallel statements narrate the destruction of 'Ar Moab and Qir Moab. The propblems that these names present from the viewpoint of historical topography are well known and need not be discussed here. Qir-Moab is, of course, almost universally identified with al-Karak, and is usually equated with Qir-Hareshet of 16:7 and Qir-harash of 16:11.[2] No similar agreement has been reached as to the identification of 'Ar-Moab, although ar-Rabba has been suggested since ancient times.[3] What seems certain, though, is that two of the most important cities of the Moabite realm are envisaged. These Moabite cities were laid waste in the night when destruction took place, i.e. through an unexpected, sudden blow or attack.

The brief and concise opening narrative statement which tells us what has happened is followed by a description of the wailing cities of Moab. Dibon is mentioned along with Nebo and Madeba, all cities of northern Moab; the latter two are both mentioned in the Mesha inscription. The text goes on to depict the mourning rites practised everywhere in the cities, and the cry coming from Hesbon and Elale, a cry that is heard as far away as in Jahas. The description then reaches the highest degree of concentration; Moab is presented as a human person, wrought with distress. "Therefore the loins of Moab shiver, his soul is trembling."[4]

A new phase in the description is marked by the introduction of the first person singular. The "I"-person expresses his emotion caused by the fate of the Moabites, and then turns to the description of Moabite refugees fleeing to Zoar. The devastation of Moabite localities is described; central to the description is the notion that the grass and verdure of the country, both connoting fertility and prosperity, have gone. The inhabitants have therefore gathered what they have left, and are now carrying it away with them on their flight. The description is summed up in the statement that a cry has gone round the borders of Moab.

No formal transition marks the introduction of Yahweh as subject. The divine utterance is presented as the cause of the disaster depicted in the preceding text. The oracle proper opens with a new descriptive reference to the disaster of Moab. The waters of Dimon are full of blood. Dimon seems to be chosen here in stead of Dibon in order to make a pun with Hebrew *dam*, blood. The description is immediately followed by Yahweh's statement that he will add further calamity to that which has already befallen Dibon. The coming disaster is then presented in the shape of a lion, a metaphor implying dangerous destructive force as often in prophetic literature. "Yet I will bring upon Dimon even more, a lion for those of Moab who escape, the remnant of the land."

In ch. 16 the text turns directly to the Moabites, who are adressed in the imperative. In the Book of Isaiah fictive summonings of persons and groups are often employed as a means of creating dramatic effect. The Moabites are here told to send their tribute, "lambs for the ruler of the land", to Mount Zion. This obviously means recognizing the supremacy of the ruler in Jerusalem. The desperate situation of the Moabite cities is then described as part of the prophecy, and their plea to Zion is cited. It has the form of a plea for protection and support. "Like flattering birds, like scattered nestlings, so are the daughters of Moab. Give counsel, grant justice; make your shade at night like the height of noon; hide the outcasts, betray not the fugitive; let the outcasts of Moab sojourn among you; be a refuge for them from the destroyer." Then follows the answer given to the Moabite delegation, presumably by Zion itself or by its representatives. This answer points to a future situation characterized by the disappearance of oppression and violence. Then a righteous ruler will be enthroned in the tent of David. As pointed out by many exegetes of various times, there is a close kinship between this picture of a future peaceful era marked by the just rule of a king of Davidic descent, and the prophecy found in Isa. 9:1-6, a text often cited as one of the most important passages expressly voicing "Mesianic" expectations and ideas within the Old Testament literature. Common to both passages are expressions like *kise'*, *mispat, sedaqa'*, *sedeq*. 16:5 speaks of the tent of David, 9:6 of the throne of David.

16:6 marks a new beginning, both formally and thematically. The introduction of "we" is new in the context, and so is the reference made here to the arrogance and boasting of Moab. "We have heard of the pride of Moab, how proud he was, of his arrogance, his pride, and his in-

[2] Cp. A. Musil, *Arabia Petraea. I. Topographischer Reisebericht*, Wien 1907, 58; N. Glueck, *The Other Side of the Jordan,* Cambridge, Mass. 1970, 15; A. Dearman (ed.), *Studies in the Mesha Inscription and Moab* (American School of Oriental Research/The Society of Biblical Literature. Archaeology and Biblical Studies 2), 28.

[3] Cp. W. Rudolph, "Jesaja xv-xvi", in: D. Winton Thomas/W.D. McHardy (eds.), *Hebrew and Semitic Studies presented to Godfrey Rolles Driver*, Oxford 1963 (130-143), 133; H. Wildberger, *Jesaja. 2. teilband.* Jesaja 13-27 (Biblischer Kommentar Altes Testament, Band X/2), Neukirchen-Vluyn 1978, 604.

[4] The reading *halse* ("loins") should probably be preferred to the Massoretic vocalisation *haluse* ("armed men").

solence, his boasts are false." The accusation is followed by a proclamation of punishment, introduced by *laken* in the common style of prophetic oracles. What follows, however, is a new description of mourning Moab, bewailing its lost glory and prosperity. "Therefore let Moab wail, let everyone wail for Moab." The splendour of the past is depicted, a stylistic feature that recalls the conventional dirge. "For the fields of Heshbon languish, and the vine of Sibmah, the lords of the nations have struck down its branches, which reached to Jazer and strayed to the desert; its sproots spread abroad and passed over the sea." The lament is continued in the first person singular; as in 15:5 the "I" of the prophet or poet participates in bewailing the mischief of Moab. A second description of the destroyed country where joyful work and songs have ceased in the vineyards precedes yet another expression of the emotion of the "I"-person on behalf of Moab; and the lament culminates in the portrait of Moab unable to pray despite its attempts.

This section differs thematically from the preceding section in presenting a theological reason for the disaster that has struck the realm of Moab. There are, however, important motifs which are common to both sections, such as the style of lament and the fact that the poet explicitly includes himself among those who mourn the fate of Moab. The loss of past prosperity is another common motif, and it should also be noted that the geographical perspective is basically the same. We could then, without too much hesitation, speak of a Messianic aspect of this prophecy. 16:4-5 is, at any rate, as "Messianic" a text as 9:1-6. The implication in this context would then seem to be that in the Messianic era, peace and justice shall apply not only to the kingdom of Judah but also—and in a positive sense—to the neighbouring regions. In other words, there would seem to be a complementary relationship between 15:1-16:5 and 16:6-12, which could hardly be accidental. Nevertheless, many modern interpreters are of the opinion that the Moab oracles in Isa. 15-16 have been composed by redactional compilation of originally separate units of diverse provenance. Thus, Hans Wildberger, in the most monumental of recent scholarly commentaries on the book of Isaiah, reconstructs a long and complicated history of composition and redaction behind the present textual unit, not only separating 15:1-16 from 16:6-12, but also sub-dividing these sections into smaller units, which are then partly assigned to different authors and historical situations.[5] This may be viewed as the culmination of a process initiated by early citics like Gesenius, who recognized in the concluding verses of Isa. 16 a comment reflecting upon the preceding text.[6] This comment was commonly assigned to the historical prophet Isaiah, who was then believed to have cited or repeated an earlier piece of prophetic literature.[7] Likewise, later interpreters have striven to establish "Isaianic autheticity" for at least certain parts of the present text.[8] Wildberger does not attempt to claim that any part of this particular text is of Isaianic origin, but the exegtical method remains basically the same.

The Moab oracles in Isa. 15-16 are echoed and to a great extent repeated *verbatim* in Jer. 48. The vast majority of commentators agree that the text of Isa. 15-16 has been secondarily used in the Book of Jeremiah. This is obvious both from the point of view of the different structure of Isa. 15-16 and of Jer. 48, and from the fact that Jer. 48 would seem as a whole to be composed of literary material derived from various contexts. Thus, Jer. 48:45-47 contains a rephrasing of another prophecy against Moab, that of Num. 21:27-30. This would seem to concur with the general impression left by the Book of Jeremiah, which seems to a considerable extent to base itself upon literary material taken from other parts of Biblical tradition. Indeed, 19th century scholars of the so-called "conservative" school such as Caspari and Delitzsch argued that Jeremiah was aquainted with and literarily dependent on the Book of Isaiah in its entirety, a point of view that was never thoroughly analysed or challenged by scholars of the more "critical" persuasion, and which might well deserve a closer examination in the light of present-day research in the Old Testament field.[9]

Numerous attempts have been made over the years to establish a connection between the Moabite oracles of the Book of Isaiah and historical events in Iron Age Jordan and Palestine. Thus, many interpreters are of the opinion that the disaster described in ch. 15 refers to a particular historical situation. There is, however, no agreement as to which situation is adressed. Thus, several scholars have argued that the oracles reflect an attack on the kingdom of Moab by a Judaean king. Candidates have been Joash and, notably, Jeroboam II.[10] This would mean that the historical events behind the text are to be placed in the late ninth or early eighth century; and it is possible to quote passages in the narrative literature of the Old Testa-

[5] H. Wildberger, *Jesaja. 2. Teilband.* Jesaja 13-27 (Biblischer Kommentar Altes Testament, Band X/2), Neukirchen-Vluyn 1978, 598-632.

[6] W. Gesenius, *Philologisch-kritischer und historischer Commentar über den Jesaia*, Leipzig 1821, 507-511.

[7] This viewpoint is upheld by S. Erlandsson, *The Burden of Babylon. A Study of Isaiah 13:2-14:23* (Coniectanea Biblica, Old Testament Series 4), Lund 1970, 69. Cp. Rudolph, "Isaiah xv-xvi", 141-142; G. F. Haseel, *The Remnant. The History and Theology of the Remnant Idea from Genesis to Isaiah* (Andrews University Monographs 5), Berrien Springs, Michigan, 1972,, 366-368.

[8] Notably O. Procksch, *Jesaja I* (Kommentar zum Alten Testament, Band IX), Leipzig 1930, 219.

[9] F. Delitzsch, *Biblischer Commentar über den Prophet Jesaia* (Biblischer Commentar über das Alte Testament. Dritter Teil: Prophetische Bücher. Erster Band: Der Prophet Jesaia), Leipzig 1866, 22.

[10] This identification is supported by Rudolph, "Jesaja xv-xvi", 141-142.

ment to match either suggestion. Alternative proposals locate the historical situation in the late eighth century, and see the text as reflecting the Assyrian threat to the smaller states of West Asia, while other scholars hold the opinion that the event reflected in the oracles is an attack on Moab by bedouin tribes, possibly in the fifth century, or, alternatively, by Nabataeans in the second century. As far as the final redaction of this textual unit is concerned, dates from the time of the supposed time of the historical prophet Isaiah in the eighth century to the time of Alexander Jannaeus or of John Hyrcan have been suggested.[11]

Common to these interpretations is the assumption that a factual historical event must have formed the background for the composition of at least the narrative of 15:1-9. From a methodological point of view, however, this assumption may indeed be viewed as problematic. The fact that the text uses narrative descriptive style to depict the disaster of Moab cannot in itself be taken to prove that historical events are reflected. By analogy, few would today claim that the narrative of the destruction of Sodom and Gomorrah in Genesis 19 preserves the memory of actual events, or that the narrative of Joshua's conquest of Jericho and Ai reflects historical facts, even though we are here dealing with place names that can be located in history. The narrative form or style of a texts is no sign of the text having an external historical reference. Nevertheless, scholarly research on the Old Testament has for a very long period been influenced by the notion that a nice and neat distinction could be made between "true prophecy", which, from the point of view of the ancient author, would deal with future events, and for which the basic characteristic was the fact that their predictions remained unfulfilled, and *vaticinia ex eventu*, a genre that would immediately prompt a search for details or features of more or less remote similarity to those described in Biblical narratives, in ancient sources outside the Bible or in archaeological findings.

As a matter of fact, nothing prevents us from understanding 15,1-9 as a prophecy envisaging future events described in a vivid and dramatic style by means of narrative as well as descriptive expression.

Furthermore, even if it is accepted that the text of Isaiah might reflect a particular historical event, the problem remains that this event can hardly be reconstructed with any degree of certainty due to the lack of references to it in alternative sources. None of the scholars that have proposed historical identifications for the disastrous events described in 15,1-9 have in fact been able to cite texts from antiquity in support of their proposed identification.

There are, of course, a number of texts from the Assyrian period that mention the kingdom of Moab in contexts related to the expansion of the Assyrian empire. None of these texts, however, give any hint as to a major catastrophe taking place on Moabite ground.

It is a well-known fact that Moab is mentioned in a number of cuneiform texts from the Assyrian period. A list of tributaries from the time of Tiglathplieser III mentions Salaman, king of Moab (or Ma'abu), along with numerous other kings including Joahahaz, king of Judah. During the reign of Sargon II Moab is mentioned in an acount of an Assyrian campaign aimed at crushing a rebellion in Ashdod. Moab appears among other states of the region as a potential supporter of the rebellion. Likewise, Sennacherib, Asarhaddon, and Assurbanipal count Moab among their tributaries in their respective inscriptions. Moabite kings mentioned in this context are Kamosnadbi and Musuri. And in the annals of Assubanipal the defeat of a king of Qedar by the Moabite king Kamshalti, acting in the interest of his assyrian suzerain, is related. When viewed as a whole, these sources would seem to indicate that the Moabite kingdom shared the fate of its neighbouring states in becoming dependent on the Assyrian empire. In the Assyrian royal inscriptions, the Moabite kings are generally presented as loyal vassals.[12]

When we are examining the possibility of extracting information about the history of Iron Age Jordan from the Isaianic oracles concerning Moab, it must be borne in mind that we do not have any exact knowledge regarding the date of composition of these texts. This is true of the final redaction of the book as well as of its single parts and chapters. The oldest extant manuscripts, those of the Qumran collection, give us a *terminus ante quem*, certainly indicating a final date of composition no later than the second century BC, but between this date and the period with which the texts of the Book of Isaiah are explicitly dealing, i.e. the eighth and the sixth centuries there is a long span of time, comprising several centuries, all of which have in fact been claimed as the actual date for larger and smaller sections of the book. Even though it may indeed be possible to establish a relative chronological sequence for the composition of the various prophetic books or for some of them, at any rate—of the Old Testament, it must be acknowledged that we do not have a well-established date for the Book of Isaiah itself or for the Moab texts in Isa. 15-16. This means that the oracles cannot be viewed as a contemporary primary source for historical events or conditions of the iron Age. Accordingly, no direct historical information about Iron Age Jor-

[11] References to the various datings proposed may be found in Wildberger, *op. cit.*, 604-605.

[12] The relevant texts are studied in S. Timm, *Moab zwischen den Mächten*, 303-399. See also A. Dearman (ed.), *Studies in the Mesha Inscription and Moab* (American School of Oriental Reseacrh/ The Society of Biblical Literature. Archaeological and Biblical Studies 2), Atlanta 1989.

dan can be obtained from these texts independently of other sources. In other words, we should not attempt to reconstruct the history of the area in the period in question, by basing ourselves on these texts alone.

This does not imply, however, that the texts of Isa. 15-16 are without any interest from a historical point of view. Notably, the perspective in which events, whether in some sense "historical" or purely fictive, regarding the neighbourong kingdom of Moab are viewed and presented in this piece of Old Testament prophecy deserves consideration. The Moab oracles of the Book of Isaiah have often been singled out for their apparent element of sympathy with the afflicted Moabites and their country. This sympathy, expressed in the text in the form of statements of emotion on behalf of the prophet or poet, and common to both main parts of the text, would indeed seem to place Isa. 15-16 closer to the outlook of the Book of Ruth than to that of Numbers 25. Behind this apparent sympathy we may detect a certain awareness that the fate of the kingdom of Moab is in an important sense parallel to that of the kingdom of Judah. Whilst this does not necessarily tell us anything about the way the relationship between these neighbouring states was perceived during the actual Iron Age, it certainly does show us an interesting feature of the presentation and construction of this past period within the Biblical literary tradition. Incidentally, this would seem to concur rather well with the overall picture to be gained from the texts dealing with Moab which have reached us from the very period in question, the eighth century, a period marked by a considerable amount of change and upheaval for the political entities which then existed on both sides of the River Jordan.

Jean-Paul Rey-Coquais
33E Bd Chermorte
F-21240 Talant
France

Jean-Paul Rey-Coquais

Jordanie, d'Alexandre à Moawiya: un millénaire d'hellénisation

Dans le millénaire qui s'étend d'Alexandre le Grand à la fin de la domination byzantine, sur le territoire de l'actuelle Jordanie, se sont trouvées juxtaposées et ont évolué, entre Alexandrie et l'Orient profond, deux aires culturelles aux traditions et aux valeurs bien différentes: d'un côté les cités grecques de la Décapole, de l'autre le royaume nabatéen, qui, après un demi-millénaire de coexistence souvent mouvementée, se trouvèrent rassemblées dans une même unité administrative sous une tierce puissance, celle de Rome, puis de Byzance. Une synthèse d'ensemble n'est pas dans notre propos, qui se restreindra à quelques aspects et quelques problèmes de l'hellénisation: après avoir rappelé à grands traits les différences de culture et de mentalité, nous voudrions insister sur une institution qui marque ces différences ou ces oppositions.

Depuis la première conférence, tenue à Oxford en 1980, notre connaissance de la Jordanie antique a beaucoup progressé en tous domaines: architecture, urbanisme, sculptures, peintures, mosaïques, céramiques, institutions, économie, société, civilisation nous sont mieux connus. Nombreuses et fructueuses ont été les fouilles et les recherches, nombreuses et riches les publications. Pour s'en rendre compte, il suffit de regarder, par exemple, la bibliographie, abondante et sélective, fournie par deux ouvrages récents, parus en 1997, concernant la seule Pétra, l'un de Maria Giulia Amadasi Guzzo et Eugenia Equini Schneider[1], l'autre édité par Thomas Weber et Robert Wenning[2]. Le titre de ce dernier livre le situe expressément dans la perspective ici envisagée: *Petra, Antike Felsstadt zwischen arabischer Tradition und griechischer Norm.* Nous pouvons avoir de ces époques anciennes une vision plus solidement fondée et prudemment nuancée.

Etudiant les mosaïques de Jordanie, Janine Balty opposait la Jordanie à la Syrie, hellénisée depuis la conquête macédonienne. «La Jordanie», écrit-elle[3], «située aux marches des deux royaumes rivaux des Ptolémées et des Séleucides, a joui au contraire de plusieurs siècles d'indépendance, au cours desquels ont pu se développer des tendances plus authentiquement orientales, en dépit d'une certaine hellénisation de surface». Ce ne sont pas les frontières politiques actuelles qui doivent être prises en considération, mais les frontières antiques. Le Nord-Ouest de la Jordanie était Syrie au temps des rois hellénistiques et dans le premier siècle de l'empire romain. C'est à l'intérieur même de la Jordanie que s'inscrit cette opposition.

Au Nord de la Jordanie, Alexandre et ses premiers successeurs fondèrent plusieurs villes grecques, Gadara, Abila, Pella, Gérasa, Philadelphie, qui, avec quelques autres, formèrent ce qu'au début de l'époque impériale romaine on appela la Décapole[4]. Les villes de la Décapole se considéraient comme les villes grecques de la Syrie du Sud, αἱ κατὰ Κοίλην ἑλληνίδες πόλεις, ainsi que l'indiquent une inscription et une monnaie de Scythopolis[5], bronze de grand module, monnaie de prestige. L'expression souligne leur caractéristique fondamentale et les met à part de toutes les autres villes de la région. A l'époque hellénistique, l'hellénisme fleurit dans la Décapole; Gadara, patrie de philosophes et de poètes, fut l'Attique du Proche Orient. La Décapole fut aussi vivante, réceptive et productrice, que la Syrie ou l'Egypte, la Grèce et l'Asie Mi-

1 M. G. Amadasi Guzzo et E. Equini Schneider, *Petra*, Milan, Electa, 1997; trad. française, Paris, Arthaud, 1997.

2 Th. Weber, R. Wenning (Hrsg.), *Petra, Antike Felsstadt zwischen arabischer Tradition und griechischer Norm*, Mainz, Philipp von Zabern, 1997.

3 J. Balty, «Mosaïques antiques de Syrie et de Jordanie», dans *Mosaïques byzantines de Jordanie*, catalogue de l'exposition Lyon 1989, p. 150.

4 Voir, dans *The Anchor Bible Dictionary*, Volume 2 (1992), pp. 116-121, mon article «Decapolis».

5 Inscription: SEG 37, 1987, n° 1531: Νυσαέων τῶν καὶ Σκυθοπολιτῶν τῆς ἱερᾶς καὶ ἀσύλου τῶν κατὰ Κοίλην Συρίαν Ἑλληνίδων πόλεων. Cf. P.-L. Gatier, *Syria* 67, 1990, p. 205-206.- Monnaie, sous Commode: A. Spijkerman, *The Coins of the Decapolis and Provincia Arabia*, ed. M. Piccirillo, Jérusalem, 1978, p. 194-195, n° 21. Cf. G. Foerster - Y. Tsafrir, *Israel Numismatic Journal*, 9 (1987/1988), p. 53-58.

neure[6]. Il n'y eut rien de semblable en Nabatène ou en Palestine. La constatation est sans appel.

A l'époque impériale, Gadara, Gérasa, Pella, continuent de fournir savants, rhéteurs, philosophes ou historiens. En Nabatène, il faut apparemment attendre le IIIe siècle de notre ère pour que Pétra produise quelque rhéteur ou historien digne de mention. Le plus célèbre d'entre eux, on le sait, est Callinicos, «a sophist who was sufficiently distinguished to practice rhetoric in Athens itself[7]», qui aurait dédié l'une de ses oeuvres à la reine de Palmyre, Zénobie[8]; mais ce n'est guère qu'un nom. Son rival, Genethlios, également de Pétra, est encore moins connu[9].

Sans doute ne faut-il pas durcir radicalement les oppositions. Comparée à la région de la Décapole, la Nabatène apparaît tard et peu. Mais, de part et d'autre, il existe des similitudes. Quelques traits dénoteraient chez la plupart des philosophes et des poètes de la Décapole une influence de l'Orient: pensons à leurs tendances au mysticisme et à leur quête de l'absolu, à leur propension à l'éclectisme et à leur esthétique souvent baroque. On a pu parler aussi d'un "baroque arabe" à propos des grands monuments funéraires de Pétra.

Dans ce monde des formes où nous voici ramenés, les aspects de l'hellénisation de Pétra et de la Nabatène sont indéniables, même s'il subsiste bien des incertitudes chronologiques[10], dont ce n'est pas le lieu de débattre, et s'il faut remarquer, avec Alix Barbet[11], que «replacer la production de Pétra dans l'ensemble de la création artistique du monde gréco-romain, et en même temps dégager sa spécificité, oblige à un exercice périlleux». La Nabatène, dont l'une des activités essentielles était le commerce par caravanes, ne pouvait ignorer les formes et les idées rencontrées tout alentour. Les images, les oeuvres et les artistes circulaient.

Au temps de l'indépendance, les rois, le groupe dirigeant, se sont ouverts aux influences hellénistiques. L'apogée de l'hellénisme en Nabatène se situerait au Ier siècle avant l'ère chrétienne. Au Ier siècle après J.-C., lorsque la pression extérieure s'est faite plus forte, il peut paraître qu'une réaction "nationale" s'est produite; le peuple nabatéen aurait tenté de "sauver" son âme, son identité[12]. Témoignant de ce *resorgimento*, les tendances aniconiques se seraient affirmées: chapiteaux enrobés de stuc du temple «aux lions ailés», icônes divines stylisées à l'extrême, tel le bétyle dit d'al-'Uzzah, si semblable aux stèles anthropomorphes de l'Arabie Heureuse. Les délicates ou splendides sculptures du Qaṣr al-Bint ne doivent pas faire illusion. Lorsqu'ils arrivaient dans la vieille Nabatène, les Grecs—et les Romains—entraient dans un autre monde.

Présentant les inscriptions de la Jordanie centrale, concernant l'époque romaine, Pierre-Louis Gatier oppose Philadelphie, la plus méridionale des cités grecques d'outre-Jourdain, aux régions plus méridionales encore. «La cité reflète à travers ses inscriptions la civilisation hellénisée de l'époque romaine [...] les traces d'influences sémitiques (dans un ensemble peu fourni il est vrai) se trouvent dans certains aspects de la vie religieuse et de l'onomastique». Plus au Sud, à la même époque, les inscriptions de Zīzīa, Mushaqqar, Mādaba, «cité où des institutions grecques, avec conseil et démos, existent pourtant», témoignent fortement de cultes et de noms sémitiques. «L'hellénisation semble plus diffuse dans cette zone»[13]. Le recueil des inscriptions grecques et latines de Pétra et de la Jordanie du Sud[14], très pauvre en documents utilisables, confirme cette impression.

C'est en effet une évidence massive que, pendant des siècles, la langue des inscriptions et, dans une moindre mesure, l'onomastique que livrent les inscriptions, opposent les deux aires de la Décapole et de la Nabatène. Au Nord-Ouest domine l'emploi de la langue grecque; au Sud et à l'Est, les inscriptions grecques sont rares et les inscriptions nabatéennes se comptent par milliers. Une langue n'est pas seulement un moyen d'expression et de communication; une langue façonne et véhicule un mode de pensée, une vision du monde spécifique.

Cette opposition de mentalité, de vision du monde et de sensiblité religieuse semble s'être traduite dans les institutions, et notamment dans l'une des plus importantes, qui organisait le culte impérial; c'est un point sur lequel je voudrais à nouveau attirer l'attention[15]. Le sentiment de leur différence expliquerait pourquoi, à partir du IIe siècle de l'ère chrétienne, les villes de l'ancienne Décapole, comme le montrent monnaies et inscriptions, se sont appelées de Coelésyrie[16]. A Philadelphie, l'appellation apparaît précisément à l'époque d'Hadrien

---

6 Cf. J.-P. Rey-Coquais, «Du sanctuaire de Pan à la "Guirlande" de Méléagre. Cultes et culture dans la Syrie hellénistique», dans *Aspetti e problemi dell'Ellenismo,* Atti del Convegno di Studi, Pisa, 6-7 novembre 1992, a cura di B. Virgilio (Studi Ellenistici, IV, Pise, 1994), pp. 47-90.

7 G.W. Bowersock, *Roman Arabia* (Cambridge, Mass, 1983), p. 135.

8 Voir E. Equini Schneider, *Septimia Zenobia Sebaste* (Rome, 1993), p. 28, avec note 12.

9 G.W. Bowersock, *loc. laud.*

10 Cf. M. Sartre, *Inscriptions de la Jordanie,* 4 (=*Inscriptions grecques et latines de la Syrie* XXI), Paris, 1993), p. 28.

11 A. Barbet, «Les caractéristiques de la peinture murale à Pétra», dans *SHAJ V*, Amman, 1985, p. 389.

12 E. Equini Schneider, *Pétra* (cité note 1), p. 165.

13 P.-L. Gatier, *Inscriptions de la Jordanie*, 2 (=*Inscriptions grecques et latines de la Syrie* XXI), Paris, 1986, p. 23.

14 M. Sartre, *Inscr. Jordanie*, 4 (*IGLS* XXI; 1993).

15 Voir mes articles «Philadelphie de Coelésyrie», dans *ADAJ* 25, 1981, pp. 25-31; «Décapole et province d'Arabie», dans *Le Monde de la Bible*, 22, 1982, pp. 7-9.

16 A l'inscription rapelée par B. Isaac, *ZPE* 44, 1981, p. 66-74, ajouter l'épitaphe, conservée à Florence, de Diodôros, fils d'Héliodôros, ἀπὸ Συριακῆν Δεκαπόλεως Γαδάρων, SEG 1980, 1801; cf. P.-L. Gatier, *Syria* 67, 1990, p. 204-205.

dans son monnayage, Φιλαδελφέων Κοίληω Συρίας[17], et, plus tardivement, dans deux inscriptions[18]; avec un retard peut-être dû seulement à notre documentation, on voit la même mention sur les monnaies de Gadara et de Scythopolis sous Antonin le Pieux et Marc Aurèle, d'Abila sous Lucius Verus, de Pella et de Dion sous Caracalla. La revendication d'appartenance à la Coelésyrie figure sur les monnayages jusque sous Caracalla ou Elagabale[19].

L'appellation Coelésyrie, à cette époque et dans cette région, a suscité diverses interprétations[20]. Certains veulent n'y voir qu'une référence à ces temps glorieux où la région appartenait au vaste ensemble ainsi dénommé de la Syrie du Sud dans le royaume séleucide. Le IIe siècle après J.-C. est en effet une période où les cités rappellent leurs gloires anciennes, leur fondation par Alexandre de Macédoine, par Pompée ou ses lieutenants, où elles reprennent le nom dynastique, Antioche ou Séleucie, reçu des rois séleucides: les monnaies le montrent également. Ce rappel historique aurait été, pour les villes de l'ancienne Décapole incluses dans les frontières de la province d'Arabie, une façon d'affirmer leur identité grecque et de se démarquer de la part nabatéenne de la province.

Une telle explication n'est pas fausse, mais bien insuffisante. Il faut aller plus loin; les données disponibles permettent de fortifier une hypothèse déjà formulée il y a quelque vingt ans[21]. Dès l'époque de Trajan, la Coelésyrie est attestée comme région administrative de la province romaine de Syrie. Une dédicace à l'empereur Hadrien, non datée, désigne Tyr comme "métropole de Phénicie et de Coelésyrie"[22]. Séparée de la Phénicie, la Coelésyrie devint l'un des quatre nouveaux *koina* institués par Hadrien pour les célébrations du culte impérial en Syrie[23]. La métropole du *koinon* de Coelésyrie fut Damas (que, curieusement, Pline (*HN* 5, 18, 74) a fait figurer parmi les villes qui ont appartenu à la Décapole). Utilisé comme appellation officielle, le terme Coelésyrie pouvait difficilement ne pas être univoque. Revendiqué par les villes grecques de l'ancienne Décapole, il signifierait que ces villes contribuaient au culte impérial dans une circonscription dont Tyr d'abord, métropole de Phénicie et de Coelésyrie, puis Damas, métropole de Coelésyrie, était le chef-lieu. Il est sans doute légitime d'en conclure que les villes de l'ancienne Décapole, refusant de s'associer à des "barbares", ont continué à célébrer le culte impérial avec les villes de Syrie du Sud.

On remarquera d'ailleurs que plus d'une ville de l'ancienne Décapole, Abila, Gadara, Gérasa, Hippos, Philadelphie, Capitolias aussi, portent, à un moment ou à un autre, dans leur titulature officielle, sur leurs monnaies, ou parfois dans une inscription, le titre de "libre" ou, plus souvent, d'"autonome". Les inscriptions d'Aphrodisias de Carie, en Asie mineure, montrent clairement les avantages de cette liberté ou de cette autonomie. Une ville libre ou autonome jouissait d'une réelle indépendance vis-à-vis du gouverneur de la province; elle était soustraite à l'emprise de la province et aux sujétions collectives qui pesaient sur les cités et qu'administraient, précisément, les métropoles, comme l'enseignent d'autres inscriptions d'Asie mineure. Dans leur fierté, les notables des villes grecques n'auraient pas voulu être soumis à ceux de Pétra, métropole d'Arabie, et le gouvernement romain, toujours pragmatique, le leur aurait accordé[24].

Une inscription de Gérasa[25], datée de 119/120 après J.-C., émane d'un notable qui a exercé la prêtrise des quatre "éparchies" à Antioche la métropole. J'y avais vu une preuve de l'appartenance, à cette date, de Gérasa au grand *koinon* de Syrie[26]. Mais, à strictement parler, ἐπαρχεία ne désigne sans doute pas un κοινόν du culte impérial, mais une "région" administrative de la grande province de Syrie[27]. Dans une inscription en l'honneur de C. Antius Aulus Julius Quadratus, gouverneur de Syrie de 102 à 104, la province est en effet appelée "province de Syrie, Phénicie, Commagène, Tyr"[28]. La charge prestigieuse de grand-prêtre des quatre éparchies, exercée dans le passé—ce qu'exprime le participe aoriste ἱερασάμενος—a pu l'être avant l'annexion de l'Arabie

17 A. Spijkerman, Coins Decapolis, pp. 246-249, n° 11-14; *SNG, American Numismatic Society,* Part 6 (1981), n° 1385-1386.

18 P.-L. Gatier, *Inscr. Jordanie* 2, n° 24 (d'après l'écriture, milieu du IIe siècle ap. J.-C.) et n° 23 (datée 252 selon l'ère de Philadelphie, soit 189-190 ap. J.-C.).

19 Voir A. Spijkerman, *Coins Decapolis, passim.*

20 Voir notamment M. Sartre, «La Syrie Creuse n'existe pas», dans *Géographie historique au Proche Orient* (éd. P.-L. Gatier, B. Helly, J.-P. Rey-Coquais, Paris, CNRS, 1988), pp. 15-40.

21 Voir mes artilcles «Philadelphie de Coelésyrie» et «Decapolis», cités notes 4 et 14.

22 W. H. Buckler, W. M. Calder, C. W. N. Cox, *JRS* 16, 1926, p. 74-75.

23 Voir A. H. M. Jones, *JRS* 18, 1928, p. 157.

24 Chr. Augé, dans *La Voie royale, 9000 ans d'art au royaume de Jordanie*, catalogue de l'exposition Paris 1986, p. 292, et dans *Géographie historique au Proche Orient* (1988), pp. 328-329 et 334, note 18, signale l'hypothèse, sans la rejeter ni en proposer d'autre. *Contra*, P.-L. Gatier, *Inscr. Jordanie,* 2 (1986), pp. 47-48: l'hypothèse est catégoriqement refusée sans argument ni discussion. Il est tout aussi hypothétique de teir que Gérasa et Philadelphie ont participé à Pétra aux célébrations du culte impérial.

25 C. B. Welles, dans H. Kraeling, *Gerasa, City of the Decapolis* (1938), p. 399, n°53; *Nouveau Choix d'inscriptions grecques*, par l'Institut Fernand-Courby, Paris, Belles-Lettres, 1971, p. 167, n° 322.

26 Voir mon article *ADAJ* 25, 1981, pp. 28-31

27 Dans l'expression "les quatre éparchies" de l'inscription de Gérasa ou d'une inscription inédite pour un gymnasiarque de Tyr, de même que dans une inscription de Salamine de Chypre (voir l'article cité à la note précédente), il faut donner au mot ἐπαρχία le sens que Hugh J. Mason, *Greek Terms for Roman Institutions, A Lexikon and Analysis* (American Studies in Papyrology, vol.13; Toronto, Hakkert, 1974), pp. 135-136, lui reconnaît dans quelques inscriptions d'Asie mineure, notamment lorsqu'il est question des trois éparchies de "the combined province" Cilicie-Isaurie-Lycaonie.

28 F. Cumont, *Bull. Acad. Belgique*, 1905, p. 2204 (= Dessau, 8819a).

et l'organisation du culte impérial dans la nouvelle province[29] (il n'est d'ailleurs pas à écarter qu'il y ait eu un certain laps de temps entre les deux événements, comme il advint lorsque la Cilicie fut détachée de la Syrie[30]).

Il conviendrait aussi d'expliquer—d'essayer d'expliquer—pourquoi le géographe Ptolémée (*Geogr.* 5, 14, 18), au milieu du IIe siècle précisément, présente une unique rubrique *Coelésyrie et Décapole*, englobant à la fois des villes incontestablement syriennes comme Damas ou Hélioupolis/Ba'albak, et les villes de l'ancienne Décapole située dans la province d'Arabie. S'il y a une rubrique unique *Coelésyrie et Décapole*, c'est que la création des provinces d'Arabie et de Syrie Palestine avait mis fin à l'existence de la Décapole en la démembrant. Rappelons que si Abila est dite de la Décapole dans une inscription de Palmyre datée de 134 après J.-C., c'est pour la distinguer d'une autre Abila, dite de Lysanias, située dans l'Antiliban; ce n'est pas que la Décapole existait encore comme circonscription administrative. Il faut en dire autant de la Coelésyrie. Rien ne réunissait ces villes, ni la géographie, ni l'administration provinciale. On observera d'ailleurs que les villes mentionnées dans cette liste apparaissent une seconde fois dans la *Géographie*, dispersées sous d'autres rubriques.

Rien donc ne réunissait ces villes, si ce n'est, peut-être, une célébration commune du culte impérial; c'est dans la documentation relative à l'organisation de ce culte que Ptolémée aurait trouvé sa liste. Ecartons encore une objection: Ptolémée, se faisant antiquisant, nous aurait livré un tableau de la province séleucide. En ce cas, comment expliquer, dans le titre même de la rubrique, la mention d'une entité, la Décapole, qui n'existait pas à l'époque séleucide? Pourquoi verrait-on nommer Capitolias, qui est une fondation de Trajan? Il faudrait admettre chez Ptolémée des confusions ou des remaniements qui ne pourraient précisément s'expliquer que parce que Ptolémée voulait en fait présenter la Coelésyrie (et Décapole) telle qu'elle était constituée de son temps. Sa liste correspond à une réalité institutionnelle, dont on ne voit pas ce qu'elle pourrait être d'autre qu'un organigramme du culte impérial. Le terme Coelésyrie n'apparaît jamais dans la titulature officielle du gouverneur de Syrie, dont la province est nommée "Syrie, Phénicie, Commagène", comme si la province était composée seulement de trois grandes régions administratives—trois éparchies—alors que l'inscription de Gérasa en indique quatre, célébrant ensemble à Antioche le culte impérial, et qu'il y avait en Syrie, depuis la réforme d'Hadrien, quatre *koina* du culte impérial. La Coelésyrie dont se réclamaient les villes de l'ancienne Décapole constituait alors un ensemble étranger aux divisions provinciales, qu'il transcendait; en mettre le nom dans la nomenclature de la province et du gouverneur eût introduit une confusion, qui fut en fait soigneusement évitée.

L'argument le plus décisif pourrait se trouver dans les légendes monétaires d'Abila et de Gadara. Sur les monnaies émises par Abila de Marc-Aurèle à Septime-Sévère[31], par Gadara de Marc-Aurèle à Commode[32] (il serait imprudent de tirer de ces dates des précisions chronologiques hâtives), figure cette suite de sigles et d'abréviations: I. A. A. Γ. KOI. CV. Les trois premiers sigles se résolvent de façon certaine en ἱερά, ἄσυλος, αὐτόνομος, les deux dernières abréviations en Κοίλης Συρίας, comme l'assurent d'autres légendes monétaires. Seul le quatrième sigle, le *gamma*, est resté jusqu'à présent, sauf erreur, inexpliqué. Je propose de donner à cette lettre une valeur numérique; *gamma* signifierait τρίτη, "troisième". Gadara et Abila seraient *ex-aequo* (on a souvent remarqué que le sort des deux villes paraissait lié) "troisièmes" des villes de Coelésyrie.

On sait combien, à l'époque romaine, dès le Ier siècle et particulièrement au IIe siècle, les villes étaient soucieuses de marquer leur rang et de se distinguer de leurs voisines et rivales; l'Asie mineure romaine en fournit de nombreux exemples, bien analysés par Louis Robert[33]. Ainsi les inscriptions montrent-elles Ephèse proclamée la première de la province d'Asie[34], Magnésie du Méandre la septième de la province d'Asie[35], Nicée première de la province de Pont et Bithynie[36]. Les monnaies de Tarse présentent une suite de trois sigles, A M K, que des inscriptions permettent d'expliquer: πρώτη, μεγίστη, καλλίστη, "première, très grande, très belle"[37]. Des monnaies de Carrhes, frappées sous Sévère Alexandre, donnent à la ville le titre de πρώτη μητρόπολις Μεσοποταμίας, l'adjectif numéral étant représenté par la lettre *alpha*[38]. A Gadara même, à une époque bien postérieure, un graffito d'un visiteur, aux célèbres thermes de Hammat Gader, est une acclamation pour Pergé, métropole de Pamphylie: αὐξίτω Πέργη ἡ πρώτη τῆς Παμφιλίας[39]. A Tyr, une monnaie[40] datée de l'an 203 de Tyr (77/78 ap. J.-C.) porte

29 P.-L. Gatier, dans *Géogr. hist.* (cité note 11), p. 169, note 53.
30 Cf. A. Balland et Chr. Le Roy, *Rev. arch.* 1984/2, pp. 346-349
31 A Spijkerman, *Coins Decapolis*, pp. 50-53, n° 1, 3, 9, 11-15; *SNG, American Num. Soc.*, Part 6, n° 1122-1124.
32 A.Spijkerman, *Coins Decapolis*, pp. 140-149, n° 46, 51, 52, 60, 61, 76; *SNG, American Num. Soc.*, Part 6, n° 1305, 1309.
33 L. Robert, «La titulature de Nicée et de Nicomédie; la gloire et la haine», *Harvard St. Class. Phil.* 81, 1977, pp. 1-39.
34 *Bull. épigr. (Rev.Et.Gr.)* 1980, 456; 1981, 407.
35 *Bull. épigr.* 1967, 523.
36 *Bull. épigr.* 1979, 541.
37 *Bull. épigr.* 1982, 460.
38 D. Feissel, J. Gascou, J. Teixidor, «Documents d'archives romains inédits du Moyen Euphrate», *Journal des Savants,* 1997, p.51, renvoyant, pour le monnayge de Carrhes, à G. F. Hill, «The Mints of Roman Arabia and Mesopotamia», *JHS* 6, 1916, pp.135-169
39 *Bull. épigr.* 1998, 516 fin.
40 Y. Meshorer, *Ancient Means of Exchange, Weights and coins, The Reuben and Edith Hecht Museum Collection* (Haïffa, 1998), n° 626.

la légende A. Aϒ. IEP. AΣϒ; les trois dernières abréviationss se lisent comme les trois premiers sigles des légendes des monnaies de Gadara et d'Abila: Tyr est une ville "autonome, sainte, inviolable". Il faut donner au premier sigle, *alpha* , une valeur numérique: Tyr est officiellement la "première" ville de Phénicie, l'une des grandes circonscriptions de la province de la province de Syrie[41]; c'est sous Néron (et non pas seulement sous Domitien comme l'avait laissé supposer la documentation existante[42]) que le titre de métropole apparaît sur les monnaies de Tyr[43].

Dans la dédicace à Hadrien, Tyr se désigne comme la métropole de Phénicie et de Coelésyrie. Ce n'est pas le rappel d'un passé glorieux, tel qu'on le trouve évoqué par d'autres inscriptions qui font référence au rôle éminent de Tyr dans la colonisation phénicienne[44]. La dédicace à Hadrien implique que la Phénicie et la Coelésyrie aient été, à cette époque, des réalités géographiques et humaines délimitées, officiellement reconnues comme le cadre institutionnel dans lequel Tyr a les fonctions et les privilèges de métropole. De même, l'indication du rang implique l'existence d'un groupe organisé et stable sous le contrôle de Rome et de l'empereur, de la faveur et de la décision de qui dépend l'attribution du rang. Une ville ne peut être la "troisième de Coelésyrie" si la Coelésyrie n'est pas un groupement de villes organiquement constitué. Les villes grecques de l'ancienne Décapole ont souhaité et obtenu de rester entre elles et unies à leurs partenaires traditionnels dans la célébration du culte impérial. Elles auraient cru déchoir d'entrer en compétition avec des villes à leurs yeux semi-barbares et de prendre rang parmi elles et après elles, à tout le moins, inévitablement, après Pétra la métropole. Là se mesureraient, à cette époque, les limites de l'hellénisation de la Nabatène. Dans l'expression solennelle du loyalisme envers l'Empereur et l'Etat romains, la province d'Arabie n'était pas une. Les clivages culturels se sont marqués dans les institutions.

Ce que le temps de Rome—de la Rome païenne—n'avait su obtenir, le christianisme l'aurait réalisé à sa manière, même si son épanouissement fut tardif au coeur de l'antique Nabatène[45]. A l'époque byzantine, bien des différences s'effacèrent. A partir du IVe siècle, l'écriture nabatéenne n'est plus utilisée et la langue grecque s'impose dans les inscriptions, sinon dans l'usage quotidien. Très certainement, le bilinguisme, attesté à Jérusalem et à Antioche, devait diviser aussi les communautés chrétiennes de Jordanie.

Les papyrus "brûlés" récemment découverts à Pétra apportent et apporteront bien des précisions[46]. Dans ces archives familiales, recouvrant plus de cinquante années du VIe siècle, le grec n'est en quelque sorte qu'une façade, derrière laquelle on voit vivre un monde arabisé. Les réalités matérielles, les bâtiments, les parties de la maison et du domaine, les lieux de la vie quotidienne, sont désignés par leurs noms arabes usuels, simplement transcrits en lettres grecques. Le nabatéen a fait place à l'arabe.

Cependant, l'imaginaire grec s'impose en pays nabatéen. Du IVe au VIe siècle, les mosaïques de Mādabā, ecclésiales ou civiles, en donnent des exemples significatifs[47]. Au Ve siècle, on y voit représenter bacchante et satyre d'une procession dionysiaque, les travaux d'Héraclès, la légende d'Achille. Dans son médaillon centrale, la mosaïque de l'"église des Apôtres" montre une figure symbolique qui emprunte beaucoup à l'iconographie mythologique gréco-romaine; plus explicite encore, la mosaïque dite d'Hippolyte reflète, à l'époque justinienne, la mise en scène d'une légende grecque telle qu'elle fut portée au théâtre par Euripide. La tragédie grecque du Ve siècle avant J.-C. était connue en Jordanie un millénaire plus tard[48]. Même si, d'un point de vue formel, on peut légitimement parler, avec le P. Michele Piccirillo, d'une «école de Madaba», active dans la ville et dans sa région, il est difficile d'opposer nettement les mosaïques de Gérasa à celles de Mādabā. Les mosaïques offrent des images, qui parlent un langage commun. Le formulaire ecclésiastique est le même à travers tout le pays.

Un millénaire de contacts n'a sans doute pas effacé toutes les différences de culture, de civilisation et de mentalité, entre les cités grecques d'outre Jourdain et le vieux pays nabatéen. Certes, l'hellénisme s'est répandu partout, certes, le tréfonds oriental resurgit aussi avec vigueur dans tout l'Orient. Nourri de mystique orientale et de philosophie grecque, développant des conceptions et une sen-

41 Cf. mon *Arados et sa Pérée* (Inst. fr. arch. Beyrouth, B.A.H. XCVII, 1974), pp. 118-120.

42 Voir mon article «Syrie romaine, De Pompée à dioclétien», *JRS* 68, 1978, pp. 153-154, avec note 122 (renvoi à H. Seyrig, *Antiq. syr.* III, p.151; O. Eissfeld, *RE*, s.v. «Tyros» [1948], p. 1900; M.Chéhab, *MUSJ* 38, 1962, pp.31-33).

43 Y. Meshorer, *Ancient Means*, n° 625.

44 Cf. mon article «Une double dédicace de *Lepcis Magna* à Tyr», dans *L'Africa romana*, 4, éd. M. Mastino, Sassari, 1987, pp. 597-602

45 Sur les régions méridionales de la Nabatène à l'époque byzantine, voir M. Sartre, *IGLS* XX, *Inscr. Jordanie* 4 (1993), p. 18-19.

46 Voir L. Koenen, *Petra* (cité note 2), pp. 157-158.

47 Voir *Mosaïques byzantines de Jordanie* (cité note 3), *passim.*

48 Sur l'influence du théâtre sur l'imaginaire et son importance dans la diffusion de la culture, voir M.-H. Quet, «Romans grecs, mosaïques romaines», dans *Le Monde du roman grec*, éd. M.-F. Baslez, Ph. Hoffmann, M. Trédé, Paris, 1992, pp. 125-160. Cf. mon article «La culture en Syrie à l'époque romaine», dans *Donum amicitiae*, éd. E. Dabrowa (*Electrum*, I; Cracovie, 1997), pp. 139-160, et notamment pp. 152-154.

sibilité commune, le christianisme a visiblement été un facteur d'unité culturel, réussissant ce que le culte impérial n'avait pu obtenir. Si différence ou opposition il y a, elle s'affirme plus entre la ville et la campagne, entre les élites et le menu peuple. Mais aux temps où Byzance cède à l'Islam, qu'est-ce encore que l'hellénisme aux yeux des élites et des peuples de l'antique Jordanie?

Fawzi Zayadine
Department of Antiquities
P. O. Box 88
Amman - Jordan

Fawzi Zayadine

The Settlement of the Arabian Tribes in South Jordan and the Sinai at the End of the First Millenium BC

Introduction

The penetration of the Arabian tribes into South Jordan and the Fertile Crescent, from the first millenium BC to the Late Roman periods, was a continuous process. The scope of interest of this paper will cover mainly the area of the Nabataean Kingdom from Damascus to the Gulf of al-'Aqaba - Ayla on the Red Sea for Jordan, in addition to the homeland of the tribes from al-'Ulā - Dedan in Central Arabia to Taymā' in the northwest. The expansion of the tribes into southern Palestine, the Sinai and the eastern Delta was not the result of the Nabataean trading activities but started much earlier from the Assyrian to the Achaemenid periods.

Thamud and Qedar

In the ninth century BC, the term "Arab" was recorded for the first time in the Assyrian Annals: Under Shalmanassar III, Gindibu the Arab participated in the battle of Qarqar (853 BC) with a contingent of one thousand cameleers (*ANET* 1955: 279). He was most probably a tribal leader (*shaykh*), rather than a king, although the tribal leaders of Qedar were bestowed the title of King by the Assyrians (Macdonald 1995a: 1359). To safeguard the communication routes between southern Arabia and Mesopotamia, especially for the protection of caravans heading through Wādī as-Sirḥān or following the incense road, Sargon II mounted a campaign against the nomads of Central Arabia: "I crushed the tribes of Tamud, Ibadidi, Marsimanu and Hiapa, the Arabs who live, far away, in the desert" (*ANET*: 286). At that time, the Arabs were active in the trade of spices and the Assyrian involvement in the Arabian affairs was most likely motivated by their need of this supply. Sargon II records in his Annals that he received from the Arabs "all kinds of aromatic substances" (*ANET*: 286), and Essarhaddon demanded one hundred leather bags, "more than his father paid, on Iate', King of the Arabs" (*ANET*: 292).

After he defeated the tribes of Thamud, Sargon II "deported their survivors in 721 BC and settled them in Samaria" (*ANET*: 286). This deportation is thought to have been a policy for the control of the trade routes to the Mediterranean. The assumption is plausible, since Tigleth Pileser III appointed, after the conquest of Gaza, an Arab governor to monitor the trade between Egypt and the Sinai (Macdonald 1995a: 1365). It is worth noting in this respect that the prophetic oracles of *Jeremiah* 49:8 and *Ezechiel* 25:13-14, dated to the sixth century BC, warn Edom, Dedan and Teman of an imminent destruction: "Go into hiding, inhabitants of Dedan for I will bring down ruin on Esaü" (*Jer.* 49:8). "People will be put to the sword from Teman to Dedan. I shall unleash my revenge on Edom" (*Ezk.* 25: 13-14).

This association of the Edomites and Dedanites could be justified by their common trading interests in the transportation of frankincense and myrrh, but also by their ethnic affiliation: It is noticeable in this view that in the oases of Dedan, Lihyanite and Minaean personal names incorporate the Edomite god Qôs. One Lihyanite king, for example, bears the name Galti-Qôs (Macdonald 1995a: 1362).

In 552 BC, the Babylonian king Nabonidus migrated to Arabia, and settled in Taymā'. He invaded the land of Edom on his way (Lindsay 1976: 33-34) and left a relief with a cuneiform inscription at as-Sila'/ Sela (Dalley and Goguel 1997: 169-174). This event was crucial for the history of settlement of the Arabian tribes in southern Jordan: some of the Arabian tribes in the Taymā' region were loyal to Nabonidus as it is evident from north Arabian inscriptions found in the area of Ramm in northwestern Arabia (Eskoubi 1999: 74-75, 237, 251). One inscription (No. 169) reads: "I Mardan, the ally of Nabonidus, king of Babel, 2) came with RB SRS" (master of the eunuchs)... (FIG. 1). Another inscription (No. 177) refers to another ally of Nabonidus: "*zn 'nds hlm nbnd mlk bbl*": This is 'nds, the friend of Nabonidus, the king of Babel (FIG. 2). It can be concluded from these important inscriptions that some Arabian tribes were allied to Nabonidus and were settled in the area of Taymā'. It is also probable that the



1. Thamudic inscription from Taymā', mentioning Nabonidus. After Eskoubi, n°169.



2. Thamudic inscription from Taymā', mentioning Nabonidus. After Eskoubi, n°177.

Babylonian King settled in southern Edom tribes who were faithful to him to protect the rear of his army and insure the safety of his communications with his capital Babylon. The Nabataeans are believed to have migrated to the land of Edom at the end of the sixth century BC. It can be assumed that they were with other tribes (Lihyanites, Minaeans and Thamudaeans) allowed to settle southern Jordan from Wādī Iram to Buṣayra and as-Sila'.

At the end of the sixth century BC, the Arab tribes were settled in southern Palestine (the Negeb) and in the eastern Delta of the Nile. When Cambyses invaded Egypt in 525 BC, those tribes provided his army with camels to carry water skins in the desert between Ienysos (Khān Yūnis?) and Mount Casios (Rās al-Kasrūn) (Herodotus III: 5.7.9) (Lemaire 1990: 45-46). The Arabian Nome of the eastern Delta included the area south and east of Gaza, that is the Sinai, the Negeb, the Arabian and the Transjordanian desert between al-'Aqaba - Ayla and Gaza (Lemaire 1990: 47). In the mid-fifth century BC, this Arabian Nome was under the authority of Geshem the Arab (*Nehemiah* II:19). His son Qaynu, king of Qedar, offered in ex-voto a silver bowl to han-'Ilat, the pan Arabian goddess, corresponding to Ourania-Alilat of Herodotus III: 8 and to Allat of the Nabataean pantheon in the temple of Tall al-Maskhūṭa (ancient Patoumos), near Ismailia.

The Qedarites were a powerful federation of several Arabian clans who were originally based in Adumatu - Dumat al-Jandal, modern al-Jawf. They spread to the north by way of the incense roads, as far as Palmyra. It has been assumed that the Nabataean belonged to the same federation (Knauf 1989: 60). The hypothesis is credible on the basis of the following evidence: In the first place, the Nabataeans are associated in three tomb inscriptions of Hegra with the Salamaeans ŠLMW (Healy 1993: index, 251 *s.v.*). In the love poem of the *Song of Songs*, I:5, dated to the third century BC, the young beauty of Jerusalem compares herself to the tents of Qedar and the pavilions of Salam (not Solomon) (Knauf 1989: 60) : "Black I am, but beautiful, ye daughters of Jerusalem: as the tents of Qedar, as the pavilions of Salam".

The Salamaeans who are attested at Hegra are associated with the Qedarites and the Nabataeans. It is noteworthy in this context that Pliny the Elder (first century AD) associates the Nabataeans and the Cedrei (Qedarites) (*Nat. Hist.* V.XII,65). At the same time we know that the caravan station of Hegra - Madā'in Ṣāliḥ was the homeland of the Thamudaeans. In this case, it is possible to conclude that the Qedarites, the Thamudaeans, the Salamaeans and their federates the Nabataeans were settled in Central Arabia in the first millenium BC. However, they may have been settled at one time in northeastern Arabia (Milik 1982: 261-265).

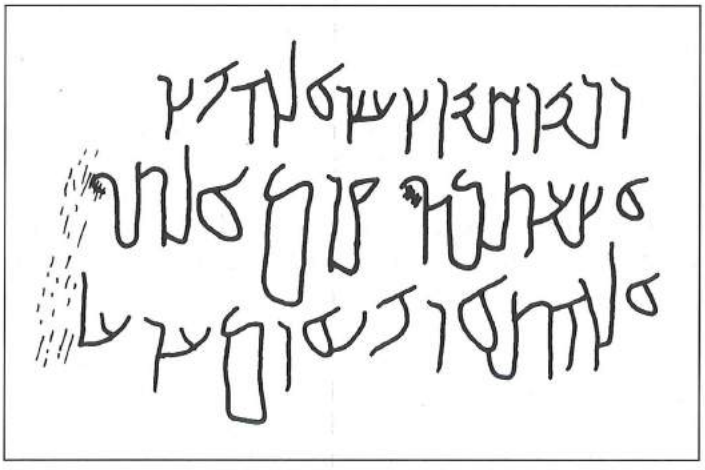
It is agreed that "Thamudic" is only utilized as a conventional term to designate the script used by the north Arabian tribes, "since the name *tmd* occurs but twice in Thamudic texts, both times in central Arabia, and only about a half-dozen times in all of the pre-Islamic inscriptions" (Harding 1971: 148; Graf 1987: 11-12). *TMD* and *TMDY* appear at Hegra - Madā'in Ṣāliḥ (Jaussen and Savignac 1914: n°s 280 and 300).

In Wādī Iram, more than 2700 graffiti were collected by the recent survey of IFAPO and the Department of Antiquities of Jordan. In one instance only the name Ḥayy bin Tmd was registered in the remote Wādī al-Kbāshī, south of Wādī Sābiṭ (Farès-Drapeau *et alii*, forthcoming). In this graffito, *TMD* appears as a patronym. As a matter of fact, more than twenty five tribal names are known in Thamudic (King 1990: 961) and of those only six were recorded in the recent survey: In Wādī Umm Saḥm, a long valley which runs for more than 35km and peters out at the Saudi Arabia borders, near al-Mudawwara, the most frequent tribes is *MZN*. A graffito of Wādī Umm Zarb, a tributary of Wādī Umm Saḥm reads, for example: "By Sa'd bin Wahballah of the *MZN* tribe, and may Lat remember all those who belong to al-Mazn" (Farès-Drapeau 1996: 280-282). This latter tribal name is still alive and is carried by a large clan of ad-Dīsah, the Mzinah, who joined the powerful tribe of al-Ḥuwayṭāt during World War I (Al-Zalabiah 1989: 48). In the Sinai, the Mzinah are one of the most influential nomadic groups (Shoucair 1916: 112). At Madā'in Ṣāliḥ, the *nisbah mznyt'* (of *MZN*) appears in a tomb inscription of Sukaynat, daughter of Murrat of Mazin (Healy 1993: 178-179). The other frequent tribal names are: M'n'l, Hl'l, Zydt, Šllt and 'Ad. This latter tribal name has a special impact on the mind of the Islamic tradition because it is frequently mentioned in the Qur'an with the Thamūd. In *Sūrat al-Fajr* 89: 6-9, 'Ād and Thamūd are associated with Iram: "Hast thou not considered how thy Lord dealt with 'Ād, (with) Iram of the high peaks, whose like has never been created in the world? And (with) Thamūd who hewed the rock in the

valley?".

This Surat records, as late as the sixth century AD, the presence of the 'Adites and Thamudaeans in Wādī Iram. It is well-known that the name of this valley is attested in the Nabataean graffito at Jabal al-Judayda, near a water reservoir (Savignac 1932: 592-593) (FIG. 3). The word "'*imād*" in S.98:7 is usually translated "lofty pillars". However, in the Arabic lexicon *'imād*, pl. of *'md* designates the high support of mountains, such as the expression *'imād as-samā'*, "the pillars of the sky" (see: Ibn Manzur 1956: IX). More common is the term *'mūd*, meaning mountain (al-Bakri 1983: *s.v.*). At Wādī Iram, near ad-Dīsah, Jabal 'Amūd is a well-known peak. At any rate, the tribe of 'Ād appears to have been well established in Wādī Iram: In the survey of 1997, a sandstone block was found reused in the floor of the Lat Temple at the foot of Jabal Ramm. It was incised with a North Arabian inscription which reads: "By Gawth, son of Awsallah, son of Thakam, and he built the sanctuary (*bayt*) of Lat of al-'Ad" (Zayadine and Farès-Drapeau 1998: 255-258). It is this dedication that evidences the responsibility of the 'Adites for the building of the Temple of Lat, the main patroness of the valley, probably in the second or first century BC. The temple was remodeled most probably by Aretas IV in the first century BC-AD (Tholbecq 1998: 246-247). In the time of Rabbel II (AD 76-106), the settlement around the temple was completed and the building continued to be occupied to the third century AD. Recently Macdonald (2000: 73 no. 141) addressed harsh criticism to the interpretation of *d 'l 'd* as of the tribe of 'Ād. Regrettably, he misread the article in *ADAJ* 42, 1998: 255-258, and failed to look at fig. 2 which indicates the exact location of the inscribed block. Furthermore, he claims that *'d* could be *'ayd, 'awd, 'ud*. There are no Arabian tribes by these names and I invite him to look at Harding and Littmann 1952: n° 4 : lzky bn 'mr *d 'l 'd*, translated by the authors: "By Zakiy son of 'Amr of the tribe 'Ād".

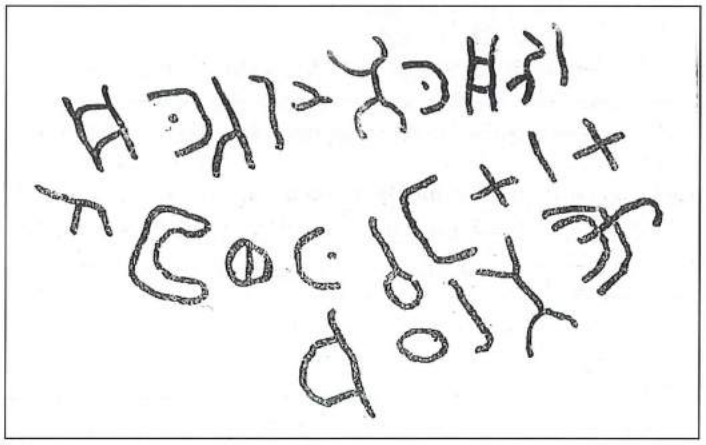
If the Nabataeans took possession of a sanctuary of Lat, originally founded by the 'Adites, this peaceful occupation is full of consequences for the settlement of the Arabian tribes in southern Jordan: The excavation of the temple by Kirkbride (1960: 65-92) revealed no destruction phase. Although the soundings did not confirm the existence of an earlier temple, yet its presence on the same plan as the extant sanctuary remains a possibility (see Tholbecq 1998: 242). Kirkbride noticed in her section two large blocks which projected from the rear wall of the cella (1960: 85). Most probably, the 'Adite shrine of Lat consisted of a cubic room (*ka'ba*). The central monument still standing averages 4.11 and 4.10m for the north and south walls respectively and 4.94m for the east and west walls (FIGS. 4, 5). Aretas IV enclosed this *ka'ba* with four columns on each side and coated the walls with painted stucco (see Tholbecq 1998: 246). A graffito on a stucco fragment bearing the date 40+ was first published by Savignac (1935: 264-268) and dated to the Provincia Arabia. Starcky (1966: c. 979-980) confirmed the reading and dated the graffito to AD 147. However, a Nabataean inscription at the dam of Kharaza, Jabal Ratama, is dated to the year 41 of Aretas IV. The graffito on the stucco of the Lat Temple should be related to the reign of Aretas IV, not to the era of the Province.



3. Nabataean dedication from Wādī Ramm, to Allat who is in 'RM.



4. The temple of Allat at the foot of Jabal Ramm, looking northwest.

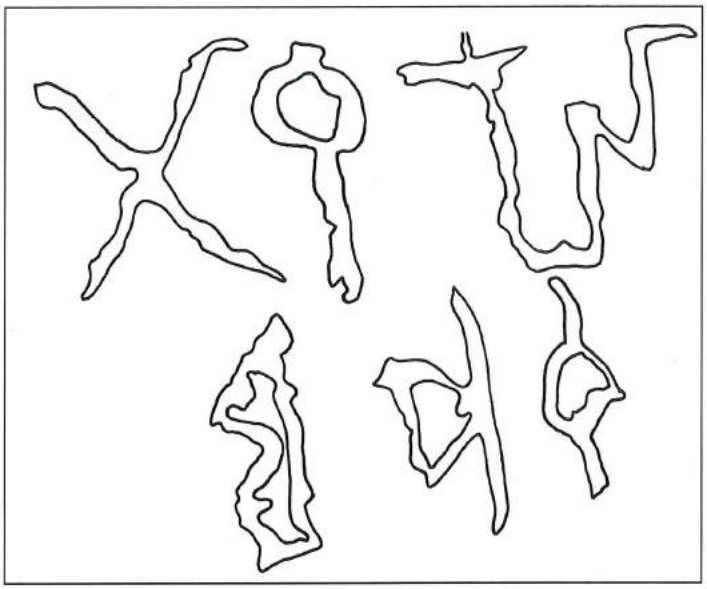


5. Thamudic dedication to a temple of Allat in Wādī Ramm.

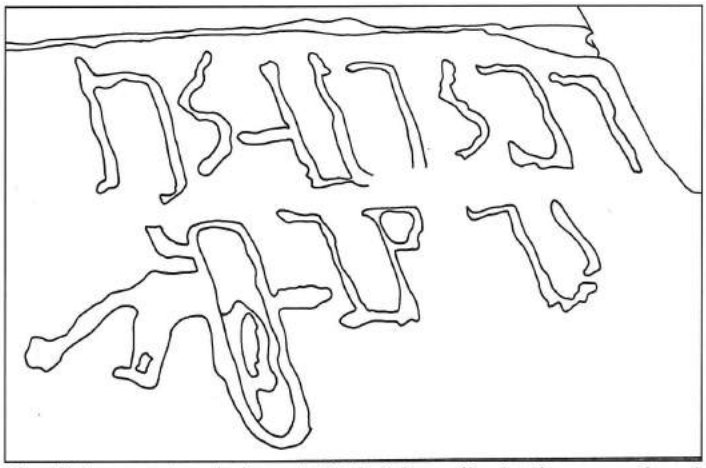
The Nabataeans and the Tribes in South Jordan

The transition from 'Adites to Nabataeans took place, without apparent conflict, at the end of the first century BC. This new phase could only happen if the Nabataeans and the 'Adites belonged to the same tribal federation. This assumption can be ascertained by the fact that the Nabataeans used, when they first arrived in Wādī Iram, the North Arabian script or so-called Thamudic E. The first evidence came from the survey of the late W. Jobling: At Muqawwar, a rock cascade overlooking the Ḥismā is covered with graffiti in North Arabic and Nabataean and the site was interpreted as "a centre of some religious significance" (Jobling 1990: 108). Similar bilingual inscriptions were noticed by S. Farès-Drapeau at Sahl Muzayrib, a tributary of Sahl aṣ-Ṣuwwan. The name *NGYT BR QDM*, Nagyat son of Qidim is incised in both Nabataean and North Arabic script (FIG. 6a, 6b). Other significant examples of bilingual scripts are the theopheric names of 'Abd'obadat and 'Abdḥaritat, attested in several instances (see King 1990: *s.v.*). The first theopheric name refers, most probably, to king 'Obodat I (93-85BC). He defeated the last Seleucid king Antiochus XII who fell in the battle of Moto. But 'Obodat died soon after his victory, was buried at 'Obodat, modern 'Ubāda/ Avdat, and was deified after his death. He had privilege during his lifetime to receive an oracle from the gods who ordered him to build a town on the site of Auara (in Aramaic Ḥawrā; meaning white), at the place where a man wearing a white robe would appear on a white camel (Eady 1984: 211).The foundation of the town was credited to his son Aretas III (84-61 BC). This major station to the north of Hegra and half way between al-'Aqaba - Ayla and Petra was the major factor in establishing the Nabataean leadership over the Arabian tribes of Wādī Iram. It is most likely, in this case, that the theopheric names 'Abd'obodat and 'Abdḥaritat refer to 'Obodat I and his son Ḥaritat III. As indicated above, the establishment of the Nabataean authority in the south of Jordan was peaceful, mainly because the Nabataeans belonged to the same realm of the Qedarites and the Thamudaeans who are attested in the second century BC to have been active on the Red Sea coasts, between al-Wajih and Muwayliḥ (Van der Bṛanden 1966: 11). In this same period, the Nabataeans who took over the spice trade from the Minaeans were also attested in this area and were reported to have preyed on the Ptolomaic ships (Diodorus III,43,1-5).

Since the Thamudaeans were settled by Sargon II in Samaria (*supra*), it should be emphasized that they were not completely nomadic. There is evidence from the rock drawings that they tilled the soil and one of their villages is dedicated to the god Nahy (Van der Branden 1950: 7). At Rawwāfa, south of Tabūk, the Thamudaean nation (*ethnos* in Greek), dedicated a temple to Ilah in Nabataean and Greek during the reign of Marcus Aurelius and Lucius Verus (AD 166-169) (Milik 1971: 45-48, Graf 1978: 9-12). One would subscribe to the caution expressed by Macdonald (1993b: 93-101) to translate *šrkt* of the Nabataean text by "confederation". However, it is not probable that the term could mean "a military unit" (Macdonald 1993b: 100). *Ethnos* is usually rendered by "people living together, nation" as it is the case for the Jewish *ethnos* in Fl. Josephus. The translation by Thamudaean people is not specific enough but is more convenient in this context. Shahid (1984: 128-140) is of the opinion that "*sharikat*" in Arabic does not mean "federation" or "confederation" but rather "people, tribe". It is true that two units of the Roman army were designated as the "*Equites Thamudeni IIIyriciani*" in Palestine and the "*Equites Saraceni Thamudeni in Limes Aegypti*" in the *Notitia Dignitatum*, according to the military terminology. Thus, the term *šrkt=ethnos* would be inadequate for Roman units. As late as the sixth century AD, the Qur'an ad-



6a. Thamudic inscription of Wādī Muzayrib: NGYT, QDM.



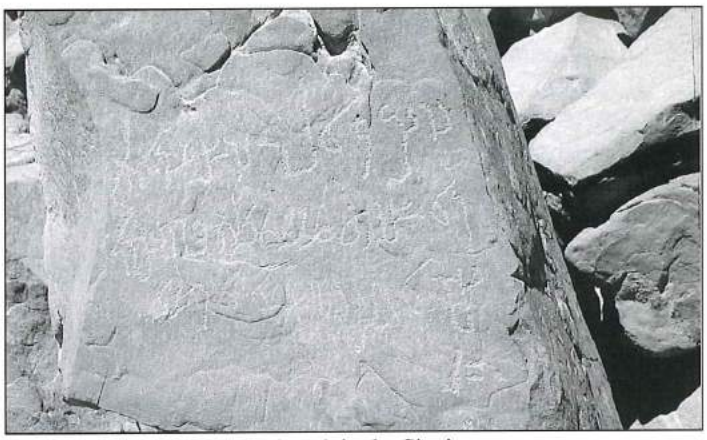
6b. Nabataean inscription of Wādī Muzayrib: let be remembered NGYT son of QDM.

dressed the Thamūd by the mouth of their prophet Ṣāliḥ: "will ye be left secure with all that ye have here? Gardens and springs, and corn fields and date palms with spathes near breaking? And ye carve houses out of mountains with great skills?" (Surat 26: 146-49). In the 14th century AD, Abulfida reports that "the Thamud are the sons of Geter (Qedar?), son of Aram, son of Sem" (quoted by Van Den Branden 1966: 2). According to the same tradition, they were settled in Yemen but when king Ḥimyar seized the throne, he expelled them from his country. They migrated to the north and settled in the mountains of al-Ḥijāz. They moved with the Nabataeans to Wādī Iram and their graffiti were found in the 'Ammān area at the cave of Rufaysa, near al-Yādūda, at Za'farān, on the road to Umm ar-Raṣāṣ - Mayfa'a and at this latter site (Macdonald 1991: 422-428).

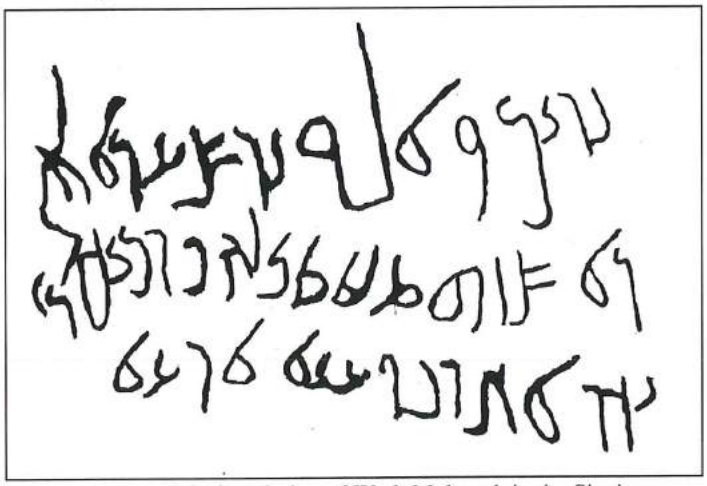
The Thamudaeans also reached the Negeb and their graffiti were found around 'Oboda, on the Gaza route (Anati 1955; Graf 1978: 6). This is a convincing testimony that they were involved in the spice trade, either as caravaneers or as a security escort. Thus, justified reservation should be expressed against Graf's assertion (who quotes Negev) "that the Thamudic tribes were the agents of destruction for the settlements of the Petra-Gaza road during the mid-1st century AD" (Graf 1978: 6) This conclusion was supported by surface exploration only. The survey and excavations of Cohen (1982: 240-244) demonstrated that the stations from Moyet 'Awwad to 'Oboda "was in uninterrupted service through out the centuries covered by the Nabataean, Roman and Byzantine periods" (Cohen 1982: 246). However, it is admitted that raids of Bedouins in the desert increased in the Late Roman period. The Nabataean inscription of Wādī Mukattab, *CIS II*, 964 has been advocated by a legion of notorious scholars to prove the nomadic destruction of the region. But the interpretation of this inscription has been revised. The author of this paper has been able to trace this short text in the company of Graf (1989: 344-345):

Text (FIG. 7a, b)
bryk w'lw br s'd'lhy d' snt 85 lhprky' d bh 'ḥrbw 'y' 'rṣ'

Commentary
A diversity of opinion was brought about the last line: *'ḤRBW 'Y'*. Euting, in his drawing of the graffito restituted a *nūn* after the *'ayn*: *'NY'*. But he recognized that this letter was not certain because of a fracture in the rock (*CIS II*, 964), and it was not possible to distinguish any trace of it when Graf and myself examined the inscription in 1989. In any case, it is not possible to restore *'arbya* because there is no room for two letters between the *'ayn* and the *yā'* and it is not possible to read the second letter as *rā'*, as it was abusively admitted by some authors, such as Negev 1963: 124.



7a. Inscription of Wādī Mukattab in the Sinai.



7b. Facsimilie of the inscription of Wādī Mukattab in the Sinai.

Sartre (1982: 127), surprisingly comments: "Only the word *'rby'* the Arabs is partially restored, but we can consider this restoration for granted"! He can be excused for not being familiar with Nabataean epigraphy, but it is hard to plead for Negev, a good epigraphist who published several inscriptions from the Sinai. Furthermore, he attributed the destruction of 'Oboda to this single graffito and even holds it responsible for the dramatic annihilation of the Nabataean civilisation (1963: 123-124). An objective reexamination of the inscription does not allow such conclusions: It was already noticed by the *CIS II*, 964 that the reading "Arabs" by Euting is an incorrect emendation. Instead, the reading *'ay'* is the best acceptable solution and is explained "as the name of a tribe or people" (Graf 1989: 345): A clan *'aya'* is recorded as a fraction of the south Arabian tribe of Jarm (see Kahhaleh 1991: 865).

Translation
Blessed be Wael, son of Sa'dallahi. This (was written) the year 85 of the Eparchy, in which the *'Aya'* ruined the land.

Raids of south Arabian tribes into the Sinai were frequent as late as the Byzantine period. Those attacks by the

Bedouin tribes were evidence that the desert was not living in continuous peace.

Of special concern are the Safaitic graffiti that refer to the "war of the Nabataeans". One of these reads "*l'slh bn s'dlh bn jdy, w'lf snt hrb nbt yhd*": By Awsallah, s. of Sa'dallah, s. of Jady and he became weak the year of the war of the Nabataeans and the Jews (see Abbadi 1996: 239-244). The translation of *'lf* by became weak in preferable to "feed or fodder the (animals)" rendered by Abbadi (see for the verb *'lf* Macdonald and Harding 1976: 126).

The Nabataeans and the Population of the Ḥarra

The Jordanian and Syrian Ḥarra is the natural extension of the Arabian desert. It was through Wādī as-Sirḥān and the oasis of al-Azraq that the tribes penetrated into northeast Jordan. By Wādī Rājil, they penetrated into southern Syria and reached the eastern edge of the Ṣafā. The graffiti of those tribes were engraved on rocks in a South Semitic script, but according to Macdonald (1994: 761) "none have even been found in the Safa itself". The same author assumes that the graffiti "were written almost exclusively by nomads". However, it seems surprising that those Bedouins were aware of political events that prevailed in the region. Four inscriptions, for example, refer to important political dates such as "the year Caesar's son died; and he heard Philippus had been killed". It was suggested that the son of Caesar is Gaius Caesar, the grandson and adopted son of Emperor Augustus or Germanicus, the nephew and adopted son of Tiberius. Philippus is believed to be a friend and general of Agrippa II who ruled the Ḥawrān between AD 53 and 93/4 (Macdonald 1995b: 285-290).

More important for the relations between the Nabataeans and the population of the Ḥarra are the so-called Safaitic inscriptions dated to the kings of Petra: The inscription which appeared in the desert of ar-Ruṭba, at the site of H3n on the way to Baghdād is dated *snt mt 'bdt*: "the year 'Obodat died" (Naji 1962: 168-169). It was presumed by the author that 'BDT is king 'Obodat III (30-9 BC) who was succeeded by king Aretas IV in 9 BC. Another recently discovered graffito in Wādī Salma, 30km north of aṣ-Ṣafāwī, in the northeastern Ḥarra reads: "*lṣ'd bn bnt bn s'd 'l mskt wr'y h 'bl snt mlk rb'l*": By Ṣa'd s. of Banat, s. of Ṣa'd, of the tribe of Masikat, and he pastured the camels, the year Rabel became king. It has been assumed that the graffito was dated to the accession year of Rabel II in AD 76 (Zayadine 1999: 315-317). It is known that Rabel II became king after the regency of his mother Shaqilat II. This inscription can be considered as a personal record of the taking-in-charge of the job by the shepherd Ṣa'd. This is a good proof that the population of the Ḥarra was in close contact with the Nabataean kingdom.

In the Postscript to his monograph *Nabataean Archaeology Today*, A. Negev pointed out to the "correlation between the decline of the Nabataean-Aramaic script and the rise of the 'Safaitic script'" (1986: 150). His remark is judicious. However, one should keep in mind that at the end of the Nabataean kingdom and the creation of the Province of Arabia, Nabataean was used side by side with the so-called Safaitic script, as it is the case in the northeastern desert of Jordan at Qaṣr Burqu' (Milik 1980: 42), at Jāwa North (Macdonald 1982: 172), and the Ḥarra of Wādī Rājil.

After he made the Bedouin tribes of the Negeb and the Sinai responsible for the destruction of the Nabataean civilisation (*supra*), A. Negev concludes surprisingly "Looking at these facts, I am going to suggest that the so-called 'Safaitic' inscriptions are not the product of anonymous Arab tribes, but rather are the records of the Nabataeans themselves" (1986: 150). It is true that the Bani 'Amrat of the Safaitic inscriptions were originally based in the Mādabā area (Milik 1980: 41-54), that they spread in the Ḥarra up to Dayr al-Kahf, to aṣ-Ṣafāwī (tomb of Hani) and Burqu' (Milik 1980: 41-45; Graf 1989: 360). But Macdonald was cautious about the evidence presented by the two authors and concludes: "The connection is possible but, I would suggest, it remains to be proved" (1993a: 360). As a matter of fact, the personal name 'Amrat is very common in the Nabataean onomasticon, was found in the epitaph of a lady at Dhāt Rās, near al-Karak (Zayadine 1970: 132), and was adopted as a tribe name in South Arabia (Pirenne 1968: 221). At any rate, it is hard to imagine that the kings of Petra who occupied Damascus under Aretas III had no control on the population of the Ḥarra. Some of the tribes, like the *HWLT* were believed to be foreign to the country and aggressive (Harding 1969: 20; Macdonald 1993a: 308). This fact could justify the "war of the Nabataeans" if their caravans were not granted free passage on their way to the north. It is hazardous, in this case, to identify the Safaitic nomadic groups with the sedentary population of the Nabataean kingdom.

References

Abbadi, S. K. 1996. The War of the Nabataeans and the Jews in the Safaitic Inscriptions. *Mu'tah Lil-Buhooth wa Al-Dirasat* 11,2: 239-251 (Arabic).

____1997. A Safaitic Inscription Dated to the Last Quarter of the First Century BC. *Abhath Al-Yarmuk* 13,3: 141-151 (Arabic).

Abulfida, 1831, *Historia ante-islamica*. Leipzig: Ed. Fleischer.

Anati, E. 1955. Ancient Rock Drawings in Central Negev. *PEQ* 87: 49-57.

ANET, 1955. *Ancient Near Eastern Texts, Relating to the Old Testament*. J. B. Pritchard (ed.). Ithaca: Princeton University Press.

Al-Bakri, 1983. *Mu'jam mā ista'jam*. Beirut.

Bible of Jerusalem. 1971. London.

CIS. *Corpus Incriptionum Semiticarum*. Paris: Imprimerie Nationale.

Cohen, R. 1982. New Light on the Date of the Petra-Gaza Road. *BA* 45: 240-247.

Dalley, S. and Goguel, A. 1997. The Sela' Sculpture: A Neo-Babylonian Rock Relief in Southern Jordan. *ADAJ* 41: 169-176.

Diodorus of Sicily. 1962. *The Library of History*, XIX. Translated by R. M. Geer. Loeb Classical Library.

Eady, J. 1984. Humayma 1983: The Regional Survey. *ADAJ* 28: 211-224.

Eskoubi, K. M. 1999. *An Analytical and Comparative Study of Inscriptions from "Rumm" Region South West of Tayma*.

Farès-Drapeau, S. 1996. Wadi Iram: Un lieu du culte et de rassemblement des tribus arabes dans l'antiquité. Les permiers résultats de la mission épigraphique 1997. *ARAM* 8, 1&2: 269-283.

Graf, D. F. 1987. The Saracens and the Defense of the Arabian Frontier. *BASOR* 229: 1-29.

____1989. Rome and the Saracens: Reassessing the Nomadic Menace. Pp. 341-400 in T. Fahd (ed.), *L'Arabie preislamique et son environment historique et culturel*. Coll. De Strasbourg, 24-27 juin 1987. Leiden: Brill.

Harding, G. L. 1969. The Safaitic Tribes. *Al-Abhath* 22: 3-23.

____1971. *An Index and Concordance of Pre-Islamic Arabian Names and Inscriptions*. Near and Middle East Series 8. Toronto: University of Toronto Press.

Harding, G. L. and Littmann, E. 1952. *Some Thamudic Inscriptions from the Hashemite Kingdom of Jordan*. Leiden: Brill.

Healy, J. F. 1993. *The Nabataean Tomb Inscriptions of Mada'in Saleh*. Oxford: Oxford University Press.

Ibn Manzur 1956. *Lisān al-'Arab*, IX. Beirut.

Jaussen, A. and Savignac, R. 1914. *Mission archéologique en Arabie*. II. Paris: P. Geuthner.

Jobling, W. J. V. 1990. Some New Nabataean and North Arabian Inscriptions of the Hisma in southern Jordan. *ARAM* 2, 1&2: 99-111.

Kahaleh, O. R. 1991. *Mu'jam qabā'il al-'Arab*, vol. IV. Beirut: al-Risala.

King, G. M. H. 1990. *Early North Arabian Thamudic E: A Preliminary Description Based on a New Corpus of Inscriptions from the Hisma Desert of Southern Jordan and Published Material*. Ph.D. thesis, School of Oriental and African Studies, University of London.

Kirkbride, D. 1960. Le temple nabatéen de Ramm, son évolusion architecturale. *RB* 67: 65-92.

Knauf, E. A. 1986. Die Herkunft der Nabatäer. Pp. 74-86 in M. Lindner (ed.), *Petra Neue Ausgrabungen und Entdeckungen*. Munich: Delp.

____1989. Nabataean Origin. Pp. 56-61 in *Arabian Studies in Honour of Mahmoud Ghoul*. Yarmuk University Symposium, Dec. 1984. Wiesbaden: Harrassowitz.

Lemaire, A. 1990. Populations et territoires de Palestine à l'époque perse. *Transeuphratène* 3: 31-74.

Lindsay, J. 1976. The Babylonian Kings and Edom, 605-550 B.C. *PEQ* 180: 24-39.

Macdonald, M. C. A. 1991. Thamudic and Nabataean Inscriptions from Umm al-Rasas. *LA* 41: 423-428.

____1993a. Nomads and the Hawran in the Late Hellenistic and Roman Periods. A Reassessment of the Epigraphic Evidence. *Syria* 70: 303-413.

____1993b. Quelques reflexions sur les Saracènes, l'inscription de Rawafa et l'armée romaine. Pp. 93-101 in H. Lozachmeur (ed.), *Présence arabe dans le Croissant Fertile*. Actes de la table ronde internationale, Paris, 13 nov. 1993. Paris: Erc.

____1995a. North Arabia in the First Millennium BCE. Pp. 1355-1369 in J. M. Sasson (ed.), *Civilizations of the Ancient Near East*, II. New York, London.

____1995b. Herodian Echos in the Syrian Desert. Pp. 285-290 in S. B. Bourke and J. P. Descoeudres (eds.), *Trade, Contact, and the Movement of Peoples in the Eastern Mediterranean*, Studies in Honour of J. B. Hennessy. Mediterranean Archaeology Supp. 3. Sydney.

____2000. Reflections on the Linguistic Map of Pre-Islamic Arabia. *Arabian Archaeology and Epigraphy* 11: 28-79.

Macdonald, M. C. A. and Harding, G. L. 1976. More Safaitic Texts from Jordan. *ADAJ* 21: 119-130.

Macdonald, M. C. A. and Searight Macdonald, A. 1982. Inscriptions and Rock Drawings of the Jawa Area. *ADAJ* 26: 159-172.

Milik, J. T. 1971. Inscriptions grecques et nabatéennes de Rawwafah. *University of London Bulletin of the Institute of Archaeology* 10: 54-58.

____1980. La tribu des Bani 'Amrat en Jordanie de l'époque grecque et romaine. *ADAJ* 24: 41-54.

Naji, A. 1962. Kitāba ṣafawiya min ṣaḥrā' ar-Ruṭba . *Sumer* 18:165-170.

Negev, A. 1963. Nabataean Inscriptions from 'Avdat Oboda. *IEJ* 13: 122-124.

____1986. *Nabataean Archaeology Today*. New York and London.

Parr, P. J. 1989. Aspects of the Archaeology of North-West Arabia in the First Millenium BC. Pp. 38-66 in T. Fahd (ed.), *L'Arabie preislamique et son environement historique et culturel*. Strassbourg.

Pirenne, J. 1968. *Répertoire d'épigraphie sémitique*, VIII. Paris.

Qur'an. English translation: *Muṣḥaf al-Madīnah an-Nabawiyah*.

Sartre, M. 1982. *Trois études sur l'Arabie romaine et byzantine*. Bruxelles.

Savignac, R. 1935. Le temple de Ramm. *RB* 44: 245-278.

Shahid, I. 1984. *Rome and the Arabs*. Washington D.C.: Dumbarton Oaks.

Shoucair, Naum Bey, 1916. *The History of Sinai and Arabs*. Cairo (Arabic). Re-edited 1985, Athens: Ste Catherin.

Starcky, J. 1966. Pétra et la Nabatène. *Dict. de la Bible*, Sup.

VII. Paris.

Tholbecq, L. 1998. The Nabataean Roman Sites of Wadi Ramm (Iram). *ADAJ* 42: 241-254.

Van den Branden, A. 1950. *Les inscriptions thamoudéennes*. Louvain-Herverlé.

____1960. *Histoire de Thamoud*. Beirut.

Winnett, F. V. and Harding, G. L. 1978. *Inscriptions from Fifty Safaitic Cairns*. Near East and Middle East Series, 9. Toronto: University of Toronto Press.

Al-Zalabiah, A. A. E. 1998. *Wādī ramm bayn al-māḍī wal-ḥāḍir*. Amman: Military Press.

Zayadine, F. 1970. Une tombe nabatéenne près de Dhat-Râs. *Syria* 47: 117-135.

____1999. Two North Arabian Inscriptions from Jordan. *ADAJ* 43: 311-319.

Zayadine, F. and Farès-Drapeau, S. 1998. Two North-Arabian Inscriptions from the Temple of Lāt at Wādī Iram. *ADAJ* 42: 255-258.

Burton MacDonald
St. Francis Xavier University
P. O. Box 5000
Antigonish, Nova Scotia
Canada B2G 2W5

Burton MacDonald

Relation Between Paleoclimate and the Settlement of Southern Jordan during the Nabataean, Roman and Byzantine Periods

Introduction

Harlan has described the Wādī al-Ḥasa region as marginal for farming but stable for grazing and, as such, it would be the first "to empty out" and the last "to fill up" compared to more favourable regions (1988: 46). He thought that the Wādī al-Ḥasa watershed would probably not be farmed unless more favourable sites to the north or on the west bank were fully occupied. With depopulation of the more favourable regions, farmers of the Wādī al-Ḥasa area would abandon their fields and villages and move to better locations. Based on this thinking, Harlan writes: "it was probably a 'filling up'" elsewhere that caused the Nabataeans to move into the desert and attempt to farm in areas of 100-150 mm annual rainfall" (1988: 46). He concludes by stating: "I find no evidence that the 'filling up'" during the Nabataean-Roman times was accompanied by an improvement in climate" (1988: 47).

Despite Harlan's position, I have been intrigued, for the past number of years, by the number of Nabataean/Roman and Byzantine sites in areas surveyed by both the Wādī al-Ḥasa (MacDonald *et al.* 1988) and the Southern Ghors and Northeast 'Arabah Archaeological Surveys (MacDonald *et al.* 1992). I have wondered whether or not the presence of so many sites from the periods under discussion in areas that are today almost devoid of human population may indeed be explained, at least in part, by climatic conditions.

One of the most noteworthy, and perhaps celebrated, recent attempts to relate climatic change to the history of the Ancient Near East is the work of Weiss *et al.* at Tell Leilan and neighbouring sites in the Habur Plains of northeastern Syria (1993). The site in question, at one time a northern city in Mesopotamia's Akkadian Empire, along with a number of other sites in the region, was abandoned around 2200 BC. The traditional interpretations of history have attributed this abandonment to human activities. More recent archaeological and soil-stratigraphic data indicate, however, that a marked increase in aridity and wind circulation induced a considerable degradation of land-use conditions, in other words, a severe drought. This change in climate was probably the cause, in the opinion of Weiss *et al.*, of the abandonment of Tell Leilan, regional desertion, large-scale population dislocation, and the eventual collapse of the Akkadian empire (1993; see also Issar 1995: 352-54).[1]

It is generally agreed that archaeological data does not suffice on its own as an indicator of paleoclimates. Other evidence, for example, palynology, paleomorphology, faunal remains, and dendrochronology, must also be taken into consideration (see, for example, Henry 1985; Henry and Turnbull 1985; Rosen 1995; Munro *et al.* 1997). In fact, the interpretation of paleoclimates should be based on multidisciplinary studies. It must be noted, however, that natural evidence such as pollen and paleomorphology, does not always record pure climatic events. Natural evidence may also suffer from human interference such as deforestation and agriculture (Frumkin *et al.* 1994: 315).

Settlement in Southern Jordan and the Negeb during the Nabataean, Roman and Byzantine Periods

Archaeological surveys south of Wādī al-Ḥasa, e.g., Glueck (1934, 1935, 1939); Jobling in the Ḥisma (1984, 1989); Hart between aṭ-Ṭafīla and Rās an-Naqab (Hart and Faulkner 1985; Hart 1987); King *et al.* in the northern 'Arabah (1987, 1989; King 1985, 1986); MacDonald *et al.* along the south bank of Wādī al-Ḥasa (1988) and in the Southern Ghors and Northeast 'Arabah (1992); Parker for the southern segment of the Roman frontier (1976, 1986); and, more recently, Smith in the southeastern Wādī

[1] Weiss *et al.* (1993), however, were not the first to point out the drought conditions were probably the agency that accounts for a number of collapses of civilizations in the Ancient Near East. In fact, in 1966, British archaelogist James Mellaart had blamed drought for the downfalls of a whole spectrum of third-millennium civilizations, from the Early Bronze Age communities in Palestine to the pyramid builders of Egypt's Old Kingdom. When Mellaart put forth his hypothesis, however, he did not have much in the way of data to back him (Wright 1998: 96).

'Arabah (1994; Smith and Niemi 1994; Smith *et al.* 1997), indicate a "filling up" relative to the previous Persian-Hellenistic periods and an "emptying out" at the beginning of the Early Islamic period. Data from both the Wādī al-Ḥasa Survey (Table 1) and the Southern Ghors and Northeast 'Arabah Survey (Table 2) reflects this general trend.[2] Furthermore, Petra may have sharply declined in the mid-sixth century, never to recover (Schick 1994: 154). As well, there are indications from excavations at al-Ḥumayma that the population in the late sixth century and later was smaller than it had been earlier in the Byzantine period and a virtual cessation of habitation after the mid-eighth century (Oleson 1997: 176). During this same time period, there was an enormous development of irrigation and agricultural systems of the Nabataean and Byzantine cities of the Negeb and the Beer Sheba Plain that reached its peak in the fifth century (Issar 1995: 351 and 352-53, fig. 2). Can this "filling up," contrary to the position of Harlan, be explained, at least in part, by a cooler and more humid climate than today's? Moreover, can the "emptying out" at the beginning of the Early Islamic period be due, again, at least in part, to climatic conditions?[3] It is important to point out that even without major climatic changes the region can become inhabitable due to droughts (Koucky 1987: 18).

TABLE 1. Number of Hellenistic to Early Islamic Sites of the Wādī al-Ḥasa Archaeological Survey (1979-1983).

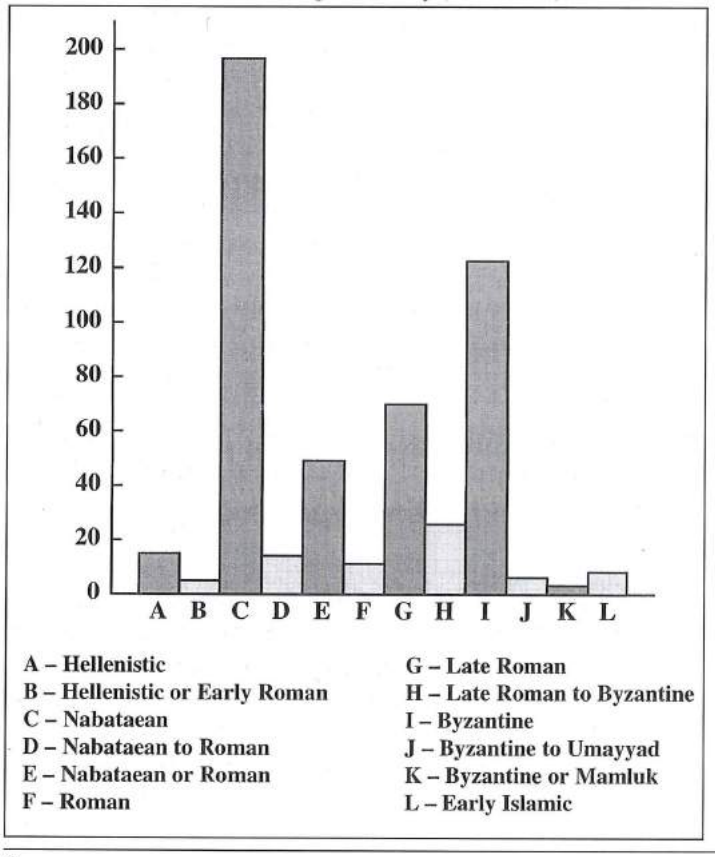
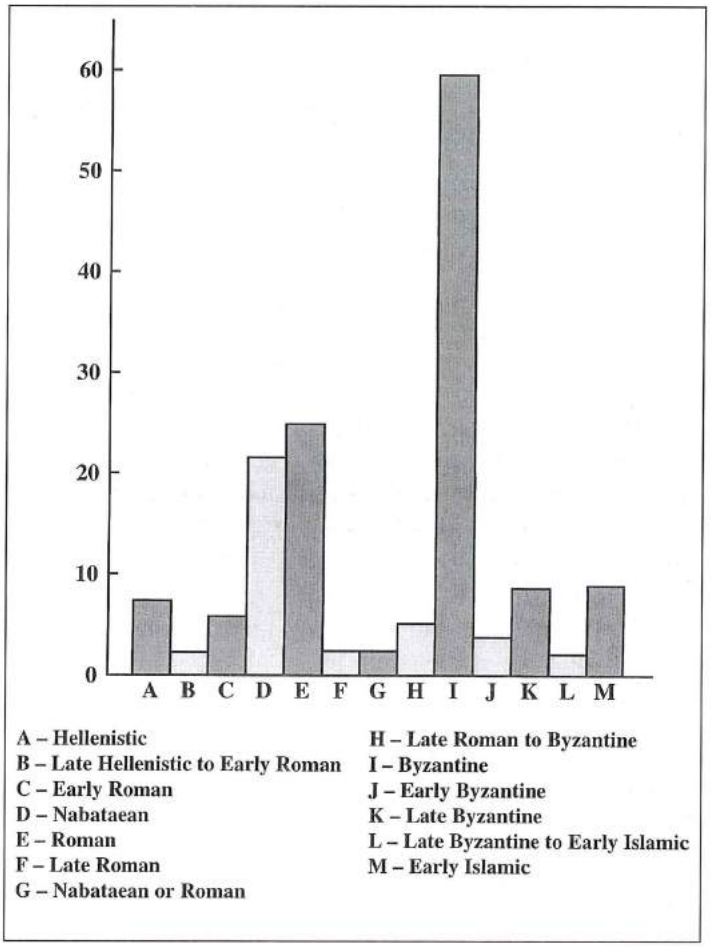


TABLE 2. Number of Hellenistic to Early Islamic Sites of the Southern Ghors and Northeast 'Arabah Archaeological Survey (1985-1986).



Evidence for the Climate of Southern Jordan and the Negeb during the Nabataean, Roman and Byzantine Periods

Work is just beginning on the paleoclimates of Southern Jordan (see, for example, Jobling 1984; Henry 1985, 1994; Clark 1992; Schuldenrein and Clark 1994; Munro, Morgan and Jobling 1997; Barker *et al.* 1998). Of this work, only the findings of Jobling (1984) and Barker *et al.* (1998) on the Nabataean to Byzantine periods are immediately relevant.

Morgan, working with the 'Aqaba-Ma'ān Archaeological and Epigraphic Survey, generated a preliminary generalized time chart for the al-'Aqaba to Ma'ān area. With his chart, he attempts to show the perceived relative rainfall against time. From his work and the findings of other authors he concludes that the times of favourable climate,

[2] The total number of sites of the Wādī al-Ḥasa and the Southern Ghors and Northeast 'Arabah Archaeological Survey is 1,074 and 240 respectively.

[3] An exception to the above is the case for al-'Aqaba (see, for example, Parker 1997; Whitcomb 1997).

that is, those with higher rainfall, are paralleled with times of greatest occupation (Jobling 1984: 195). According to Morgan's findings, the Nabataean to Roman periods experienced a moister climate than periods either before or after (Jobling 1984: 196, Fig. 2).

Preliminary interpretation of coring by The British Institute at Amman for Archaeology and History in Wādī Faynān, specifically at Khirbat Barqā, indicates that "a considerable environmental change has occurred in the study area during the past 2500 years" (Barker *et al.* 1998: 23). The base of the core is dated to 2500 BP and indications are that aridification occurred around 200 AD: "Preliminary pollen analysis ... indicates a relatively stable steppic landscape for a considerable period, followed by a much more desertic landscape in which cereal cultivation was minimal" (Barker *et al.* 1998: 25).

In contrast to the above, a great deal of work has been done on the paleoclimates of Israel, especially in the southern part of the country and in the area of the Dead Sea (see, for example, Horowitz 1971, 1974, 1978, 1979; Marks 1976; Goldberg 1981, 1984, 1986, 1995; Goldberg and Bar-Yosef 1982; Issar and Bruins 1983; el-Moslimany 1994; Goodfriend and Magaritz 1988; Frumkin *et al.* 1991, 1994; Frumkin 1997). One, thus, has often to extrapolate from information about paleoclimates to the west of the 'Arabah, the Dead Sea, and the Jordan River and make judgments relative to climatic conditions in Jordan.

Present evidence indicates that in the Levant the climate became colder, that is, colder than the present, beginning between around 300 and 200 BC. Evidence for this is based on a number of studies.

One piece of evidence which supports a colder and wetter climate at the beginning of the periods in question comes from the study of isotopes from wood, in this case, tamarisk, buried in the Roman siege ramp of Masada. The study points out that the cellulose of the tamarisk trees, buried in the ramp, was depleted in carbon-13 (C13) isotopes, compared to the cellulose of the contemporary trees sampled in the same region. It noted, moreover, that the C13 composition of the ancient trees resembled the composition of the trees of the more humid central part of Israel. The depletion in this isotope supports the conclusion that the whole region had enjoyed a more humid climate during the time that these ancient trees thrived. Meteorological observations during the last century have shown that rainy years in this region coincided with colder years and *vice versa*. The final conclusion is that about two thousand years ago, the climate of Masada was colder (Issar 1990; Issar and Yakir 1997: 102).

Heim *et al.* (1997) have obtained sedimentological and palynological evidence for climatic conditions over the past 2500 years from a 3.6 m core (DS 7-1 SC), drilled in 1993, in the floor of the Dead Sea just to the Northeast of 'Ayn Gedi. Pollen obtained from the core includes cereals, olive, walnut, and grape. This, in the opinion of the authors, supports intensive cultivation of these Mediterranean plants (Heim *et al.* 1997: 399). Specifically, walnut and grape were grown, in particular, during the Roman and Byzantine periods (ca. 70 BC-AD 600). Following these periods, the pollen record indicates an abandonment of agriculture with reduced percentages of olive and a slight increase in natural, more arid Irano-Turanian vegetation (Heim *et al.* 1997: 399). This decline in agriculture triggered a process of forest regeneration starting with pine tree followed by evergreen oaks and other Mediterranean plants replacing olive in the hills around the Dead Sea (Heim *et al.* 1997: 399). The drier climate favoured transition from sedentarism to pastoralism (Heim *et al.* 1997: 399). 14C radiometric age determination of four embedded plant fragments date the lower laminated sequence of core DS 7-1 SC to around 2000 BP (Heim *et al.* 1997: 399). In summary, the palynological evidence, that is, the Roman period cultivation patterns during the lower laminated interval and AMS 14C radiometric age determinations as well as the sedimentological aspects, suggests a less arid period ca. 2000 BP. In the opinion of Heim *et al.*, this period continued until ca. AD 700 +/- 50-100 years (1997: 41, fig. 3).

There is additional evidence for a more humid climate during the periods of interest here. That evidence comes in the form of the changes of water levels of terminal lakes which are good indicators of past climate variations. These terminal lakes reflect the combined effect of precipitation and evaporation. The Dead Sea is such a lake.

Frumkin *et al.* (1991; see also Frumkin 1997), moreover, present a comprehensive climate record for the Holocene derived from the salt caves of Mount Sedom, an 11 x 1.5 km north-south ridge near the southwestern boundary of the Dead Sea. Mount Sedom, a salt diapir, has been rising above the local base level throughout the Holocene. Karst development within the salt body has kept pace with the rise forming subhorizontal cave passages with vertical shafts. Wood fragments found embedded in flood sediments that were deposited in the cave passages yielded 14C ages ranging from ca. 7100 to 200 BP (Frumkin *et al.* 1991; Frumkin 1997).

Frumkin *et al.*'s palaeoclimatic sequence is based on parameters that include: 1) relative abundance of plant types or floral communities; 2) the elevations of the corresponding cave passages; and 3) the ration of their width to present passage width (1991). They posit that passage width and morphology can be used as a palaeoclimatic indicator for changes in the Dead Sea level. During moist periods the water level rises, and with it cave passages rise and their width increases. More plant remains are deposited with the alluvium (1991: 194). 14C measurements were made on cellulose extracted from the wood

samples (Frumkin *et al.* 1991: 194).

Frumkin *et al.* correlated the results to the Holocene sedimentary sequence of the Dead Sea Basin and other features associated with shifting lake levels. They found that moister climatic stages are indicated by relatively abundant wood remains, by wide cave passage, and by elevated outlets indicating high Dead Sea level. Conversely, they found that arid periods are marked by a scarcity of wood remains, by narrow cave passages, and by low-level outlets (1991: 191). As a result of the study, Frumkin *et al.* distinguished ten climatic stages, the chronology of which is based on 33 14C dates on wood, derived from flood sediments deposited in the various cave passages (1991; Frumkin 1997: 240; see also Bruins 1994: 302).

On the basis of the work of Frumkin *et al.*, it appears that climate was quite dry at the beginning of the Early Nabataean period, as the average Dead Sea level stood at ca. - 400 metres. It is important to note, nevertheless, that during this dry phase rainfall must have been adequate for Nabataean occupation in the southern Levant.

A change towards increasing humidity, which began during the second half of the Early Nabatean period, that is, ca. 190 BC, continued during the first half of the Roman period. In the southern Levant, the Roman period coincided with a relatively wet phase (Frumkin *et al.* 1991: fig. 12; Frumkin 1997: 244). Issar (1990) compares the Roman period with a miniglacial. According to the curve of Frumkin *et al.* (1991), the overall wet period during Roman times reached its average peak ca. AD 90. This position is supported by literary sources, namely, rabbinical sources in the Mishna and Talmud, which indicate that crop yields were very high in the wetter part of the Levant during the first century AD (Bruins 1994: 307).

In the second century AD, the climate began its drier trend, according to Frumkin *et al.* (1994, fig. 6; Frumkin 1997, fig. 22-4). This is supported by literary sources that attest to gradual desiccation and a sharp drop in crop yields during the third century (Bruins 1994: 307-8).

The Byzantine period began in AD 324, when the climate was significantly drier than during the first century BC and first century AD. The climate gradually became more arid in the course of the Byzantine period (Frumkin *et al.* 1994: 323, fig. 6; Frumkin 1997: 240, fig. 22-4).[4]

Dry conditions prevailed throughout the first half of the Early Islamic period until ca. AD 850, as indicated by the average Dead Sea level of ca. - 399 m. Several additional pieces of evidence, for example, the ratio between the isotopes oxygen-18 and oxygen-16 in carbonate deposits of lakes and caves, support a change in climate during the period under consideration. Low levels of oxygen-18 indicate that the ambient temperatures were low when the carbonates were deposited. A recent study of oxygen-18 levels in speleothems (stalagmites) in caves of upper Galilee reveals that there was an abrupt increase in temperatures between AD 700 and 900 (Issar 1995: 352).

Additional support for climatic change at this time comes from sea levels that provide their own indication of relative temperatures and rainfall. The level of the Mediterranean Sea, for example, rises and falls with the world's sea levels. A rise in global temperatures should, thus, melt the polar ice caps and raise the level of the world's oceans. Thus, any increase in the level of the Mediterranean Sea ought to indicate an increase in global temperature. Studies of the level of the Mediterranean show that its level peaked between AD 400 and 800, supporting the notion that global temperatures did rise at this time. In contrast, the level of the Mediterranean does not effect the level of the Dead Sea since the latter is not connected to it or the world's oceans. In fact, the levels of the Dead Sea are more closely tied to the amount of rainfall in the region. Frumkin *et al.* have shown, as indicated above, that the low levels of the Dead Sea in AD 800 are consistent with a dry period at this time in history (1991).

Conclusions

The climatic conditions described above may help explain how the Natabaean civilization flourished in Southern Jordan and how the Nabataeans were able to move from the Transjordanian highlands into the Negeb and practice agriculture based on water harvesting. They may help explain, at least in part, the proliferation of Nabataean, Roman and Byzantine settlements in areas that are today virtually devoid of human habitation.

It is necessary to add a cautionary note to the effect that not all or even most historical events are heavily influenced by environmental factors (Bruins 1994: 310). However, some are (Stiebing 1989, 1994)! Ancient agricultural societies were extremely vulnerable to even minor changes in climate. This is especailly so for an area such as Southern Jordan.

It must also be pointed out that influences other than climate may have been responsible for the profusion of settlements during the Nabataean, Roman and Byzantine periods. Nevertheless, the paleoclimate as noted above for the periods under discussion must be seriously considered in an attempt to understand settlement patterns in the southern part of the country for the periods of interest here.

---

[4] A discrepancy must be acknowledged since most researchers agree that the peak of rainwater harvesting, both for runoff farming and domestic water use in the Negeb Highlands, was reached during the Byzantine period. A surprising correlation exists between a prevailing dry climate and the peak of this impressive desert civilization (Bruins 1994: 308).

References

Barker, G. W., Adams, R., Creighton, O. H., Gilbertson, D. D., Grattan, J. P., Hunt, C. O., Mattingly, D. J., McLaren, S. J., Mohamed, H. A., Newson, P., Reynolds, T. E. G. and Thomas, D. C. 1998. Environment and Land Use in the Wadi Faynan, Southern Jordan: the Second Season of Geoarchaeology and Landscape Archaeology (1997). *Levant* 30: 5-25

Bruins, H. J. 1994. Comparative Chronology of Climate and Human History in the Southern Levant from the Late Chalcolithic to the Early Arab Period. Pp. 301-14 in O. Bar-Yosef and R. S. Kra (eds), *Late Quaternary Chronology and Paleoclimates of the Eastern Mediterranean.* RADIOCARBON. Tucson: University of Arizona.

Clark, G. 1992. Wadi al-Hasa Palaeolithic Settlement Patterns: Negeb and South Jordan Models Compared. Pp. 89-95 in *SHAJ* IV. Amman: Department of Antiquities.

Frumkin, A. 1997. The Holocene History of the Dead Sea Levels. Pp. 237-48 in T. M. Niemi, Z. Ben-Avraham, and J. R. Gat (eds), *The Dead Sea: The Lake and Its Setting,* New York: Oxford University Press.

Frumkin, A., Magaritz, M., Carmi, I. and Zak, I. 1991. The Holocene Climatic Record of the Salt Caves of Mount Sedom, Israel. *Holocene* 1/3: 191-200.

Frumkin, A., Carmi, I., Zak, I. and Magaritz, M. 1994. Middle Holocene Environmental Change Determined from the Salt Caves of Mount Sedom, Israel. Pp. 315-32 in O. Bar-Yosef and R.S. Kra (eds), *Late Quaternary Chronology and Paleoclimates of the Eastern Mediterranean.* RADIOCARBON. Tucson: University of Arizona.

Glueck, N. 1934. *Explorations in Eastern Palestine, I. AASOR* 14 (for 1933-34). Philadelphia, PA: American Schools of Oriental Research.

___ 1935. *Explorations in Eastern Palestine, II. AASOR* 15 (for 1934-35). 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.

Goldberg, P. 1981. Late Quaternary Stratigraphy of Israel: An Eclectic View. Pp. 55-66 in, *Prehistoire du Levant*, Lyons 1980: C.N.R.S. Colloque No. 598.

___ 1984. Late Quaternary History of Qadesh Barnea, Northeastern Sinai. *Zeitschrift für Geomorphologie* 28/2: 193-217.

___ 1986. Late Quaternary Environmental History of the Southern Levant. *Geoarchaeology: An International Journal* 1/3: 225-44.

___ 1995. The Changing Landscape. Pp. 40-54 in T.E. Levy (ed), *The Archaeology of Society in the Holy Land.* London: Leicester University.

Goldberg, P. and Bar-Yosef, O. 1982. Environmental and Archaeological Evidence for Climatic Change in the Southern Levant and Adjacent Areas. Pp. 399-414 in J. L. Bintliff and W. van Zeist (eds), Palaeoclimates, *Palaeoenvironments and Human Communities in the Eastern Mediterranean Region in Later Prehistory.* B.A.R. S-133. Oxford: British Archeological Reports.

Goodfriend, G. A. 1990. Rainfall in the Negev Desert During the Middle Holocene, Based on a 13c of Organic Matter in Land Snail Shells. *Quaternary Research* 28: 374-92.

Goodfriend, G. A. and Magaritz, M. 1988. Paleosols and Late Pleistocene Rainfall Fluctuations in the Negev Desert. *Letters to Nature* 332: 144-46.

Hammond, P. C. 1997. Petra: History of Excavation. Pp. 303-06 in E. M. Myers (ed.), *The Oxford Encyclopedia of Archaeology in the Near East,* 4. New York: Oxford University Press.

Harlan, J. R. 1988. Natural Resources. Pp. 40-47 in B. MacDonald *et al.* (eds.), *The Wadi al-Hasa Archaeological Survey 1979-1983, West-Central Jordan.* Waterloo, Ontario: Wilfrid Laurier University.

Hart, S. 1987. The Edom Survey Project 1984-85: The Iron Age. Pp. 287-90 in *SHAJ* III. Amman: Department of Antiquities.

Hart, S. and Falkner, R. K. 1985. Preliminary Report on a Survey in Edom, 1984. *ADAJ* 29: 255-77.

Heim, C., Nowaczyk, N. R., Negendank, J. F. W., Leroy, S. A. G. and Ben-Avraham, Z. 1997. Near East Desertification: Evidence from the Dead Sea. *Naturwissenschaften* 84: 398-401.

Henry, D. O. 1985. Late Pleistocene Environment and Paleolithic Adaptions in Southern Jordan. Pp. 67-77 in *SHAJ* II. Amman: Department of Antiquities.

___ 1994. Prehistoric Cultural Ecology in Southern Jordan. *Science* 265: 336-41.

Horowitz, A. 1971. Climatic and Vegetational Development in Northeastern Israel during Upper Pleistocene-Holocene Times. *Pollen et Spores* 13: 244-78.

___ 1974. Preliminary Palynological Indications as to the Climate of Israel during the Last 6000 Years. *Paléorient* 2: 407-14.

___ 1978. Human Settlement Patterns in Israel. *Expedition* 20.4: 55-58.

___ 1979. *The Quaternary of Israel.* New York: Academic Press.

Issar, A. S. 1990. *Water Shall Flow from the Work.* Heidelberg: Springer Verlag.

___ 1995. Climatic Change and the History of the Middle East. *American Scientist* 83.4: 350-55.

Issar, A. S. and Bruins, H. 1983. Special Climatological Conditions in the Deserts of Sinai and the Negev During the Latest Pleistocene. *Palaeogeography, Paleoclimatology, Palaeoecology* 43: 63-72.

Issar, A. S. and Yakir, D. 1997. Isotopes from Wood Buried in the Roman Siege Ramp of Masada: The Roman Period's Colder Climate. *BA* 60.2: 101-6.

Jobling, W. J. 1984. The Fifth Season of the 'Aqaba-Ma'an Sur-

vey 1984. *ADAJ* 28: 191-202.

___ 1989. 'Aqaba-Ma'an Archaeological and Epigraphic Survey. Pp. 16-24 in *Archaeology of Jordan.* II. *Field Reports: Surveys and D. Homés-Fredericq and J.B. Hennossy (eds), Sites A-K.* Leuven: Peeters.

Joukowsky, M. S. 1997. Petra: Recent Finds. In E. M. Myers (ed.), *The Oxford Encyclopedia of Archaeology in the Near East,* 4. New York: Oxford University Press.

King, G. R. D. 1985. A Survey of the Southern Ghawr, the Wadi 'Araba and Western Trans-Jordan, 1981-2. *Proceedings of the Seminar for Arabian Studies* 15: 41-47.

___ 1986. A Survey of Byzantine and Islamic Sites in Jordan. The Third and Fourth Seasons (1982, 1983). *Archiv für Orientforschung* 33: 251-52.

King, G. R. D. *et al.* 1987. Survey of Byzantine and Islamic Sites in Jordan: Third Season Preliminary Report (1982), The Southern Ghor. *ADAJ* 31: 439-59.

___ 1989. Survey of Byzantine and Islamic Sites in Jordan. Third Preliminary Report (1982): The Wadi 'Arabah (Part 2). *ADAJ* 33: 199-215.

Koucky, F. L. 1987. The Regional Environment. Pp. 11-40 in S.T. Parker (ed.), *The Roman Frontier in Central Jordan: Interim Report on the Limes Arabicus Project, 1980-1985.* Part i. BAR International Series 340(i). Oxford: British Archaeological Reports.

Lynd-Porter, A. 1997. Nessana. Pp. 129-30 in E. M. Myers (ed.), *The Oxford Encyclopedia of Archaeology in the Near East,* 4. New York: Oxord University Press.

MacDonald, B. *et al.* 1988. *The Wadi el Hasa Archaeological Survey 1979-1983, West-Central Jordan.* Waterloo, Ontario: Wilfrid Laurier University.

___ 1992. *The Southern Ghors and Northeast 'Arabah Archaeological Survey.* Sheffield Archaeological Monographs 5. Sheffield: J. R. Collis Publications.

Marks, A.E. (ed.) 1976. *Prehistory and Paleoenvironments in the Central Negev, Israel.* Vol. I. Dallas: Southern Methodist University Press.

el-Moslimany, A. P. 1993. Evidence of Early Holocene Summer Precipitation in the Continental Sequences in Israel. Pp. 121-30 in S. Bar-Yosef and R. S. Kra (eds), *Late Quarternary Chronology and Paleoclimates of the Eastern Mediterranean,* 121-30. RADIOCARBON. Tucson: University of Arizona.

Munro, R. N., Morgan, R. V. H. and Jobling, W. J. 1997. Optical Dating and Landscape Chronology at ad-Disa, Southern Jordan, and its Potential. Pp. 97-103 in *SHAJ* VI. Amman: Department of Antiquities.

Negev, A.1996. Avdat. Pp. 236-38 in E. M. Myers (ed.), *The Oxford Enchclopedia of Archaeology in the Near East,* 1. New York: Oxord University Press.

Oleson, J. P. 1997. Landscape and Cityscape in the Hisma: The Resources of Ancient Al-Humayma. Pp. 175-88 in *SHAJ* VI Amman: Department of Antiquities.

Parker, S. T. 1976. Archaeological Survey of the Limes Arabicus: A Preliminary Report. *ADAJ* 21: 19-31.

___ 1986. *Romans and Saracens: A History of the Arabian Frontier.* American Schools of Oriental Research Dissertation Series 6. Winona Lake, IN: Eisenbrauns.

___ 1997. Human Settlement at the Northern Head of the Gulf of al-'Aqaba: Evidence of Site Migration. Pp. 189-93 in *SHAJ* VI. Amman: Department of Antiquities.

Schick, R. 1994. The Settlement Pattern of Southern Jordan: The Nature of the Evidence. Pp. 133-54 in G. R. D. King and A. Cameron (eds), *The Byzantine and Early Islamic Near East. II: Land Use and Settlement Patterns.* Princeton, NJ: The Darwin Press.

Schuldenrien, J. and Clark, G. A. 1994. Landscape and Prehistoric Chronology of West-Central Jordan. *Geoarchaeology* 9 (1): 31-55.

Smith, A. M. 1994. Southeast Wadi Araba Survey. P. 523 in G. L. Peterman (ed.), "Archaeology of Jordan." *AJA* 98: 521-59.

Smith, A. M., and Niemi, T. M. 1994. Results of the Southeast 'Arabah Archaeological Reconnaissance. *ADAJ* 38: 469-83.

Smith, A. M., Stevens, M., and Niemi, T. M. 1997. The Southeast Araba Archaeological Survey: A Preliminary Report of the 1994 Season. *BASOR* 305: 45-71.

Stiebing, W. H. 1989. *Out of the Desert? Archaeology and the Exodus/Conquest Narratives.* Buffalo: Prometheus Books.

___ 1994. Did the Weather Make Israel's Emergence Possible? *Bible Review* August 19-27, 54.

Wigley, T. M. L., Ingram, M. J. and Farmer, G. 1981. *Climate and History: Studies in Past Climates and Their Impact on Man.* Cambridge: Cambridge University.

Weiss, H., Courty, M.-A., Wetterstrom, W., Guichad, F., Senior, L., Meadow, R. and Curnow, A. 1993. The Genesis and Collapse of Third Millennium North Mesopotamian Civilization. *Science* 261: 995-1004.

Whitcomb, D. 1997. The Town and Name of 'Aqaba: An Inquiry into the Settlement History from an Archaeological Perspective. Pp. 359-63 in *SHAJ* VI. Amman: Department of Antiquities.

Wright, K. 1998. Empires in the Dust. *Discover* March: 94-99.

Chang-Ho C. Ji
Department of Anthropology
La Sierra University
Riverside, CA 92515
USA

Chang-Ho C. Ji

'Irāq al-'Amīr and the Hellenistic Settlements in Central and Northern Jordan

The opinion has been widely held that Jordan reached one of its low points in settlement during the Hellenistic period (Arav 1989; Barghouti 1982; Berlin 1997; Smith 1990). However, what strikes us most in studying the settlement history in Jordan is the absence of comprehensive archaeological studies on the Hellenistic period. Indeed, to date, few studies have been published to address the Hellenistic period and its settlement history in Jordan using cumulative archaeological data. Recent archaeological findings in Jordan, however, have increased our knowledge of the Hellenistic period, and the time seems ripe for an integrative study.

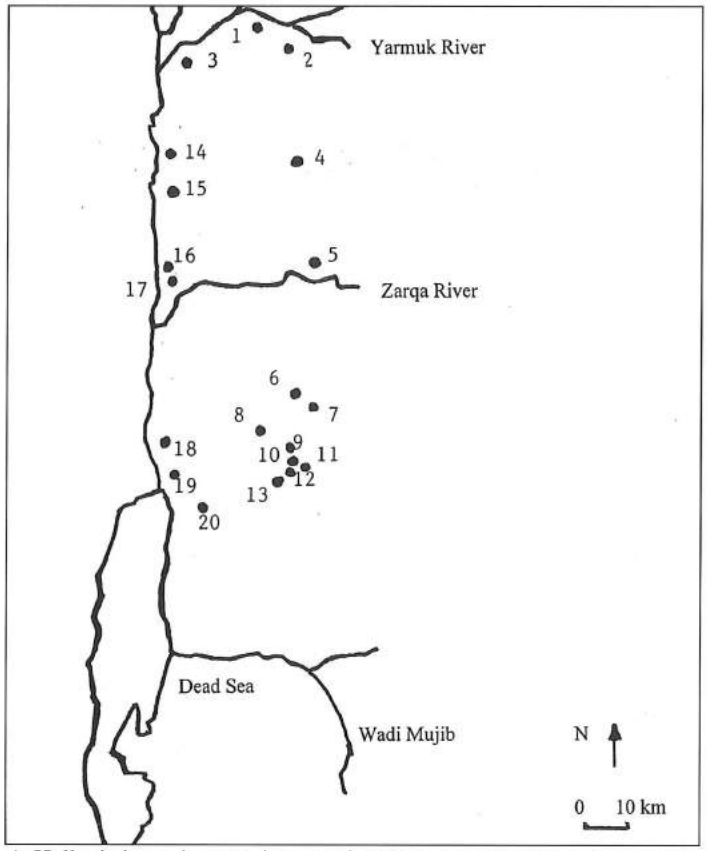
In their studies, Berlin (1997) and Smith (1990) point out the lack of archaeological evidence for the early Hellenistic period and suggest that it stands in contrast to the abundance of evidence for the late Hellenistic period. According to Berlin (1997: 11), in Jordan the pattern of early Hellenistic settlement was similar to that of the central hill country of Palestine, "with a small, scattered, materially impoverished population, engaged wholly in subsistence agriculture." This view has led to the theory of "the early Hellenistic archaeological lacuna" which stands in sharp contrast with "the late Hellenistic expansion and prosperity" (Smith 1990: 124, 127). Thus, given the historical framework and archaeological data provided in the two studies, it appears that Jordan experienced a substantial decline during the early Hellenistic period, and increase in population came no earlier than the late Hellenistic period.

The preceding view, however, warrants further studies since it was derived mainly from a few selected sites such as Pella, the 'Ammān Citadel, and 'Irāq al-'Amīr. In fact, the discussion of recent findings in central and northern Jordan is absent in these studies. Furthermore, as Smith (1990: 123) himself points out, his view seems to be somewhat in conflict with the records of Polybius (Paton 1922), Zenon (Edgar 1925), and Strabo (Jones 1917) which do not include any suggestion of depressed economic, social, or demographic conditions in the region during the early Hellenistic period. It also seems contradictory to Josephus who speaks frequently that the Tobiads constantly fought against and levied taxes upon the Arabs (cf. *Antiquities* 12.4). This record is of interest, since it may imply the presence of a settled population in Jordan during the early Hellenistic period. Besides, a careful review of literature presents another noteworthy finding (cf. Ahlström 1993; Avi-Yonah 1979; Bevan 1968; Cary 1932; Gera 1990; Mazar 1957; Tcherikover 1937; Whiston 1902). According to various sources, in the Persian and early Hellenistic periods, the Tobiads gained a special status under the Ptolemies and were treated differently from other peoples in Jordan. If the records in the Hebrew Bible and the Zenon papyri associated with the Tobiads are historically relevant to our study, then it follows that the 'Irāq al-'Amīr region and the southern Jordan Valley* should have witnessed a continuous flourishing population during the given periods. Yet, little has been done to address the potential differences of these regions from the remainder of Jordan, although much has been written on 'Irāq al-'Amīr (Lapp 1962a; 1962b; 1963; 1975; 1993; Larché *et al.* 1981; 1982; Will 1989).

Archaeological Data (FIG. 1)

The "Madaba Plains Project" has provided important data on the Hellenistic settlements in central Jordan. For example, Rujm ad-Drayjāt is an early Hellenistic fort settlement in the Mādabā Plains, which continued through the late Hellenistic period (Younker *et al.* 1990: 11-14). Rujm Miriam is possibly another early Hellenistic site which includes a central rectilinear structure, terraces, cisterns and a cave complex (Herr *et al.* 1997: 159; LaBianca *et al.* 1997). The excavations at Rujm Salīm revealed a large agricultural complex first built in late Iron II which was in continuous use on into the early Persian period (Geraty *et*

* Editor's note: the author restricts the term "Jordan Valley" to the area north of the Dead Sea.



1. Hellenistic settlements in central and northern Jordan: 1. al-Fukhār; 2. Abila; 3. Umm Qays; 4. al-Ḥuṣn; 5. Jarash; 6. Salāma; 7. 'Ammān; 8. 'Irāq al-'Amīr; 9. Salīm; 10. al-'Umayrī; 11. Miriam; 12. ad-Drayjāt; 13. Ḥisbān; 14. Pella; 15. as-Sa'īdiyya; 16. al-Mazār; 17. Dayr 'Allā; 18. Nimrīn; 19. Iktanū; 20. Machaerus.

al. 1990: 70-72). The excavators suggested that an occupational hiatus lasted from the late Persian period until a new settlement was established in the late Hellenistic period. The Hellenistic pottery found at the site of Rujm Salīm, however, has not as yet been published, and thus we may still be far from knowing to which period we are to attribute the beginning of the Hellenistic settlement at this site. The excavation reports carry an important piece of information on this issue. In 1987, a bronze coin of Ptolemy II was found at Rujm Salīm in the occupational debris of the main structure (Geraty *et al.* 1988: 226; 1990: 71-72). This coin was minted between 251 and 249 BC and probably deposited at this site no later than the third quarter of the third century BC (Miller 1991: 382). Taking this coin into account, we may suggest that the Hellenistic settlement at Rujm Salīm commenced early in the Hellenistic period and continued into the late Hellenistic period.

At Tall Ḥisbān, Mitchel (1992; 1994) attributes Stratum 15 to the late Hellenistic period and dates it to 198-63 BC. Early Hellenistic stratum is known to be absent at Tall Ḥisbān, although a few examples of early Hellenistic sherds were produced in Area A (LaBianca 1998; Mitchel 1992; Sauer 1973; 1994). At Tall al-'Umayrī, a minor settlement took place in the Hellenistic period when a small farmstead was constructed on the southern edge of this site above substantial Iron II ruins (personal communication with L. G. Herr). Finally, it is well to remember that at Machaerus, a fortress was built by the Hasmoneans at the end of the Hellenistic period (Loffreda 1981; Piccirillo 1979).

At the 'Ammān Citadel there is clear evidence for several phases of massive late Hellenistic settlement (Bennett 1979: 166; Greene and 'Amr 1992: 126-127; Zayadine 1973: 25-28; 1990: 79-80; Zayadine *et al.* 1989: 362-63). At the Citadel most of the Hellenistic structures were erected directly over the Iron II walls, and thus Persian occupation seems to have been completely absent (Zayadine *et al.* 1989: 363). Remains of the early Hellenistic period are restricted to the Upper Terrace of the Citadel, which attests to the supposition that the early Hellenistic settlement was smaller than the late Hellenistic one (MacAdam 1992: 27-32; Najjar 1997: 7; Zayadine 1990; Zayadine *et al.* 1989: 359-63; cf. Zayadine *et al.* 1987: 309). Two coins of Ptolemy II along with early Hellenistic Rhodian jar handles came from the Great Temple area and the water system (Russell 1997; Russell *et al.* 1997). These materials show that the 'Ammān Citadel was probably refounded in the early third century BC. The Roman Forum at 'Ammān also seems to have been reoccupied at the beginning of the third century BC and was continuously in use through the late Hellenistic period (Hadidi 1973; 1974). The first settlement phase of Khirbat Salāma belonged to Iron II (Bikai 1993; 1994; Lenzen and McQuitty 1984; 1987). It was resettled in the early Hellenistic period after a potential hiatus during the Persian period (cf. Lenzen and McQuitty 1987: 203).

The excavations at Jarash show that an occupational sequence in the Macellum area began with the late Hellenistic period (Barghouti 1982: 224; Uscatescu 1995: 365). In addition, the French excavations at the ancient *tall* and the Zeus Temple uncovered large pits and building floors with late Hellenistic pottery dated to the late second and first centuries BC (Braemer 1987; 1989; Seigne 1989). Abila includes late Hellenistic pottery, wall remains, limestone pavements, domestic habitations, and aqueducts, yet lacks evidence for Persian occupation (Mare 1994; Mare *et al.* 1985; 1987). In 1989, Kerner and Hoffmann (1993: 363-369) uncovered evidence of a late Hellenistic settlement at Khālid al-Jindī southeast of Umm Qays. The earliest material at Umm Qays came from a test trench at Area XL, which is dated to the third century BC. Besides this, Weber (1991: 227) conducted a survey of the water-supply system at Umm Qays and suggested a Hellenistic date for the aqueduct system. Tall al-Ḥuṣn in northern Jordan also appears to have late Hellenistic evidence (Leonard 1987: 359). Tall al-Fukhār was re-

occupied in the early Hellenistic period after an occupational interruption through the Persian period following the Iron II settlements (Strange 1997).

In the Jordan Valley, the excavation of Tall ash-Shūna north yielded late Hellenistic graves set into the middle of the Early Bronze walls (Baird and Philip 1992). At Pella, Hellenistic settlement seems to have begun in the late third century BC (Smith 1982). Notable among the Hellenistic artifacts are a tetradrachm of Ptolemy II, imported glazed bowls, and stamped Rhodian jar handles, all dated to the third and second centuries BC (Smith 1980). The late Hellenistic city was destroyed, probably by the Hasmonean ruler Alexander Jannaeus; yet human settlement continued at Pella through the early Roman period (Smith 1981: 316-317). Excavations at Tall al-Ḥuṣn near Pella uncovered an extensive late Hellenistic occupation and a possible sanctuary (Hennessy *et al.* 1983: 348; Walmsley *et al.* 1993: 208). Another notable discovery is a large fortress which was built around the end of the third century BC. This fortress is located about 2km southeast of Pella (Smith 1982: 331-333). At Pella, Hellenistic evidence is found beneath the early Roman remains and above the Early Bronze or Iron II evidence, indicating an occupational gap before the Hellenistic settlement phase. In sum, Pella seems to have been refounded near the end of the third century BC and became a rapidly growing city under the Seleucid monarchy until it was destroyed by the Hasmoneans (Edwards *et al.* 1990: 73; Hennessy *et al.* 1981: 295-296; McNicoll *et al.* 1982; 1986: 175; Smith 1982).

There were occupations at Tall as-Sa'īdiyya during the early Hellenistic period (Stratum II; Pritchard 1985; cf. Tubb 1985). A large public building was established partly over the Persian remains. In addition, despite the scarcity of datable artifacts, there is no doubt that Tall as-Sa'īdiyya was in use during the Persian period. This suggestion is supported by the pottery assemblage found associated with Stratum III. For example, a close parallel of one jug from Stratum III is found at Qadūm in Palestine and dated to the end of the fifth and the fourth centuries BC (Pritchard 1985: fig. 18: 5; Stern and Magen 1984: fig. 7:8). The small bowl with incurved rim was the dominant type of the Hellenistic period, yet it came into use as early as the mid-fourth century BC (Pritchard 1985: fig. 18:1; Guz-Zilberstein 1995: 289). The decorated incense burner found in the same stratum also fits into the fifth century BC (Pritchard 1985: 66-68; Stern 1982: 192). Note, however, that there is no stratigraphical connection between Strata IV and III; the sequence from Stratum III to Stratum II is well established (Pritchard 1985: 60, 69). This fact indicates that the early Hellenistic settlement was the immediate successor to the Persian one. Accordingly, occupation appears to have been continuous from Iron II to the early Hellenistic period, although it is difficult to clarify stratigraphic relations between Iron II and the Persian period. Tall as-Sa'īdiyya was again used in the first century BC indicating a potential break in the sequence of occupation between the early Hellenistic and the first century settlements.

According to Yassine (1983: 498), in the late Persian period, Tall al-Mazār (Stratum I) served as a supply depot with a large number of silos and granaries. Below Stratum I are the remains of court buildings (Stratum II) which were violently destroyed. Yassine (1983) assigned Strata I and II to the fourth and fifth century BC respectively, and hence, Tall al-Mazār appears to have been occupied through the Persian period. According to this view, the abandonment of Tall al-Mazār took place at the time of Alexander the Great. In addressing the published corpus of Stratum I ceramic material at Tall al-Mazār, however, we suggest that certain forms are dated to the Hellenistic period rather than the Persian period. In detail, one of the five examples published in the preliminary report seems to be a well-known Hellenistic molded lamp roughly dated to the third and second centuries BC, and perhaps parallels a lamp found in Stratum II at Tall as-Sa'īdiyya (Yassine 1983: pl. CX: 3; Pritchard 1985: fig. 19:22). It is evident that this particular example does not belong to the Persian closed lamp assemblage common in the fourth century BC (Stern 1982: 129). Another vessel found at Tall al-Mazār (Yassine 1983: pl. CX: 4) might be considered a globular cooking pot with typical squat, slightly ribbed body. This type of cooking pot appeared at the end of the fourth century BC and became the predominant form in the third century BC (Guz-Zilberstein 1995: 299; Stern 1995: 58). Among the other examples, one resembles a table jug which was commonly in use during the third and second century BC, while another one is reminiscent of a common Hellenistic jug with a flaring rim (Yassine 1983: pl. CX: 1 and 2; Guz-Zilberstein 1985: 309). The foregoing discussion may serve to place Stratum I within the fourth and third centuries BC, and thus possibly the abandonment of the Stratum I settlement occurred slightly later than the time of Alexander the Great (cf. Yassine 1983: 498).

At Dayr 'Allā the last building activities took place in the early Hellenistic period (Franken and Ibrahim 1977: 71-73; Ibrahim and van der Kooij 1979: 42-44; 1983). The flat bowl found at this site is a so-called fish plate of the Hellenistic period, appearing at the end of the fourth century BC and coming popular in the third century BC (Ibrahim and van der Kooij 1979: 43; Guz-Zilberstein 1995: 291; cf. Sauer 1994: 248). Below the early Hellenistic phase are the fifth and fourth century strata which contain building remains, pits, and floors. It thus appears that at Dayr 'Allā, occupation was continuous, without any major breaks, from late Iron II to the early Hellenistic period.

At Tall Nimrīn the Persian period is well represented

(Flanagan and McCreery 1990; Flanagan *et al.* 1994). The early occupational phase is dated to the sixth-fifth centuries BC; the late one to the fourth century BC. The late Persian settlement seems to have lasted through the early Hellenistic period, and the evidence of such settlement continuation is partially preserved at the summit of this site (Flanagan *et al.* 1992: 98). A large amount of Hellenistic pottery was found on the western slope, but no Hellenistic structures were uncovered. This architectural absence can be explained by years of modern bulldozing and development at this site that have destroyed the ancient remains. There is little stratified evidence for the late Hellenistic period, although some ceramic materials represent potential human activities during this period (Dornemann 1990: 155). At Tall Iktanū the upper levels of the south slope contain Persian and Hellenistic pottery including one imported sherd of the fifth-fourth century BC (Prag 1989: 42; 1990: 122). Prag associated these pottery remains with the use of this *tall* as a fortress in the Persian and Hellenistic periods. Hence, Tall Iktanū may include a sequence of occupation from Iron II to the early Hellenistic period.

The Tall Ḥisbān survey team recorded 148 sites in a 10km radius of Tall Ḥisbān (Ibach 1987). The Hellenistic period was represented at 21 sites while the Persian period was almost completely absent in the Ḥisbān region. The regional survey in the vicinity of Tall al-'Umayrī recorded two Persian and seven Hellenistic sites (Boling 1989; Christopherson 1991; 1997; Cole 1989; Krug 1991; Younker 1989; 1991a; 1991b). In the Greater 'Ammān region, a survey team found three Persian and 13 Hellenistic sites (Abu Dayyah *et al.* 1991). The 'Ayn Ghazāl survey shows a total lack of Hellenistic remains north of the 'Ammān area (Simmons and Kafafi 1988). A survey was conducted in the immediate vicinity of ar-Rummān and found Hellenistic sherds at six sites (Gordon and Knauf 1987). Persian pottery were also collected at six sites. According to the survey of Hanbury-Tenison (1987), Persian and Hellenistic sherds were entirely unrepresented in the Jarash region. Leonard (1987) carried out a survey along the highway between Jarash and Tall al-Ḥuṣn: two sites included late Hellenistic and early Roman pottery sherds. Persian and early Hellenistic evidence was totally absent at the surveyed sites. The survey in the area of Irbid and Bayt Rās included 27 sites (Lenzen and McQuitty 1988). No Hellenistic evidence was found in this region, although some sporadic late Hellenistic shreds were present at Bayt Rās. Yet, the excavation at Bayt Rās produced little evidence of the Hellenistic period (Lenzen *et al.* 1985; Shraidah and Lenzen 1985). The survey in the vicinity of Abila found no Hellenistic evidence, yet Hellenistic pottery was found on the surface of Ẓahr al-Midina (Kafafi and Knauf 1989; Mare *et al.* 1985: 230). According to Mittmann's survey (1970), the Hellenistic period was represented at 51 of the 346 surveyed sites in the region between the Yarmūk River and Wādī az-Zarqā'. No site yielded evidence of Persian occupations. Likewise, Persian and Hellenistic evidence is virtually absent in the southern Ḥawrān (Kennedy and Freeman 1992; King *et al.* 1983).

A salvage survey along the Yarmūk River collected Hellenistic sherds at one site (Kerestes *et al.* 1977). Persian pottery was absent in the region. The same team visited three sites in the Wādī al-'Arab reservoir area: Persian and Hellenistic pottery were missing. In the Wādī al-Yābis region a survey team identified 12 sites with Persian and Hellenistic pottery sherds (Mabry and Palumbo 1988; cf. Palumbo 1992). On the other hand, the Wādī Ziqlāb survey recognized no Persian sites in the survey area, yet some late Hellenistic sites were found along the wadi (Banning and Fawcett 1983; Banning *et al.* 1989). A surface survey of Tall adh-Dhahab and the lower Wādī az-Zarqā' covered 32 sites (Gordon and Villiers 1983). Both Tall adh-Dhahab east and west were very likely occupied in the Iron II, late Hellenistic, and early Roman periods. No early Hellenistic finds were linked to these sites. The regional survey dated one site to the Persian period and 14 sites to Hellenistic. The survey of King Talal Reservoir area identified one Persian and three Roman sites (Kerestes *et al.* 1977). In Wādī Shu'ayb, Persian and Hellenistic occupation seems to have been sparse (Wright *et al.* 1989).

The survey in the northern Jordan Valley identified Persian sherds at five sites and Hellenistic ones at 14 sites (Ibrahim *et al.* 1976). Three sites included Persian and Hellenistic sherds together, and all the 14 Hellenistic sites contained early Roman sherds as well. In the southern half of the Jordan Valley, Persian sherds were found at seven sites, and Hellenistic ones came from 13 sites (Yassine *et al.* 1988). The Pella hinterland survey team recorded no small number of Hellenistic structures, and the pottery tends to assign them to late Hellenistic and early Roman (Watson 1996). The "Jisr Sheikh Hussein" Project surveyed a total of 15 sites, and no Persian and Hellenistic pottery was found in the survey area (Lenzen *et al.* 1987). The 1953 survey of the Jordan Valley recorded only one Hellenistic site of over 90 surveyed sites (de Contenson 1964; Leonard 1992; Mellaart 1962).

Discussion

According to LaBianca (1990; Geraty *et al.* 1990: 60), in central Jordan, settlement intensification took place in the Iron II and continued up through the late Iron II and early Persian periods. The abatement process was initiated sometime in the Persian period and continued through the Hellenistic period. After this occupational gap, the process of a new intensification was slowly built up through the Roman era and reached its peak in the Byzantine pe-

riod. The findings of our summary support LaBianca's contention of the existence of a broad settlement pattern in the survey area. Yet, TABLE 1 shows that a slight modification of LaBianca's model would be in order. As LaBianca points out, a settlement intensification reached its peak during the period of late Iron II, and the Roman period seems to have witnessed a flourishing population as well. A close examination of our data, however, indicates that in general, the Persian period seems to have had a considerable decline in population, yet a resurgence of settled population began to occur some time in the Hellenistic period rather than in the Roman period. Most of the Hellenistic sites also contain Roman pottery, which indicates a continuation of settlement from the Hellenistic period to the Roman period. Hence, the Hellenistic period may have served as a transition from the nearly complete settlement gap of the Persian period to the settlement intensification of the Roman period (cf. Ibach 1987). The results of the surface surveys, however, do not shed much light on when in the Hellenistic period this resurgence of settled population began. In most of the survey studies, Hellenistic pottery was not further distinguished into early and late Hellenistic.

According to various excavations, the deposition at many sites in the Jordanian plateau and the northern Jordan Valley shows a new cycle of settlement intensification took place in the Hellenistic period after an occupational gap in the Persian period (see TABLE 2). This intensification continued through the early Roman period with some decline. These Hellenistic sites fall into two main groups in terms of the beginning date of their settlements. First, in the plateau region, early Hellenistic evidence was uncovered at Rujm ad-Drayjāt, Rujm Salīm, the 'Ammān Citadel, the 'Ammān Roman Forum, Khirbat Salāma, Umm Qays, Tall al-Fukhār, and possibly Rujm Miriam. All these sites are attributed to the third century BC or slightly earlier than the third century BC, and geographically, scattered throughout the plateau region. In many cases, these early Hellenistic occupations continued through the late Hellenistic period. Second, Abila, Tall al-Ḥuṣn, and probably Jarash and Tall Ḥisbān were reoccupied in the very late third or the early second centuries BC. It is worthwhile noting that during this period, Pella and its vicinity were also added to the list of Hellenistic settlements. This fact is also reminiscent of late Hellenistic fortified sites in the lower Wādī az-Zarqā' and Wādī Rājib (Gordon 1987). An interesting point is that in the Pella region and the lower Wādī az-Zarqā', most of the fortresses were used for a relatively short period of

TABLE 1. Pottery sherding of main regional surveys in Jordan.

Survey/Period	Persian	Hellenistic*	Roman**	Total
Irbid/Bayt Rās	0	1	5	27
Mittmann	0	51	130	346
Jarash-Ḥuṣn	0	2+	6	30
Jarash	0	0	11	59
ar-Rummān	6	6	34	42
al-Baq'ah Valley	0	0	1	7
'Ayn Ghazāl	0	0	?	81
Greater 'Ammān	9	13	71++	222
al-'Umayrī	2	7	22++	133
Ḥisbān	1	21	57++	155
al-Maqārin Reservior	0	1	15	31
Wādīal-'Arab	0	0	3	3
K.Talal Reservior	1	0	3	14
Tall adh-Dhahab	1	14	18	32
Wādī al-Yābis	12***	12***	29	96
Wādī Shu'ayb	0	0	5	21
Jordan Valley N.	5	14	34++	106
Jordan Valley S.	7	13	29++	118

*not specified as early and late Hellenistic.
**not specified as early and late Roman.
***includes both Persian and Hellenistic sites.
+specified as late Hellenistic.
++sepcified as early Roman.

TABLE 2. Occupational history of Hellenistic settlements in Jordan.

Site/Date (BC)	5th	4th*	3rd	2nd**	1st***
al-Fukhār		x?	x	x	
Abila				x	x
Umm Qays			x	x	x
al-Ḥuṣn				x	
Jarash				x	x
'Ammān Citadel			x	x	x
Roman Forum ('Ammān)			x	x	x
K. Salāma			x		
Ḥisbān				x	x
K. ad-Drayjāt		x	x	x	x
Rujm Miriam		x?	x		
Rujm Salīm			x	x	x
al-'Umayrī	x	x?	x?		
Machaerus					x
ash-Shūna North				x	
Pella			x	x	x
al-Ḥuṣn (Pella)			x	x	x
as-Sa'īdiyya	x	x	x		x
al-Mazār	x	x	x		
Dayr 'Allā	x	x	x?		
Nimrīn	x	x	x		x
Iktanū	x	x	x?		
'Irāq al-'Amīr	x	x?	x	x	x

*includes the sites dated late Persian/Hellenistic.
**includes the sites dated to late Hellenistic.
***includes the sites dated to late Hellenistic/Roman.

time in the late Hellenistic period and were abandoned thereafter. Taken together, the comparison of the lower Wādī az-Zarqā' with the Pella region points out some basic similarities. That is, there is evidence of a settlement hiatus during the Persian period followed by increase in population in the late Hellenistic period; little evidence of early Hellenistic presence was found in these two regions.

On the other hand, archaeological data seem to indicate that the central and southern Jordan Valley formed a unique niche during the Persian and Hellenistic periods. We propose that, in the central and southern Jordan Valley: (1) a new settlement intensification began in the Iron II and reached its peak in the late Iron II and early Persian periods; (2) this settlement cycle continued through the Persian and early Hellenistic periods, although these periods saw reduced occupations; (3) destruction and abandonment came sometime in the early Hellenistic period; and (4) thereafter, settlement gap continued until the Roman period. This pattern contrasts sharply with the abatement in occupation in the plateau and the northern Jordan Valley during the late Persian period and the urban settlement boom during the late Hellenistic period.

Put in detail, we have seen from the foregoing review that at Tall as-Sa'īdiyya, Tall al-Mazār, and Dayr 'Allā, the Persian period was one of proliferation of settlements, and they were continuously in use without any major breaks through the early Hellenistic period, although such evidence is more or less weak at Tall al-Mazār and Dayr 'Allā. Then, there was a long process of abandonment through the late Hellenistic period. A noteworthy point is that all these sites are long-inhabited urban centers in the Jordan Valley, located near Wādī az-Zarqā'. Note that they remained occupied in the Persian and the early Hellenistic periods when the lower Wādī az-Zarqā' was sparsely populated; they remained unoccupied in the late Hellenistic period when the lower Wādī az-Zarqā' region was densely populated. This fact offers support for Gordon's contention (1987: 67) that the settlement history of the lower Wādī az-Zarqā' was not linked to the settlements of the major cities in the Jordan Valley. As in the central Jordan Valley, the deterioration of settlement system in the southern Jordan Valley appears to have come in the late Hellenistic period. Tall Nimrīn and Tall Iktanū include potential evidence of early Hellenistic occupation beyond the military campaign of Alexander the Great. Hence, we posit that, in studying the Persian and Hellenistic periods, the central Jordan Valley may be treated as a single entity with the southern Jordan Valley, rather than with the lower Wādī az-Zarqā' and the northern Jordan Valley.

According to surface surveys, there are at least several additional sites which show the same pattern of occupational history to that of Tall Nimrīn and Tall Iktanū. For example, Tall Blaybil on Wādī Shu'ayb and Tall al-Kufrayn on Wādī al-Kufrayn appear to have flourished during the Persian and Hellenistic periods (Prag 1989: 45). At Tall Blaybil, the Hellenistic period was not represented by pottery when the Wādī Shu'ayb survey team visited this site in 1988 (Wright *et al.* 1989: 347). In 1976, however, the eastern Jordan Valley survey team explored Tall Blaybil and Tall al-Kufrayn and collected Iron II, Persian and Hellenistic pottery on the surface (Yassine *et al.* 1988: 192, 199; cf. Ibach 1987: 22). No Roman pottery was found at either site. Judging from the results of the eastern Jordan Valley survey, we may suggest that in the future, Qaṣr ad-Dāhūdī, an-Naṣṣariyāt, Miṣlaḥa, and Dayr al-Baghil will prove to have been used in the early Hellenistic period as well. We should note that all these sites are located in the vicinity of Tall Nimrīn or Tall Iktanū. The Ḥisbān survey team also visited part of the southern Jordan Valley and found pottery of Iron II, Persian and Hellenistic periods at Tall ar-Rāma (Ibach 1987: 22). Turning back to the northern Jordan Valley survey, we note only two sites that contain evidence of continuous settlement from the Iron II to the Hellenistic period. They are Tall Abū al-Qaml and Tall al-Ma'ajaja which yielded Iron II, Persian, Hellenistic, and early Roman sherds (Ibrahim *et al.* 1976). They are situated on the floor of the valley near the confluence of Wādī al-'Arab and Wādī al-Yābis with the Jordan River. Khirbat al-Marqa'ah and Tall 'Ammātā are also known to have Iron II/early Persian and Hellenistic evidence, but late Persian and early Hellenistic evidence is likely absent at both sites. In sum, the surface sherding may indicate that in the northern half of the Jordan Valley, very few sites were continuously occupied from late Iron II to the early Hellenistic period (Yassine *et al.* 1988: 192).

Concerning the conditions of the early Hellenistic period, as stated above, a current consensus seems to be that Jordan was unutilized, and the region experienced a substantial decline in settled population. Given the preceding analysis of archaeological data, however, such a point of view seems to be no longer plausible. Excavations have yielded early Hellenistic evidence at no small number of sites evenly scattered over the Jordanian plateau and the Jordan Valley. Therefore, the question may no longer be whether settlement increase came in the early Hellenistic period, but to what degree and in what ways. Once we accept this position, we can turn our attention to an important historical and archaeological consideration: the nature and pattern of early Hellenistic settlements in Jordan.

In the central Jordan Valley, a striking feature of the early Hellenistic sites is the presence of a public building and a large number of storage pits, showing that they were used as either tax gathering sites or supply depots. At Tall al-Mazār, Stratum I contains dozens of circular pits and silos apparently used for massive grain storage (Yassine 1983). The early Hellenistic phase at Dayr 'Allā includes

a large building surrounded by storage pits (Ibrahim and van der Kooij 1979: 42). Stratum II at Tall as-Sa'īdiyya also consists of a rectangular structure which served some public function (Pritchard 1985: 73). In the Mādabā Plains, as in the central Jordan Valley, the most significant point that can be made about the early Hellenistic sites is that they consist of an isolated central building associated with agricultural features. Excavations of Rujm Miriam yielded a rectangular building, terraces, four cisterns, and a cave complex (Herr *et al.* 1997). Ceramic evidence joins with this building to indicate that Rujm Miriam served as an agricultural collection depot. Rujm Salīm is another site with a large central building and several agricultural features in the vicinity (Geraty *et al.* 1988: 226). Rujm ad-Drayjāt seems to be a fortress or villa which consists of a large rectangular building with a nearby cave and cisterns (Younker *et al.* 1990: 12-14). Khirbat Salāma and Tall al-Fukhār also fit the type of agricultural complex with a strongly-built large building like those in the Mādabā Plains and the central Jordan Valley (Bikai 1993; 1994; Lenzen and McQuitty 1984; 1987; Strange 1997). At the 'Ammān Citadel, late construction seems to have obliterated early Hellenistic architectural remains. Nevertheless, the ceramic and numismatic evidence from the early Hellenistic period seems quite solid (Najjar 1997; Russell 1997; Russell *et al.* 1997). In light of textual evidence, it may be conjectured that the Ptolemies built a fortress rather than a city at 'Ammān (Tcherikover 1959: 101).

Given the combination of the foregoing evidence, the early Hellenistic settlements in Jordan may share one fundamental characteristic: they were all small-sized settlements associated with possible public buildings and various agricultural trappings. In many cases, these buildings consist of a courtyard surrounded by or adjacent to multiple rooms, although so far the evidence does not indicate one particular building plan ubiquitous enough to justify a standard plan for the early Hellenistic public buildings. In conjunction with these facts, it must be recognized that throughout the excavation reports of these sites, one theme surfaces repeatedly: they served as a tax-gathering site, an agricultural depot, or a garrison. It is also obvious that for the major long-inhabited sites in the plateau and the northern Jordan Valley, early Hellenistic evidence is notably weak. Possible exceptions to this generalization are the 'Ammān Citadel and Tall al-'Umayrī which contain early Hellenistic pottery and materials.

Another finding that deserves particular mention is coins of Ptolemy II found at Rujm Salīm, 'Irāq al-'Amīr, Pella, and the 'Ammān Citadel (Geraty *et al.* 1988; 1990; Lapp 1983: 13-20; Russell *et al.* 1997: 23; Smith 1982; Zayadine 1990; Zayadine *et al.* 1989). The coin from Rujm Salīm was minted in Alexandria between 251 and 249 BC; one from the 'Ammān Citadel was minted at Tyre or Gaza (Russell *et al.* 1997: 25; Miller 1991: 382). Tall al-Fukhār, Tall Ḥisbān and Khirbat Salāma contain coins dated to the period of Ptolemy III (Bikai 1994: 397; Hendrix 1994: 181; Strange 1997; 405; Terian 1976: 136). The discovery of Ptolemy II and III coins in Jordan is not surprising given that a great deal has already been written about a regular caravan traffic and trade between Transjordan and Egypt (Tcherikover 1937). Notwithstanding, these Ptolemy coins are of great value for two reasons: (1) they may represent the geographical range of Egyptian commercial activity in Transjordan during the early Hellenistic period; (2) they may give us hints as to how commercial trade between Transjordan and Egypt was organized. First, the Ptolemy II coins minted at Alexandria and Gaza apparently indicate that in the mid third century BC, the 'Ammān region and the Mādabā Plains were connected in commercial activity with Egypt and the coastal region, and the circulation of money increased in these regions with the growth of commerce between Egypt and the central Jordanian plateau (cf. Cary 1932: 299). Second, according to Tcherikover's study of Zenon papyri (1937: 21-22), the grain and oil trade between the two regions was ultimately in the hands of the government in Alexandria. Yet, private agents played a great role, collecting grain and oil for export to Egypt from the state lands or the landed property. They played the role of middle-men and were paid money through the agency of a bank. Native leaseholders cultivated the lands under the supervision of royal officials, although local leaders were occasionally allowed to own the lands. In connection with this textual evidence, it is tempting to assume that many of early Hellenistic sites in Jordan were associated with this trade activity, and the public buildings at these sites served as administrative centers of royal officials in conjunction with commerce. However, we have as yet very little direct evidence for this hypothesis.

Put together, there is no doubt that in the early Hellenistic period, Jordan was thinly populated in comparison to the Iron II. Yet, there is difficulty in arguing for an occupational hiatus in the early Hellenistic period, since there was an increase in population during this period. One may be prone to emphasize the early Hellenistic period as a transition to the much higher population level of the late Hellenistic period. This view, however, is also one to be tested in future work, since we lack solid evidence showing that the late Hellenistic period witnessed substantial settlement increase in comparison to the early period. In any event, according to the data on hand, Jordan seems to have been more densely populated than scholars have thought. In addition, the difference between the early Hellenistic period and the late one seems qualitative rather than quantitative. The Jordanian plateau and the Jordan Valley saw a rapid urbanization during the late Hellenistic period (Barghouti 1982); during the early Hellenistic pe-

riod, as a whole, evidence accounts for the rural and agricultural characteristics of the region. The view that Jordan was devoid of population in the early Hellenistic period thus seems to be somewhat exaggerated; it was rather a prosperous rural society tied with Egypt through trade and taxation.

A remaining question is why the central and southern Jordan Valley has a potentially unique Persian-Hellenistic settlement history. A suggestion is that the answer may lie in their geographical proximity to the region of 'Irāq al-'Amīr. In the previous accounts of the region of 'Irāq al-'Amīr and Wādī al-Kufrayn, Iron II and Hellenistic settlement patterns were presented in detail, and will not be repeated here (Ji 1997; 1998). A summary of the main points will suffice for the purpose of this paper: at 'Irāq al-'Amīr and in the region of Wādī as-Sīr, the evidence in general is strong enough to suggest a settlement continuity from late Iron II to the early Hellenistic period, and there were potential road systems connecting the southern Jordan Valley with 'Irāq al-'Amīr along Wādī al-Kufrayn and Wādī Jariya.

Our suggestion is that the proposed road systems along Wādī as-Sīr, Wādī al-Kufrayn, and Wādī Jariya were related with the Persian and Hellenistic settlements at the mouth of Wādī Shu'ayb, Wādī al-Kufrayn and Wādī Ḥisbān. This being the case, it is very likely that the Persian and Hellenistic settlement pattern in the southern Jordan Valley was associated with that of 'Irāq al-'Amīr and Wādī as-Sīr. On the basis of this notion, we may conclude that the southern Jordan Valley needs to be treated as a continuation of the settlements in the 'Irāq al-'Amīr region. It also seems reasonable to assume that the Persian and Hellenistic dwellers of the 'Irāq al-'Amīr region, most likely the Tobiads, were involved in building settlements for strategic and commercial purposes in the southern Jordan Valley and along Wādī al-Kufrayn and Wādī Jariya. A question is the relation of the central Jordan Valley to the region of 'Irāq al-'Amīr. We are still far from solving this puzzle because of the paucity of archaeological and textual data concerning whether or not Tobiah's territory included the central Jordan Valley. This question seems to require further studies.

Conclusion

For the present synthesis, we often had to rely on quite fragmentary information on the Hellenistic period disseminated in an array of reports in the form of a supplement to the study of the Iron Age and the classical periods. Hence, it can be easily predicted that some of the suggestions professed in this study will be revised as archaeological work continues and further analyses of findings come out in the future. Bearing this limitation in mind, we may reduce the present study to the following conclusions.

First, in light of recent excavations and surveys, there is no doubt that central and northern Jordan was thinly populated in the Hellenistic period in comparison to the Iron II and Roman-Byzantine periods. Yet, a popular view of a break in sedentary life during this period may negate archaeological evidence. We rather characterize the Hellenistic period as the beginning of a return of intensification in settlement. This is particularly true for the early Hellenistic period. Addressing this period, scholars have overlooked the relative importance of small farmstead and garrison sites scattered across the Jordanian plateau and the Jordan Valley. Profound changes first occurred in rural areas in which new villages, villas, farmsteads and garrisons were built during the early Hellenistic period, which was followed by changes in urban centers in the late Hellenistic period. At present, however, in terms of settlement density, we should probably not speak about the early Hellenistic period as a mere transition to the heavy occupation in the late Hellenistic period. The published statistical evidence is as yet too limited for this contention. Second, the Hellenistic settlement patterns were perhaps more complex than those discerned by previous studies. The central and southern Jordan Valley represents a different type of settlement history from that of the Jordanian plateau and the northern Jordan Valley. The heaviest concentration of Persian-early Hellenistic sites occurs in the central and southern Jordan Valley, particularly along Wādī Shu'ayb, Wādī al-Kufrayn and Wādī Ḥisbān, whereas in the Jordanian plateau and the northern Jordan Valley, a settlement intensification began early in the Hellenistic period and continued to the late Hellenistic period. There was a break in sedentary life in the central and southern Jordan Valley in the late Hellenistic period, whereas in the plateau and the northern Jordan Valley, such a break took place during the Persian period. Finally, the presence of the Tobiads in the region of 'Irāq al-'Amīr appears to be the best answer for this possibly unique settlement pattern in the southern Jordan Valley. A striking fact is the similarity of settlement history of the two regions from late Iron II to the Hellenistic period. The vicissitude of the Tobiads in the region of 'Irāq al-'Amīr may well have influenced intensification and abatement of the settlements in the southern Jordan Valley.

Bibliography

Abu Dayyah, A. S., *et al.* 1991. Archaeological Survey of Greater Amman, Phase 1: Final Report. *ADAJ* 35: 361-395.

Ahlström, G. W. 1993. *The History of Ancient Palestine*. Sheffield: Sheffield Academic Press.

Arav, R. 1989. *Hellenistic Palestine*. BAR International Series 485. Oxford: B.A.R.

Avi-Yonah, M. 1979. *The Holy Land from the Persian to the Arab Conquests*. Grand Rapids: Baker.

Baird, D. and Philip, G. 1992. Preliminary Report on the First

(1991) Season of Excavations at Tell esh-Shuna North. *ADAJ* 36: 71-88.

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. *et al.* 1989. Wadi Ziqlab Project 1987: A preliminary Report. *ADAJ* 33: 43-58.

Barghouti, A. N. 1982. Urbanization of Palestine and Jordan in Hellenistic and Roman Times. Pp. 209-229 in *SHAJ* I. Amman: Department of Antiquities.

Bennett, C-M. 1979. Excavations on the Citadel (Al Qal'a), Amman, 1978, Fourth Preliminary Report. *ADAJ* 23: 161-171.

Berlin, A. M. 1997. Between Large Forces: Palestine in the Hellenistic Period. *BA* 60: 2-51.

Bevan, E. 1968. The House of Ptolemy. Chicago: Argonaut.

Bikai, P. M. 1993. Khirbet Salameh 1992. *ADAJ* 37: 521-532.

____1994. University of Jordan Excavations at Khirbet Salameh, 1993. *ADAJ* 38: 395-399.

Boling, R. G. 1989. Site Survey in the el-'Umeiri Region. Pp. 98-188 in L. T. Geraty *et al.* (eds.), *Madaba Plain Project* 1. Berrien Springs: Andrews University.

Braemer, F. 1987. Two Campaigns of Excavations on the Ancient Tell of Jarash. *ADAJ* 31: 525-529.

____1989. Jerash, la fouille du tell. Pp. 36-39 in F. Villeneuve (ed.), *Contribution Française a l'archeologie Jordanienne.* Amman: Institut Français d'Archeologie du Proche-Orient.

Cary, M. 1932. *The Legacy of Alexander.* New York: Dial Press.

Christopherson, G. L. 1991. Limekilns from the Regional Survey. Pp. 343-352 in L. T. Geraty *et al.* (eds.), *Madaba Plain Project* 2. Berrien Springs: Andrews University.

____1997. Regional Site Survey. Pp. 291-302 in L. T. Geraty *et al.* (eds.), *Madaba Plain Project* 3. Berrien Springs: Andrews University.

Cole, J. A. 1989. Random Square Survey in the el-'Umeiri Region. Pp. 51-97 in L. T. Geraty *et al.* (eds.), *Madaba Plain Project* 1. Berrien Springs: Andrews University.

de Contenson, H. 1964. The 1953 Survey in the Yarmuk and Jordan Valleys. *ADAJ* 8-9: 30-42.

Dornemann, R. H. 1990. Preliminary Comments on the Pottery Traditions at Tell Nimrin, Illustrated from the 1989 Season of Excavations. *ADAJ* 34: 153-181.

Edgar, C. C. 1925. *The Zenon Papyri.* 4 vols. Cairo.

Edwards, P. C. *et al.* 1990. Preliminary Report on the University of Sydney's Tenth Season of Excavations at Pella (Tabaqat Fahl) in 1988. *ADAJ* 34: 57-93.

Flanagan, J. W. and McCreery, D. W. 1990. First Preliminary Report of the 1989 Tell Nimrin Project. *ADAJ* 34: 131-152.

Flanagan, J. W., McCreery, D. W. and Yassine, K. N. 1992. Preliminary Report of the 1990 Excavation at Tell Nimrin. *ADAJ* 36: 89-111.

____1994. Tell Nimrin: Preliminary Report on the 1993 Season. *ADAJ* 38: 205-244.

Franken, H. J. and Ibrahim, M. M. 1977. Two Seasons of Excavations at Tell Deir 'Alla, 1976-1978. *ADAJ* 22: 57-80.

Gera, D. 1990. On the Credibility of the History of the Tobiads. Pp. 21-38 in A. Kasher, U. Rapparport and G. Fuks (eds.), *Greece and Rome in Eretz Israel.* Jerusalem: Israel Exploration Society.

Geraty, L. T., Herr, L. G. and LaBianca, O. S. 1988. The Joint Madaba Project: A Preliminary Report on the Second Season at Tell el-'Umeiri and Vicinity. *AUSS* 26: 217-252.

Geraty, L. T. *et al.* 1990. Madaba Plains Project: A Preliminary Report of the 1987 Season at Tell el-'Umeiri and Vicinity. *BASOR Supplement* 26: 59-88.

Gordon, R. L. 1987. Notes on Some Sites in the Lower Wadi ez-Zerqa and Wadi Ragib. ZDPV 103: 67-77.

Gordon, R. L. and Knauf, E. A. 1987. Er-Rumman Survey 1985. *ADAJ* 31: 289-298.

Gordon, R. L. and Villiers, L. E. 1983. Telul Edh-Dhahab and its Environs Surveys of 1980 and 1982: A Preliminary Report. *ADAJ* 27: 275-289.

Greene, J. A. and 'Amr, K. 1992. Deep Sounding on the Lower Terrace of the Amman Citadel: Final Report. *ADAJ* 36: 113-144.

Guz-Zilberstein, B. 1995. The Typology of the Hellenistic Coarse Ware and Selected Loci of the Hellenistic and Roman Periods. Pp. 289-434 in E. Stern (ed.), *Excavations at Dor, Final Report, Volume IB, Areas A and C: The Finds.* Jerusalem: Israel Exploration Society.

Hadidi, A. 1973. Some Bronze Coins from Amman. *ADAJ* 18: 51-53.

____1974. The Excavation of the Roman Forum at Amman (Philadelphia), 1964-1967. *ADAJ* 19: 71-91.

Hanbury-Tenison, J. W. 1987. Jarash Region Survey, 1984. *ADAJ* 31: 129-158.

Hendrix, R. E. 1994. A Summary of Small Finds from Tell Hesban. Pp. 177-192 in P. D. Merling and L. T. Geraty (eds.), *Hesban after 25 Years.* Berrien Springs: Andrews University.

Hennessy, J. B. *et al.* 1981. Preliminary Report on a Second Season of Excavation at Pella, Jordan. *ADAJ* 25: 267-310.

____1983. Preliminary Report on the Fourth Season of Excavations at Pella, 1982. *ADAJ* 27: 325-361.

Herr, L. G. *et al.* 1997. Madaba Plains Project 1996: Excavations at Tall al-'Umayri, Tall Jalul, and Vicinity. *ADAJ* 41: 145-167.

Ibach, R. D. 1987. *Archaeological Survey of the Hesban Region.* Berrien Springs: Andrews University.

Ibrahim, M. and van der Kooij, G. 1979. Excavations at Tell Deir 'Alla: Season 1979. *ADAJ* 23: 41-50.

____1983. Excavations at Tell Deir 'Alla, Season 1982. *ADAJ* 27: 577-585.

____1986. Excavations at Deir 'Alla, Season 1984. *ADAJ* 30: 131-143.

Ibrahim, M., Sauer, J. and Yassine, K. 1976. The East Jordan Valley Survey, 1975. *BASOR* 222: 41-66.

Ji, C. C. 1997. The Tobiads in the Light of New Evidence from 'Iraq al-Amir. Paper presented at the Annual Meeting of the Society of Biblical Literature (New Orleans, November).

____1998. Archaeological Survey and Settlement Patterns in the Region of 'Iraq al-Amir, 1996: A Preliminary Report. *ADAJ* 42: 587-608.

Jones, H. L. 1917. *The Geography of Strabo*. 8 vols. Cambridge: Harvard University.

Kafafi, Z. A. and Knauf, E. A. 1989. Dahr el Medineh. Pp. 198-200 in D. Homès-Fredericq and J. B. Hennessy (eds.), *Archaeology of Jordan*. Leuven: Peeters.

Kennedy, D. and Freeman, P. 1995. Southern Hauran Survey 1992. *Levant* 27: 39-73.

Kerestes, T. M. *et al.* 1977. An archaeological Survey of Three Reservoir Areas in Northern Jordan, 1978. *ADAJ* 22: 108-135.

Kerner, S. and Hoffmann, A. 1993. Gadara-Umm Qeis: Preliminary Report on the 1991 and 1992 Seasons. *ADAJ* 37: 359-384.

King, G., Lenzen, C. J. and Rollefson, G. O. 1983. Survey of Byzantine and Islamic Sites in Jordan: Second Season. *ADAJ* 27: 385-433.

Krug, H. P. 1991. The Necropolis at Tell el-'Umeiri (East). Pp. 356-69 in L. T. Geraty *et al.* (eds.), *Madaba Plain Project* 2. Berrien Springs: Andrews University.

LaBianca, O. S. 1990. *Sedentarization and Nomadization*. Berrien Springs: Andrews University.

____1998. Tall Hisban 1997. *ASOR Newsletter* 48 (1): 14-16.

LaBianca, O. S. *et al.* 1997. Report on the 1996 Field Season of the Madaba Plains Project. An unpublished manuscript. Horn Archaeological Museum, Andrews University.

Lapp, N. N. 1983. *The Excavations at Araq el-Emir. AASOR* 47. Winona Lakes: American Schools of Oriental Research.

Lapp, P. W. 1962a. Soundings at 'Araq el-Emir (Jordan). *BASOR* 165: 16-34.

____1962b. The 1961 Excavations at 'Araq el-Emir. *ADAJ* 6-7: 80-89.

____1963. The Second and Third Campaigns at Araq el-Emir. *BASOR* 171: 8-39.

____1975. The Excavations at 'Araq el-Emir. Pp. 59-119 in N. Lapp (ed.), *The Tale of the Tell*. Pittsburgh: The Pickwick Press.

____1993. Iraq el-Emir. Pp. 646-48 in E. Stern (ed.), *The New Encyclopedia of the Archaeological Excavations in Holy Land*. Jerusalem: Israel Exploration Society.

Larché, F., Villeneuve, F. and Zayadine, F. 1981. Recherches archéologiques à Iraq al-Amir. *LA* 31: 333-342.

____1982. Recherches archéologiques à Iraq al-Amir. *LA* 32: 495-498.

Lenzen, C. J., Gordon, R. L. and McQuitty, A. M. 1985. Excavations at Tell Irbid and Beit Ras, 1985. *ADAJ* 29: 151-159.

Lenzen, C. J., Kareem, J. and Thorpe, S. 1987. The Jisr Sheikh Hussein Project, 1986. *ADAJ* 31: 313-319.

Lenzen, C. J. and McQuitty, A. M. 1984. Khirbet Salameh. *ADAJ* 28: 295.

____1987. The Site of Khirbet Salameh. *ADAJ* 31: 201-204.

____1988. The 1984 Survey of the Irbid/Beit Ras Region. *ADAJ* 32: 265-274.

Leonard, A. 1987. The Jarash-Tell el-Husn Highway Survey. *ADAJ* 31: 343-390.

____1992. *The Jordan Valley Survey, 1953: Some Unpublished Soundings Conducted by James Mellaart. AASOR* 50. Winona Lake: Eisenbraun.

Loffreda, S. 1981. Preliminary Report on the Second Season of Excavations at Qal'at el-Mishnaqa Machaerus. *ADAJ* 25: 85-94.

Mabry, J. and Palumbo, G. 1988. The 1987 Wadi el-Yabis Survey. *ADAJ* 32: 275-305.

MacAdam, H. I. 1992. The History of Philadelphia in the Classical Period. Pp. 27-45 in A. Northedge (ed.), *Studies on Roman and Islamic Amman*. Oxford: Oxford University.

Mare, W. H. 1994. The 1992 Season of Excavation at Abila of the Decapolis. *ADAJ* 38: 359-378.

Mare, W. H. *et al.* 1985. The 1984 Season at Abila of the Decapolis. *ADAJ* 29: 221-237.

____1987. The 1996 Season at Abila of the Decapolis. *ADAJ* 31: 205-219.

Mazar, B. 1957. The Tobiads. *IEJ* 7: 137-145, 229-238.

McNicoll, A. W. *et al.* 1982. A third Season of Excavations at Pella, 1980/81. *ADAJ* 26: 343-363.

____1986. Preliminary Report on the University of Sydney's Seventh Season of Excavations at Pella (Tabaqat Fahl) in 1985. *ADAJ* 30: 155-198.

Mellaart, J. 1962. Preliminary Report of the Archaeological Survey in the Yarmuk and Jordan Valley for the Point Four Irrigation Scheme. *ADAJ* 6-7: 126-138.

Miller, J. E. 1991. The Bronze Ptolemaic Coin of Rujm Selim. Pp. 381-82 in L. G. Herr *et al.* (eds.), *Madaba Plains Project* 2. Berrien Springs: Andrews University.

Mitchel, L. A. 1992. *Hellenistic and Roman Strata: A Study of the Stratigraphy of Tell Hesban*. Berrien Springs: Andrews University.

____1994. Caves, Storage Facilities, and Life at Hellenistic and Early Roman Hesban. Pp. 97-108 in P. D. Merling and L. T. Geraty (eds.), *Hesban after 25 Years*. Berrien Springs: Andrews University.

Mittmann, S. 1970. *Beiträge zur Siedlungs und Territorialgeschichte des nördlichen Ostjordanlandes*. Wiesbaden: Otto Harrassowitz.

Najjar, M. 1997. The 1991-1992 Excavations. Pp. 1-22 in A. Koutsoukou *et al.* (eds.), *The Great Temple of Amman: The Excavations*. Amman: American Center of Oriental Research.

Palumbo, G. 1992. The 1990 Wadi el-Yabis Survey Project and Soundings at Khirbet Um el-Hesamus. *ADAJ* 36: 25-37.

Paton, W. R. 1922. *Polybius*. 6 vols. London: William Heinemann.

Piccirillo, M. 1979. First Excavation Campaign at Qal'at el-Mishnaqa-Meqawer (Madaba) (September 8 - October 28, 1978). *ADAJ* 23: 177-183.

Prag, K. 1989. Preliminary Report on the Excavations at Tell Iktanu, Jordan, 1987. *Levant* 21: 33-45.

____1990. Preliminary Report on the Excavations at Tell Iktanu, Jordan, 1989. *ADAJ* 34: 119-128.

Pritchard, J. B. 1985. *Tell es-Sa'idiyeh: Excavations on the Tell, 1964-1966*. Philadelphia: The University Museum.

Russell, K. W. 1997. Stamped Amphora Handles. Pp. 39-54 in A. Koutsoukou *et al.* (eds.), *The Great Temple of Amman: The Excavations*. Amman: American Center of Oriental Research.

Russell, K. W. *et al.* 1997. Coins. Pp. 23-38 in A. Koutsoukou *et al.* (eds.), *The Great Temple of Amman: The Excavations*. Amman: American Center of Oriental Research.

Sauer, J. A. 1973. *Heshbon Pottery 1971: A Preliminary Report on the Pottery from the 1971 Excavations at Tell Heshbon*. Andrews University Monographs 7. Berrien Springs: Andrews University.

____1994. The Pottery at Heshbon and its Relationships to the History of Jordan: An Interim Heshbon Pottery Report, 1993. Pp. 225-282 in P. D. Merling and L. T. Geraty (eds.), *Hesban after 25 Years*. Berrien Springs: Andrews University.

Seigne, J. 1989. Jerash, le sanctuaire de Zeus et ses abords. Pp. 40-48 in F. Villeneuve (ed.), *Contribution Française a l'archeologie Jordanienne*. Amman: Institut Français d'Archeologie du Proche-Orient.

Shraidah, S. and Lenzen, C. J. 1985. Salvage Excavations in Beit Ras, 1985. *ADAJ* 29: 291-292.

Simmons, A. H. and Kafafi, Z. 1988. Preliminary Report on the 'Ain Ghazal Archaeological Survey, 1987. *ADAJ* 32: 27-39.

Smith, R. H. 1980. Preliminary Report on the 1979 Season of the Sydney-Wooster Joint Expedition to Pella. *ADAJ* 24: 13-40.

____1981. Preliminary Report on a Second Season of Excavation at Pella, Jordan. *ADAJ* 25: 311-326.

____1982. Preliminary Report on the 1982 Season of the Sydney/Wooster Joint Expedition to Pella (Spring Session). *ADAJ* 26: 323-334.

____1990. The southern Levant in the Hellenistic Period. *Levant* 22: 123-130.

Stern, E. 1982. *Material Culture of the Land of the Bible in the Persian Period 538-332 B.C.* Jerusalem: Israel Exploration Society.

____1995. Local Pottery of the Persian Period. Pp. 51-92 in E. Stern (ed.), *Excavations at Dor, Final Report, Volume IB, Areas A and C: the Finds*. Jerusalem: Israel Exploration Society.

Stern, E. and Magen, Y. 1984. A Pottery Group of the Persian Period from Qadum in Samaria. *BASOR* 253: 9-27.

Strange, J. 1997. Tell el Fukhar 1990-1991: Preliminary Account. Pp. 399-406 in *SHAJ* VI. Amman: Department of Antiquities.

Tcherikover, V. 1937. Palestine under the Ptolemies. *Mizraim* 4-5: 9-90.

____1959. *Hellenistic Civilization and the Jews*. Jerusalem: Jewish Publication Society.

Terian, A. 1976. Coins from the 1973 and 1974 Excavations at Heshbon. *AUSS* 14: 133-141.

Tubb, J. N. 1985. Preliminary Report on the 1985 Season of Excavations at Tell es-Sa'idiyeh, Jordan. *ADAJ* 29: 131-140.

Uscatescu, A. 1995. Jarash Bowls and other Related Local Wares from the Spanish Excavations at the Macellum of Gerasa (Jarash). *ADAJ* 39: 365-408.

Walmsley, A. G. *et al.* 1993. The Eleventh and Twelfth Seasons of Excavations at Pella (Tabaqat Fahl) 1989-1990. *ADAJ* 37: 165-240.

Watson, P. 1996. Pella Hinterland Survey 1994: Preliminary Report. *Levant* 28: 63-76.

Weber, T. 1991. Gadara of the Decapolis: Preliminary Report on the 1990 Season at Umm Qeis. *ADAJ* 35: 223-235.

Whiston, W. 1902. *The Works of Josephus*. 4 vols. Boston: G. G. Brainard.

Will, E. 1989. 'Iraq el Amir. Pp. 288-97 in D. Homès-Fredericq and J. B. Hennessy (eds.), *Archaeology of Jordan*. Leuven: Peters.

Wright, K., Schick, R. and Brown, R. 1989. Report on a Preliminary Survey of the Wadi Shue`ib. *ADAJ* 33: 345-350.

Yassine, K. 1983. Tell el Mazar, Field D 1: Preliminary Report of Area A, G, H, L, and M: The Summit. *ADAJ* 27: 495-513.

Yassine, K., Ibrahim, M. and Sauer, J. 1988. The East Jordan Valley Survey, 1976 (second Part). Pp. 187-206 in K. Yassine (ed.), *Archaeology of Jordan*. Amman: University of Jordan.

Younker, R. W. 1989. Towers in the Region Surrounding Tell el-'Umeiri. Pp. 195-198 in L. T. Geraty *et al.* (eds.), *Madaba Plain Project* 1. Berrien Springs: Andrews University.

____1991a. Architectural Remains from the Hinterland Survey. Pp. 335-342 in L. T. Geraty *et al.* (eds.), *Madaba Plain Project* 2. Berrien Springs: Andrews University.

____1991b. The Judgment Survey. Pp. 269-334 in L. T. Geraty *et al.* (eds.), *Madaba Plain Project* 2. Berrien Springs: Andrews University.

Younker, R. W. *et al.* 1990. A Preliminary Report of the 1989 Season, Including the Regional Survey and Excavations at el-Dreijat, Tell Jawa, and Tell el-'Umeiri. *AUSS* 28: 5-52.

Zayadine, F. 1973. Recent Excavations on the Citadel of Amman (A Preliminary Report). *ADAJ* 18: 17-35.

____1990. La campange d'Antichose III le Grande en 219-217 et le siège de Rabbatamana. *RB* 97: 68-84.

Zayadine, F., Humbert, J. B. and Najjar, M. 1989. The 1988 Excavations on the Citadel of Amman—Lower Terrace, Area A. *ADAJ* 33: 357-363.

Zayadine, F., Najjar, M. and Greene, J. A. 1987. Recent Excavations on the Amman Citadel (Lower Terrace): A Preliminary Report. *ADAJ* 31: 299-311.

Adolf Hoffmann
Brandenburgische Technische Universität
Cottbus
Postfach 10 13 44
D-03010 Cottbus
Germany

Adolf Hoffmann

Hellenistic Gadara[1]

City Wall

When Alexander the Great conquered Syria and Palestine in 333/332 BC, life in this region—after an extended period of Egyptian and Oriental suzerainty—became strongly influenced by the Greek culture. In addition to the existing Semitic towns with the settlement of Greek veterans, there emerged new towns with mixed populations of Greeks, Semites and Arabs that probably have had a special Hellenistic profile which in detail, however, has scarcely been studied. Since only a few years ago it was *opinio communis* that these towns have been united by Pompey into the league of cities known as the *Decapolis*, but recent research proved that this took place only in early Roman Imperial times (Wenning 1994: 1-2, 11-12). The Decapolis towns gained a certain political autonomy which they—with limitations—managed to retain during the following centuries. As late as the fifth century AD, for example, these cities had the right to issue their own coins. As centres of Greek-Roman culture they functioned as an urban counterpoise to the local, nomadic traditions of the original Semitic-Arabian population.

Despite their importance in the country's development, there is very little known about the early Hellenistic period of these cities. There is some information on Pella or Philadelphia/ 'Ammān with its impressive city wall, while at Gerasa/Jarash the stepwise development of the important sanctuary of Zeus from its early nucleus on has been investigated very thoroughly. But one would like to learn more about the related settlement in Hellenistic times.

Written reports from classical historians are concerned for the most part with military aspects (cf. for example Gadara: Polybios *Hist.* V: 69-70, Flavius Josephus *Ant. Jud.* XII: 356). Detailed information on the organisation of the towns and of their daily life is missing in text sources.

For the last ten years the German Archaeological Institute has been excavating in Gadara, one of the major cities of the Decapolis. One main area of research during the last years have been the early periods of the city, and some of the results presented here (Hoffmann 1993: 364-368).

Not far from abrupt descent from 'Ajlūn into the northern Jordan Valley, a rocky hill rises like a fortress about 20 meters above the surrounding terrain of the highland (365m above sea level). Adjoining it to the west there is an extremely fertile triangular plateau. It will have been the strategic rather than the agricultural advantages of the location that led to settlement on the hill. In addition to its obvious defense capacity, it was also an eminently suitable location for communication with the surrounding country and particularly across the Jordan Valley to Palestine in the west. For military purposes the situation was ideal. Polybios refers to Gadara as one of the centres of conflict between the Ptolemaic and Seleucid dynasties that succeeded Alexander, in which the Seleucids finally won the upper hand (Polybios *Hist.* V: 69-70).

The city wall of Gadara has been known since Gottlieb Schumacher published his report on the village of Umm Qays and its ruins in 1898 (Schumacher 1890). Unfortunately, there was no information in detail, either on the construction, nor on the different building periods. Starting in 1992, in continuation with the first surveys and research of Ute Wagner-Lux (Wagner-Lux *et al.* 1978: 136), Thomas Weber (Weber 1989: 32) and Susanne Kerner (Kerner 1993: 368; 1997: 289-290) a series of soundings were made at the southern slope of the hill, where Schumacher reported extended remains of the wall which in great part had been covered by later constructions. Only at the southeastern corner was part of the wall visible all the time. It served as a foundation for the late Ottoman Bayt Malkāwī. By selective excavation at different points along the south side of Ottoman Umm Qays, extensive evidence has been gained regarding the course

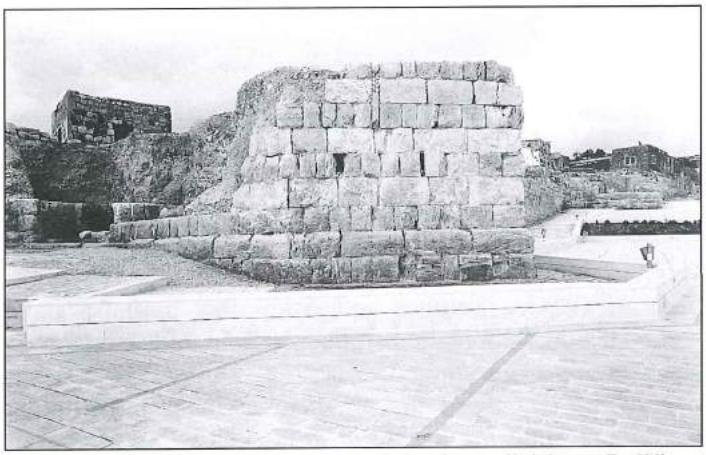
[1] Translation: Stella Vitzthum.

and the construction of the wall in detail and regarding its history as well (FIG. 1). To manage urgent demands of tourism in 1997, a parking area was built by the Jordanian authorities on this southern slope next to the wall, which had been completely unearthed in 1996 for the first time (FIG. 2). About 230m of the southern city wall have been exposed, part of which stands up to a height of about 7m. Two big rectangular corner towers and two intermediate pentagonal towers combined with gateways were investigated (FIG. 3).

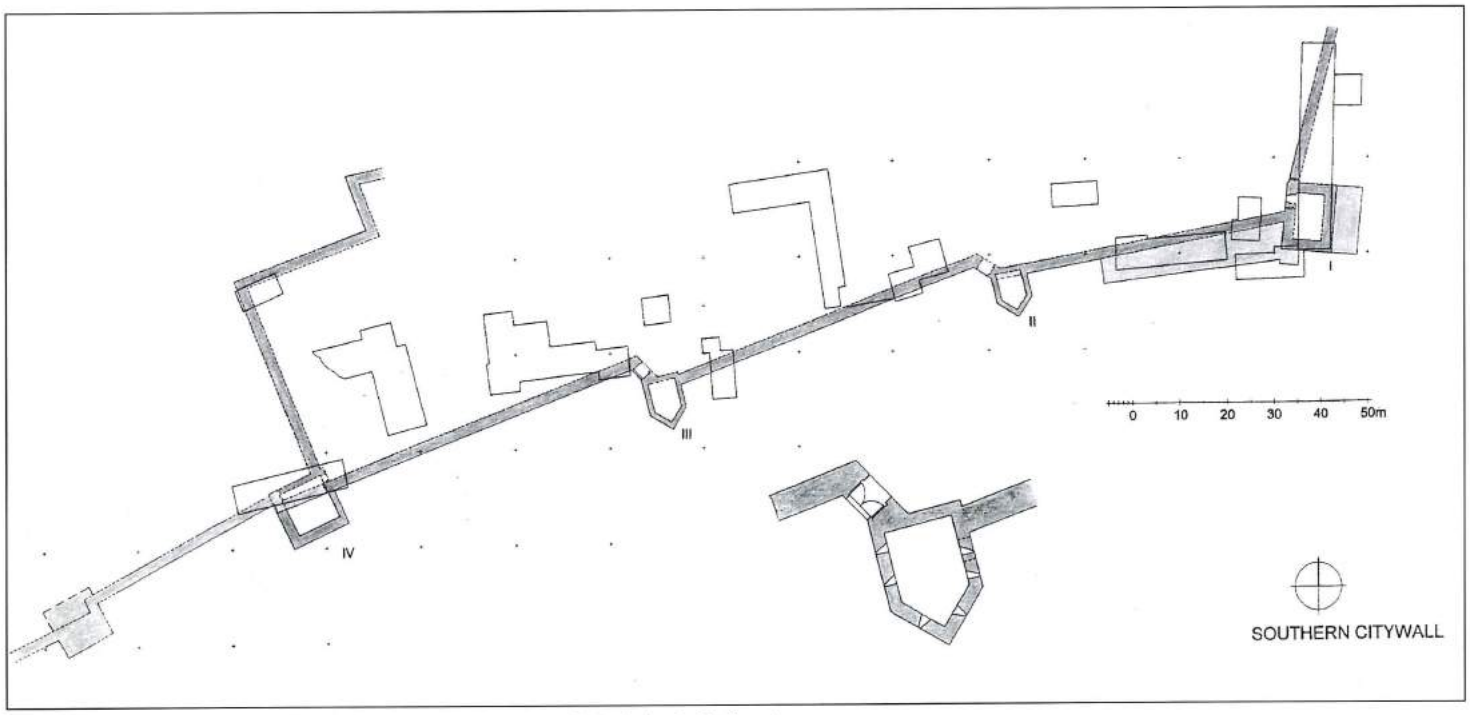
Archaeological research in Gadara, based on stratigraphical analysis, has shown that it was re-fortified following the Seleucid conquest reported by Polybios shortly after 200 BC. This was, however, more than a simple reinforcement exercise and appears to have been planned near the border to the Ptolemaic kingdom as a royal prestige project. Compared to other Hellenistic fortresses east of the Jordan River,[2] the new walls of Gadara show highly sophisticated military planning and contemporary fortification technology (cf. Philo of Byzantion, *Poliorketika*).[3] The systematic tower and gate arrangement is consistent with the most advanced military technical design of the time. Comparable examples of this regulated tower-gate system can be found at very few important cit-



1. Hellenistic city wall with pentagonal tower (photo: R. Wieczorek).



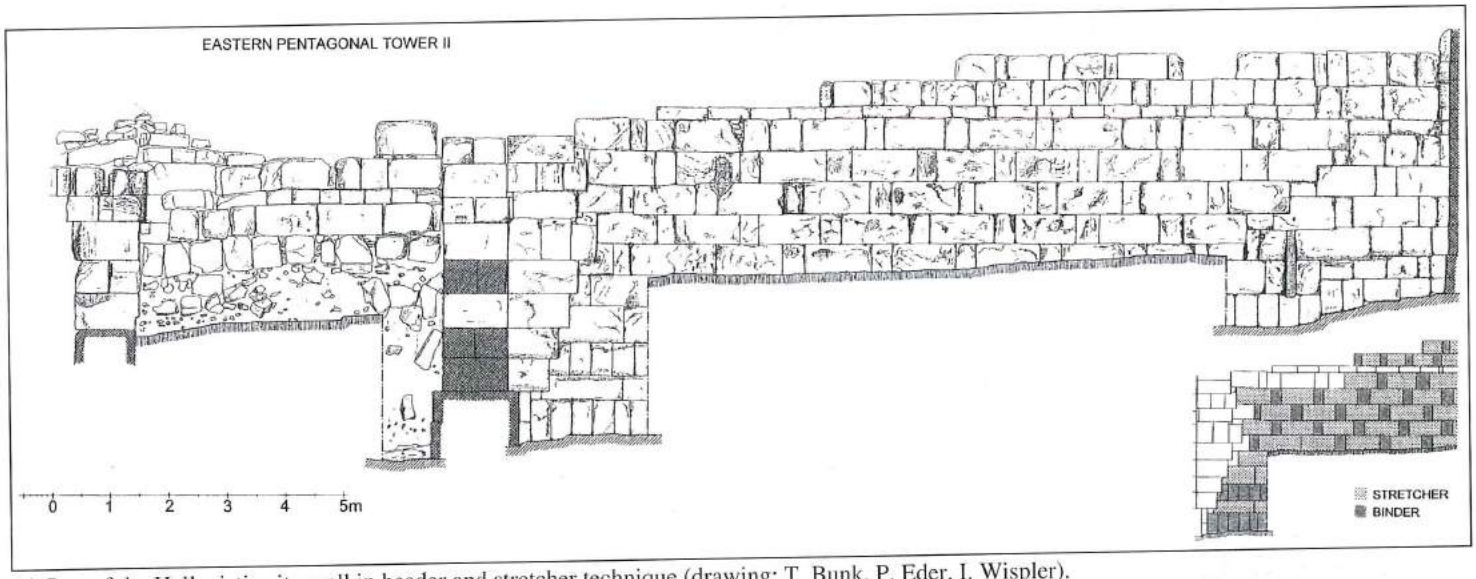
2. Parking area in front of the Hellenistic city wall (photo: R. Wieczorek).



3. Southern section of the Hellenistic city wall (drawing: C. Bührig, J. Meister).

[2] Cf. for example Jabal Sartaba (Zayadine 1986: 142-151); or Amathous, Essa and Ragaba (Mittmann 1987).

[3] Translation cf. Lawrence 1979: 75-107; for the problem in general cf. for example McNicholl 1997.



4. Part of the Hellenistic city wall in header and stretcher technique (drawing: T. Bunk, P. Eder, I. Wispler).

ies of the Greek world, such as Apollonia in Cyrenaica from the middle of the third century BC (cf. for example Hallier 1986) and Miletus (on the west coast of Asia Minor), around 100 BC (cf. for example McNicholl 1997: 167-169). The unusual and very distinctive pentagonal towers have few parallels, two examples being Samos, from around 300, and Oenoanda (Asia Minor), around 200 BC (McNicholl 1997: 125-126). Two rows of loopholes on top of each other and emergency gateways are further details of a refined planning of these towers (cf. for example Adam 1982: 105-110).

The consistently high building standard is manifest in the remarkable precision of the masonry (FIG. 4) as well as in the elaborate detail on the gates, for example. In one of these were found the bronze pivot holes from the second century BC. They owe their preservation to an attack on the city by the Hasmonean King Alexander Jannaeus around 100 BC, in response to which the gates were closed and walled up, but to no avail—the city was sacked and the wall razed nearly to the ground (Flavius Josephus, *Ant.* XIII 356; id. *Bell. Jud.* 1,2,2). The doors were never reopened and so the bronze fittings were preserved.

The building material used for the walls was the local limestone, which was easy to work but also eroded easily—a distinct disadvantage. The Seleucid wall was a massive stone construction in header and stretcher technique and was further stabilized by the unusual use of very hard gypsum mortar, but the visible exterior surface nevertheless suffered considerable damage in the short span of its one hundred years of existence. In the course of excavations it was observed that damaged sections of the wall had been faced with thin panels of limestone, a practice that can be seen as an early example of heritage restoration work. Although the strength of the wall was in no way affected by the erosion, this work restored the appearance of being unimpaired, with the aim of presenting a perfect and impregnable facade to a possible attacker.

Amongst the rubble of the city walls an extremely rare epigraphic specimen for the Hellenistic period of Gadara was found, a fragment of an inscription that can be precisely dated at 86/85 BC (FIG. 5).[4] Especially significant is the use of the word *seleukeon*, which confirms important historical events that were recorded in a report written only in the fifth century AD (Stephanos of Byzantion, *Ethnika* s.v. Γαδαρα). In it Stephanos writes that after the Seleucid conquest Gadara was named *Antiochia Seleukia* to underline its subjugation to a new rule. The city by Stephanos is also referred to as *polis*, a most important privilege granting autonomy and special status which now is probably proved by the newly found inscription. Certain urban facilities were associated with



5. Inscription from the Hellenistic city wall (photo: P. Grunwald).

[4] The inscription is to be studied by Michael Wörrle, Munich.

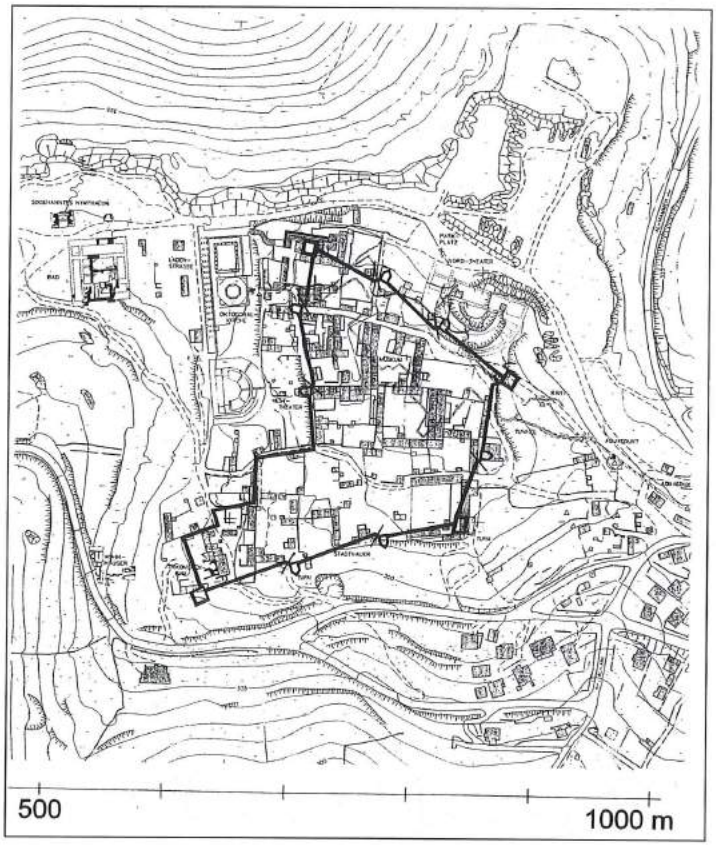
this status of *polis*, such as the *Bouleuterion*—the place where the *demos* gathered. However, no trace of this or any of the other *polis* elements has been found to date. The small western theater of Gadara which was part of a grand-scale remodeling of the public center of the town in the time of the Severan emperors and which could have been used as an assembly place, might be a continuation of long-lasting traditions going back to the Hellenistic past.

Large amounts of well stratified archaeological material from the different excavations alongside the wall gave much data for a tentative reconstruction of the history of the wall and of the Hellenistic and early Imperial city. The oldest layers at the bottom of the wall go back to the early second century BC. Immediately after the town had been conquered by Antiochos III, a new and strong wall was erected to protect the southern frontier of the Seleucid kingdom against the Ptolemies. A much more dangerous assailant, however, was the Alexander Jannaeus who besieged and finally conquered the town in the early first century BC but soon after, forced by the Nabataeans, had to withdraw to western Palestine (Flavius Josephus, *Ant.* XIII 375; Mittmann 1987: 50). Though the wall had been completely demolished, the people of Gadara started to recover as is testified by the above mentioned inscription, a process that must have been stopped definitely when Alexander returned to the east bank in the late eighties. The wall remained destroyed until Gadara was threatened by the Jewish riots soon after the middle of the first century AD. On top of the old destruction layers a new wall was erected and at the same time new urban quarters were incorporated. These had grown west of the Hellenistic nucleus (Kerner 1992: 409; 1993: 368-369; 1997: 287-289) which had been walled. The building technique with rubble inside the wall differs clearly from the Hellenistic construction.[5] Finally, nearly two millennia later, the sustaining wall of the late Ottoman village again used the exact course of its Hellenistic predecessor.

Urban Planning System

The southern section of the wall system has been unearthed completely and it has been possible to identify main parts of the eastern section as well—most important the northeastern corner tower. Going by geophysical conditions and certain other local factors, the walls—with a reasonable degree of certainty—can be assumed to have formed a closed circle (FIG. 6) like at Samaria-Sebaste, Marisa/Tall Ṣandaḥanna and other towns in the region. However, in no other Decapolis city is the research on Hellenistic walls anywhere near as detailed and complete as in Gadara. What is more, the city walls provide important clues to the planning concept of the Hellenistic city.

Through a process of combination of the position of the gates in the walls with the building grid of the 19th century settlement—which clearly used the ancient constructions as foundations (Weber 1989: 16)—one can conclude that the street plan was more or less orthogonal, as was common in Hellenistic cities. Within the Decapolis there are hitherto no parallels. Even less regular is the example known from the Sidonian colony of Marisa/Tall Ṣandaḥanna south of Jerusalem, from the second century BC.[6] Though it differs in several important details in comparison to the big royal cities like Eumenes II/Pergamon, of the second century BC (Wulf 1994: 145) there is a lot of similarity to the presumed town planning concept of Gadara and thus demonstrates how ambitious this possibly royal project was. To prove the theories the rest of the inner-city buildings have to be found. Further excavation is necessary.



6. Course of the city wall in Hellenistic times, hypothetical reconstruction (plan: Fachhochschule Karlsruhe, C. Hartl-Reiter, D. Schäffler; drawing: J. Meister).

[5] This technical detail is proved by the findings from different soundings; stratified pottery points to the second half of the first century AD.

[6] For general information cf. *The New Encyclopedia of Archaeological Excavations in the Holy Land* 3 (1993) 948-951, with plan p. 949 s. v. *Mareshah* (M. Avi-Yonah).

Temple

An indispensable part of urban communal life and the centre of the citizens' religious life was the temple. Until only a few years ago, however, no traces of a temple in Gadara had been found. The strategic importance of Umm Qays—by virtue of its elevated position—is as relevant today as ever and the village had been involved repeatedly in military conflicts during the past decades. Long time restricted areas, however, have been lifted and access for archaeological research for example was granted in 1995 for the plateau on the north side below the hilltop settlement. Although it has been ravaged by bulldozer operations, the hitherto unexplored area (Wagner-Lux *et al.* 1978: 141) is level and proved on closer inspection to be the large courtyard of an urban temple precinct. The remains of a temple located in the centre have been excavated together with a gateway in front of it and remains of other elements of the courtyard ensemble (FIG. 7). Of the main building only the foundations exist *in situ*, comprising three barrel-vaulted rooms, whose vaults stand above ground level and so formed a podium for the upper level, the actual temple, of which numerous elements have luckily also been found. Steps in the rear descend to the basement (FIG. 8), which was possibly used for storing valuable goods. It probably served as an *aerarium*.

As part of the raised architecture there are one Doric column drum, several elements of a Doric frieze (FIG. 9) and cornice, and the pediment whose details resemble in its correct and somehow academic design very much the Doric architecture of the upper storey of the Hellenistic palace in 'Irāq al-'Amīr, erected in the very same period (Will *et al.* 1991: 56, 185-189). Although these elements represent only a fraction of the whole, there is a good chance of being able to reconstruct the main parts of this Doric temple with reasonable certainty. It was a prostyle, that is, a building with a closed cella. In front there was a porch with four columns or with two columns *in antis*, similar for example to the somewhat later temple of Augustus at Philae in Egypt (Hänlein-Schäfer 1985: 219-222).

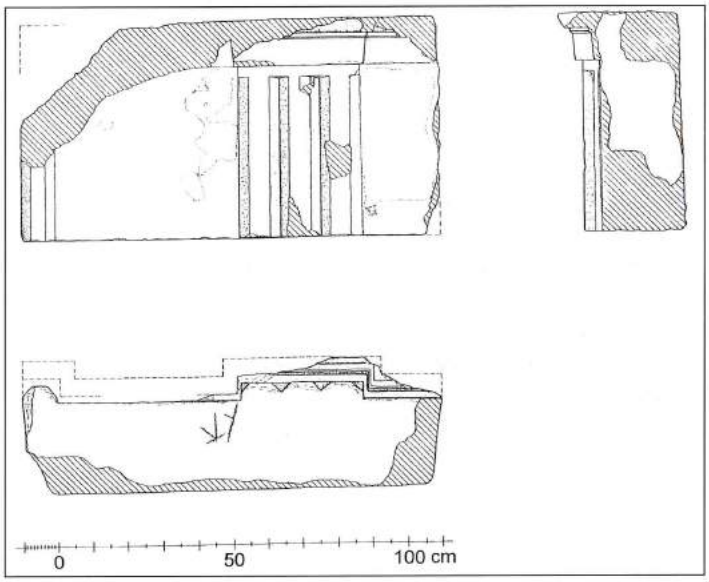
From the fill close to the temple, there is clear archaeological evidence that the construction of the building started in the first half of the second century but was finished only at the beginning of the first century BC. Be-



7. Temple area seen from the south (photo: C. Bührig).



8. Detail from the back wall of the Hellenistic temple (photo: R. Wieczorek).



9. Frieze block with triglyph and metope belonging to the temple (drawing: C. Bührig, J. Meister).

sides the first temple at Ba'albak in Lebanon (Wiegand *et al.* 1921: 56-57, 185-190; Hoffmann 1998: 291-297) it is thus one of the earliest known temples in the region with a podium, a type of temple that became widespread only in Roman imperial times.[7] A fire, most probably caused by the Jewish riots,[8] destroyed the Doric temple in Gadara but the podium may have served for a new temple; no elements of that, however, have been found.

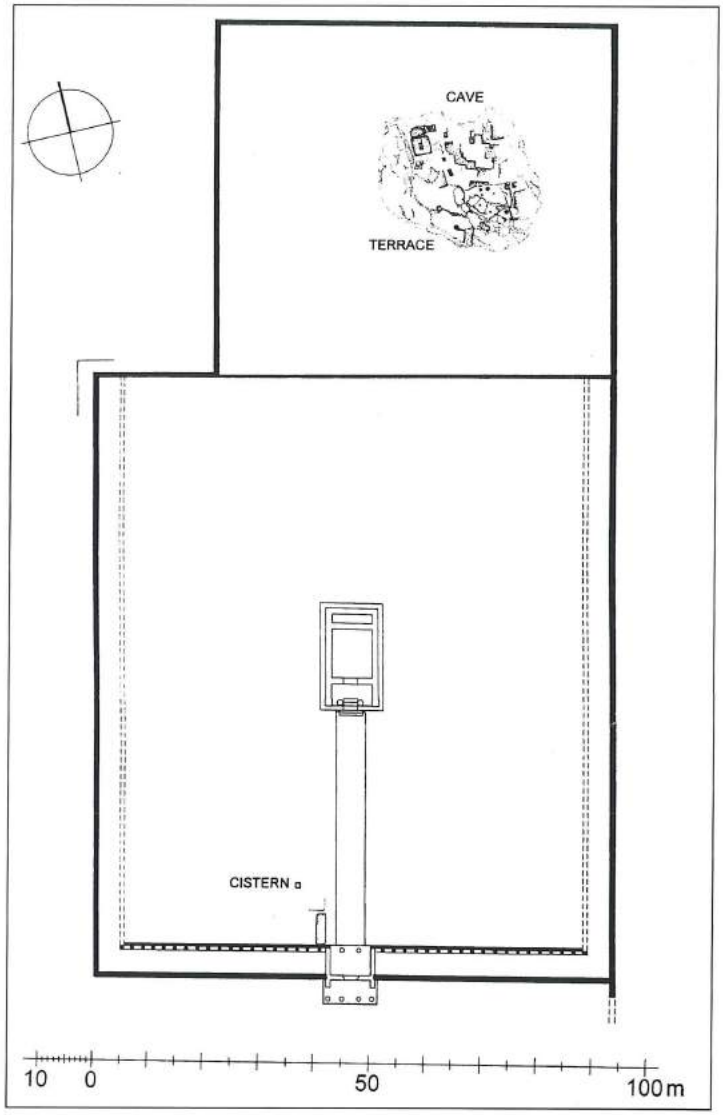
The rough local limestone, that the first temple was built of, was covered with a fine layer of white plaster imitating finely dressed and fitted masonry blocks. Many pieces of the plaster decoration, very similar to the so-called Pompeian First Style, were found in the rubble together with numerous fragments of tiles from the roof.

Altar and 'High Place'

Every temple of this type should have had an altar, but it has not yet been found, and as such, it probably never existed. Instead, the actual place of worship could have been the rocky spur that lies behind the temple, fitted out with the appropriate ritual objects: there are several canals and all kinds of bowl-like holes cut into the rock that has been artificially terraced at different levels.[9] Prominent landmarks such as this one at Gadara have a long tradition in Palestine as nucleus for local cult centres, so-called high places, and there is good reason to believe that at Gadara, as so often at other places, the cult traditions of yore were continued in Hellenistic times but with the addition of a temple in Greek style (FIG. 10). Indigenous and imported cultures tended to blend into each other, forming a close union that was a characteristic of this region. A small marble statue discovered in the area of the sanctuary several years ago suggests that the Hellenistic Doric temple was dedicated to Zeus Nicephorus.[10] The very same type of Zeus set into a tetrastyle temple front is found on many of the coins from Gadara minted in the later Roman imperial times (for example cf. Spijkerman 1978: No. 31. 35. 36. 46 etc.).

The significance of a cult site for the early process of urbanization is also illustrated by the Zeus temple in the nearby town of Jarash (Seigne 1992: 332-334). Here the monumentalization of a simple 'high place' into a courtyard ensemble built in Hellenistic style took place in a series of small steps and continued into Imperial times with the building of a huge new temple on an upper terrace.

In Gadara—with the monumentalization of the cult area in Hellenistic style—the settlement initially built in accordance with military considerations as a garrison and a fortress acquired a developed urban form.[11] The fortress appearance was preserved nevertheless by a strong wall surrounding the temple grounds. With this information, by no means complete, on the development of Gadara in the second and first centuries BC, essential elements and individual stages of growth of a Hellenistic Decapolis town have been documented for the first time with tangible examples.



10. Reconstruction of the temple area in Hellenistic times (drawing: A. Riedel, J. Meister).

[7] This detail may point to interventions made by Antiochos IV. who had been in Rome for years and who, being back to the region, favoured the Hellenization of various cult sites. A Doric temple of the third century BC with a kind of podium, however, is already known at Mamurt Kale next to the royal town of Pergamon (cf. Schazmann 1911: 15).

[8] The destruction level is characterized by a dense layer of ashes, obviously caused by the burned wooden roof.

[9] No appertaining pottery but a limestone altar of probably Augustan times has been found here.

[10] The statuette, now at the local Archaeological Museum was found in 1974 amongst bulldozer rubbish by Mr. Omar Reshaidat, then Inspector of Antiquities of Umm Qays.

[11] Street, sanctuary and market place (which in Gadara most probably is to be found in the plain area south of the temenos) are most important elements of an Oriental town in Hellenistic times; cf. for example Kader 1996: 176-179.

References

Adam, J. P. 1982. *L'architecture militaire grecque*. Paris.

Hänlein-Schäfer, H. 1985. *Veneratio Augusti. Eine Studie zu den Tempeln des ersten römischen Kaisers*. Roma.

Hallier, G. 1986. Pierre de taille et mesures normalisées: Les enceintes hellénistiques d'Apollonia de Cyrénaïque et de Massalia. Pp. 251-271 in P. Leriche and H. Tréziny (eds.), *La fortification dans l'histoire de monde grec*. Paris.

Hoffmann, A. 1993. Gadara - Umm Qeis. Preliminary Report on the 1991 and 1992 Seasons. *ADAJ* 37: 359-374.

____1998. Terrace and Tempel: Remarks on the Architectural History of the Temple of Jupiter in Baalbek. Pp. 279-304 in H. Sader *et al.* (eds.), *Baalbek: Image and Monument. 1898-1998*. Beirut.

Kader, I. 1996. *Propylon und Bogentor*. Damaszener Forschungen 7. Mainz.

Kerner, S. 1992. Umm Qais - Gadara: Recent Excavations. *Aram* 4: 407-423.

____1993. Gadara - Umm Qeis. Preliminary Report on the 1991 and 1992 Seasons. *ADAJ* 37: 359-374.

____1997. Umm Qays-Gadara: A Preliminary Report 1993-1995. *ADAJ* 41: 283-302.

Lawrence, A. W. 1979. *Greek Aims in Fortification*. Oxford.

McNicholl, A. W. 1997. *Hellenistic Fortifications from the Aegean to the Euphrates*. Oxford.

Mittmann, S. 1987. Amathous, Essa, Ragaba. Drei hellenistische Festungen im östlichen Randbereich des Jordangrabens. *ZDPV* 103: 49-66.

Schazmann, P. 1911. In *Mamurt Kaleh. Ein Tempel der Göttermutter unweit Pergamon*. Nach den Untersuchungen von A. Conze und P. Schazmann. Berlin.

Schumacher, G. 1890. *Northern 'Ajlûn, "Within the Decapolis"*. London.

Seigne, J. 1992. Jérash romaine et byzantine: développement urbain d'une ville provinciale orientale. Pp. 331-341 in *SHAJ* IV. Amman.

Spijkerman, A. 1978. *The Coins of the Decapolis and Provincia Arabia*. Jerusalem.

Wagner-Lux, U. *et al.* 1978. Bericht über die Oberflächenforschung in Gadara (Umm Qes) in Jordanien im Jahre 1974. *ZDPV* 94: 134-144.

Weber, T. 1989. *Umm Qais- Gadara of the Decapolis*. Amman.

Wenning, R. 1994. Die Dekapolis und die Nabatäer. *ZDPV* 110: 1-35.

Wiegand, T. *et al.* (eds.) 1921. *Baalbek. Ergebnisse der Ausgrabungen in den Jahren 1898 bis 1905*, I.

Will, E. *et al.* 1991. *'Iraq al Amir. Le château du Tobiade Hyrcan*. Paris.

Wulf, U. 1994. Der Stadtplan von Pergamon. *Istanbuler Mitteilungen des Deutschen Archäologischen Instituts* 44: 135-175.

Zayadine, F. 1986. Les fortifications pré-hellénistiques et hellénistiques en Transjordanie et en Palestine. Pp. 149-165 in P. Leriche and H. Tréziny (eds.), *La Fortification dans l'histoire du monde grec*. Paris.

Laurent Tholbecq
IFAPO
Amman - Jordan

Laurent Tholbecq

The Hinterland of Petra from the Edomite to the Islamic Periods: The Jabal ash-Sharāh Survey (1996-1997)

History of the Project

In order to complement the general inventory of Petra's monuments which was conducted by L. Nehme, the French Institute of Archaeology in the Near-East (IFAPO/ Amman) decided to start a survey project at Jabal ash-Sharāh.[1] In May 1995, J. Besançon working on his geomorphologic study of Petra and its surroundings, pointed out the high density of archaeological remains standing at Jabal ash-Sharāh.[2] The "Jabal Shara Survey" campaigns, carried out in the spring of 1996 and 1997, intended to characterize the occupation of Petra's hinterland from the Edomite to the late Islamic times. At this time, the investigation excluded the Prehistoric periods, which will hopefully be surveyed in a forthcoming campaign. In addition, this research did not consider the archaeological remains situated along the aṭ-Ṭayyiba - Wādī Mūsā modern road or lying under the modern city of Wādī Mūsā, which were surveyed in the autumn of 1996 by the Wādī Mūsā Water Supply and Wastewater Project.[3] This is a preliminary report of the two first seasons.[4]

The Surveyed Area

Dominating Petra from the west, Jabal ash-Sharāh is a relatively high montainous zone rising to a height of 1784 m (Jabal al-Marājin). It presents geographic parameters rather different from the natural context in which the Nabataean capital developed. From a climatic point of view, its rainfall and humidity level in winter are higher than in the sandstone area of Petra. Moreover, due to the geomorphology of the limestone levels, springs are numerous, the waters of which was actually collected by a long-distance canalization network to supply the city in the Nabataean period ('Ayn Mūsā, 'Ayn Dibdiba, 'Ayn Brāq).[5]

After preliminary bibliographic research — 122 sites registered by previous travelers between ash-Shawbak and aṭ-Ṭayyiba and documented on three 1/25000 maps — it was decided to limit the survey to the natural extent of the Wādī Mūsā drainage basin. This formation opens towards Petra and extends from its northern ridge, north of al-Ḥayy to Umm Ṣawwāna in the south. The eastern limit of the survey is the natural ridge of the ash-Sharāh mountains going towards the steppe of Udhruḥ. In the west is the natural border between the sandstone and limestone formations. The surveyed area covers approximately 72 km^2; its length is about 15 km from north to south and its width varies from 4 to 7 km.

Previous Research

After the visits of pioneers concentrating on the remains of the Nabataean capital, A. Musil and N. Glueck were the early explorerss to describe archaeological sites of the hinterland.[6] Modern scholars have visited the area in the

---

[1] I am especially grateful to the members of the Department of Antiquities at Petra, S. Farajat, H. Falahat and M. Shaubaki who helped, supported and participated in the project. For the inventory of Petra's monuments, see L. Nehmé, *AJA*, 100, 1996; id., L'habitat rupestre dans le bassin de Pétra à l'époque nabatéenne, *SHAJ*, VI, 1997, p. 289-302; id., l'Espace cultuel de Pétra à l'époque nabatéenne, *Topoi*, 7/2, 1997, p. 1023-1067; id., New Perspectives for the Study of Petra: the Archaeological Map of the Nabataean Capital, *Occident & Orient*, June 1997, p. 3.

[2] J. Besançon, Archaeology in Jordan, *AJA*, 100, 1996, p. 510-511; id., *La région de Pétra (Jordanie), Géographie, environnements et potentiels*, (forthcoming).

[3] K. 'Amr *et al.*, *Archaeological Studies, Final Report for* Wadi Mousa *Water Supply and Wastewater Project*, unpublished report at the Department of Antiquities Registration Centre, December 1996; id., *ADAJ*, 42, 1998.

[4] For preliminary accounts on this project, see L. Tholbecq, The Gebel Shara Survey: A new Approach to Petra's hinterland, *Occident & Orient*, June 1997, p. 21; id., Archaeology in Jordan, *AJA*, 101/3, 1997, p. 502.

[5] Z. al-Muheisen and D. Tarrier, Ressources naturelles et occupation du site de Pétra, *SHAJ*, VI, 1997, p. 146-148.

[6] Outside the actual limits of the municipality of Wādī Mūsā, 13 sites of the area covered by the survey were described by N. Glueck and his predecessors. The names are followed by the "Jabal Shara Survey" site number (JSS#), followed by the JADIS regsitration number (J.), its equivalence in N. Glueck, *Explorations in Eastern Palestine*, *AASOR*, XV, 1934-1935, 1935 (Gl.), and its eventual reference in A. Musil, *Arabia Petraea, II, Edom.* Topographischer Reisbericht, Vienna, 1908 (ME) and R. Brünnow and A. von Domaszewski, *Die Provincia Arabia*, I, Strasbourg, 1904 (PA): Kh. Dibdibah (Bedebdeh) =

last twenty years but no systematic survey was ever conducted in the region. For example, no survey around Ṭawīlān was undertaken during the British excavation of this site. Later on, the steppe around Udhruḥ, immediately east of the Wādī Mūsā basin, was surveyed by A. Killick. In general, the area seems largely interpreted to fit military purposes (protective long walls, watch-towers, road network, etc.).[7] S. Hart surveyed a large part of the ash-Sharāh mountains and excavated several Edomite sites north and south of the Wādī Mūsā basin. Based on surface pottery collections, he first concluded that the occupation of the Edomite plateau was not continuous. For instance, after intensive occupation in the Edomite and Nabataean periods, it seems to have declined around the second century AD and later, except along the *Via Nova Traiana*. This was tentatively explained through the nomadic lifestyle of the inhabitants, the low agricultural potential of the area, the possible fluctuations of the water table after it was pumped out by the Nabataeans, and external political events.[8] After S. T. Parker's study of the defensive organization of the Province, the growing occupation of the steppe area during the Byzantine periods was emphazised.[9] D. Graf surveyed the Ḥismā region to characterize its occupation during the Classical periods.[10] Recently, D. Graf studied the road network around Petra in order to establish the directions of the *Via Nova Traiana*.[11] After a general overview, he concluded: "Agricultural communities appear to have existed simultaneously with nomadic pastoralist communities from the beginning of the Nabataean state. ...Roman settlements are less extensive and confined mostly to the path of the Via Nova Traiana. ...It is not until the Byzantine era that the area east of the *Via Nova Traiana* was extensively cultivated again, as reflected in the substantial signs of agricultural activity all over the plateau".[12]

Aim

Based on those conclusions, our project intended first of all to answer a simple question: according to the relatively poor agricultural resources of Petra and the importance of archaeological remains visible in the ash-Sharāh mountains, is it possible to determine whether this area was used to supply, at least in the form of a complementary income, the inhabitants of the city? There is no doubt that the ash-Sharāh mountains contributed to the local economy; however, it was important to determine in which manner. Secondly, Jabal ash-Sharāh provides a natural barrier along the entire eastern approach of the Nabataean capital. Was it possible to trace the different thoroughfares to the capital through the village of Gaia (Wādī Mūsā) or other east-west paths? Does the traditional image of caravans travelling to Petra fit with the natural environment? Thirdly, after the establishment of the chronology of occupation, can we perhaps determine the balance between agricultural activities and the potential defensive aspects of the area. As mentioned before, the military aspect could have been over-estimated by past researchers and the role of a local economy neglected.

Method

This work was based on a preliminary investigation of aerial photographs dating from the 1950s, 1970s and 1990s. Using this information, 160 sites were visited, described, sherded and if necessary sketched. Being alone, a systematic survey proved difficult but, at least, the database can now be updated by new discoveries. Therefore, the conclusions presented here must be considered as a first attempt to give a preliminary analysis about the area. As A. Killick underlined, it is critical to establish a rigid typology when several settlements have several functions (for instance, both agricultural and defensive).

The Mapping Aspect

One of the priorities of this project was to create a database for an archaeological map of the limestone area overlooking Petra. These maps are essential tools to study the History and Archaeology of Jordan, especially in areas of intense urban and agricultural development such as the district of Wādī Mūsā (FIG. 1).

A 1/15000 map has been produced indicating the main

= JSS 6, J. 1997.015, Gl., 133 , ME, II, 2, p. 235, PA, 1, p. 409-415; al-Mikhwān, JSS 13, J. 2097.015, Gl. 149; Kh. aṣ-Ṣafa, JSS 14, J. 2097.014, Gl. 150; Kh. Sārah, JSS 95, J. 1996.008, Gl. 111; Kh. Daḥāḥah, JSS 132, J. 1996.037, Gl. 113, ME, p. 134, E. H. Palmer, (1871) called it "D'haah"; 'Ayn Hijin, JSS 135, J. 1996.027, Gl. 112; Kh. al-Minya, JSS 134, Gl. 114; Kh. al-Far', JSS 114, Gl. 118, ME, p. 221, 234; Kh. Umm Lawzah, JSS 7?, Gl. 173, ME, II, 1, p. 328. Springs: 'Ayn al-Qrayah, Gl. 131, 'Ayn al-Ḥayy, Gl. 151 , ME, II, 1, p. 43, 'Ayn al-'Aliyya, Gl. 115, 'Ayn al-Far', Gl. 117; also Kh. Suwākh, Gl. 116 not identified.

7 For preliminary results, see A. Killick, Udruh and the Trade Route through Southern Jordan, *SHAJ*, III, 1987, p. 173-179; id., The Udruh Region, in A. Killick (ed.), *Udruh, Caravan City and Desert Oasis - A guide to Udruh and its surroundings,* Hampshire, 1987, p. 26-35.

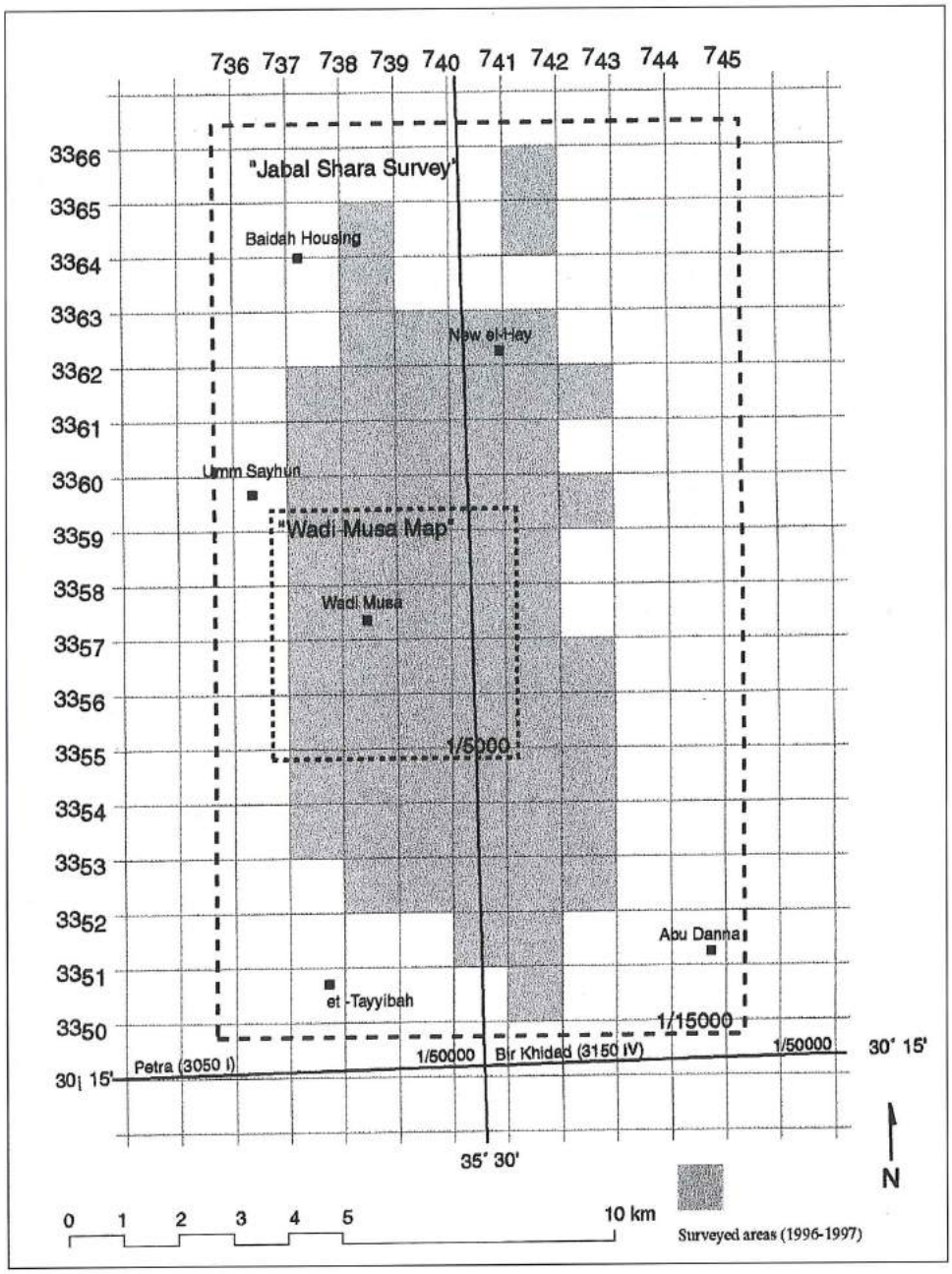
8 S. Hart and R. K. Falkner, Preliminary Report on a Survey in Edom, 1984, *ADAJ*, 29, 1985, p. 255-278; S. Hart, Some Preliminary thoughts on Settlement in Southern Edom, *Levant*, 18, 1986, p. 51-58; id., The Edom Survey Project 1984-1985: The Iron Age, *SHAJ*, III, 1987, p. 287-290.

9 S. T. Parker, *Rome and the Saracens.*

10 D. Graf, Nabataean Settlements and Roman Occupation in Arabia Petraea, *SHAJ*, IV, 1992, p. 253-260; id., The Nabataeans and the Hisma, *In the Footsteps of Glueck and Beyond, The Word of the Lord Shall Go Forth Essays in Honor of David Noel Freedman in Celebration of his Sixtieth Bπrthday*, eds. C. Meyers and M. O'Connor, Philadelphia, p. 647-664.

11 D. Graf, The Via Nova Traiana in Arabia Petraea, *JRA*, Suppl. Series 14, *The Roman and Byzantine East,* Ann Arbor, 1995, p. 241-267.

12 D. Graf, *op. cit.*, 1992, p. 260; see also Z. Fiema, *Economics, Administration and Demography of Late Roman and Byzantine Southern Transjordan,* Ph. D. Dissertation, University of Utah, 1991.



1. Map showing the extension of the "Jabal Shara Survey" (1996-1997).

roads, the major springs, and the 160 newly surveyed archaeological sites.[13] The map also indicates local toponyms newly surveyed by H . A. Falahat.[14] The collection of more than 250 toponyms and their location on the map was indeed a substantial effort after it was discovered that several toponyms mentioned in the Byzantine Petra scrolls survived through ages till today in the memory of the inhabitants of Wādī Mūsā.[15] The concentration of the remains inside the limits of the municipality of Wādī Mūsā was such that it was decided to

13 This map is based on the 1/50000 maps available for the area (Bīr Khidad, 3150, IV - Petra, 3050, I). After enlargement of the original map, the contours lines have been redrawn (L. Tholbecq) and computerized (Helene David). Several new roads were added and drawn with the help of R. Saupin (topographer). Springs and sites have been noted. Therefore, the accuracy of this map is limited but will satisfy the need of the archaeologist and the historian alike.

14 This enquiry completed the first attempt of mapping the local toponyms which occurred in the photo-plan realized between 1974 and 1977 by the French Geographical Institute (IGN/Paris). The toponyms mentioned on those photographs were based on the work of T. Canaan (*JPOS*, IX, 1929, p. 136-218 and X, 1930, p. 178-180) and a new field inquiry done by G. Charles, J. T. Milik, M. Gory, J. Starcky and F. Zayadine in the mid 70s; see M. Gory, Travaux effectués par l'Institut Géographique National de France, *ADAJ*, 21, 1976, p. 79-86.

15 Petra Scroll inv.#10 and 98 contains toponyms of which about a half dozen can be related to modern ones with certainty (information kindly given by R. Daniel); for a preliminary account, see M. Kaimio and L. Koenen, Reports on Decipherment of Petra Papyri (1996/97), *ADAJ*, 41, 1997, p. 459-462.

produce a second 1/5000 map, based on the cadastral plan.[16]

The Occupation of Jabal ash-Sharāh: A First Approach

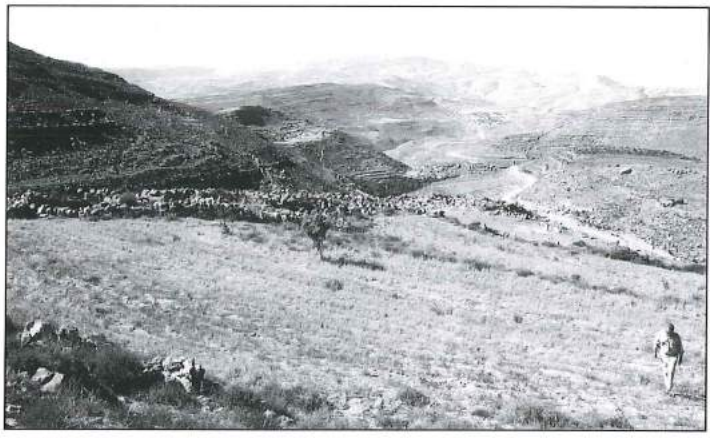
This paper will adopt two different approaches of the area: first, we will try to establish the main occupational chronological sequences.[17] Within those periods, the archaeological evidence will be analyzed in terms of regional access routes through Jabal ash-Sharāh, regional defense, and the settlement and economic background.

Iron Age

Besides the main research of M. Lindner and his team in the sandstone area and on the western escarpments of ash-Sharāh.[18] the Iron Age is represented by the well-known site of Ṭawīlān.[19] South of Wādī Mūsā, Khirbat Daḥāḥa (JSS 132; FIG. 2) is a major site already visited by early travellers, which was occupied from the Edomite to the early Islamic period. Associated with an important spring, it was situated on a main southern access to the Wādī Mūsā basin. Another major Iron Age site is Khirbat al-Qarāra/al-Muzayr'a (JSS 74; FIG. 3), on the left side of Wādī al-Qarāra, north of Wādī Mūsā. It shows exceptionally well-preserved terracing walls and structures. Its location indicates that perhaps the site was at some point connected with Ṭawīlān. A third important Iron Age lies on the northern limit of the survey area, at the top of a hill along the Wādī Mūsā - ash-Shawbak road, above Wādī 'Anabah (JSS 001). In fact, less than 10 % of the sites investigated have Iron Age pottery (13 sites). The other Iron Age evidence is situated on the western edge of the plateau but, at first sight, the remains are not very impressive. At least, in terms of density, the Iron Age occupation of the area does not seem extremely different from the one evidenced earlier by S. Hart north and south of the Wādī Mūsā basin. It is worthwhile to mention that no painted Iron Age pottery was found in the survey.

Hellenistic Period

Second and first century BC pottery was found on less than 5 % of the sites. For this period, one site proved to be rather interesting (JSS 117). It is situated on the foothill of Sha'bat adh-Dhab', north of the entrance pass of Wādī al-Far'. Except for Iron Age and one Nabataean sherd, all of the pottery dates from the second to the first century BC. The function and limits of the site are not clear, but it is situated on a natural route reaching Wādī Mūsā from the south-east, closed by several strongholds (Khirbat al-Far', JSS 114 and JSS 115). Site JSS 115, just to the south, shows also a large range of Hellenistic sherds. The sporadic presence of Hellenistic pottery on Jabal ash-Sharāh indicates that the mountains started to be resettled in the second and first centuries BC.[20]



2. Khirbat Daḥāḥa (JSS 132), from the south.



3. Structures and terraces at Khirbat al-Qarāra/al-Muzayr'a (JSS 74).

Nabataean and Roman Periods

Not surprisingly, the majority of sites (more than 55%) contained Nabataean pottery (first to early second century

16 This map does not show the contour lines but the modern road network of the city. It is a pleasure to thank here Kamel Mahadin (then Director-General of the Petra Region Council) and the Council department who allowed me access to the cadastral maps of the district of Wādī Mūsā. I am especially grateful to K. 'Amr who did not count her time when helping me in making this map.

17 K. 'Amr (Department of Antiquities) gave a first preliminary reading of the pottery in the spring of 1998. It is important to note that, at the 160 surveyed sites, nearly a quarter had no sherd or no good secure ceramic diagnostics. Nevertheless, if the absence of sherds does not signify a hiatus, its presence must be considered as a period indicator. On the methodological problems of the sampling technique, see T. P. Harrison, Intrasite Spatial Analysis and the Settlement History of Madaba, *SHAJ*, VI, p. 137 and references.

18 M. Lindner (*et al.*), An Edomite Fortress and Late Islamic Village near Petra (Jordan): Khirbat al-Mu'allaq, *ADAJ*, 40, 1996, p. 111-135.

19 P. Bienkowski, *BAMA*.

20 For other Hellenistic finds in the area, see D. Graf, *op. cit.*, 1992, p. 255, footnote 18; the nomadic or more sporadic occupation of the area is not evidenced through archaeology, but this occupation probably started earlier and must have completed the image of the built settlements on later periods also.

AD) in surface collections. At this time, Jabal ash-Sharāh was intensively settled. Of course, without excavation, it would be unwise to define all the settlements. Nevertheless, several conclusions can be presented here. Apparently, the major natural access routes to the Jabal were settled. Strategic areas were controlled from the heights (watch-towers, e.g. JSS 12 or JSS 142) and the *defilés* secured by small outposts (JSS 48, JSS 64). Those sites dominate large areas around the ridge of the basin (above Bayḍa plain or the eastern steppe). This is particularly evident in the eastern limit of the Wādī Mūsā basin which is protected by a series of sites, small forts and watch-towers, connected with long walls running along the ridge of the basin (JSS 85, JSS 122, JSS 123, JSS 143). In addition, the main access routes from the steppe were at some point controlled (e.g. JSS 4, Minat al-Ḥṣān, on Wādī 'Arja, connected to Udhruḥ, JSS 32, on the way to Dibdibah) as were the passes entering the basin (e.g. Raqabat Umm Qarramah, JSS 18 or Khirbat Kafr Asḥam, JSS 158). Of course, the date of those structures can hardly be based on surface collected sherds. Whether Jabal ash-Sharāh was the focal point of arrival of traditional trade routes from the eastern steppe remains a hypothesis not yet proved through archaeology. It is certain that the Jabal ash-Sharāh region could have provided the needed supplies for the caravans after their crossing of the Ḥismā or the plateau. But it would be worthwile to examine if at least part of the commercial links coming from Ḥismā did not cross the escarpments from al-Ḥumayma directly to Wādī 'Arabah. Nevertheless, evidence for the as-Saha route was provided by two sites of Jabal ash-Sharāh (JSS 92 and JSS 93) that were interpreted as animal enclosures associated with a big quadrangular structure (JSS 94). That could have been the last station on the way to Wādī Mūsā (through Wādī 'Uqbat Ḥammād) with all the area east of it providing the necessary grazing. There is no need to discuss the road network, because this question has been adequately addressed in the past, but one may add two elements: First, there is an important north-south road along the western edge of the plateau, parallel to the *Via Nova Traiana*. There, it is possible to recognize the traditional network connecting the various cities of the plateau during the Iron Age period. Secondly, and more important, Jabal ash-Sharāh was crossed by at least one east-west axis connecting Bayḍa to the steppe and avoiding Wādī Mūsā and Petra itself through the area of Mikhwān and the well-known settlement of 'Ayn Dibdibah (FIG. 4).

On the other hand, as mentioned above, the climate of the Jabal and its springs created a favorable environment for dry cultivations such as cereals. It is known that several springs from the western slope of Jabal ash-Sharāh provided water to the city of Petra through canalization systems but other springs attracted settlements (such as al-Mikhwān, al-Ḥayy, Umm Ṣawwāna). In the vicinity of the upper ridges (over 1600 m high), which may have been forested in antiquity,[21] the zone must have been propitious to pastoralism. On the other hand, at the natural limit between sandstone and limestone, wine press remains have been found on the western slope of the ash-Sharāh escarpments (e.g. JSS 102). They are most probably associated with the numerous presses found for instance on the Bayḍa plain.[22] This could support the idea of vegetation zones based on the elevation of Jabal ash-Sharāh. Indeed, in the intermediate zone, the traces of ancient agricultural activities are numerous. As a common feature with an-Naqab or the surroundings of Petra itself,



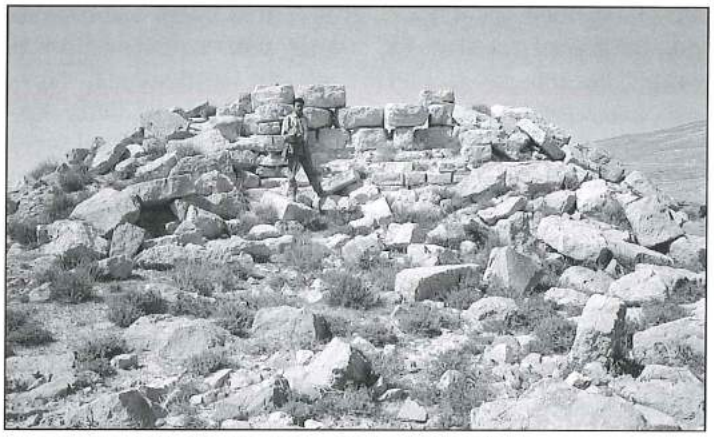
4. Khirbat Dibdibah, from the north.

21 I first thought that it could be what Juvenal referred to when he mentionned the "Nabataean forests". But François Carré suggests that " saltus" could also mean a gorge or a *défilé* (pers. com.). The reference to the "Nabataean gorges" could fit with the geographical context and the image a Roman writer of the first century could have of Petra (... *latos nisi sustinet orbes / grande ebur et magno sublimis pardus hiatu / dentibus ex illis quos mittit porta Syenes / et Mauri celeres et Mauro obscurior Indus / et quos deposuit Nabataeo belua saltu / iam nimios capitique graues.* - Juv., Satura XI, 122-127).

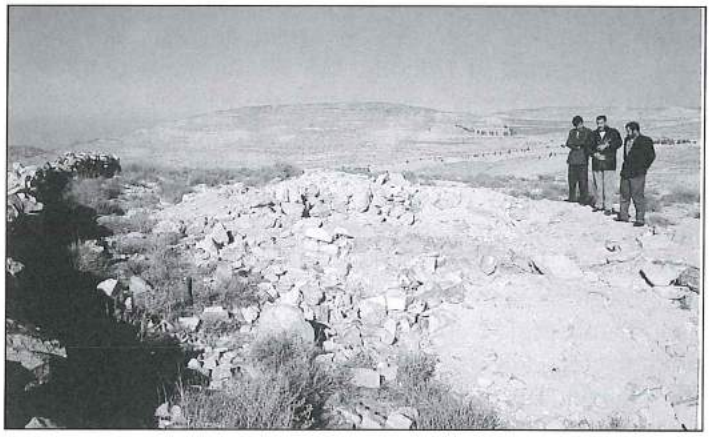
22 K. 'Amr *et al.*, *op. cit.*, 1998; Z. al-Muheisen, Maîtrise de l'eau et agriculture en Nabatène: l'exemple de Pétra, *Aram*, 2:1, 1990, p. 205-220, esp. pl. X, XII and XIII.



5. Khirbat al-Baq'a (JSS 90), from the southwest.



6. Bīr Sārah (JSS 95), structure with associated cistern.



7. Cemetry to the northeast of 'Ayn Mūsā (JSS 159).

several upper valleys are cultivated and blocked by transversal retaining walls. It is tempting to see in those terraces typical Nabataean features (even though that technique could have survived afterwards). Connected to those upper valleys, there are quite a number of single or multiple structures, frequently connected with natural caves or associated with cisterns. They can probably be interpreted as farms or agricultural units (e.g. Khirbat Umm Qarramah JSS 25, Khirbat al-Baq'a JSS 90, FIG. 5, and JSS 109). Other cisterns of various shapes, and associated with structures are plentiful. Built cisterns are rare, outside of the well-known but poorly documented Bīr Sārah (JSS 95, FIG. 6), but other examples are probably concealed by the ruins. Neither complex canalization systems like the ones known in the sandstone area nor any *qanawāt* of which examples exists in the eastern steppe have been found. Terraces on the slopes of the wadis are common and show different patterns. The permanent presence of stone stacks in the landscape is an omnipresent testimony to the agricultural activities of generations of cultivators. Sometimes, long walls are built on the tops of the hills of which the slopes are divided in long parallel parcels. The study of several terraced areas has been undertaken based on aerial photographs, but those traces are difficult to date. A close field examination, an enquiry of the modern interventions in the landscape and some archaeological probes are the necessary complements to such a study.

The quantity of Roman pottery (second and third century AD) on several of those sites indicates that the annexation did not affect local activities and economy. On the contrary, the presence of Roman pottery on 30 % of the surveyed sites could indicate that the apparent slowdown of the international trade of Petra was balanced by the development of local or inter-regional trade. At this level of research, it is hazardous to establish if there was a decrease in the occupation of the area in the third or late third century.[23] Part of the *Via Nova Traiana* was surveyed, in the area of al-Ḥayy; with several preserved connected structures along its sides. JSS 24 was a large enclosure connected to the road but unfortunately nowadays destroyed by the building of the modern settlement of new al-Ḥayy. JSS 53 is an important tie where the *Via Nova* crosses several east-west accesses to Gaia. Valuable information could be provided by the excavation of the cemeteries evidenced around Wādī Mūsā; at least one necropolis close to 'Ayn Mūsā (JSS 159, FIG. 7) was exposed by robbers.[24] Another cemetery of Wādī Mūsā (at an-Naqla) was recently excavated by the Department of Antiquities. Among others, a site also situated in the heights above 'Ayn Mūsā could also have been a cemetery (JSS 80). Those various sites could be the different necropolises of the nearby village of Gaia and its suburbs.

Byzantine and Islamic Periods

Compared to what we know through excavations in the city of Petra itself and the information given by the Petra

[23] Such a generalization must be based on excavations.

[24] For a similar feature in the area, see H. Kurdi, A New Nabataean Tomb at Sadagha, *ADAJ*, 17, 1972, p. 85-87, and p. 163-166.

scrolls, the evidence of Byzantine occupation of Jabal ash-Sharāh is limited. For the Early Byzantine period (fourth - fifth centuries AD), around 10 % of the sites are represented. The Late Byzantine occupation (sixth - seventh centies AD) is represented by less than 5 % of the sites. Several hamlets were still occupied during those periods (JSS 128, with numerous associated cisterns). As a matter of fact, the late occupation of the area could be connected to the traditional route through Tranjordan along the ancient *Via Nova*. More conclusively, the concentration of Byzantine sites seems at first sight slightly different from that of the eastern zone around Udhruḥ which was apparently more intensively settled during these periods than Jabal ash-Sharāh itself.

Concerning the Islamic periods, according to this first surface collection of sherds, there seems to be a gap in the occupation of the *Jabal* from the eight century AD to the Ottoman period. For the Ayyubid and Mamluk periods, it is remarkable that the handmade geometrically painted pottery is totally absent, unlike at the Crusader settlements of Petra, the villages of Wādī Mūsā or from other sites in the sandstone area. The Ottoman period is represented by 10 % of the sites, in addition to the recently probed site of Khirbat al-Mu'allaq (cf. *supra*).

Preliminary Conclusions

In 1967, J. Starcky suggested that Gaia could have constituted the original Nabataean settlement prior to Petra itself but this idea is not supported by recent research.[25] Inscriptions and archaeological evidence have proven the existence of one or several villages connected to different springs. At "Eljî"/Iljī, a temple to Baalshamin dedicated in AD 25, domestic buildings and necropoloi have been discovered. The 1996 rescue excavation of the Department of Antiquities in Iljī revealed occupational levels from the first century BC to the late Byzantine period and, after a gap of few centuries, occupations in the Ayyubid, Mamluk and Ottoman periods.[26] The different kilns excavated at az-Zurrāba are dated from the first to the sixth centuries AD.[27] Finally, the 1997-1998 excavations at Khirbat an-Nawāfla has yielded exceptional continuous data from the first century BC to the Ottoman period with only two small gaps in the late third century AD and sometime during the late Islamic period. This is especially important for the Early Islamic periods, which have not been adequately studied before in the area.[28] That the Wādī Mūsā basin was occupied before the circus of Petra itself is therefore not established. But a new image of the relation between the two areas can be proposed: they were probably settled at the same time but their roles were different.

The high concentration of sites in the Jabal ash-Sharāh region has often been explained by the presence of the *Via Nova Traiana*. This first conclusion must be balanced by a characterization of the sites in terms of both, chronology and function. Several valleys are the natural access through Jabal ash-Sharāh to Wādī Mūsā/Gaia. The natural parameters and geographical position of the Wādī Mūsā basin were therefore ideal for interregional activities, at least during the Classical periods. While it is obvious that the region was intensively occupied in the Nabataeo-Roman period, it becomes clear through this investigation that its natural resources have been exploited and contributed to supply the inhabitants of Petra, and other cultivable areas such as Bayḍa.

On the other hand, the natural resources of the area made the Wādī Mūsā basin an ideal area for the processing of goods or industrial/artisanal productions. For example, the continuing production of ceramics during the Nabataean and Roman periods at az-Zurrāba were encouraged by the presence of clay sources ('Ayn aṭ-Ṭīnah or 'Ayn Amūn), water and fuel for the kilns. Other interrelated production activities must have existed in the area and stimulated the local economy. It could be suggested that the inner part of the basin could have been one of the production zones where goods were redistributed, giving Petra its economic pulse. Its surroundings could have provided the necessary supplies for both, local consumers and international traders. After the end of international commerce and the abandonment of the ancient city itself, the Jabal ash-Sharāh area was rich enough to supply several communities which survived in the Wādī Mūsā basin for centuries. We can therefore suggest that, in the Nabataean period, the caravans coming from the Far East stopped at Jabal ash-Sharāh for rest, while the goods were transformed, redistributed and transferred through Petra to reach the western emporia of the Nabataeans. But once again, the evidence from survey investigations cannot be used as conclusive evidence of occupation without archaeological excavations of these areas. This is an attempt to establish an image suggested by a preliminary interpretation of both natural and archaeological surveyed sites. Excavation will hopefuly provide new evidence and keys for interpreting of the history of Petra and its surroundings through the ages.

25 J. Starcky, Pétra et la Nabatène, *SDB*, VII, 1967, col. 987.

26 K. 'Amr *et al.*, A Preliminary Note on the Wādī Mūsa Salvage Excavation 1996, *ADAJ*, 41, 1997, p. 469-473; *AJA*, 101, 1997, p. 515-516; on the archaeological evidence of Iljī / Wādī Mūsā, see R. Brünnow and A. von Domaszewski, *op. cit.*, p. 429-430; F. Zayadine, Recent Excavations and Restorations of the Department of Antiquities (1979-1980), *ADAJ*, 25, 1981, p. 350 and p. 459; D. Tarrier, Baalshamin dans le monde Nabatéen, à propos de découvertes récentes, *Aram* 2:1, 1990, p. 197-203.

27 F. Zayadine, Recent Excavations at Petra (1979-1981), *ADAJ*, 26, 1982, p. 380-393; D. Homès-Fredericq and H. J. Franken, *Argile, Source de Vie, Sept millénaires de céramique en Jordanie*, Brussels, 1985, p. 186-190 and Pl. XIV; K. 'Amr, Preliminary Report on the 1991 Season at Zurrabah, *ADAJ*, 35, 1991, p. 313-323.

28 Personal communication with K. 'Amr.

Stephan G. Schmid
Ecole suisse d'archéologie en Grèce
Athens - Greece

Stephan G. Schmid

The "Hellenisation" of the Nabataeans: A New Approach*

Although many studies are devoted to detailed analysis of special aspects of Nabataean art and history, for a long time no serious attempt has been undertaken to put the entire art and culture of the Nabataeans into a broader framework. P. J. Parr listed and commented the then available evidence for the beginnings of Nabataean culture in a paper for the Eighth International Congress of Classical Archaeology at Paris in 1963.[1] Since then excavations offered much more material allowing an analysis of the different trends that influenced Nabataean culture.[2]

The aim of this paper is to give a short overview on what is known about Nabataean material culture in its best understandable categories today and to look for whether there is any common line of development or even a model that could fit to most of these categories.[3] It is clear that although the result will be in general terms a positive one, there are always exceptions from such models as they necessarily include much generalisation. Also, the author is fully aware that this cannot be more than a first proposal and that much further research on the single topics is required.

Looking for the beginning of Nabataean material culture one is struck in the first place by the fact that there seems to be almost no evidence that could be assigned to the Nabataeans before around 100 BC, although they are historically reported since 312 BC.[4] Earlier, the theory of continuity between the Edomites and the Nabataeans was occasionally supported but recently has lost most of its attraction, mainly because there is no archaeological evidence as was shown by manifold survey activities.[5] During the third and second century BC there are historical references on the Nabataeans showing that they have to be localised somewhere in Central and Southern Jordan,[6] but again, no material remains of this presence exist. In cases where an archaeological context is reported for old-

* The author would like to thank B. Kolb (Basel) for discussing the manuscript and manifold suggestions.

1 P. J. Parr, The Beginnings of Hellenisation at Petra, in: *Le rayonnement des civilisations grecque et romaine sur les cultures périphérique. Huitième Congrès International d'Archéologie Classique.* Paris 1965: 527-533. Although restricted to the then available evidence, P. J. Parr observes the same sudden input from Hellenistic prototypes in Nabataean culture around 100 BC as is reported in the present paper. More difficult is his dating to the fourth to second century BC for the earlier structures found within his excavations. Unless a detailed excavation report is available it seems better not to deal with them.

2 A fruitful attempt to shed some light on the culture of the Nabataeans and to put it into a wider context has been undertaken by Wenning (1989); a concise overview is further given by K. Dijkstra, *Life and Loyalty. A Study in the Socio-Religious Culture of Syria and Mesopotamia in the Graeco-Roman Period Based on Epigraphical Evidence.* Leiden 1995: 34-80; quite inspiring although rather superficial is the chapter "arte nabatea" in: G. Garbini, Aramaica, *Studi semitici* 10. Rome 1993: 211-219; strongly tending towards an ideological interpretation of Nabataean culture and therefore to be considered with caution is J. Patrich, *The Formation of Nabatean Art. Prohibition of a Graven Image Among the Nabateans.* Jerusalem 1990; similar: T. N. D. Mettinger, *No Graven Image? Israelite Aniconism in Its Near Eastern Context.* Stockholm 1995: 57-68.

3 In general on the process of acculturation and hellenisation see the volume by B. Funck (ed.), *Hellenismus. Beiträge zur Erforschung von Akkulturation und politischer Ordnung in den Staaten des hellenistischen Zeitalters.* Tübingen 1996; cf. further E. Will, Guerre, acculturation et contre-acculturation dans le monde hellénistique, *Polis* 1 (1988) 37-62.

4 Diod. 19, 94, 1; 95, 2ff.

5 In favour of a continuity: J. R. Bartlett, From the Edomites to the Nabataeans: A Study in Continuity, *PEQ* 111 (1979) 53-66; already more sceptical: *idem*, From Edomites to Nabataeans: The Problem of Continuity, in *Nabataeans* 1990: 25-35; see also P. Bienkowski, The Chronology of Tawilan and the "Dark Age" of Edom, in *Nabataeans* 1990: 35-44; on new surveys referring to the older ones by N. Glueck see G. L. Mattingly, Settlement on Jordan's Kerak Plateau from Iron Age IIC through the Early Roman Period, *ibid.* 309-335; S. Hart and R. Falkner, Preliminary Report on a Survey in Edom 1984, *ADAJ* 29 (1985) 255-277; S. Hart, Survey and Soundings between Tafileh and Ras en-Naqb 1985, *LA* 35 (1985) 412-414; *idem*, Some Preliminary Thoughts on Settlement in Southern Edom, *Levant* 18 (1986) 51-58; *idem*, Five Soundings in Southern Jordan, *Levant* 19 (1987) 33-47. On the origin of the Nabataeans see D. F. Graf, The Origin of the Nabataeans, in *Nabataeans* (1990) 45-75; E. A. Knauf, Die Herkunft der Nabatäer, in Lindner 1986: 74-86; J. T. Milik, Origines des Nabatéens, in A. Hadidi (ed.), *SHAJ* I. Amman 1982: 261-265.

6 Diod. 3, 42, 5; 3, 43, 4f.; 2. Makk. 5, 8; 1. Makk. 5, 25; 9, 35; Jos. Ant. 12, 8, 3.

er finds, mostly stamped amphora handles, it is clear that these are intrusive.[7] It is but in the very late second or early first century BC that a sudden development in this field started that shall be examined in the following.[8]

The easiest evidence may be collected from the coins because there is usually little doubt about their date and ethnic belongings.[9] The earliest, anonymous mints are attributed to Aretas II (reg. 120/10-96 BC)[10] or Aretas III (reg. 87/84-62 BC),[11] with recent finds supporting the earlier dating.[12] The earliest attributable coins—clearly modelled on Hellenistic prototypes—were minted by Aretas III from 84 BC onwards first in Damascus, but probably quite soon afterwards (after 72 BC?) in Petra.[13] Not only the style of the first Nabataean coins is purely Hellenistic but also their Greek inscriptions. In the following development the inscriptions are changed into Aramaic while the style of the coins, especially the portraits of the Nabataean kings follow some general fashions. For instance the coins of Aretas IV (9 BC - AD 40) show the king's head in a style similar to contemporary Roman coins, although he wears the traditional Nabataean haircut with long curls in the neck.[14] A further sign of a certain Romanisation in Nabataean coin minting may be shown by the fact that from the year 14/13 BC on coins of Obodas III and later from Aretas IV show the king crowned by a (laurel?) wreath, while earlier on all the Nabataean kings were shown exclusively diademed according to the habits of Hellenistic kings. Obodas III minted for the last five years of his reign coins with both types of portraits,[15] as did Aretas IV for the first four years of his reign,[16] but after 5 BC Nabataean kings are exclusively shown with the wreath on their coins. The further stylistic development leads to the somewhat "wooden" portraits of Rabbel II showing a continuing dissolution of the naturalistic design in favour of a stronger ornamentalisation. As a matter of fact, this seems to be a characteristic that is seen within several peripheral cultures of the wider Mediterranean area. The same evolution from naturalistic to ornamental may be traced within South and East Arabian coins imitating Athenian and other Greek prototypes,[17] or within Celtic coins imitating prototypes of Philipp II of Macedonia and others.[18] But also the culture of the Scythes and other peoples from the Black Sea area show a similar dealing with once naturalistic prototypes, mainly from the Greek world.[19]

If we compare the picture obtained from Nabataean

7 C. Schneider, Die Importkeramik, in *Ez Zantur I*, 130-132, 141f.

8 Some of the reflections on the early material culture of the Nabataeans have been presented in a paper devoted to the process of the sedentarisation of the Nabataeans: Schmid, forthcomung a.

9 On the coinage of the Nabataeans see K. Schmitt-Korte, in Weber and Wenning 1997: 101-104; *idem*, in Lindner and Zeitler s. a.: 135-148; Weiser and Cotton 1996: 268ff.; K. Schmitt-Korte and M. Price, Nabataean Coinage - Part III. The Nabataean Monetary System, *NumChron* 154 (1994) 67-131; M. Peter, in *Petra und die Weihrauchstrasse. Cat. of an exhibition, Zurich/Basel.* Zurich 1993: 18ff.; Schmitt-Korte 1990; K. Schmitt-Korte and M. Cowell, Nabataean Coinage - Part I. The Silver Content Measured by X-Ray Fluorescence Analysis, *NumChron* 149 (1989) 33-58; Meshorer 1975.

10 M. Peter, in *Ez Zantur I*, 91ff. with note 413 cat. no. 1 and 2; J. M. C. Bowsher, Early Nabataean Coinage, in *Nabataeans* 1990: 221-228; Meshorer 1975: 9ff. 85f. pl. 1 cat. nos. 1-4. sup. 1.

11 Schmitt-Korte 1990: 125f.

12 Weiser and Cotton 1996: 268 with note 240; A. Kushnir-Stein - H. Gitler, Numismatic Evidence from Tel Beer-Sheva and the Beginning of Nabataean Coinage, *IsrNumJ* 12 (1992-93) 13-20.

13 Meshorer 1975: 12ff. 86f. pl. 1 cat. no. 5-8. Schmitt-Korte and Price (above note 9) 95f. C. Augé, Sur la figure de Tyché en Nabatène et dans la province d'Arabie, in F. Zayadine (ed.), *Petra and the Caravan Cities.* Amman 1990: 131f. On the uncertainties about the beginning of the mint in Petra cf. K. Schmitt-Korte, in Weber and Wenning 1997: 101f. with fig. 105.

14 Good pictures by J. M. C. Toynbee, *Roman Historical Portraits.* London 1978: 155 fig. 307, 308.

15 Wreath: Meshorer 1975: 92 nos. 33, 35, 37, 39; no. 37 is interpreted by Meshorer as diademed but as Schmitt-Korte 1990: 110 nos. 21, 22 shows wears a wreath; diademed: Meshorer 1975: 92 nos. 32, 34, 36, 38; Schmitt-Korte 1990: 111 no. 24.

16 Diademed: Meshorer 1975: 94-96 nos. 46, 47, 47A, 50, 52, 55; Schmitt-Korte 1990: 116f. nos. 52-54; wreath: Meshorer 1975: nos. 48-49A.

17 M. Huth, The "Folded-Flan" Coinage of Eastern Arabia: Some Preliminary Comments, *ArabAEpig* 9 (1998) 273-277; E. Haerinck, More Pre-Islamic Coins from Southeastern Arabia, *ibid.* 278-301; S. C. Munro-Hay, Coins of Ancient South Arabia, *NumChron* 154 (1994) 191-203 especially 192, 198-200; *idem*, Coins of Ancient South Arabia, II, *NumChron* 156 (1996) 33-47, *idem*, The Coinage of Shabwa (Hadramawt) and other Ancient South Arabian Coinage in the National Museum, Aden, *Syria* 68 (1991) 393-418; C. Arnold-Biucchi, Arabian Alexanders, in W. E. Metcalf (ed.), *Mnemata: Papers in Memory of Nancy M. Waggoner.* New York 1991: 99-115; P. Naster, Remarques au sujet des imitations des monnaies d'Athènes dans la Presqu'île arabique, in P. Naster, *Scripta Nummaria. Contributions à la méthodologique numismatique.* Louvain-La-Neuve 1983: 141-146; in general terms see D. T. Potts, *The Pre-Islamic Coinage of Eastern Arabia.* Copenhagen 1991.

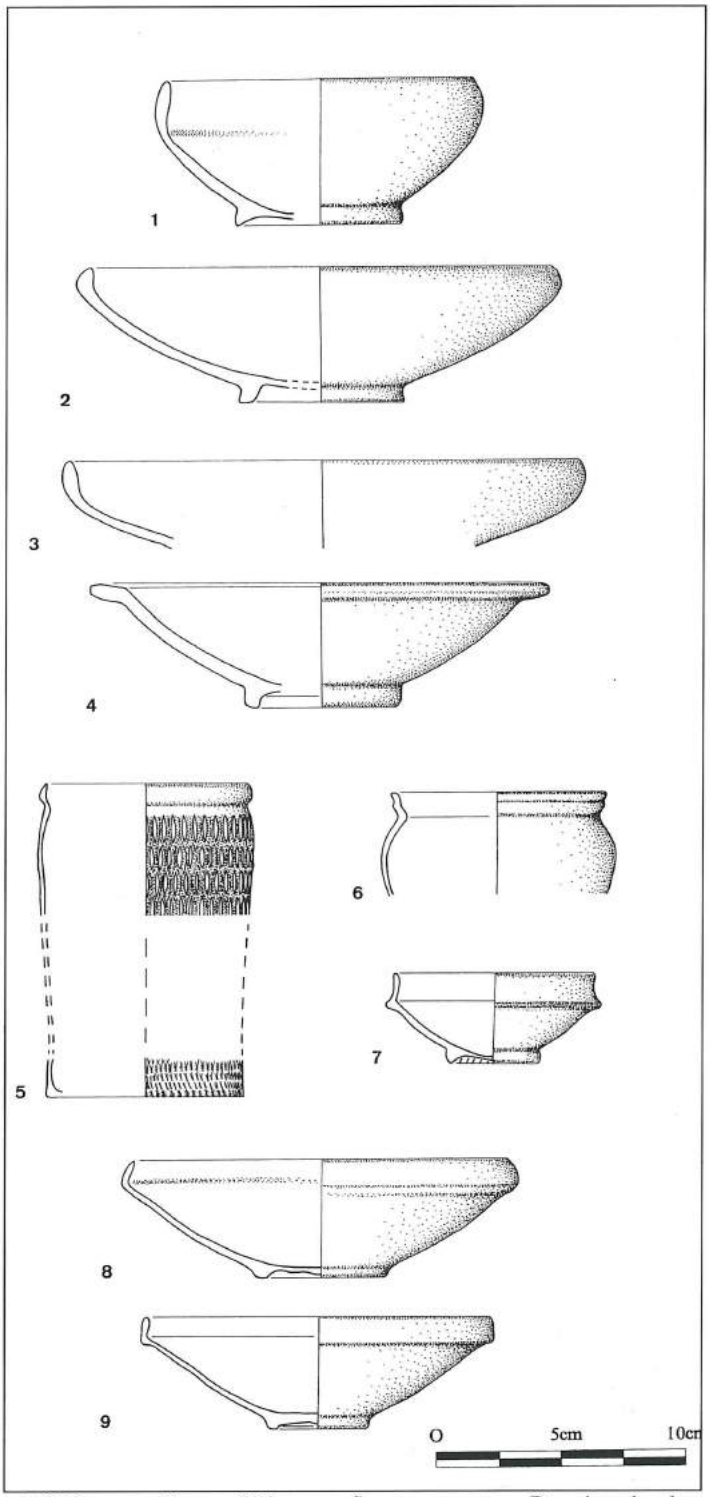
18 D. Keller, Gedanken zur Datierung und Verwendung der Statere Philipps II. und ihrer keltischen Imitationen, *SchwNumRu* 75 (1996) 101-119; A. Sasianou, Copies and Imitations of Thasian Tetradrachms, in *Proceedings of the XIth International Numismatic Congress* 1. Louvain-La-Neuve 1993: 123-131.

19 In general on Scythian and related art see E. Jacobson, *The Art of the Scythians. The Interpretation of Cultures at the Edge of the Hellenic World, Handbuch der Orientalistik* 8, 2. Leiden 1995; V. Schiltz, Die *Skythen und andere Steppenvölker. 8. Jahrhundert v.Chr. bis 1. Jahrhundert n.Chr.* Munich 1994; P. Zazoff, Bildchiffren der skytho-thrakischen Kunst, *HamBeitrA* 18, 1991 (1996) 167-180. The tendency towards ornamentalisation can be seen in an exemplary way within the so-called "Rolltiere". Earlier it was believed that the Scythians arrived in the Black Sea area without a material culture at their own and started taking over and further developing foreign prototypes; cf. R. A. Stucky, Achämenidische Ortbänder, *AA* (1976) 13-23 especially 20f. with the older references. As good this theory would have fit for a parallel to what can be observed in Nabataean culture, it seems now that the Scythians already had a culture of their own and the taking over of naturalistic (Greek) prototypes and their change towards ornamentalisation was just one aspect within it; see B. Brentjes, Ortband, Rolltier und Vielfrass. Beobachtungen zur "skythischen" Akinakes Zier, *AMI* 27 (1994) 147-164 especially 159ff.; on the manifold and complex aspects of the Scythian culture see also K. V. Cugunov, Der skythenzeitliche Kulturwandel in Tuva, *EurAnt* 4 (1998) 273-309 especially 303-305; cf. on similar evolution and contacts within Celtic and Scythian art: M. Guggisberg, «Zoomorphe Junktur» und «Inversion». Zum Einfluss des skythischen Tierstils auf die frühe keltische Kunst, *Germania* 76 (1998) 549-572.

coins with what we know about their pottery, there are some striking parallels. Again, there is no pottery that could be dated before the late second or early first century BC.[20] The first fine ware pottery follows in shapes and the often occurring reddish or brownish slip truly the late Hellenistic pottery of the Near East (FIG. 1: 1-4).[21] In fact, if this pottery were not known to be found in Nabataean territory, the shape and surface treatment would not distinguish it from any other pottery of the Hellenised East.[22] After this sudden initiation of Nabataean pottery a development leading to a distinguished own Nabataean style started, however, external influences are not uncommon. These can be observed in fine ware pottery in the late first century BC when some characteristic prototypes from the Roman thin-walled and sigillata pottery are adopted, but only for a very short time (FIG. 1: 5-7).[23] The main shapes, i.e. mostly open drinking bowls and plates probably used for eating, of the second half of the first century BC and the beginning of the first century AD are in most cases developed versions of the initial vessels of the earlier phases (FIG. 1: 8, 9).

In the second half of the first century AD a remarkable change in the decorative patterns of painted pottery can be observed. So far the Nabataean potters and painters did prefer different small elements covering the entire vessel, such as quite realistic ivy and other leaves. Now they use few but big motifs offering much free space between them. Also, with the exception of the pomegranate, the floral elements lose much of their realism becoming all the more abstract (FIG. 2: 1). The beginning of this new style falls almost exactly together with the accession to the throne by Rabbel II, and can be dated to around AD 70/80.[24]

The same phenomena as seen in fine ware pottery occurs in the field of pottery lamps. Again, no lamps dating before the very late second century BC are known from any stratified Nabataean context. The earliest lamps are either imports or more or less accurate imitations of common late Hellenistic types.[25] Following the general evolution in the Mediterranean area, lamps from the later first century BC and the beginning of the first century AD found at Nabataean sites are either Roman imports or imitate Roman prototypes.[26] It is but towards the second quarter and to a greater extend in the second half of the first century AD that a characteristic Nabataean lamp type—the so-called Negev 1 type—makes its appear-



1. 1-9: Petra, az-Zanṭūr. Nabataean fine ware pottery. Drawings by the author.

20 On Nabataean fine ware pottery see S. G. Schmid, Die Feinkeramik, in *Ez Zantur I*, 151-218; *idem*, in Weber and Wenning 1997: 131-137, both with further references.

21 On this phenomenon see also Schmid 1996: 130 with note 17; L. Hannestad, The Hellenistic Pottery from Failaka, *Ikaros. The Hellenistic Settlements* 2. Copenhagen 1983: 83-120, both with further references.

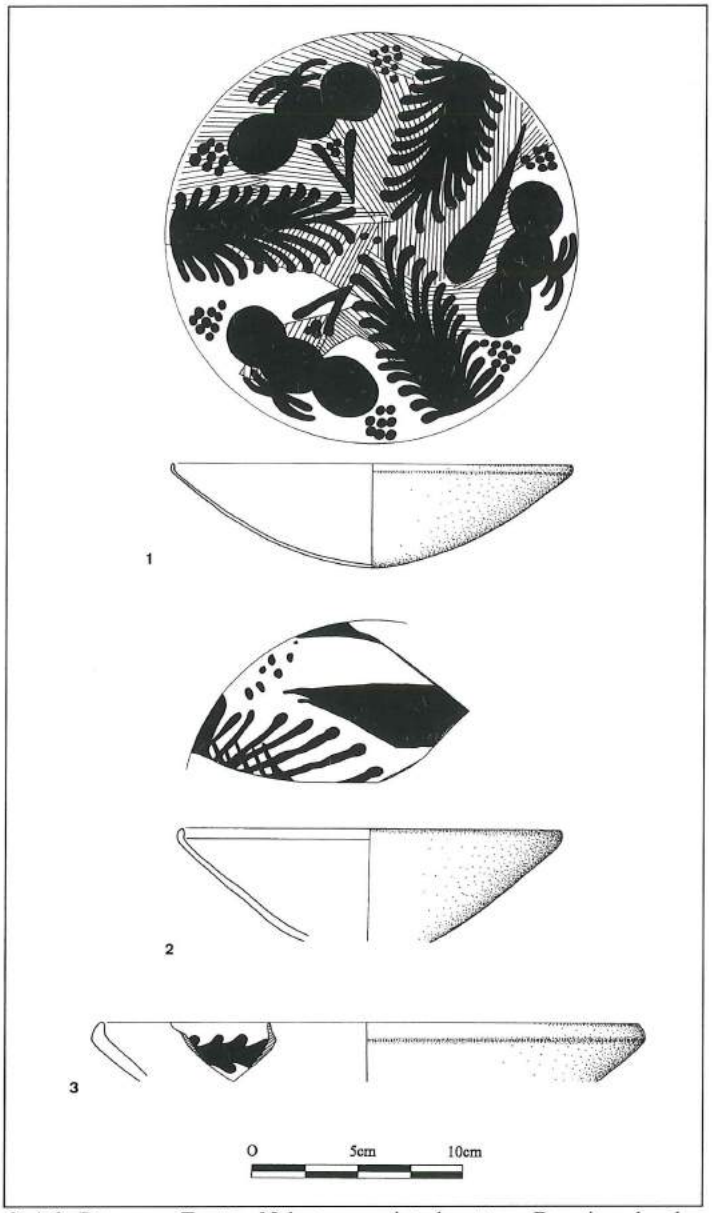
22 The only distinguished characteristic is the rarely occurring simple painting. For a possible explanation of this see Schmid 1996: 130 with notes 18-22; cf. Schmid 2000: chap. VIII. 4.; XI. 1.; XIII. 1.

23 Schmid 1996: 132f.

24 On Nabataean pottery from the later first and the early second century AD and its historical context see Schmid 1997.

25 I. Zanoni, Tonlampen, in *Ez Zantur I*, 311-313 nos. 1. 2.

26 Zanoni (above note 25) 316-319 nos. 10-13.



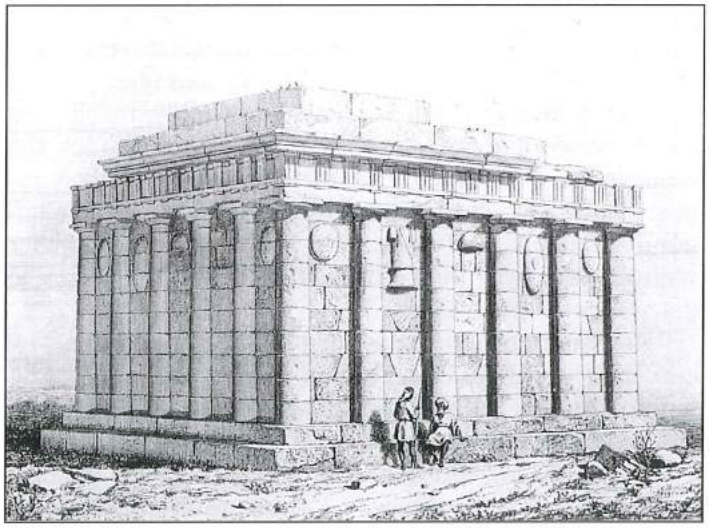
2. 1-3: Petra, az-Zanṭūr. Nabataean painted pottery. Drawings by the author.

ance.[27]

Somewhat more difficult—at least at a first look—is the picture in the field of one of the most eye-catching features of Nabataean culture, the monumental tomb façades. Although it has been shown on several occasions that their is no need to date such spectacular monuments representing more Western oriented Hellenistic influence, like al-Khazna, in the late first or even second century AD but rather to the later first century BC,[28] the fact that there existed at least as early already the more traditional and simpler monuments seems to speak against the general picture drawn in this paper so far.

Indeed, at Hegra the earliest inscription dates one of these monuments that are usually said to represent a more traditional Arabic style in the year AD 1.[29] In Petra it is the chronological sequence of the theatre that gives an indication for dating some of these monuments. As the theatre was built most probably in the first century AD and as the installation of its cavea destroyed several of these simpler tombs, these had to be cut into the rock before the construction of the theatre.[30]

However, while discussing the Nabataean tomb façades one of the earliest monuments usually is not considered at all: the now destroyed tomb of Hamrath at Suwayda (FIG. 3).[31] After all we know this rectangular



3. Suwayda, Tomb of Hamrath. After M. de Vogüé, *Syrie Centrale: architecture civile et religieuse, du Ier au VIIe siècle*. Paris 1865-1877: pl. I.

27 Zanoni (above note 25) 314-16 nrs. 7-9. Interestingly, the Negev 1 type, too, seems to have close fore-runners in Hellenistic types, mainly from Alexandra: J. Mlynarczyk, Terracotta Mould-Made Lamps in Alexandria (Hellenistic to Late Roman Period), in J.-Y. Empereur (ed.), *Commerce et Artisanat dans l'Alexandrie hellénistique et romaine, BCH Suppl. 33*. Paris 1998: 338f. 341 fig. 12a. b.

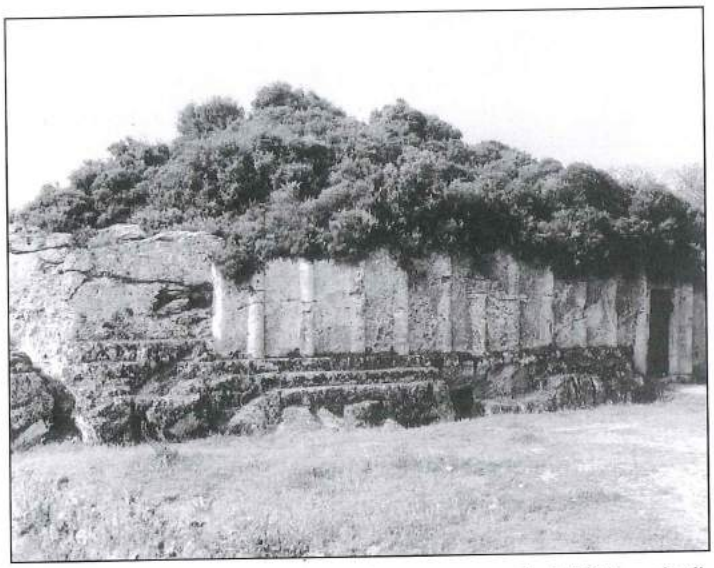
28 Schmid, forthcoming b with the abundant bibliography dealing with these monuments; see Schmidt-Colinet 1981 and McKenzie 1990 for detailed analysis; cf. further J. S. McKenzie, Alexandria and the Origins of Baroque Architecture, in *Alexandria and Alexandrianism. Papers Delivered at a Symposium Organized by the J. Paul Getty Center for the History of Art and the Humanities and Held at the Museum April 22-25, 1993*. Malibu 1996: 109-125 especially 116-118; S. Gagsteiger, in Lindner and Zeitler s.a.: 49-62.

29 On the Hegra tombs see McKenzie 1990: 11-31; A. Schmidt-Colinet, The Mason's Workshop of Hegra, its Relation to Petra, and the Tomb of Syllaios, in: *SHAJ* II. Amman 1987: 143-150; *idem*, A Nabataean Family of Sculptors at Hegra, *Berytus* 31 (1983) 95-102; J.-C. Balty, *Architecture et société à Pétra et Hégra. Chronologie et classes sociales; sculpteurs et commanditaires, in: Architecture et société. De l'archaïsme grec à la fin de la république romaine, Actes du Colloque international organisé par le Centre national de la recherche scientifique et l'Ecole française de Rome (Rome 2-4 décembre 1980)*. Paris 1983: 303-324.

30 On the dating of the theatre see McKenzie 1990: 35, 143f. The excavator dates the theatre in the reign of Aretas IV (9 BC - AD 40): P. C. Hammond, *The Excavation of the Main Theater at Petra, 1961-1962. Final Report*. London 1965: 55-65.

31 R. E. Brünnow and A. von Domaszewski, *Die Provincia Arabia 3*. Strassburg 1909: 98-101; Fedak 1990: 86f., 148-150.

monument divided by semicolumns and adorned by weapon reliefs should be dated to the early first century BC and it may very well be that such monuments could consist the missing link to the Hellenistic world in Nabataean sepulchral architecture. For instance, on the island of Rhodes several monuments show similar characteristics.[32] The same rectangular construction on a stepped base, subdivided by semicolumns is provided by the so called Ptolemaion in the Rhodini park (FIG. 4).[33] As the most probable reconstruction of its upper part is a stepped pyramid it becomes clear that the "Ptolemaion"



4. Rhodes, Rhodini park. Funeral monument called "Ptolemaion". Photo by the author.

stands in the tradition of such monuments as the Mausoleum at Halikarnassos.[34] This may be the way to explain the tomb of Hamrath and other similar constructions, too. They represent a mixture between traditional funeral architectural elements and a strong Greek influence.[35] Another funeral monument from Rhodes even shows further parallels to the tomb of Hamrath as it was originally decorated with weapon reliefs very similar to the ones from Suwayda.[36]

Several other monuments from Petra, although not as spectacular as the huge main façades and therefore not as often considered, belong to the same category of eclectic monuments as had been pointed out by Fawzi Zayadine.[37] Recent investigations in Jarash showed that such free standing monuments—in this case a two storied round monument in shape of a tholos, quite similar to the upper part of al-Khazne, the Corinthian Tomb and ad-Dayr —existed elsewhere in Jordan too.[38]

As far as the more complicated façades of al-Khazna and others are considered, it has been shown that they reflect quite accurately the very rich built architecture of their times, i.e. the late Hellenistic years in the case of al-Khazna or the years around AD 100 in the case of ad-Dayr.[39] Therefore, al-Khazna reflects the palace architecture of the Hellenistic age, as do the rich private houses of Delos, represented here by the "House of the Hermes" (FIG. 5).[40] Such characteristic features as the two (or more) storied peristyles of Hellenistic palace architecture are not only copied in the houses of the living but also in the last resting places of the dead as may be shown with examples from the Mustapha Pasha necropolis at Alex-

32 In general on Rhodian funerary monuments see P. M. Fraser, *Rhodian Funerary Monuments.* Oxford 1977, mostly dealing with smaller monuments; B. D. Mette, *Skulptur und Landschaft. Mythologische Skulpturengruppen in griechischer und römischer Aufstellung.* Doctoral thesis, Univ. of Cologne 1992: 6-60; H. Lauter, Hellenistische Sepulkralarchitektur auf Rhodos, in S. Dietz and I. Papachristodoulou (eds.), *Archaeology in the Dodecanese.* Copenhagen 1988: 155-163; *idem*, Kunst und Landschaft - ein Beitrag zum rhodischen Hellenismus, *AntK* 15 (1972) 49-59; Fedak 1990: especially 83-87.

33 Lauter 1988 (above note 32) 155f.; A. Konstantinopoulos, *Αρχαια Ροδος. Επισκοπηση της ιστοριας και της τεχνης.* Athens 1986: 229-231; Lauter 1972 (above note 32) 55f.; Fedak 1990: 85-87; on the Rhodian "parks" with their grottoes and triclinia see also E. E. Rice, Grottoes on the Acropolis of Hellenistic Rhodes, *BSA* 90 (1995) 383-404.

34 The bibliography on the Mausoleum is legion; a good insight may be found with K. Jeppesen, Das Maussoleion von Halikarnass, Forschungsbericht 1997, *Proceedings of the Danish Institute at Athens* 2. Aarhus 1998: 161-231, as well as with the articles by P. Higgs, I. Jenkins *et al.*, K. Jeppesen, S. Walker, K. J. Matthews and G. B. Waywell, in I. Jenkins and G. B. Waywell (eds.), *Sculptors and Sculpture of Caria and the Dodecanese.* London 1997; see also Fedak 1990: 71-74.

35 Lauter 1988 (above note 32) 156; H. Lauter, *Die Architektur des Hellenismus.* Darmstadt 1986: 214; Fedak 1990: 86f. H. Lauter quotes parallels from Cyrene. This would of course fit well the often discussed Alexandrian influence in Nabataean tomb architecture.

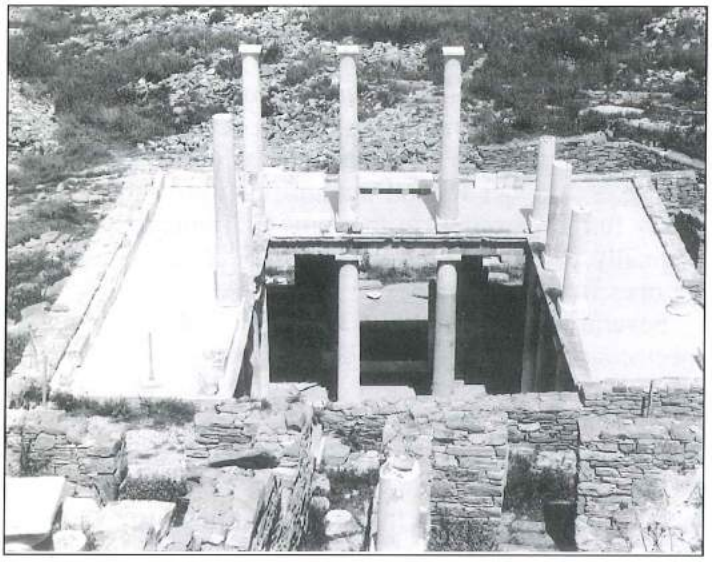
36 Lauter 1988 (above note 32) 157 fig. 1; G. Konstantinopoulos, Νεα ευρηματα εκ Ροδου και Αστϋυπαλαιας, *AAA* 6 (1973) 116 fig. 3.

37 F. Zayadine, Ein Turmgrab in Bab es-Siq, in Lindner 1986: 217-221 with references to similar tombs around Jerusalem. On similar monuments from Numidia, like the Nabataean funeral architecture contesting the peripheral eclecticism between local tradition and Hellenistic influence, see F. Coarelli and Y. Thébert, Architecture funéraire et pouvoir: réflexions sur l'hellénisme numide, *MEFRA* 100 (1988) 761-819; F. Rakob, Numidische Königsarchitektur in Nordafrika, in: H. G. Horn and C. B. Rüger (eds.), *Die Numider. Reiter und Könige nördlich der Sahara.* Cologne/Bonn 1979: 119-171; *idem*, Architecture royale numide, in: *Architecture et société* (above note 29) 325-348 and in a broader frame G. Camps, Modèle hellénistique ou modèle punique? Les destinées culturelles de la Numidie, in *Actes du IIIe Congrès international des études phéniciennes et puniques, Tunis 11-16 novembre 1991.* Tunis 1995: 235-248.

38 J. Seigne and T. Morin, Preliminary Report on a Mausoleum at the Turn of the BC/AD Century at Jarash, *ADAJ* 29 (1995) 175-191.

39 Schmid, forthcoming b; McKenzie 1990: 119f.

40 On the Hellenistic houses of Delos see now M. Trümper, *Wohnen in Delos. Eine baugeschichtliche Untersuchung zum Wandel der Wohnkultur in hellenistischer Zeit.* Rahden 1998; on the "House of the Hermes" *ibid.* 234-241 cat. no. 35; M. Kreeb, *Untersuchungen zur figürlichen Ausstattung delischer Privathäuser.* Chicago 1988: 36-40. 200-215 cat.nr 24; both with the references to the excavations reports.



5. Delos, house of the Hermes. Photo by the author.



6. Alexandria, Mustapha Pasha necropolis. Photo by the author.

andria (FIG. 6) or from Nea Paphos on Cyprus.[41]

It is interesting to see that quite a few of the Nabataean tombs containing Western elements show a strong tendency to evoke a third dimension, i.e. at least the illusion of a peristyle courtyard, one of the most typical features of Hellenistic houses and palaces. Al-Khazna has a kind of a small courtyard incorporated in its ground floor and evokes a peristyle in its upper storey,[42] the Urn Tomb shows additional colonnaded *stoai* at its sides,[43] while the so-called Roman Soldier Tomb together with the opposite Triclinium 235 and built structures between them formed an entire complex (FIG. 7:1),[44] readily comparable to the most spectacular Hellenistic palace architectures known, as for instance the Palazzo delle Colonne (FIG. 7:2), the description of Ptolemy IV's *thalamegos*, or some of the Judaean palaces (FIG. 7:4), all of them large scale interpretations of Vitruvius' description of the Greek house (FIG. 7:3).[45] Not only do such richly decorated tombs offer comparable structures, but also "traditional" monuments (however, still with pediments) too, as does the Tomb 813.[46] Most probably, many more tombs would turn out as containing three dimensional features if they would not have been eroded or covered by sand and earth. We therefore see that much of the former enigmatic Nabataean funeral architecture in fact follows quite well the common shapes and forms of the Hellenised and Romanised Near East. With the reference to the extension, either in reality or evoking it in relief, towards a third dimension in the form of courtyards, *stoai* and peristyles we obtain a new criterion for a classification of the Nabataean

41 Mustapha Pascha: A. Adriani, *Repertorio d'arte dell'Egitto greco-romano.* Serie C I. Palerme1966; II. Pelerme 1963: 107ff., especially 128ff. pl. 48ff.; McKenzie 1990: 64f.; Nea Paphos: J. Mlynarczyk, Nea Paphos in the Hellenistic Period, *Nea Paphos 3.* Warsaw 1990: 87-94. 223-232; *eadem*, Palaces of Strategoi and the Ptolemies in Nea Paphos. Topographical Remarks, in: W. Hoepfner and G. Brands (eds.), *Basileia. Die Paläste der hellenistischen Könige. Internationales Symposion in Berlin vom 16.12.1992 bis 20.12.1992.* Mainz 1996: 193-202 especially 200ff. points out the close familiarity between such peristyle tombs and the dwellings of the rich and wealthy. On the island of Rhodes there are, beside the above mentioned free standing monuments, quite similar *hypogaea* as the ones from Alexandria and Nea Paphos: Konstantinopoulos (above note 33) 226f. fig. 253.

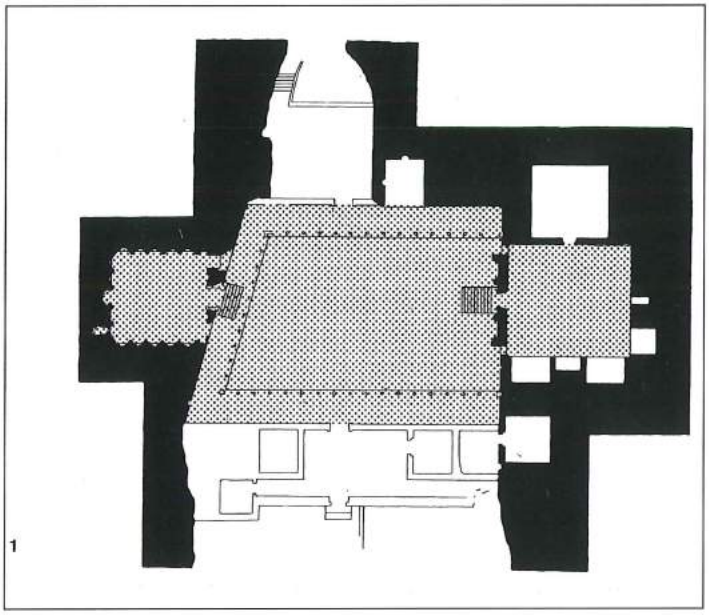
42 McKenzie 1990: pl. 79-81.

43 McKenzie 1990: pl. 91, 93.

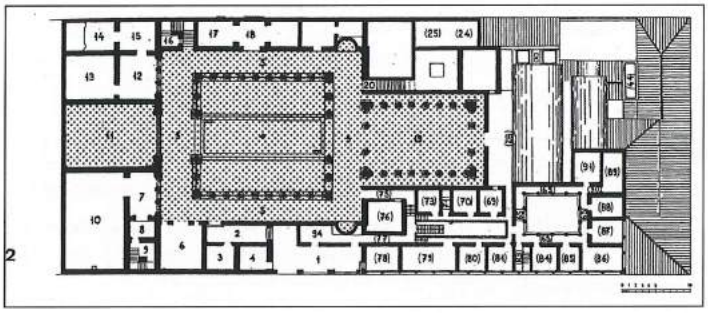
44 McKenzie 1990: pl. 98, 100, 103, 104. The entire complex of the Roman soldier tomb and the triclinium 235 has not yet obtained the attention it would deserve, although already W. Bachmann, C. Watzinger and T. Wiegand, *Petra. Wissenschaftliche Veröffentlichungen deutsch-türkischen Denkmalschutzkommandos* 3. Berlin/Leipzig 1921: 75-94 pointed out its importance; cf. further Schmidt-Colinet 1981: 77-82; Gagsteiger (above note 28) 59ff. Already with an extensive cleaning or a small scale excavation between these two structures much additional information could be gained.

45 See Schmid, forthcoming b with further references on the quoted monuments; cf. further Nielsen 1994: 136ff. (Thalamegos); 146ff. 284ff. cat. 22 (Palazzo delle Colonne); 193ff. 297f. cat. 28 (Herod's first winter palace). The connection between al-Khazna and Hellenistic palace architecture has been underlined by R. A. Stucky, Hellenistisches Syrien, in *Akten des XIII. Internationalen Kongresses für Klassische Archäologie, Berlin 1988.* Mainz 1990: 26. On the connection between Vitruvius' description and reality as well as palace architecture see C. Zoppi, L'architettura abitativa in età ellenistica. Il modello vitruviano e i documenti superstiti, *Rend-Nap* 63 (1991-92) 157-198; J. Raeder, Vitruv, de architectura VI 7 (*aedificia Graecorum*) und die hellenistische Wohnhaus- und Palastarchitektur, *Gymnasium* 95 (1988) 316-368; K. Reber, Aedificia graecorum. Zu Vitruvs Beschreibung des griechischen Hauses, AA (1988) 653-666. On the palaces of the Hasmonaeans and of Herod see now E. Netzer, Die Paläste der Hamonäer und Herodes' des Grossen, *AW Sonderh.* Mainz 1999.

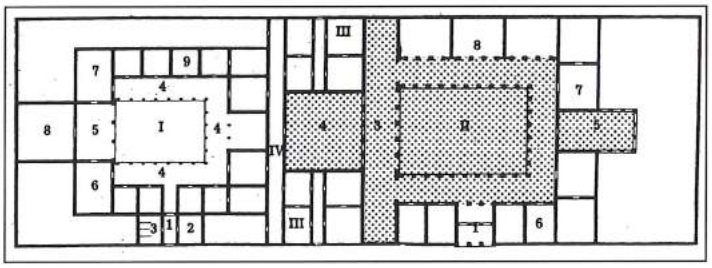
46 McKenzie 1990: pl. 163f.; F. Zayadine, Excavations at Petra (1973-1974), *ADAJ* 19 (1974) 142-150; *idem*, Ein aristokratisches Grab, in Lindner 1986: 229-237; C. Bockisch, in Lindner and Zeitler s.a.: 89-97.



7. 1: Petra, Roman Soldier Somb and Triclinum 235. After Schmidt-Colinet 1981: 78, fig. 19.

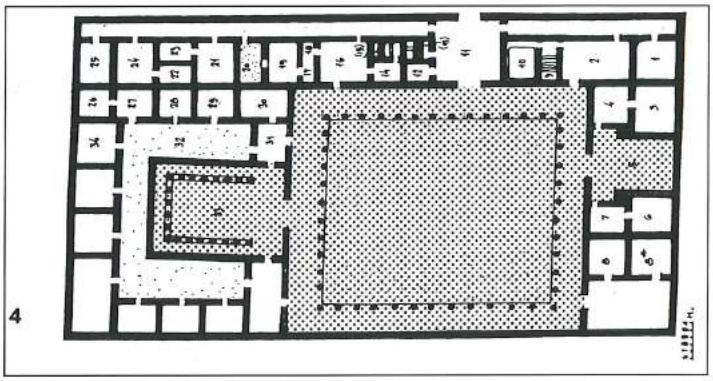


7. 2: Ptolemaïs, Palazzo delle Colonne. After Nielsen 1994: 147, fig. 78.



7. 3: Reconstruction of Vitruvius' description of the Greek house. After Nielsen 1994: 139, fig. 72.

tombs, because these features clearly reflect the above mentioned tendencies in Hellenistic palaces, houses and funeral monuments.[47]



7. 4: Jericho, Herod's first winter palace. After Nielsen 1994: 196, fig. 105.

We may preliminarily conclude from this that the situation of Nabataean tomb façades at Petra and their cultural backgrounds is much more puzzling than it seems at a first look. Beside the traditional separation in one storied and two or more storied monuments, or in rather western and rather oriental creations, it becomes obvious that within all of these categories different evolutions and therefore subdivisions take place, like the one pointed out above. It can be shown then, that again the earlier monuments, both in their simpler form like the tomb of Hamrath and in more elaborated versions like al-Khazna, clearly take over tendencies very common in the Hellenised Near East of the first century BC. These are worked on as may be reflected in the Urn Tomb, the Corinthian Tomb, the Roman Soldier Complex or Tomb 813 within the first century AD. On the other hand, later monuments like ad-Dayr clearly show stronger Roman influence, for instance the supplementary external row of columns in the upper storey.[48]

According to the inscriptions from Hegra, the simpler and more oriental façades were in use all over the first century AD. As for Petra there is another argument pointing towards an earlier date for the highly elaborated façades showing stronger western influence and a comparably later date for the simpler, stronger oriental tombs. Logically the rich upper class of Petra would have tried to occupy topographically dominating places for their tombs. The best possibility to place such façades is undoubtedly the al-Khubtha northern slope were the so-called "Royal Tombs" are located, i.e. the Corinthian Tomb, the Urn Tomb and the Palace tomb, all clearly showing elements of elaborated Hellenistic architecture. Most of the orien-

47 For the Urn Tomb this had already been observed by Schmidt-Colinet (above note 29, *SHAJ* II) 143-150 especially 149f.; cf. in a wider range on the same subject *idem*, Exedra duplex. Überlegungen zum Augustusforum, *HefteABern* 14 (1991) 43-60. As interesting A. Schmidt-Colinet's hypothesis about the Urn Tomb being the grave of Aretas IV imitating the forum of Augustus at Rome is, however, there is hardly any further evidence supporting it, because the Urn Tomb too can be explained as variation of a Hellenistic peristyle house/palace.

48 This additional row of columns, not yet occurring on al-Khazna and the Corinthian Tomb for instance, is a characteristic element of Roman architecture from the late first century onwards. See for example the library of Celsus at Ephesos or the market gate at Milet: V. M. Strocka, Wechselwirkungen der stadtrömischen und kleinasiatischen Architektur unter Trajan und Hadrian, *IstMitt* 38 (1988) 294ff. with notes 10 and 16 for further bibliography and S. Schorndorfer, *Öffentliche Bauten hadrianischer Zeit in Kleinasien. Archäologisch-historische Untersuchungen.* Münster 1997: *passim.*

talising tomb façades are located in the different wadis leading away from the city's centre and one is tempted to say that they were installed with the continuing growing of the city and therefore not only according to a social order but rather to a relative chronological sequence.[49]

Although not always related to a precise dating, similar observations can be made on Nabataean sculpture and reliefs too. Their is a group showing distinctly Hellenistic and Roman characteristics, like the figural decoration of al-Khazna or three series of reliefs, representing weapons, busts and erotes respectively.[50] The sculptural decoration of al-Khazna would of course be subject to the same chronological classification as is the entire monument, i.e. in the second half of the first century BC. Further, Fawzi Zayadine and others showed on several occasions that most of the figures represented there clearly belong to the Hellenistic iconography.[51] The relief blocks with the above mentioned weapons, busts and erotes were all found in the neighbourhood of Qaṣr al-Bint or the entrance gate to its temenos. Although not without dispute, it seems now probable that they belong to the reign of Aretas IV, i.e. the very late first century BC or the beginning of the first century AD.

If we compare these sculptures and reliefs to the sculptural finds from Khirbat at-Tannūr we see obvious stylistic differences.[52] Their clearly less naturalistic and somewhat wooden faces and dresses reminded Nelson Glueck of Palmyrene and Parthian sculpture.[53] Furthermore, at Khirbat at-Tannūr several construction phases were observed although their chronological date was not easy to establish. For the time being, we may restrict ourselves to only a few remarks. Only a few reliefs like the so-called Atargatis panel and a bust of Helios could be attributed to an earlier phase, called phase II at Khirbat at-Tannūr. Although close to the above mentioned sculptures from Petra they already show some stylistic differences. Nelson Glueck dated this phase in the years of Aretas IV and therefore contemporaneous to the above referred reliefs from Petra. If this is correct, we would witness a kind of provincial style in order to explain the stylistic differences to Petra. More interesting are the reliefs from phase III at Khirbat at-Tannūr, including the famous dolphin and grain goddesses showing clearly stronger stylistic differences with the reliefs from Petra. N. Glueck suggested a dating in the early second century AD without giving sure evidence.[54] It shall further be mentioned that all the pottery illustrated in N. Glueck's reports on Khirbat at-Tannūr and thought to be evidence for dating belongs to our phase 3c and would therefore confirm a date in the early second century AD.[55]

Rather close in style to the later sculptures from Khirbat at-Tannūr is another series of relief blocks that was found in Petra in the destruction debris of the above mentioned temenos gate.[56] With their somewhat stiffly carved features they are not only related to the later pieces from Khirbat at-Tannūr but also clearly different from the earlier series from the same area. As this later phase of the temenos gate has a most probable *terminus post quem* of AD 76, this would lead to a fine confirmation of the observations made so far.[57]

---

49 As K. S. Freyberger, Zur Datierung des Grabmals des Sextus Florentinus, *DaM* 5 (1991) 1-8 has pointed out, there is good evidence to date this monument earlier than the usually adopted *terminus ad quem* of AD 129 (on this see McKenzie [1990] 33, 47, 165). However, if Freyberger's proposition of a Augustean date is correct, then we would have to suppose that the al-Khubta northern slope was already occupied at that time what seems rather improbable. The miniature architecture of the so-called Tomb of Sextus Florentinus shows strong similarities with the Palace Tomb, the Corinthian Tomb and the so-called Bāb as-Sīq Triclinium. I therefore would like to propose a analogue date for all these monuments that should be oriented at the probably date of the Bāb as-Sīq Triclinium (McKenzie 1990: 34 with notes 15-18 for the somewhat puzzling evidence) and therefore around the third quarter of the first century AD.

50 McKenzie 1990: 134f. pls. 60-66 with the older references; Lyttelton and Blagg 1990: especially 95-100; for further finds see M.-J. Roche, Bustes fragmentaires trouvés à Pétra, *Syria* 67 (1990) 377-395. On the blocks with busts and weapons see also I. Kader, *Propylon und Bogentor. Untersuchungen zum Tetrapylon von Latakia und anderen frühkaiserzeitlichen Bogenmonumenten im Nahen Osten.* Mainz 1996: 132-136; K. S. Freyberger, *Die frühkaiserzeitlichen Heiligtümer der Karawanenstationen im hellenisierten Osten. Zeugnisse eines kulturellen Konflikts im Spannungsfeld zweier politischer Formationen.* Mainz 1998: 15-18.

51 See for instance F. Zayadine in the 3rd edition of M. Lindner (ed.), *Petra und das Königreich der Nabatäer. Lebensraum, Geschichte und Kultur eines arabischen Volkes der Antike.* München 51989 in the year 1980: p. 244 fig. 31; *id.*, L'iconographie d'Isis à Pétra, *MEFRA* 103 (1991) 283-306; Lyttelton and Blagg 1990: 102ff.

52 On Khirbat at-Tannūr see Glueck 1965. For a precision of the chronological sequences see Wenning 1987: 77ff. and J. S. McKenzie, The Development of Nabataean Sculpture at Petra and Khirbet Tannur *PEQ* (1988) 81-107. Kader (above note 50) 130f. and especially Freyberger (above note 50) 34-41 insist on a date in the reign of Aretas IV for the entire sculptural decoration from Khirbat at-Tannūr that seems impossible to the present writer.

53 Glueck 1965: 248-259 and others.

54 Glueck 1965: 138; cf. Wenning 1987: 77ff. and McKenzie (above note 52); indeed, these sculptures bear quite some stylistic and technical similarities to a group of sculpture from the Ḥawrān, dated to the second and third centuries AD: S. Diebner, Bosra: Die Skulpturen im Hof der Zitadelle, *RdA* 6 (1982) 52-71.

55 Glueck 1965: pls. 73a, 74a, 75a,b. All the other pottery—some of them earlier in date—illustrated in *Deities and Dolphins* comes from Petra and 'Ammān and is not related to the temple of Khirbat at-Tannūr. N. Glueck (*ibid.* p. 139) refers to such pottery as being found under the pavement of phase II. Therefore, they would predate even the earlier sculpture. However, as N. Glueck refers himself, some of the pottery may have been intrusive from higher levels. Unless there is no comprehensive study of the pottery from Khirbat at-Tannūr relating it to layers and construction phases it should be used only very carefully as dating evidence.

56 McKenzie 1990: 133f. pls. 58. 59.

57 McKenzie 1990: 36. 132ff. pl. 47 b-d; the dating of the temenos gate is connected with a trench done a few meters away: P. Parr, A Sequence of Pottery from Petra, in J. A. Sanders (eds.), *Essays in Honor of Nelson Glueck: Near Eastern Archaeology in the Twentieth Century.* New York 1970: 348ff. especially 369f.; cf. Lyttelton and Blagg 1990: 92, 95.

The evolution in Nabataean sculpture follows therefore the same model as do other categories of material culture, such as coins or pottery. It starts with a naturalistic style, clearly adopted from late Hellenistic examples and leads to a more abstract and stronger ornamentalising representation. The peak of this evolution are the aniconic *baityloi*, that, although they existed in earlier times too, show a considerable increase in the later first century AD.[58]

If we try to put this picture in the context of the Nabataeans' history we have first of all to explain why there should be no material culture from their first historical mention in 312 BC up till around 100 BC. The description given by Diodorus of Sicily depicts them as nomads or semi-nomads frequenting once or twice a year the same place for trade and other business.[59] If so, then the Nabataeans would have had almost no need for a "normal" material culture.[60] In this case our evidence would suggest that their sedentarisation took place around 100 BC when they were forced to create a more permanent infrastructure in order to remain competitive in trade. The end of the second/beginning of the first century BC was marked by the definitely undergoing of the Seleucid dynasty leading to a vacuum of power in the Syro-Phoenician area that led also to the rise of the Hasmoneans on the one hand[61] and by a increase of Ptolemaic long distance trade, mostly due to the discovery of the direct sea route from South Arabia to India, on the other hand.[62] Both events may have encouraged the Nabataeans to start settling on a more permanent base in order to fill in a part of the gap left by the Seleucids and to face the Ptolemies in long distance trade.[63] The sedentarisation then led to the creation of a material culture. But as there was no immediate preceding local material culture, the Nabataeans did the most logical thing: They oriented their new material culture according to the mainstreams of the contemporary Hellenistic world in its Near Eastern variant, as it was on display at Alexandria and Seleukeia, but also at the trading places the Nabataeans frequented like Rhodes, Kos, Priene, Milet or Delos and others.[64]

The stronger Roman influence falls together with the taking over of the Seleucid empire by Pompey in 63 BC and of Ptolemaic Egypt by Octavian in 30 BC and his attempts to directly control long distance trade on the Arabian Peninsula, as reflected by the expedition of Aelius Gallus.[65] It is clear that the continuously stronger Roman influence in the Eastern Mediterranean since Pompey's campaigns in the 60s of the first century BC led also to new cultural elements in these regions. It is also during the early Roman imperial years that historical sources report direct contacts between Nabataeans and Romans.[66] Finally, the decisive change around AD 70 towards a somewhat stronger abstract and ornamentalised art marks the efforts of Rabbel II to reorganise the Nabataean kingdom in the unsuccessful attempt to remain independent of Rome.[67]

We therefore see that there is in fact no continuous process of "Hellenisation", i.e. a step by step taking over of what is considered as Hellenistic art and culture,[68] but rather the opposite. The Nabataeans took over at once an

58 R. Wenning, Das Ende des nabatäischen Königreiches, in A. Invernizzi and J.-F. Salles (eds.), *Arabia antiqua. Hellenistic Centers Around Arabia.* Rome 1993: 81-103 especially 86-93; Wenning 1989: 257.

59 Diod. 19, 95, 1f.; cf. Schmid, forthcoming a..

60 Of course during this entirely nomadic period there may have been other categories of material culture like textiles (carpets etc.) or wooden tools and idols that are not preserved.

61 S. Sherwin-White and A. Kuhrt (eds.), *From Samarkhand to Sardis. A New Approach to the Seleucid Empire.* London 1993: 217-229; T. Fischer, *Seleukiden und Makkabäer. Beiträge zur Seleukidengeschichte und zu den politischen Ereignissen in Judäa während der 1. Hälfte des 2. Jahrhunderts v. Chr.* Bochum 1980; *idem*, Hasmoneans and Seleucids: Aspects of War and Policy in the Second and First Centuries B.C.E., in A. Kasher *et al.* (eds.), *Greece and Rome in Eretz Israel. Collected Essays.* Jerusalem 1990: 3-19.

62 R. Drexhage, *Untersuchungen zum römischen Osthandel.* Bonn 1988: 7ff. The passage as well as the using of the Monsoon winds were known to the South Arabian people for a longer time, but they hid their knowledge from their rivals in trade; cf. L. Casson, *The Periplus Maris Erythraei. Text with Introduction, Translation, and Commentary.* Princeton 1989: 11f. 283ff.; see also K. A. Kitchen, *Documentation for Ancient Arabia I. Chronological Framework and Historical Sources.* Liverpool 1994: 22-25 on the date of the *periplus*.

63 Comparable phenomena, i.e. Arab tribes pushing into gaps of power at the periphery of the Mediterranean world and creating new political factors and eventually becoming sedentarised, occurred on several occasions in antiquity: P. Funke, Die syrisch-mesopotamische Staatenwelt in vorislamischer Zeit. Zu den arabischen Macht- und Staatenbildungen an der Peripherie der antiken Grossmächte im Hellenismus und in der römischen Kaiserzeit, in: Funck (above note 3) 217-238.

64 All these places are known to have been visited by Nabataeans according to inscriptions, or to have maintained contacts with the Nabataeans as in the case of Priene. On that see Wenning 1987: 22-24, M.-J. Roche, Remarques sur les Nabatéens en Méditerrané, *Semitica* 45 (1996) 73-99.

65 Strabo 16, 4, 22-24; M. G. Raschke, New Studies in Roman Commerce with the East, *ANRW* 2, 9, 2. Berlin/New York 1978: especially 650ff.; S. E. Sidebotham, *Roman Economic Policy in the Erythra Thalassa 30 B.C.-A.D. 217*, Mnemosyne Suppl. 91. Leiden 1986: 48ff. 113ff.; *idem*, Aelius Gallus and Arabia, *Latomus* 45 (1986) 590-602; *idem*, Romans and Arabs in the Red Sea, *Topoi* 6 (1996) 785-797 for an general overview; cf. further J. W. Eadie, Strategies of Economic Development in the Roman East: The Red Sea Trade Revisited, in D. H. French and C. S. Lightfood (eds.), *The Eastern Frontier of the Roman Empire. Proceedings of a Colloquium held at Ankara in September 1988,* BAR Int. Series 553 I. Oxford 1989: 113-120; F. de Romanis, *Cassia, cinnamomo, ossidiana. Uomini e merci tra Oceano Indiano e Mediterraneo.* Rome 1996: 19ff.

66 In the sense of increasing presence of Nabataeans in Italian ports and cities: Roche (above note 64) 86-95, 99.

67 Wenning 1989: 257f. and especially Wenning (above note 58) 81-103.

68 Such a process of Hellenisation has been proposed for South Arabia by J. Pirenne, Les phases de l'hellénisation dans l'art sud-arabe, in *Le rayonnement* (above note 1) 535-541 with a first phase of a rather autochton culture and occasional Western influence and a second phase with a strong Western influence.

almost completely Hellenised culture around 100 BC. Towards the second half of the first century BC and the first half of the first century AD they were open to stronger Roman tendencies as well as to first steps leading towards a proper Nabataean "style". Such a culture at their "own" is only attended in the next step during the second half of the first century AD when Nabataean potters as well as their sculptors and coin cutters had continuously freed themselves from the earlier prototypes. It is difficult to consider whether this last step in evolution indeed falls together with the accession to the Nabataean throne by Rabbel II, "the one who renewed and rescued his people", or whether he was following an already occurring general stream. Funny enough, it is but shortly before loosing their political independence in AD 106 when the Nabataeans had really developed their own material culture with the last of the above described phases.

Interestingly, most of the immediate geographical neighbours of the Nabataeans show a different model of cultural evolution. Most of them were sedentarised for a quite long period, so we find well established local cultures that are increasingly influenced by Hellenistic and Roman features, until they become more or less completely Hellenised or Romanised, the latest with their incorporation to the Roman empire.

Looking for similar phenomena as found within the Nabataean culture we have to leave the Near East and to turn towards Central Asia. There can be seen a comparable suddenly increased input of western, i.e. Hellenistic culture that is due in these cases to the conquests of Alexander the Great.[69] The Greek colonists established within a very short time a strongly Hellenised culture, as can bee seen mainly in coins[70] and pottery[71] while in the field of architecture is found—beside the imported Greek elements—an important amount of local forms and shapes.[72] Already during the first ca. 150 years after the founding of these Greek settlements there are some tendencies towards a similar evolution as was observed in the case of the Nabataeans. The first coins of the Graeco-Bactrian and Indo-Greek kings show perfectly Greek coins with typical Hellenistic portraits of the ruler and Greek inscriptions (FIG. 8:1).[73] But already during the third century BC occur the first issues with a mixed legend, i.e. in Greek on the one side and in local script on the other, becoming most popular from ca. 200 BC onwards (FIG. 8:2).[74] Around the middle of the second century BC the territories of most of these Greek kingdoms were conquered by nomads originating from regions in nowadays

---

69 In general see B. A. Litvinskij, *La civilisation de l'Asie centrale antique,* Archäologie in Iran und Turan 3. Rahden 1998; Harmatta *et al.* 1996; A. Invernizzi (ed.), *In the Land of the Gryphons. Papers on Central Asian Archaeology in Antiquity.* Firenze 1995; E. Errington and J. Cribb (eds.), *The Crossroads of Asia. Transformation in Image and Symbol.* Cambridge 1992; C. Rapin, Greeks in Afghanistan: Aï Khanoum, in J.-P. Descoeudrs (ed.), *Greek Colonists and Native Populations.* Oxford/New York 1990: 329-342; K. Karttunen, Taxila. Indian City and a Stronghold of Hellenism, *Arctos* 24 (1990) 85-96; F. L. Holt, *Alexander the Great and Bactria. The Formation of a Greek Frontier in Central Asia.* Leiden 1988; U. P. Arora (ed.), *Graeco-Indica. India's Cultural Contacts with the Greek World.* New Delhi 1991; J. Ozols and V. Thewaldt (eds.), *Aus dem Osten des Alexanderreiches. Völker und Kulturen zwischen Orient und Okzident. Iran, Afghanistan, Pakistan, Indien.* Cologne 1984, all with manifold further references. Still not replaced is D. Schlumberger, *Der hellenisierte Orient. Die griechische und nachgriechische Kunst ausserhalb des Mittelmeerraumes.* Baden-Baden 1969.

70 Due to the circulation and publication of many coin hoards from Central Asia without precise archaeological context, the bibliography about this subject is much richer than in the cases of pottery or architecture: N. Smirnova, Bactrian Coins in the Pushkin State Museum of Fine Art, *AncCivScythSib 2* (1995) 335-352; O. Bopearachchi, *Monnaies gréco-bactriennes et indo-grecques. Catalogue raisonné.* Paris 1991; *idem*, Graeco-Bactrian Issues of Later Indo-Greek Kings, *NumChron* 150 (1990) 79-103; O. Guillaume, *Graeco-Bactrian and Indian Coins from Afghanistan.* New Delhi 1991; *idem, L'analyse de raisonnements en archéologie: le cas de la numismatique gréco-bactrienne et indo-grecque.* Paris 1987; F. L. Holt, The Euthydemid Coinage of Bactria: Further Hoard Evidence from Ai Khanoum, *RNum* 23 (1981) 7-44; C. M. Kraay, Demetrius in Bactria and India, *NumAntCl* 10 (1981) 219-233; R. B. Whitehead, *Indo-Greek Numismatics.* Chicago 1970; G. Le Rider, Monnaies de Taxila et d'Arachosie. Une nouvelle reine de Taxila, *REG* 80 (1967) 331-342; A. N. Lahiri, *Corpus of Indo-Greek Coins.* Calcutta 1965; M.-T. Allouche-Le Page, *L'art monétaire des royaumes bactriens. Essai d'interprétation de la symbolique religieuse gréco-orientale du IIIe au Ier s. av. J.C.* Paris 1956.

71 J. C. Gardin, La céramique hellénistique en Asie centrale. Problèmes d'interprétation, in *Akten des 13. Internationalen Kongresses für Klassische Archäologie, Berlin 1988.* Mainz 1990: 187-193; *idem*, Les relations entre la Méditerranée et la Bactriane dans l'antiquité, d'après des données céramologiques inédites, in: J.-L. Huot *et al.*, (eds.), *De l'Indus aux Balkans. Recueil à la mémoire de Jean Deshayes.* Paris 1985: 447-460; *idem*, Die Ursprünge der Kusana-Keramik, in Ozols and Thewaldt (above note 69) 110-126.

72 I. Pitschikjan, Die Entwicklung des baktrischen Palast-Tempels, in: *Basileia* (above note 41) 226-233; Nielsen 1994: 124-128, 278-280 cat. no. 19; P. Bernard, The Greek Kingdoms in Central Asia, in: Harmatta *et al.* 1996: especially 110-116; *idem*, L'architecture religieuse de l'Asie centrale à l'époque hellénistique, in *Akten des XIII. Internationalen Kongresses für Klassische Archäologie, Berlin 1988.* Mainz 1990: 51-59. The local elements are predominantly present in palace architecture, while other buildings, such as theatres and *gymnasia* show purely Greek features as can be seen at Aï Khanoum. In general terms, the Hellenistic rulers of the East adopted a lot of their oriental fore-runners, mainly because the forms of royal representation were not well developed in mainland Greece. The local tradition of the Bactrian palace buildings is obvious, as well as their connections to Babylon and the Achaemenid empire: V. Sarianidi, Monumental architecture of Bactria, in Huot *et al.* (above note 71) 417-432.

73 The coins illustrated on figs. 8:1-4 are from the Vasiliou collection at the Numismatic Museum of Athens. I wish to thank its director I. Touratzoglou and E. Ralli for the permission to publish these coins. The collection containing Parthian and Graeco-Bactrian as well as Indo-Greek coins has been published by Eip. Papanagiotou and M. Oikonomidou, Συλλογη Ι. Βασιλειου, *ADelt* 28, 1973 (1975) Meletai 71-96. The chronology follows the recently published one by Bopearachchi 1991 (above note 70): 453.

74 This being not related to stronger non-Greek influence but to the fact that new territories in India were conquered by the Greeks and the coins therefore had to be understandable by the new subjects too.



8. 1: Athens, Numismatic Museum. Coin of Eucratides I (ca. 170-145 BC = *ADelt* 28, 1973 [1975] Meletai: 86 no. 54 pl. 51, 42). Photo by the author.



8. 2: Athens, Numismatic Museum. Coin of Agathocles (ca. 190-180 BC = *ADelt* 28, 1973 [1975] Meletai: 85f. no. 53 pl. 51, 41). Photo by the author.



8. 3: Athens, Numismatic Museum. Coin of Spalyris (ca. first half of the first century BC = *ADelt* 28, 1973 [1975] Meletai: 93 no. 108 pl. 55, 87). Photo by the author.



8, 4. Athens, Numismatic Museum. Coin of Azes I. (ca. middle of the first century BC = *ADelt* 28, 1973 [1975] Meletai: 91 no. 97 pl. 54, 78). Photo by the author.

Turkestan and China.[75] Therefore the surviving Greek settlements were cut of from their direct connection to Mesopotamia and the Mediterranean and in the material culture a stronger tendency towards local elements can be observed. The coins now are consequently inscribed in local alphabets on one side and show at least partially non-Greek iconographic elements (FIG. 8:3, 4), and the pottery develops its own style too, although there are occasionally influences from the West. Last reminders of these former Greek cultural spots in Central Asia can be seen in the arts of the Kushan and the well known Gandhara reliefs, incorporating both local and western elements.[76]

Although in general terms quite similar to the lines of development in Nabataean material culture, there are some crucial differences, mainly of socio-political nature. The first Graeco-Bactrians were in fact Greeks, simply producing their own crafts in a place far away from their homelands. The first Nabataeans producing material culture in contrary were already "at home" in Central Jordan around 100 BC since more than two hundred years, but they had no preceding material culture they could work on and therefore they adopted a foreign one, taking over the cultural "*lingua franca*" of the region. In the further development the Graeco-Bactrians and Indo-Greeks continuously lost their former cultural roots because it became increasingly difficult to maintain a direct contact to the Mediterranean.[77] The Nabataeans on the other hand did develop their own material culture in a surrounding that would have been extremely favourable to maintain the former, i.e. Hellenistic one. Therefore, one could say that it was probably by distancing themselves from the pre-

75 K. Enoki, G. A. Koshelenko and Z. Haidary, The Yüeh-Chih and their Migrations, in Harmatta *et al.* 1996: 171-189; Y. A. Zadneprovskiy, The Nomads of Northern Central Asia after the Invasion of Alexander, *ibid.* 457-472; P. Bernard, Les nomades conquérants de l'empire gréco-bactrien. Réflexions sur leur identité ethnique et culturelle, *CRAI* (1987) 758-768.

76 B. N. Puri, The Kushans, in Harmatta *et al.* 1996: 247-263; G. A. Pugachenkova *et al.*, Kushan Art, in Harmatta *et al.* 1996: 331-395; L. Nehru, Hellenism in Gandharan Sculpture, in *Akten des XIII. Internationalen Kongresses für Klassische Archäologie, Berlin 1988.* Mainz 1990: 317-319. As L. Nehru correctly points out, the Western influences in Gandhara sculpture are not the result of one single period of East-Western contacts but of several such interactions from the Achaemenid to the Roman period, although the Hellenistic input may be considered the most important one; cf. also M. Taddei, Neue Forschungsbelege zur Gandhara-Ikonographie, in Ozols and Thewaldt (above note 69) 154-175; see now the bibliography on Gandhara by P. Guenée *et al.*, *Bibliographie analytique des ouvrages parus sur l'art du Gandhara entre 1950 et 1993*, MemAcInsr 16. Paris 1998.

77 This shall not be understood as a negative development, because while loosing their former culture they created a new one.

dominant Hellenistic and later on the Roman cultural elements in their immediate neighbourhood that the Nabataeans became a socio-cultural unity.[78]

With the model drawn in this paper it seems possible to integrate much of what is commonly attributed to Nabataean material culture. However, as stated at the beginning, there are also some differing tendencies.[79] It would of course be very comfortable to explain them with different social or tribal groups, all the more as this would perfectly fit the system and organisation of the Nabataean "state" as it has been proposed on several occasions by E. A. Knauf.[80] However, there have also been criticisms about this rather theoretical typologisation of an entire people.[81] It shall be enough pointing out that ethnological studies could show that with the process of sedentarisation a stronger specialisation in terms of trade, crafts and administration is observed, leading, of course, to the creation of different social groups within a society.[82] In the earlier stadium of sedentarisation there were people within that community that could be called part-time-sedentarised because they were involved in long distance camel trade and therefore on the road for about six months a year, while others were permanently resident.[83] With the introduction of new means of transport most of the former camel riders had to change their occupation and new social differentiation was created.[84] Partially the same can be concluded in the case of the Nabataeans. With their definite sedentarisation—at least in and around Petra—ca. 100 BC, necessarily some specialisation had to take place.[85] In order to maintain their economic wealth, i.e. the supply of spices and other goods from South Arabia, some people would have travelled along the peninsula for most of the year.[86] Others would have specialised in crafts and industry as can be seen in the case of pottery, because the Nabataean pottery is for sure the product of professional potters from its fist stage on.[87]

The typical Nabataean culture did not entirely perish with the incorporation of the Nabataean kingdom to the Roman empire, as for instance the characteristic Nabataean painting on pottery occurs at least into the fourth century AD as well as do the shapes of that pottery (FIG. 2:3, 4).[88] However, from AD 106 onwards, no new elements can be found but rather a degeneration of the already established features.[89] Could this be an indication for cultural and artistical development in a positive sense being possible only within politically independent societies?[90]

Bibliography

Ez Zantur I: *Petra ez Zantur I. Die Ergebnisse der Schweizerisch-Liechtensteinischen Ausgrabungen 1988-1992.* Terra Archaeologica 2. Mainz 1996.

Fedak, F. 1990. *Monumental Tombs of the Hellenistic Age: A Study of Selected Tombs from the Pre-Classical to the Early Imperial Era.* Toronto.

Glueck, N. 1965. *Deities and Dolphins. The story of the Nabataeans.* London.

Harmatta, J. *et al.* (eds.) 1996. *History of Civilizations of Central Asia, 2. The Development of Sedentary and Nomadic Civilizations: 700 B.C. to A.D. 250.* Paris.

Lindner, M. (ed.) 1986. *Petra. Neue Ausgrabungen und Entdeckungen.* Munich/Bad Winsheim.

Lindner, M. and Zeitler, J. P. (eds.) s. a. *Petra. Königin der Weihrauchstrasse.* Fürth.

Lyttelton, M. and Blagg, T. 1990. Sculpture in Nabataean Petra, and the Question of Roman Influence. Pp. 91-107 in M. Henig (ed.), *Architecture and Architectural Sculpture in the*

78 On this cf. also J. Bouzek, Griechische Kunst in den Randkulturen: ihre Rezeption, Funktion und Umbildung, in D. Rössler and V. Stürmer (eds.), *Modus in rebus. Gedenkschrift für Wolfgang Schindler.* Berlin 1995: 115: "Es scheint also eine Regel zu sein, dass eigenständigeKunststile in der Alten Welt für ihre Herausbildung zwar den fruchtbaren Kontakt mit griechischen Vorbildern benötigten, aber gleichzeitig auch Distanz, damit die Kraft der griechischen Kunst nicht die Ausprägung der spezifischen Elemente unterdrücken konnte".

79 Mainly in sacral architecture, where a strong oriental influence is obvious; on Nabataean temples see Wenning 1987: 288; Wenning 1989: 250f.; K. S. Freyberger, in Weber and Wenning 1997: 71-84.

80 E. A. Knauf, in Weber and Wenning 1997: 14-24 with the older references.

81 M. C. A. Macdonald, Was the Nabataean Kingdom a "Bedouin State"?, *ZDPV* 107 (1991) 102-119.

82 S. Altorki and D. P. Cole, *Arabian Oasis City. The Transformation of 'Unayzah.* Austin 1989.

83 Altorki and Cole (above note 82) 67-82; however, this did not exclude the camel riders from having houses in their homecity.

84 Altorki and Cole (above note 82) 101f. 208-231. The careful analysis in the case of 'Unayzah would offer many more inspiration for reconstructing the process of sedentarisation and social diversification among the Nabataeans. On this subject see Z. T. Fiema, Nabataean and Palmyrene Commerce - The Mechanisms of Intensificatior in Palmyra and the Silk Road, *AAS* 42 (1996) 189-195.

85 On this see Schmid, forthcoming a.

86 As is proven by the finds of Nabataean pottery at sites such as al-Jawf, Thâj, Hegra, Qaryat al-Fau, Gharrain, Ma'rib, Qana and Khor Rori; on these see Schmid 2000: chap. X. As this pottery apparently was not used as an export good, these finds point to presence of Nabataeans.

87 Schmid, forthcoming a.

88 On some fragments of this late painted pottery with a well defined late fourth and early fifth centuries AD context see S. G. Schmid, in *Ez Zantur I*, 168 with notes 614. 615; R. Fellmann Brogli, *ibid.* 240 fig. 844-849.

89 On the Roman annexation of Nabataea see Schmid 1997.

90 The fact that no new elements are introduced into Nabataean culture after AD 106 but only older features are repeated should also beware from an interpretation that there was a continuing Nabataean political entity into the second to fourth centuries AD. In fact, the observation made in this paper would finally offer a possibility to explain why there still are remainders of Nabataean cultural elements long after the end of the Nabataean kingdom and resolve the *aporia* observed by Dijkstra (above note 2) 38-40 and others.

Roman Empire. Oxford.
McKenzie, J. S. 1990. *The Architecture of Petra*. Oxford.
Meshorer, Y. 1975. *Nabataean Coins*. Qedem 3. Jerusalem.
Nabataeans 1990: *ARAM* 2 (1990). First International Conference, The Nabataeans, Oxford, 26-29 September 1989.
Nielsen, I. 1994. *Hellenistic Palaces. Tradition and Renewal*. Aarhus.
Schmid, S. G. 1996. Die Feinkeramik der Nabatäer im Spiegel ihrer kulturhistorischen Kontakte. Pp. 127-145 in M. Herfort-Koch, U. Mandel and U. Schädler (eds.), *Hellenistische und kaiserzeitliche Keramik des östlichen Mittelmeergebietes. Kolloquium Frankfurt 24.-25. April 1995*. Frankfort.
——1997. Nabataean Fine Ware Pottery and the Destructions of Petra in the Late First and Early Second Century A.D. Pp. 413-420 in *SHAJ* VI. Amman: Department of Antiquities.
——2000. Die Feinkeramik der Nabatäer. Typologie, Chronologie und kulturhistorische Hintergründe, *Petra ez Zantur II. Die Ergebnisse der Schweizerisch-Liechtensteinischen Ausgrabungen 1988-1992*.
——forthcoming a. The Impact of Pottery Production on the Sedentarisation of the Nabataeans. In *"From Huts to Houses". International Colloquium, Rome, September 22-25, 1997*.
——forthcoming b. The "Hellenistic" Tomb Façades of Nabataean Petra and Their Cultural Background. In First Colloquium on Graeco-Oriental and African Studies. Neapoli (GR), July 24-27, 1997, *Graeco-Arabica* 7.
Schmidt-Colinet, A. 1981. Nabatäische Felsarchitektur. Bemerkungen zum gegenwärtigen Forschungsstand. Pp. 61-102 in *Die Nabatäer. Erträge einer Ausstellung im Rheinischen Landesmuseum Bonn, 24. Mai - 9. Juli 1978*. Cologne/Bonn.
Schmitt-Korte, K. 1990. Nabataean Coinage - Part II. New Coin Types and Variants. *NumChron* 150: 105-133.
Weber, T. and Wenning, R. (eds.) 1997. *Petra. Antike Felsstadt zwischen arabischer Tradition und griechischer Norm* (Antike Welt, special issue). Mainz.
Weiser, W. and Cotton, H. M. 1996. "Gebt dem Kaiser, was des Kaisers ist...". Die Geldwährungen der Griechen, Juden, Nabatäer und Römer im syrisch-nabatäischen Raum unter besonderer Berücksichtigung des Kurses von Sela`/Melaina und Lepton nach der Annexion des Königreiches der Nabatäer durch Rom. *ZPE* 114: 237-287.
Wenning, R. 1987. *Die Nabatäer - Denkmäler und Geschichte. Eine Bestandesaufnahme des archäologischen Befundes, Novum Testamentum et Orbis Antiquus* 3. Freiburg/Göttingen.
——1989. Maskierte Götter? Anmerkungen zum Aufeinandertreffen von Ost und West am Beispiel der arabischen Nabatäer. Pp. 243-260 in K. Rudolph and G. Rinschede (eds.), *Beiträge zur Religion/Umwelt-Forschung I, Geographia Religionum* 6. Berlin 1989.

Helmut Merklein
Neutestamentliches Seminar
Universität Bonn
Regina-Pacis-Weg 1 A
D-531113 Bonn
Germany

Robert Wenning
Pienersallee 34
D-48161 Münster
Germany

Yvonne Gerber
Archäologisches Seminar
Universität Basel
Schönbeinstrasse 20
CH-4056 Basel
Switzerland

Helmut Merklein and Robert Wenning
with a contribution by Yvonne Gerber

The Veneration Place of Isis at Wādī aṣ-Ṣiyyagh, Petra: New Research

Introduction

Since 1995, we carried out a long-termed project on "The Gods of the Nabataeans" for Bonn University, which aims at contributing to a better understanding of Nabataean religion.[1]

Following a survey of Nabataean religious monuments from the Ḥawrān down to al-'Aqaba, we concentrated on the study of the betyls at Petra (cf. Merklein and Wenning 1996; 1997; 1998a-b; Wenning 1997; 1998; 1999) There is still a great uncertainty in identifying the various betyls with a particular god or goddess, or with a particular aspect of a deity. Very few betyls are accompanied by an inscription which identifies the deity. No doubt, most of the betyls at Petra would represent Dūsharā or al-'Uzza, but which one shows whom and what are the meanings of the various shapes? Sufficient explanations cannot be reached by the typological classification of the betyls. A more differentiating approach which also considers the framing of the niche, its context and the natural environment or character of the place is necessary. These considerations led to a throughout research of the votive niches. So far we finished our survey for the western parts of Petra and can add to the great group of precisely described niches by Dalman (1908 and 1912) another 171 new niches. A new series of documentation of all the betyl niches at Petra is currently under publication.

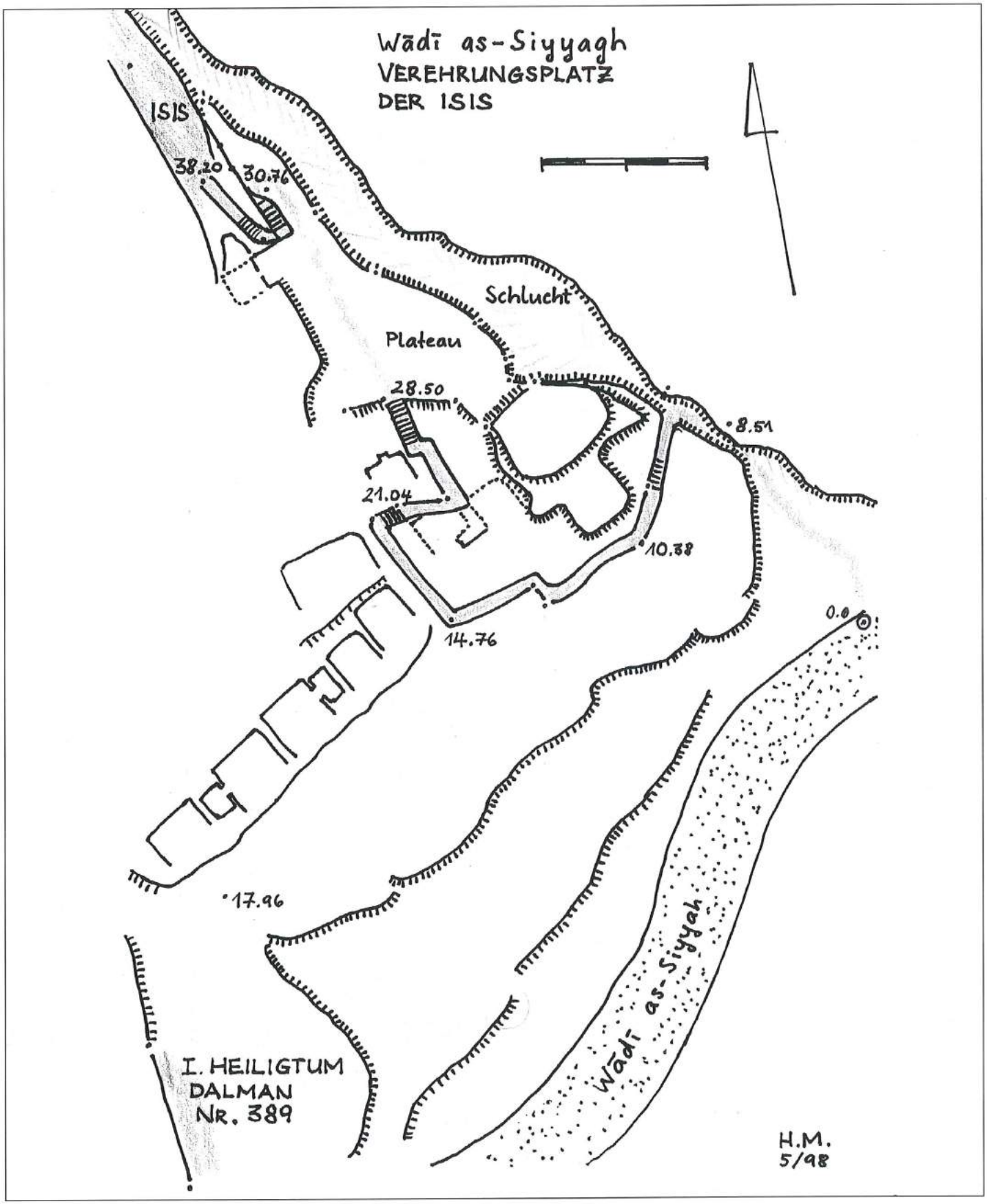
Among the various sanctuaries studied by us at Petra in this context is the one with the inscription and figure of Isis near Wādī aṣ-Ṣiyyagh. This place was first described by J. T. Milik and J. Starcky in 1975, particularly for its inscription, after it was discovered by C. M. Bennett in 1964. H. Donner (1995) gave valuable comments on the inscription, the figures in the niches and the role of Isis at Petra. He added that the ensemble at the Wādī aṣ-Ṣiyyagh is not yet sufficiently published. Therefore the site was chosen by us for further research in 1995 and 1997. In *ZDPV* 114 (1998) 162-178 pls. 5-8, we gave a first report of our results. Further investigations in 1996 and 1997 were directed at the clarification of the so far unknown access to the veneration place. We have been successful in discovering the ancient access from the wadi to the ledge with the votive niches, almost 40m above the wadi ground (FIG. 1).

Stairs to the Veneration Place of Isis

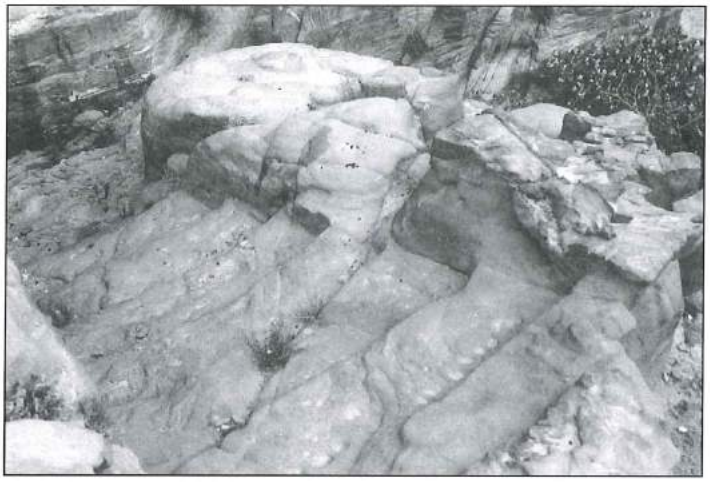
Leaving the city of Petra by Wādī aṣ-Ṣiyyagh in the west and crossing various rock-cut houses with niches (D. 386-388) and others with frescoes and stuccos at the right hand slope (Horsfields 1938: 18f fig. 2, pl. 46; Zayadine 1987: 140f figs. 22-23; Nehmé 1997: 68 fig. 71), one reaches Sadd al-Murayriyya, a small gorge to the right of Wādī aṣ-Ṣiyyagh and immediately behind the fresco rooms. This gorge has very high and steep rock faces. A plain part of its western face above a small ledge was chosen for a veneration place of Isis. From Wādī aṣ-Ṣiyyagh the ledge with its niches is not easy to discover (cf. Milik and Starcky 1975: pl. 42,2; Merklein and Wenning 1998b: pl. 5A). The ledge is difficult to reach and today it needs a good part of climbing.

A narrow passage between some rocks leads from Wādī aṣ-Ṣiyyagh into the gorge, a little above the present wadi bed. After two meters, there is a rock-cut stairway to the left. At least eight steps are well preserved (FIG. 2). The following part is almost completely eroded, but there was not much need for further steps because a large terrace is reached (FIG. 3). The terrace is 15-18m above the wadi and slopes a bit to the southeast. At its northwestern face it is lined with rock-cut rooms (Horsfields 1938: 16f l. 44; Nehmé 1997: 68 fig. 72c; cf. also Nehmé 1994). Dalman's "First Sanctuary of as-Siyyagh") D. 389-391) is at its southwestern end. The relationship between this sanctuary and the veneration place of Isis as well as be-

[1] We like to thank the then Director-General of the Department of Antiquities, Dr Ghazi Bisheh, and his representatives, Dr F. Zayadine, S. Farajat and H. Fallahat, the German Research Association and Biblische Reisen Stuttgart and their Jordanian partners for their kind support of the project.



1. The way from Wādī aṣ-Ṣiyyagh to the veneration place of Isis (drawn by H. Merklein).



2. Stairs close to the bottom of Wādī aṣ-Ṣiyyagh (photo by H. Merklein).



3. Wādī aṣ-Ṣiyyagh with the house of frescoes to the right and the terraces behind it in the centre (photo by H. Merklein).

tween the occupants of the fresco houses and the adherents of Isis needs more research and will be part of a later phase of our project.

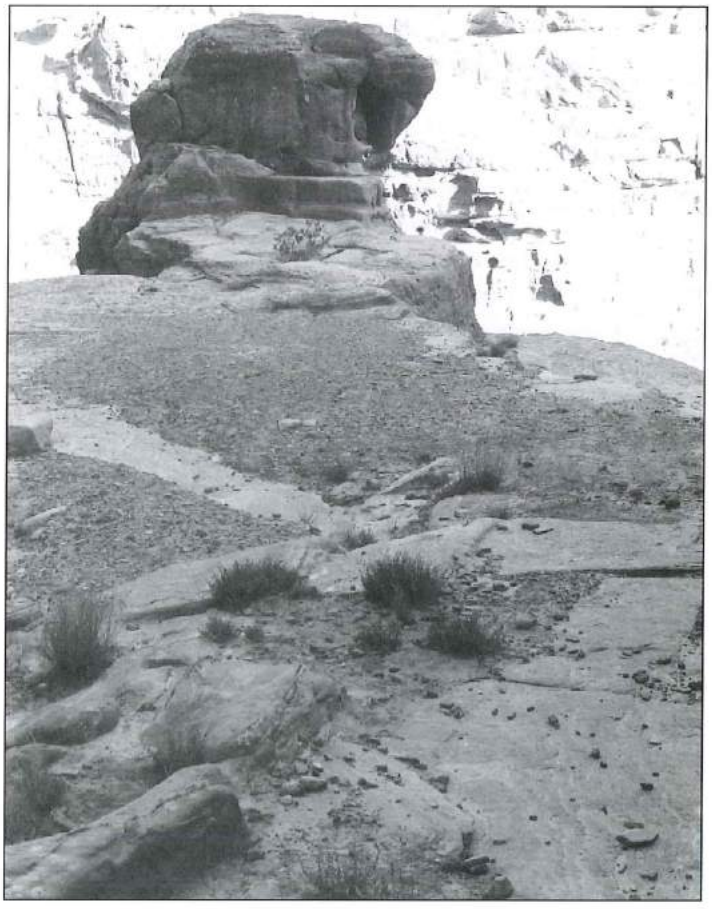
After passing a large protruding rock near the stairway, the old way continues with several bends on the large terrace. From here a very narrow way leads up between the first houses in the northwest. This path is submerged with boulders, which build a rude stairway. Three steps are cut into the rock to the right at the dead end of the path. They reach a small upper terrace, 6-7m above the large terrace, with a few rooms. On the other, southeastern side of the path there are a few rooms as well.

The first room at the terrace has a niche at its back wall and a small water basin in the floor 4m above it. There are no indications of any cultic function of the niche and it should be explained like the rooms in a domestic context. After this room the foot of another rock-cut stairway is reached to the left. The stairway is very worn. It leads to a greater plateau of some importance judging by the installations and the many sherds found there.

The Plateau Below the Veneration Place of Isis

The plateau is 7.5m above the upper terrace, 15.40m above the floor of Sadd al-Murayriyya and 28.5m above the floor of Wādī aṣ-Ṣiyyagh. The plateau slopes for about two meters from north to south. At both ends the terrace becomes narrow. In the northern and eastern parts there are traces of quarrying which probably created the flat and enlarged area of the terrace. The large rocky lump at the southern end of the plateau (FIG. 4) seems not to be worked and of no visible use like what Dalman would have called a "holy stone" .There is an empty sunken grave (0.44-0.60 x 1.99m) near this rock cut into the surface of the terrace.

To the north one can climb down to the bottom of Sadd al-Murayriyya, which is partly submerged with very large rocks that once crashed down from the high rock faces into the gorge. It remains open for the moment, whether the simple steps leading down (or up) are of a much later date. A first survey of the gorge yielded the discovery of a votive niche with a betyl and an unfinished tomb façade, and showed that it is possible to continue to other parts of the area from this gorge.



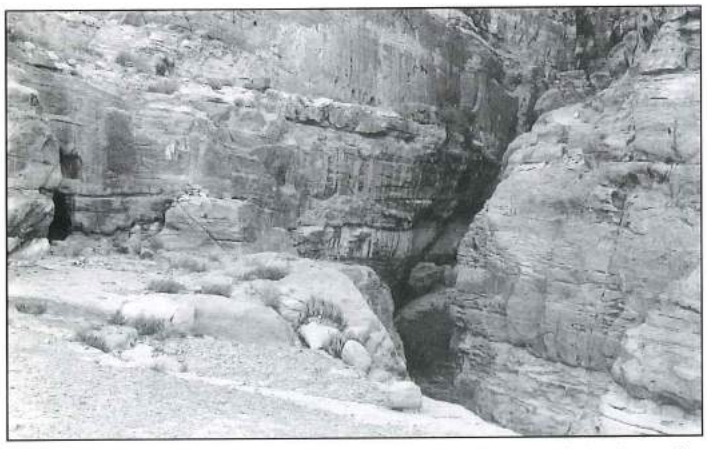
4. The plateau below the veneration place of Isis (sherds from this surface) (photo by H. Merklein).

The large terrace is covered with Nabataean sherds.[2] Yvonne Gerber kindly classified a representative selection of diagnostic sherds collected at the terrace, both fine wares as well as common wares. Her report is added at the end of our contribution.[3] It is important to note that the sherds are astonishingly homogenous and fall within the period from the middle of the first century BC to the end of the first century AD, while none of the sherds could be dated to the Provincial or the Byzantine periods.

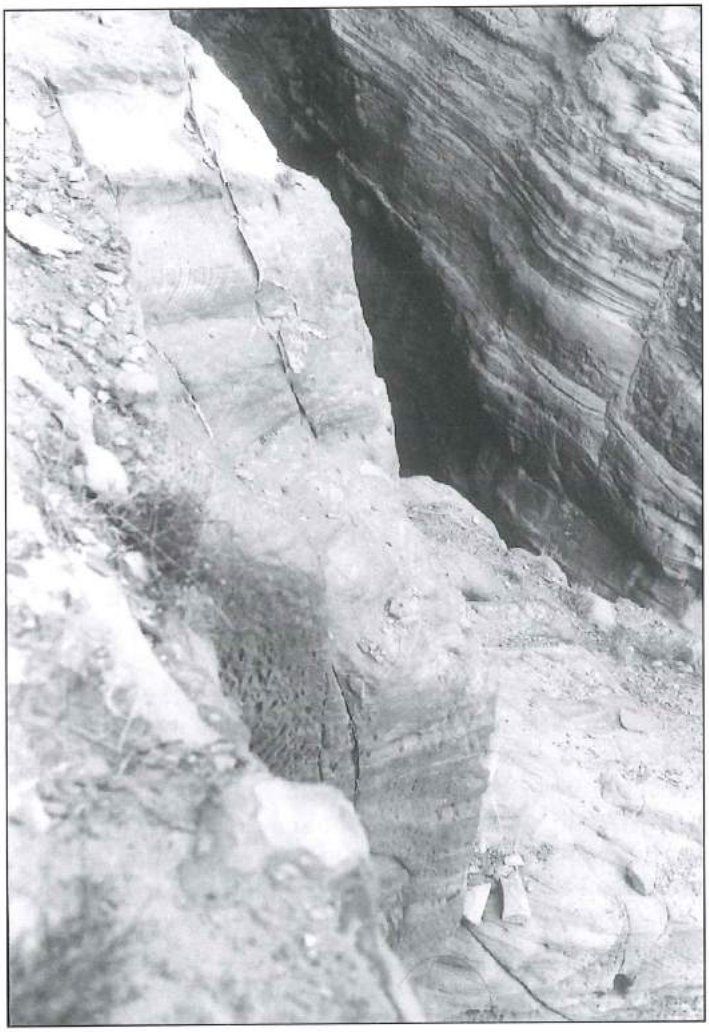
There is a rock-cut tomb with a façade at the western rock face of the northern part of the terrace. The façade is decorated with a row of crowsteps at the top. Above the entrance there is a large broad loculus (bigger than the entrance) which is unusual in its placement. The tomb itself is 1.92m high, which is rather low and contains some sunken graves in the floor. For a closer description the tomb needs to be cleared of deposits. Only a few sherds are found in front of the tomb, but this may be due to the sloping area and some stone-cutting activities there. To find a tomb so close to the veneration place of Isis—and it seems that this closeness was intended-is not surprising, since Isis was a mighty deity connected with the netherworld and was already shown as a tutelar goddess in this context at the most famous tomb of Petra, Khaznat Fir'awn.

Concerning the dates, the pottery from the terrace may be connected with participants in cultic festivities (*mrzh*) in honor of Isis rather than with the burials in the tomb (cf. Wenning 1997: 180-182). Considering that there is no space to assemble much people in front of the niches at the ledge itself, activities such as banquets and dances may have taken place on the large terrace.

The right wing of the forecourt of the tomb was built by a projecting rock (FIG. 5).[4] In front of that rock is a smaller rock in form of a block, which looks like the remaining part of some quarrying activity. This block is 1.90m high at its southern edge. Passing the block, there are three large steps beginning at the northern side and leading up to a kind of platform at the top of the block. Here the stairway ends and today people have to climb up the 2m high steep plain face of the projecting rock to find the continuation of the stairway above. The old stairway continues in opposite direction towards the ledge, which is 7.5m above the northern part of the plateau and 38.20m above the floor of Wādī aṣ-Ṣiyyagh. The steps of the stairway are very weathered. Six steps are recognizable in the lower part (FIG. 6), but the upper ones are completely gone and those in the bend to the block below are badly preserved. It is therefore difficult to decide whether this bend is secondary.



5. To the left tomb and projecting rock on the plateau. High above the ledge of the veneration place of Isis (photo by H. Merklein).



6. Upper steps from the projecting rock to the ledge (photo by H. Merklein).

2 Almost no sherds are found on the higher ledge with the veneration place of Isis itself. There is no reason to assume that the pottery is washed down from the ledge. There are very few sherds directly below the ledge at the plateau and further down at the bottom of the gorge.

3 We like to thank her for her excellent job and kind cooperation.

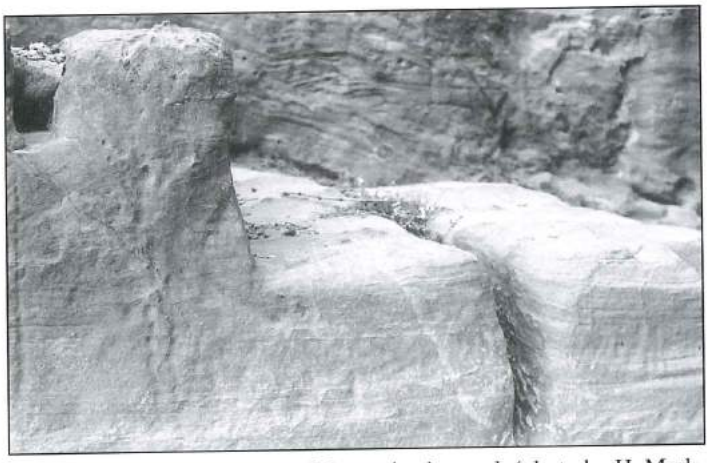
4 To clarify the situation cf. Milik-Starcky 1975: pl. 43,1 and the drawings Merklein and Wenning 1998b: fig. 1.

Concerning the dead end of the stairway of the block, the big size of the steps, the deep and broad grooves in the surface of the steps (FIG. 7, cf. Merklein and Wenning 1998b: pl. 6B) and the situation of the upper old stairway, it becomes clear that the original stairway has undergone changes. We assume that the lower part of the original stairway, which probably lead straight down, was cut away when the tomb was hewn out.[5] A new stairway was cut in the opposite direction in the protruding rock. The block then was higher than today and would have reached up to the bend of the stairway.[6] During quarrying activities in the area, stone-cutters started to cut the protruding block and in fact cut off the steps, but were stopped when somebody realized that they were going to destroy the access to the veneration place of Isis. The partly grooved stones-in preparation for cutting-then built a new stairway.[7] Some larger boulders at top of the platform may have facilitated the climb to the upper part of the stairway, today made easier by a Bedouin ladder..

We can therefore distinguish three phases: 1. the establishment of the veneration place of Isis; 2. the rock-cut tomb; and 3. quarrying activities. While the first phase is dated by the Isis inscription to 26/25 BC, the other phases should not be dated later than the first century AD according to the pottery from the levelled terrace.

The Veneration Place of Isis

The ledge itself extends along the length of the rock face with a total length of some 65m (FIG. 8). To the south it ends into a short corridor, while at the north it narrows where the rock protrudes but plunges steeply down into Sadd al-Murayriyya (cf. Merklein and Wenning 1998b: fig. 1, pl. 5b). The rock face slates are crumbly and some pieces have fallen down upon the ledge near the water basin. The width of the ledge varies between less than 3m and 4.87m in front of the Isis niche, where it reaches its maximum width. We have no reason to assume that the ledge was broader than that during the Roman period and that parts of it were broken off after the veneration place was established.



7. Deep grooves in the steps of the projecting rock (photo by H. Merklein).



8. The small ledge seen from the south. Note the deep gorge to the right (photo by H. Merklein).

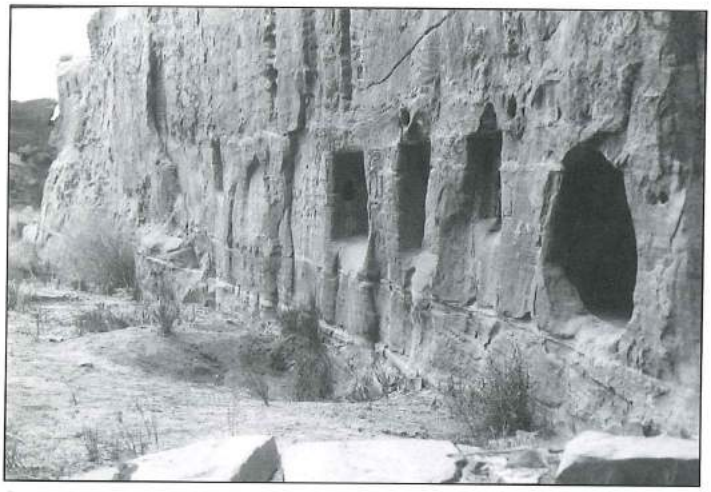
About 16m to the north of the point where the stairway reaches the ledge, a row of four votive niches and a water basin are hewn into the rock face (FIG. 9). The first niche is empty. The second niche is accompanied by a Nabataean inscription at both sides and contains the sculpture of Isis. The third niche again contains a figure, and the fourth niche has got the combination of a rectangular betyl in a negative image set into an arched niche in the greater rectangular niche. A detailed report on the inscription, the figures and the niches is published in *ZDPV* 114 (1998). Only summary results should be mentioned here as well.

Concerning the Isis inscription, dated to 26/25 BC, we

5 Zayadine 1997: 122 also claims the tomb to be later than the veneration place of Isis.

6 Alternatively this was the original stairway, if the bend is not secondary.

7 It cannot be excluded that the cutting of this block was of a much later date than other quarrying activities at the terrace.



9. The niches and the niche basin of the veneration place of Isis (photo by H. Merklein).

realized a slightly different reading in comparison with the readings by Milik and Starcky and by Donner. The left part reads "*This goddess (here) is Isis, which have done the sons of...*" followed by three names. Of these only Qaiuma is clear, while the reading of the two other names as Barhobal and Tayma seems unfounded, but we cannot provide new names due to the bad preservation of the two lines. The right part of the inscription is better preserved; there is no sixth line.

The Isis is shown seated on rocks (FIG. 10). The type of the figure is not the "Isis dolente" as assumed by scholars so far. In contrast to that type the right forearm of this Isis is wrapped in the mantle and is placed across the breast, a feature of the "Palliata type" .The figure follows none of the common Isis types, but Hellenistic types of draped women in general. The figure even misses the Isis knot and without the inscription nobody would have identified her as Isis. To strip off Egyptian features which do not correspond to a Nabataean understanding may be the reason behind showing her simply as a majestic enthroned goddess.



10. Isis (shown in a Palliata type) seated on rocks (photo by H. Merklein).

Additional Reverence

Eight meters north of the water basin, which defines the complex of niches as sacrosanct, there is a group of two Nabataean graffiti (*slm ty[mw]; kwdnw*) and five petroglyphs incised into the rock face (cf. Milik and Starcky 1975: pl. 45). These are typical for Nabataean stonecutters elsewhere at Petra, but are normally found directly at the cut rock faces, which receive a smooth surface after quarrying. Beside the known petroglyphs we discovered two incised betyls, 4m up the rock face (FIG. 11). The graffiti and the petroglyphs give reason to speculate that the stone-cutters came up to the holy place to thank their god for being allowed to cut the stone—the stone, which is the god. We understand these signs as a kind of atonement to the gods for the cutting of the rock. Traces of



11. The two new discovered petroglyphs (incised betyls) high at the rock face (photo by H. Merklein).

quarrying are found at the plateau, the steps of the block and down at the floor of Sadd al-Murayriyya. The quarrying was of rather limited character at this place in comparison with the large quarries further on in Wādī aṣ-Ṣiyyagh. There are no indications for a closer connection of the stone-cutters with the cult of Isis.

What do we learn about the cult of Isis at Petra? Not

Greek or Egyptian foreigners at the royal court but it was Nabataeans who venerated Isis here, and liked to represent her in an anthropomorphic type which became common during that time. Considering the inscription, the position of the veneration place outside the center and somewhat hidden in the rocks behind a domestic area, we have to assume that we are dealing with a holy place of a private *Kultgenossenschaft* (*mrzḥ*). Therefore, this veneration place as well as a second sanctuary of Isis at Wādī Waqīt do not contribute to the assumption of an official cult of Isis at Petra. Such a cult must not be excluded following other evidence and may have influenced or initiated the founding of this veneration place. Following the kind of the representation of Isis, she seems to have been accepted by the Nabataeans as a mighty one. That is just what is in the name of al-'Uzza and in the character of both goddesses, though we do not want to see an assimilation of the two goddesses. However, the Nabataean understanding of their native goddesses is the background to interpret their veneration of Isis as well.

Report on the Pottery (Yvonne Gerber)

The dating of the pottery (FIG. 12 and tables at the end of this article) ranges from the middle of the first century BC till the end of the first century AD. Most of it is dated to the last quarter of the first century BC and the beginning of the first century AD. We have to be aware that the pottery originates only from the surface; considering this, it is astonishing that no single sherd is dated later than the beginning of the second century AD. There is no pottery from the late second, third or fourth centuries AD, or even later.

The plateau below the worship place of Isis is about 28.5m above the floor of Wādī aṣ-Ṣiyyagh and the access 'road' to there was not very easy. In this case no 'pedestrian' was accidentally passing by and throwing away a jar because it was next to a regularly used road. Therefore the fact that there is no pottery later than around AD 100 can be taken as an indication that this plateau with the various nearby installations was abandoned at the beginning of the second century AD at the latest.

All sherds were counted. Because the sherds are not from a precisely defined context no statistical conclusions can be drawn. The Nabataean fineware is presented and dated according to S. Schmid.[8] The Nabataean and/or Roman commonware is drawn and described, and a small comparative study to Petra, az-Zanṭūr, is attached.

The repertoire of the fine- and commonware (bowls, cooking pots, jars, storage jars, jugs, bottles) from the plateau below the worship place of Isis is quite the same as we find within house structures or tombs[9] of the same period. The pottery discussed may have originated from any of the nearby installations or may relate to the gathering place for the worship of the goddess Isis. On the basis of the pottery alone, nothing can be said of the function of that plateau.

Bibliography

Dalman, G. 1908. *Petra und seine Felsheiligtümer*. Leipzig: J. C. Hinrichs.

____1912. *Neue Petra-Forschungen*. Leipzig: J. C. Hinrichs.

Donner, H. 1995. *Isis in Petra*. Leipzig: Ägyptologisches Institut.

Fellmann Brogli, R. 1996. Die Keramik aus den spätrömischen Bauten. Pp. 219-281 in A. Bignasca *et al., Petra. Ez-Zantur I. Ergebnisse der Schweizerisch-Liechtensteinischen Ausgrabungen 1988-1992*. Terra Archaeologica II. Mainz: Philipp von Zabern.

Gerber, Y. 1994. Nabataean Coarse Ware Pottery. *ADAJ* 38: 286-292.

____1997. The Nabataean Coarse Ware Pottery. A Sequence from the End of the Second Century BC to the Beginning of the Second Century AD. Pp. 407-411 in *SHAJ* VI. Amman: Department of Antiquities.

Horsfield, G. and A. 1938. Sela-Petra, the Rock, of Edom and Nabatene. *QDAP* 7: 1-42.

Merklein, H. and Wenning, R. 1996. The Gods of the Nabataeans. A New Research. *Occident & Orient* 1,2: 8.

____1997. Die Götter in der Welt der Nabatäer. Pp. 105-110 in Weber and Wenning 1997.

____1998a. Ein neuentdeckter Augenbetyl in der *ḥrémīye*-Schlucht nebst einer Übersicht über die bekannten nabatäischen Augenbetyle. Pp. 71-91 in U. Hübner, E. A. Knauf and R. Wenning (eds.), *Nach Petra und ins Königreich der Nabatäer. Festschrift Manfred Lindner. Bonner Biblische Beiträge* 118. Bodenheim: Philo.

____1998b. Ein Verehrungsplatz der Isis in Petra neu untersucht. *ZDPV* 114: 162-178.

Milik, J. T. and Starcky, J. 1975. Inscriptions récemment découvert à Pétra. ADAJ 20: 111-130.

Nehmé, L. 1994. *L'espace urbain de Pétra de l'époque nabatéenne à l'époque byzantine à travers les sources archéologiques et épigraphiques*. Diss. Paris (unpublished).

____1997. Höhlen statt Zelte und Villen. Pp. 66-70 in Weber and Wenning 1997.

8 **Overall phase 1:** end of the 2nd century BC-50 BC. **Overall phase 2:** 50 BC-ca. AD 20; Phase 2a: third quarter of the 1st century BC; Phase 2b: last quarter of the 1st century BC; Phase 2c: first quarter of the 1st century AD. **Overall phase 3:** ca. AD 20-1st half of the 2nd century AD; Phase 3a: ca. AD 20-70/80; Phase 3b: AD 70/80-100 AD; Phase 3c: 1st half of the 2nd century AD.

9 Under the direction of Pierre and Patricia Bikai (ACOR) a shaft tomb beneath the Ridge Church, Petra, was excavated: P. Bikai, Petra: North Ridge Project, *ACOR Newsletter* 10.1 (1998): 5. The pottery is dated to the same period as the pottery under discussion. The repertoire is almost the same. Patricia Bikai will publish the pottery from the shaft tomb.

Schmid, S. G. 1996. Die Feinkeramik. Pp. 151-218 in A. Bignasca *et al., Petra. Ez Zantur I. Ergebnisse der Schweizerisch-Liechtensteinischen Ausgrabungen 1988-1992.* Terra Archaeologica II. Mainz: Philipp von Zabern.

Weber, T. and Wenning, R. 1997 (eds.), *Petra. Antike Felsstadt zwischen arabischer Tradition und griechischer Norm.* Zaberns Bildbände zur Archäologie. Mainz: Philipp von Zabern.

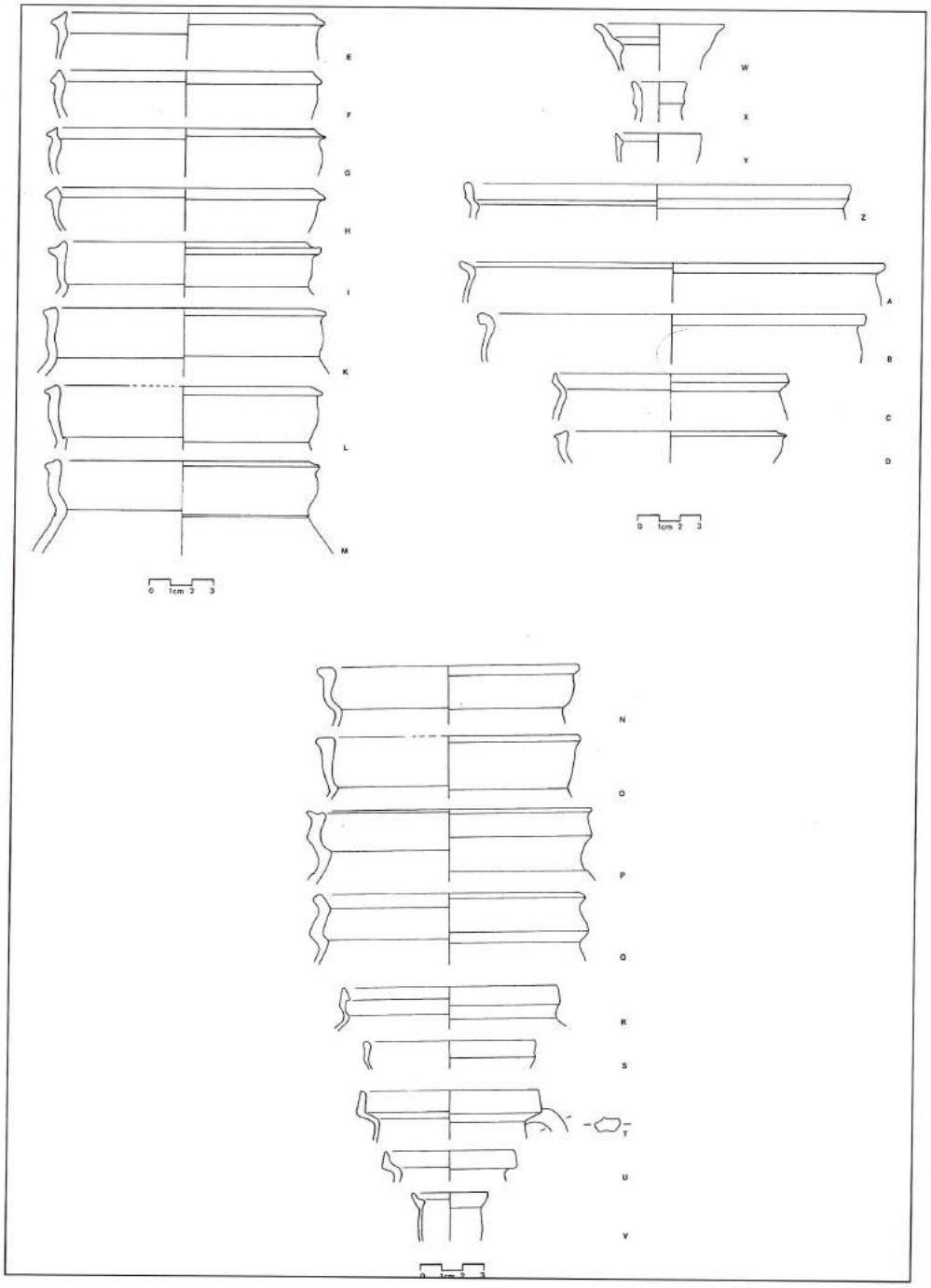
Wenning, R. 1997. Bemerkungen zur Gesellschaft und Religion der Nabatäer. Pp. 177-201 in R. Albertz (ed.), *Religion und Gesellschaft. Studien zu ihrer Wechselbeziehung in den Kulturen des Antiken Vorderen Orients. AOAT* 248. Münster: Ugarit.

____1998. Petra and Hegra: Some Differences. In S. Abouzayd (ed.), *Cultural Interchange in the Arabian Peninsula. Aram.*

____1999. Petra in Jordanien, Zentrum der Nabatäer eine Stadt als "religiöse Landschaft"? In D. Metzler (ed.), *Religiöse Landschaften. AOAT.* Münster: Ugarit.

Zayadine, F. 1987. Decorative Stucco at Petra and Other Hellenistic Sites. Pp. 131-142 in *SHAJ* III. Amman: Department of Antiquities.

____1997. Die Götter der Nabatäer. Pp. 113-123 in M. Lindner (ed.), *Petra und das Königreich der Nabatäer.* Sixth edition. München and Bad Windsheim: Delp.



12. Nabataean pottery from the plateau (Drawn by Y. Gerber):
A-D Unpainted Nabataean fineware, open forms.
E-Z Nabataean commonware.

The Nabataean Fineware

Unpainted Nabataean fineware, open forms:

numb.	*kind of sherd*	*additional information*	*phase*
2	bottom sherds	bottom with base ring	[prob. phase 2]
36	bottom sherds	bottom with base ring	[prob. phase 3]
1	bottom sherd	rounded bottom	
1	rim sherd	Gruppe 5	phases 2-3
23	rim sherds	Gruppe 6	phase 2
2	rim sherds	Gruppe 6	phase 2 [– early 3]
2	rim sherds	Gruppe 7	phase 3
1	rim sherd	Gruppe 7[10]	phase 3
1	body sherd	Gruppe 9[11]	phase 3
7	body sherds		

Unpainted Nabataean fineware, open forms (drawn):

fig.	*form*	*Munsell*[12]	*diam.*	*parallels*	*date*
A	bowl	5YR 6/3, light reddish brown	20 cm	similar to Petra, az-Zantur, form F 2a 166 (yet unpublished)[13]	
B	bowl	2.5YR 6/6, l. red rim inside: 7.5YR 4/2, brown; slip outside: 5YR 7.5/3, pink	18 cm	similar to Petra, az-Zantur, form E 11b 212 (yet unpublished)	
C	bowl	2.5YR 6/6, l. red slip: 5YR 8/3, pink	11 cm		
D	bowl	2.5YR 6/8, l. red rim+slip: 2.5YR 5/2, weak red; inside: 2.5YR 4/4, reddish brown	10 cm	similar to Petra, az-Zantur, form F 7d 263 (yet unpublished)	

Unpainted Nabataean fineware, closed forms:

numb.	*kind of sherd*	*additional information*	*phase*
3	bottom sherds	bottom with base ring	[prob. phase 3]
1	rim sherd	Form F 4a 250	phase 3
1	body sherd		

10 Schmid 1996: 187 fig. 654.
11 Compare to Schmid 1996: 189 figs. 664-667.
12 Munsell Soil Color Charts (Baltimore 1954).
13 According to the typology of the closed forms of the Nabataean fineware by S. Schmid, yet unpublished.

Painted Nabataean fineware, open forms:

numb.	*kind of sherd*	*additional information*	*phase*
1	body sherd		phase 2a
6	rim sherds		phase 2b
14	body sherds		phase 2b
1	rim sherd		phase 2c
3	body sherds		phase 2c
3	rim sherds		phase 3a
7	body sherds		phase 3a
1	rim sherd		phase 3b
3	body sherds		phase 3b

Fineware, open and closed forms:

numb.	*kind of sherd*	*additional information*	*date*
1	rim sherd	Form G 14e 44	
4	rim sherds	closed form, type unknown	
1	body sherd	open form, fine red surface	
4	body sherds	closed form, fine surface	
2	body sherds	closed form, ESA	

The Nabataean Commonware

Commonware, no diagnostics, closed forms:

numb.	*kind of sherd*	*additional information*	*date*
6	bottom sherds	bottom with base ring	[prob. 1st cent. AD]
1	bottom sherd	small diameter, flat	[prob. 1st cent. AD]
9	body sherds		1st/2nd century AD
3	handles	storage jar	
6	handles	cooking pot	
1	handle	jug	1st century AD

Commonware, diagnostics, rim sherds, closed forms (drawn):

fig.	*Form*	*Munsell*	*diam.*	*parallels*	*date*
E	jar	2.5YR 6/6, l. red slip: 5YR 7/4, pink	12 cm	similar to Petra, az-Zantur, type A.1b, similar to Fellmann Brogli 1996, 245 fig. 741[14]	2nd half 1st cent./ early 2nd cent. AD
F	jar	2.5YR 6/6, l. red slip: 10R 5/6, red	12 cm	similar to Petra, az-Zantur, type A.1fa (yet unpublished)	middle and 2nd half 1st cent. AD
G	jar	10R 6/6, l. red slip: 5YR 5/1, gray	12 cm	similar to Petra, az-Zantur, type A.1ff (yet unpublished)	middle and 2nd half 1st cent. AD
H	jar	2.5YR 6/4, light redd. brown slip: 5YR 7/4, pink	12 cm	similar to Petra, az-Zantur, type A.1i (yet unpublished)	end 1st cent. BC till middle 1st cent. AD
I	jar	2.5YR 6/8, l. red slip: 5YR 5/2, reddish gray	11 cm		
K	jar	10R 6/6, l. red 5YR 5/3, reddish brown	12 cm	Petra, az-Zantur, type A.8f Gerber 1994, 288 fig. 15,F	2nd half 1st cent. BC
L	jar	10R 6/6, l. red slip: 5YR 4.5/2, reddish gray	12 cm	similar to Petra, az-Zantur, type A.8f	2nd half 1st cent. BC/early 1st cent. AD
M	storage jar	2.5YR 6/6, l. red slip: 5YR 6/4, light reddish brown	12 cm	Petra, az-Zantur, type A.8h Gerber 1994, 288 fig. 15,T	2nd half 1st cent. BC/early 1st cent. AD
N	storage jar	2.5YR 6/4, light reddish brown 2.5YR 5/4, redd. brown	12 cm	similar to Petra, az-Zantur, type A.9da (yet unpublished)	2nd half 1st cent. BC
O	storage jar	2.5YR 6/6, l. red slip: 7.5YR 6/2, pinkish gray	12 cm	similar to Petra, az-Zantur, type A.10g, similar to Gerber 1994, 288 fig. 15,P	1st cent. BC
P	storage jar	2.5YR 6/6, l. red slip: 7.5YR 5/2, brown	13 cm	similar to Petra, az-Zantur, type A.31	1st half 1st cent. AD?
Q	storage jar	10R 6/6, l. red	12 cm	similar to Petra, az-Zantur, type A.31b (yet unpublished)	1st half 1st cent. AD?
R	(cooking) pot	2.5YR 6/6, l. red slip: 5YR 6/3, light reddish brown	10 cm	similar to Petra, az-Zantur, type A.27, similar to Gerber 1997, 409 fig. 4,G.I.L	middle and 2nd half 1st cent. AD
S	jug? bottle?	2.5YR 6/8, l. red slip: 5YR 5/2, reddish gray	8 cm		
T	jug	2.5YR 6/6, l. red slip: 7.5YR 8/4, pink	8 cm	Petra, az-Zantur, type B.7b Gerber 1994, 290 fig. 16,Q	2nd half 1st cent. BC[15]
U	jug	2.5YR 6/6, l. red	6 cm	similar to Petra, az-Zantur, type B.7b or B.7i (yet unpublished)	1st cent. AD?
V	jug? bottle?	10R 6/8, light red slip: 10R 5/6, red	3.6 cm	Petra, az-Zantur, type B.7l Gerber 1994, 290 fig. 16,P	2nd half 1st cent. AD
W	jug? bottle?	10R 6/8, light red inside and slip: 10R 5/8, red	6 cm	similar to Petra, az-Zantur, type B.7q (yet unpublished)	2nd half 1st cent. AD

[14] This type is known for the first time in the middle of the 1st century AD and continues till the 4th/early 5th century AD. According to the fabric of fig. (E) the rim sherd has to be dated into the second half of the 1st/early 2nd century AD.

[15] The type B.7b is in Gerber 1994: 290 fig. 16,Q, dated to the 1st century AD. A correction is called for: it appears in the second half of the 1st century BC already. Its running time is not clear yet.

Commonware, diagnostics, rim sherd, open form (drawn):

Fig.	*form*	*Munsell*	*diam.*	*Parallels*	*date*
X	bottle	10R 6/8, light red inside and slip: 10R 5/8, red	2 cm		
Y	jug? bottle?	2.5YR 6/6, l. red	4 cm	similar to Petra, az-Zantur, type 9h; and to Nabataean fineware form G 8a 119 (yet unpublished)	2nd half 1st cent. AD
Z	bowl	2.5YR 6/6, l. red slip: 5YR 7/3, pink	18 cm	similar to Petra, az-Zantur, type C.15a, similar to Gerber 1994, 288 fig. 15,V	2nd half 1st cent. BC

Zbigniew T. Fiema
Dumbarton Oaks
1703 30th Street N.W.
Washington DC, 20007
USA

Zbigniew T. Fiema

Remarks on the Urbanistic Development of Petra's Center in the Nabataean and Roman Periods

Petra, the capital of the Nabataeans, and of the Roman *Arabia* and Byzantine *Palaestina Tertia*, one of the most important trade centers of the Near East has always attracted a considerable attention among scholars. For example, studies on the architecture and art of Petra are much advanced. However, the overall assessment of the urban development of Petra and its civic status is still in its infancy. The relevant historical information is, unfortunately, meager. The major reference to Petra is a brief note by Strabo who, writing at the end of the first century BC, mentioned that Petra, the metropolis of the Nabataeans was exceedingly well-governed, and frequented by the Romans and foreigners (XVI.4.21,26).

The Nabataean kingdom was annexed by Rome in AD 106, but the status of Petra as the most prominent urban center in Roman *Arabia*, if not its *de facto* capital is strongly suggested here. Honors and signs of imperial grace were frequently bestowed upon that city, antedating those given to Bostra. Petra was recognized by the honorific of "metropolis of Arabia" as early as AD 114. The city became *Hadriana* Petra in AD 131. Petra was an important administrative center where governors' assizes were held, as seen in the Nahal Hever documents. The *boule* of Petra is known as early as AD 124. The status of a Roman *colonia* had been granted to Petra by Elagabalus.[1] As such, the full titulature of Petra came into being as: *Augustocolonia, Antoniana, Metrocolonia, Hadriana, Petra Metropolis.*[2] Numerous Greek and Latin inscriptions of the second and third centuries AD, were found in the civic center, mentioning governors, military commanders and various officials.[3]

It is instructive to review if these historically documented developments correspond to the growth of the city as seen in archaeological record. Early assessments of the urban history of Petra tended to assign the main urban expansion to the Roman period. Current research favors an opinion that the principal monuments of Petra, such as the Colonnaded Street, Qaṣr al-Bint Temple and its Temenos Gate, the Temple of the Winged Lions, the Baths, and the Theatre had been built sometime in the later first century BC or the first century AD.[4] That is seemingly supported by the fact that the Roman period building inscriptions are lacking in Petra, which prompted a recent opinion that Petra in the Roman period was "..a smallish provincial town...with little development.."[5] In reality, it appears that these two opposing interpretive views on the urban history of Nabataean-Roman Petra should be more balanced. Certainly, a substantial urban development had already occured in Petra before the Roman period. But the lack of the post-AD106 monumental building inscriptions is also due to the still inadequate archaeological exploration of Petra. Also, the dating of some of major monuments is neither certain in absolute chronology, nor fully supported in terms of comparative architecture.[6] Thus, some improvements and additions to the city plan should be associated with the Roman period. For example, results of the recent work at the Southern Temple indicate a major rebuilding at the temple site during the post-106 period.[7] Important contribution has recently been made by the Roman Street Project organized by the American Center of Oriental Research, funded by the USAID and supported by the Department of Antiquities of Jordan.[8] The project was developed to enhance the touristic attraction of Petra and to address its urban history, by exposing a part of the civic center.[9] Five rooms located at the eastern end of the southern side of the Colonnaded Street were excavat-

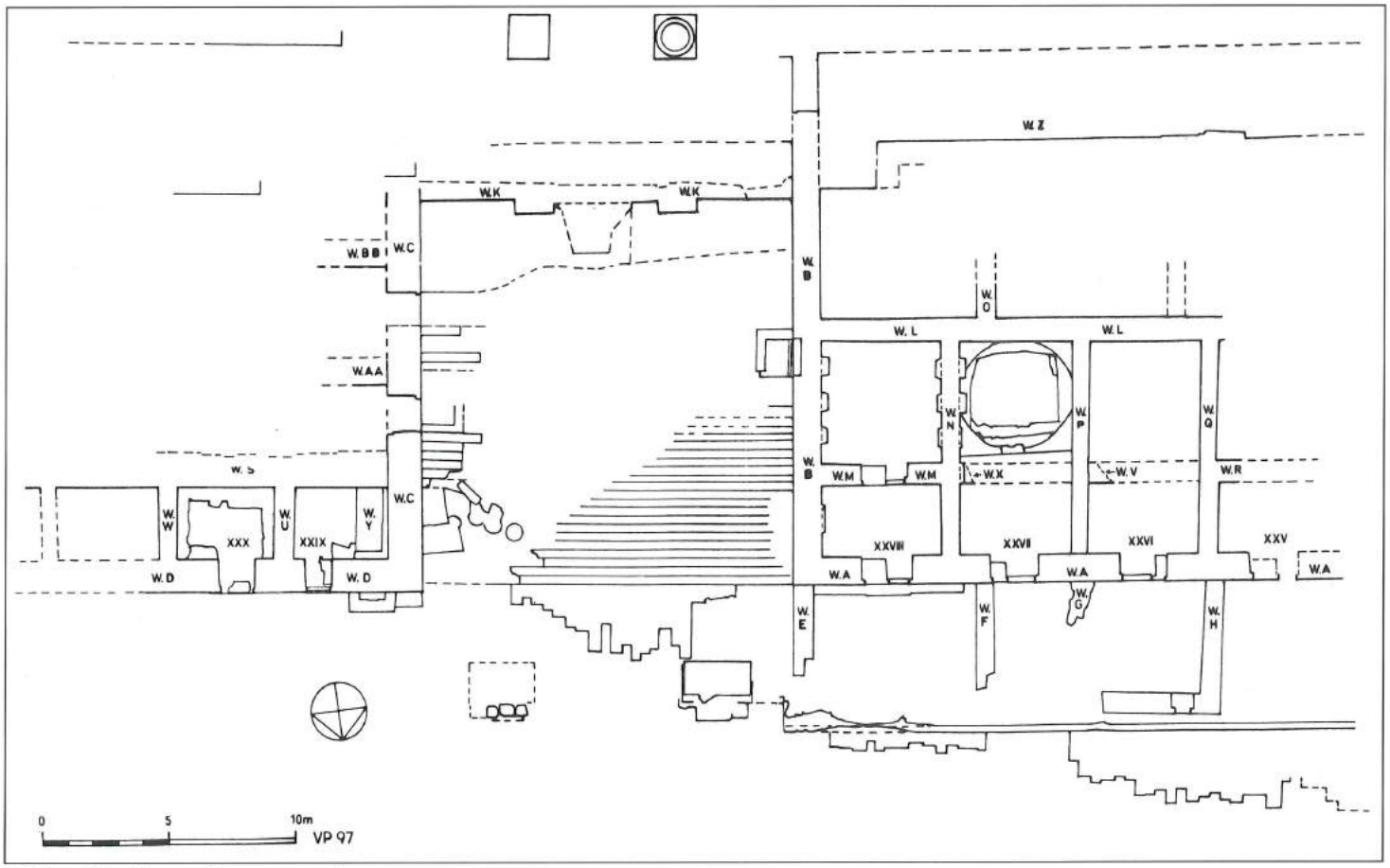
[1] For the summary of historical information on Petra, see Fiema 1991: 85-86; 1997: 145-148.
[2] Koenen 1996: 187; as derived from the Petra Papyri.
[3] Starcky and Bennett 1968.
[4] E.g., McKenzie 1991.
[5] Millar 1993: 421.
[6] See a cautionary note by Parr 1996: 65, 67.
[7] Joukowsky 1997: 213-214.
[8] The author who directed that project in the field, wishes to express his thanks to Dr. Pierre Bikai, ACOR Director, for his support and assistance during this project.
[9] A preliminary report on this project is presented by Fiema (forthcoming). A full monograph is in preparation.

ed (FIG.1). Judging from their location, all rooms were commercial establishments, such as shops or taverns.

The main feature at the site is the stairway leading up to the Upper Market - a large artificial plateau held in place by series of retaining walls. The main substructure of the stairway consists of several large "steps," each at least 1 m wide, superimposed in turn by the series of small stone steps which are the bedding for the flagstone steps. East of the stairway is the area characterized by the series of parallel E-W walls which form two long and narrow spaces or galleries on the increasingly higher ground, which do not seem to feature any partitioning walls. The two gradually superimposed spaces were probably porticoes opened to the north. The impression of the entire area is that of a huge façade-in depth, as in an elaborate, theatrical backstage building, which provided an aesthetically acceptable frame for the monumental stairway.

Three rooms (XXVIII-XXVI) to the west of the stairway are roughly of the same size and appearance. Only Room XXVIII features some unique details. Two niches flank its door in the façade wall. This room, in oppostion to the other, consists of two spaces separated by a wall. The upper floor was supported by the three arches in the back room and one in the front space. Currently, Rooms XXVII and XXVI are large, rectangular entities, each spanned by five arches, but the soundings revealed the existence of early walls in location similar to the partitioning wall extant in Shop XXVIII. A puzzling masonry-built structure occupies the southern half of Shop XXVII. It is an almost square tank or basin with curved internal sides and rounded corners further enhanced by the corner triangles built atop the frame. Ashlars deposited inside in tight but unpatterned layers were sealed by a roughly flat stone surface. The installation is probably composite in both the components and the date. Its function, whether a pottery kiln, wine/oil press, and other installation, remains elusive. Shops XXIX-XXX are located east of the stairway. The main feature there are the benches set against the walls. In total, 138 coins were found in Room XXIX and 48 in Room XXX, mostly on the benches and some on the floor.

While the impact of earthquakes, well evidenced in the archaeology of Petra is also a factor at this site, the occurrence of flooding, due to its proximity to Wādī Mūsā-Wādī al-Maṭāḥa confluence in the area of the Nymphaeum, is equally significant. The floodings must have been responsible for the disappearance of the pavement in front of some shops, and for the damage inflicted upon the space in front of the stairway. Heavy alluvial deposits were encountered in most of the soundings. The Wādī



1. Plan of the Roman Street excavation.

Mūsā natural drain depression which runs E-W, was originally much wider, and the continuous flooding of the area eroded the lower parts of the sandstone formations while depositing the riverine material against the southern side of the wadi. As such, the width of Wādī Mūsā depression would gradually decrease throughout the ages, while the width of its southern bank would increase.

The urban beginnings at the site are shrouded in obscurity. Pottery recovered through the soundings is nowhere earlier than the beginning of the first century BC. Certain architectural remains are suspected to have belonged to an earliest and poorly known phase of the development, which should have taken place at the southern part of the site. The first recognizable phase at the site appears to have featured the three almost square rooms which would correspond to the backspace of Room XXVIII and the southern parts of Rooms XXVII-XXVI. The extant Walls B, L, Q and M and the subsequently demolished Walls X and V would have been the external limits of these rooms. What was in the front of so-defined rooms is unknown, but an early portico is an attractive hypothesis. Cobble-paved or beaten-earth tracks, being the predecessors of the extant paved street, would have stretched farther north. According to the relevant ceramic deposits, this phase should date to the Nabataean period, sometime in the first half of the first century AD.

The following phase witnessed a grand expansion at the site. The stairway was constructed, and the monumental arch built in front of it, which held a Trajanic inscription dated to AD 114.[10] Presumably, the requirements of the size and the gradient of the planned stairway deemed it necessary to add northern extensions to the original spaces of Shops XXVIII-XXVI. Newly constructed Wall A served as a façade wall. While the original façade walls were retained in Shops XXVIII and XXV, these were completely demolished in Shops XXVII-XXVI. The evidence for this postulated expansion includes the different appearance of the northern parts of Walls B, N, P, and Q, the variations in the arrangement and dimensions of arches in the northern vs. the southern parts of the rooms, and the details which emerged from the soundings. Also Rooms XXX-XXIX, if existed before, were now substantially remodelled. It then appears that the stairway is contemporary with the stylobate and the colonnade, the remodelled shops, and with the extant pavement of the Colonnaded Street. In fact, this new design would make perfect sense in connection with the arch in the front of the stairway. The ceramics crucial for dating these elements, uniformly indicate the later first century AD - beginning of the second century AD for this development. The coin of Rabbel II found in the bedding for the street's flagstone pavement, which sealed the stylobate's foundation trench, also conforms to this chronological reconstruction. Admittedly, this development could be dated to the last decades of the Nabataean kingdom, or could have begun then. However, it seems more reasonable to date the entire design to the Trajanic, or generally the post-annexation period. A destruction noted in some parts of Petra might have partially influenced this development. The Nabataean quarter at az-Zanṭūr ridge was destroyed by fire in the early second century AD.[11] At about the same time, the Temple of Winged Lions is reported to have suffered damage.[12] Whether these destructions were due to natural or human factors is uncertain,[13] but their occurence could have provided an occasion to restore and expand the city. The major, if not the capital city of the newly organized provice would have experienced a building construction prosperity and displayed a tendency for further embellishment.[14] Conspicuous grandeur and opulence of architectural designs is also noted for the second century contexts in other cities in the Near East.

During the following centuries of the Roman period, repairs and remodellings could have taken place in the excavated complex. The enigmatic installation in Room XXVII could have been constructed then, although it was probably modified later. The common ceramic types found at the site included storage jars, amphorae, and unused cooking pots - a repertoire characteristic for Rooms XXVIII-XXVI, supporting their commercial function. The abundance of coins found in Rooms XXIX-XXX is probably related to the specific mercantile operations conducted there. The overwhelming majority of the coins found there is dated to the fourth century AD, with some fifth century types. The dating brackets of numerous coins end just before AD 363, which may or may not be accidental. However, until the ceramic material is fully understood in terms of stratigraphic sequence and relationships, the impact of the 363 earthquake on this area cannot be fully ascertained or defined. Historical sources clearly indicate that the city was affected, and the corresponding archaeological data from other sites in Petra fully corroborate this fact.[15] The damage in the shops area could have included shifted walls, collapsed arches and columns, and damaged pavement. Yet, at least some of the damage must have been repaired afterward, as the fi-

10 For the description and commentary, see Bowersock 1983: 84-85, note 28.

11 Stucky 1996: 14, 21.

12 Hammond 1986: 29.

13 For a detailed presentation of data and their interpretation, see Schmid 1997.

14 Fiema 1997: 147.

15 For the full presentation of historical and archaeological data, see Russell 1980. The destruction of Late Roman dwelling complex at az-Zanṭūr is discussed by Kolb 1996: 51, 89. The post-earthquake perspective is presented by Parr 1986.

nal collapse of the arches inside the shops had occurred later.

The post AD 363 period apparently witnessed partial blockings of the doors in the complex, and the construction of the secondary walls on the sidewalk, forming what was termed as the Byzantine shops.[16] Two crosses incised on the front wall, and one on the partitioning wall in Room XXVIII were perhaps meant to "christianize" the previous non-Christian character of the edifice, or might have marked the church ownership of that room. However, Late Byzantine coins are not present at the site, with a single exception of an issue of Justinian I. The gradual abandonment of the shops probably progressed in a linear pattern from the east to the west. The earliest abandonment is attested for Rooms XXIX-XXX, sometime in the fifth century. The latest ceramics, dated to the sixth/seventh century AD, were found on the floor of Room XXVI - the westernmost excavated shop. The last to be utilized were most certainly the front spaces of the rooms, and the occupation could have continued there despite a depressing appearance of the half ruined or half-abandoned spaces.

Significantly, the results of the Roman Street Project largely correspond to those achieved through the British-Jordanian excavations at the street area, conducted in the 1960s.[17] It is hoped that all these will allow for more substantive statements concerning the urban development of the Petra's center.

Bibliography

Bowersock, G. 1983. *Roman Arabia*. Harvard University Press

Fiema, Z.T. 1991. *Economics, Administration and Demography of Late Roman and Byzantine Southern Transjordan.* Ph.D. Dissertation, University of Utah.

___ 1997. Petra Romana, Byzantina et Islamica. Pp. 145-157, 159-160 in T. Weber and R. Wenning (eds), *Petra. Antike Felsstadt Zwischen Arabischer Tradition und Griechischer Norm.* Mainz: von Zabern.

___ 1998. The Roman Street of Petra Project, 1997: A Preliminary Report. *ADAJ* 42: 395-424.

Hammond, P.C. 1986. Die Ausgrabung des Löwen-Greifen-Tempels in Petra (1973-1983). Pp. 16-30 in M. Lindner (ed.), *Petra. Neue Ausgrabungen und Entdeckungen.* München: Delp.

Joukowsky, M. S. 1997. The 1996 Brown University Archaeological Excavation at the "Great" Southern Temple at Petra. *ADAJ* 41: 195-218.

Kirkbride, D. 1960. A Short Account of the Excavations at Petra in 1955-1956. *ADAJ* 4-5: 117-123.

Koenen, L. 1996. The Carbonized Archive from Petra. *Journal of Roman Archaeology* 9: 177-188.

Kolb, B. 1996. Die Spätrömische Bauten. Pp. 51-90 in *Petra. Ez Zantur I.* Mainz: von Zabern.

Lankester Harding, G. 1958. Recent Discoveries in Jordan. *PEQ:* 7-19

McKenzie, J. 1991. *The Architecture of Petra.* Oxford University Press.

Millar, F. 1993. *The Roman Near East, 31 B.C.-A.D. 337.* London - Cambridge, Mass.

Parr, P. 1960. Excavations at Petra, 1958-59. *PEQ* 92: 124-136

___ 1970. A Sequence of Pottery from Petra. Pp. 348-381 in James A. Sanders (ed.), *Near Eastern Archaeology in the Twentieth Century.* Garden City.

___ 1986. The Last Days of Petra. Pp. 192-205 in M. A. Bakhit and M. Asfour (eds.), *Proceedings of the Symposium on Bilad al-Sham during the Byzantine Period* (November 1983), vol. II. Amman.

___ 1996. The Architecture of Petra: Review Article. *PEQ* 128: 64-70.

Russell, K. W. 1980. The Earthquake of May 19, A.D. 363. *BASOR* 238: 47-64.

Schmid, S. G. 1997. Nabataean Fine Ware Pottery and the Destructions of Petra in the Late First and Early Second Century A.D. Pp. 413-420 in *SHAJ*VI. Amman.

Starcky J. and Bennett, C. 1968. Les inscriptions du téménos (Petra). *Syria* 45: 41-65.

Stucky, R. 1996. Die Nabatäische Bauten. Pp. 13-50 in *Petra. Ez Zantur I.* Mainz: von Zabern.

[16] These were excavated during the clearance of the street area, conducted by the British-Jordanian mission in the later 1950s (Kirkbride 1960: 117-119, Plate VII.1; Parr 1970: 351)

[17] Lankester Harding 1958: 13; Parr 1960, 1970.

Bernhard Kolb
Archäologisches Seminar
Universität Basel
Schönbeinstrasse 20
4056 Basel
Switzerland

Bernhard Kolb

A Nabataean Mansion at Petra: Some Reflections on its Architecture and Interior Decoration

Under the patronage of the Swiss-Liechtenstein Foundation for Archaeological Research Abroad (SLFA) Basel University has been investigating the terrace just south of the rocky crest of az-Zanṭūr (EZ IV) since 1996. During the three seasons of excavation, parts of a large private Nabataean dwelling dating from the first century AD, richly decorated with wall paintings and decorative stucco have been exposed (FIGS. 1-2).[1] The aim of the following remarks is to present firstly some of the results of the examined architecture and its interior decoration of stucco and wall-painting, and secondly some reflections on the dating of and influences visible in Petraean wall-painting in general.

The Architecture

The oblong-shaped terrace EZ IV falls away sharply to the east, while its westerly long side has a far gentler slope. At its southern extremity the terrace narrows visibly and ends in a tongue-shaped spur of bedrock. Most of the building's southern rooms have been exposed during the campaigns 1996-1998 (FIG. 2).[2]

The narrow southern spur of the terrace is built up across its entire east-west extent of 25 m by the three rooms 6, 7 and 17. The two large rooms 6 (7 x 8 m) and 17 (7 x 6.8 m), both of them originally richly appointed with stucco and wall-paintings,[3] are orientated towards the central vestibule or *exedra* 7 (7 x 6.5 m). Room 6 opens onto room 7 via an open passageway (1.8 m wide) and two lateral doorways (each 0.8 m wide). An additional door in wall K which was blocked up at an unknown later date, originally connected room 6 to corridor 11 (FIG. 2).[4] A row of five narrower flagstones at the eastern edge of the pavement in room 7 bears witness to the entrance to room 17 otherwise almost completely lost. The entrance lay on the same axis as the central passageway to room 6 and was 2.4 m wide.

While the floors in rooms 6 and 7 were fitted out with sandstone flagging, the floor of room 17 was originally decorated with a sumptuous *opus sectile* pavement, which had been dismantled at a later date.[5] A few remaining marble tiles and the tile imprints in the grey cement bedding give at least an idea of the pavement's original geometrical pattern consisting of triangles and squares.[6] A double row of arches between walls L, N and H supported the floor, most of which is now lost. The basement of room 17, which lies approximately 3 m deeper, was accessible via staircase 9 in grid square 87/AO.[7]

FIG. 2 shows that the north side of *exedra* 7 was probably arranged as a *distylos in antis*. The missing segments of the Attic column and pilaster bases on the one hand and the traces of scraping from doors on the other hand show that the intercolumniations were furnished with doors. The resulting façade-like northern face of room 17 has to be viewed in conjunction with the Attic base of pillar Z (grid square 90 /AO). A courtyard-like room, it can be assumed, lay to the north of *exedra* 7.

The stately rooms of the house are rounded off, for the time being, by room 1 (4 x 5 m), which is decorated with the extraordinary frescoes discussed below. Room 1, like rooms 10 and 17, had been furnished with an *opus-sectile*

[1] For a summary of the results see the preliminary reports of the excavation seasons 1996 and 1997: see Kolb, Keller and Fellmann Brogli 1997; Kolb, Keller and Gerber 1998.

[2] The structures recognisable on the surface were briefly described in the context of a survey conducted in 1990 by the Naturhistorischen Gesellschaft Nürnberg. See Lindner, Gasteiger and Zeitler 1993/4: 310ff.. The Horsfields identified the structures on EZ IV as parts of the supposed fortification on az-Zanṭūr; cf. Horsfield 1938: 6, pl. XIII.2.

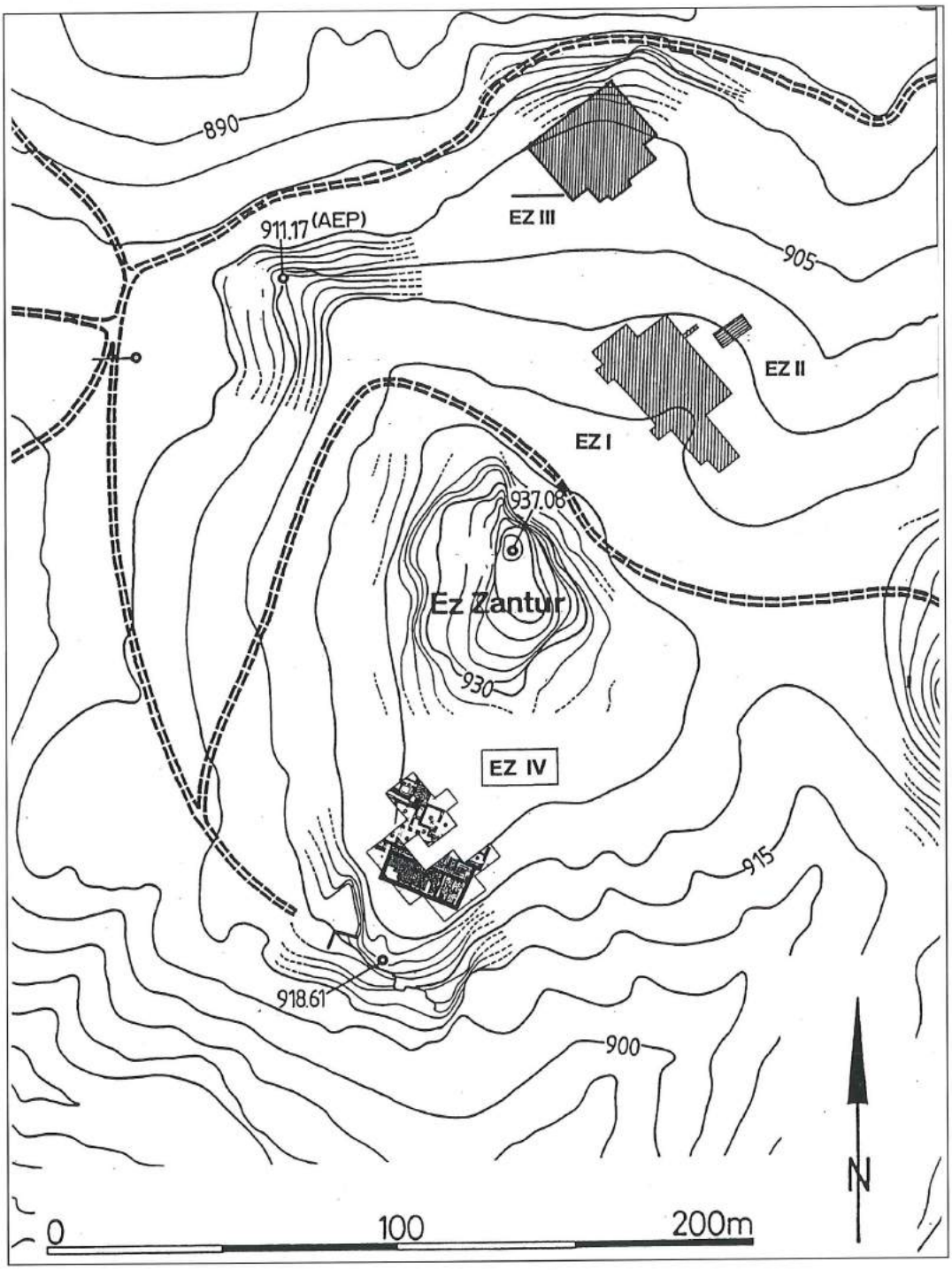
[3] Thousands of fragments of the original stuccoed and painted interior decoration were rescued from the three rooms mentioned.

[4] When the three doorways were blocked up is still a mystery at the moment. Rather surprising is the fact that the quality of the masonry of the blockings in walls K and B is better than that of the original walls.

[5] Fragments of six different imported marble qualities and two qualities of alabaster were recovered.

[6] Very similar pavements are known from Herod's third palace at Jericho (Netzer 1996: 40-41, figs. 8-10) and from Herod's Northern Palace on Masada as well as from contemporary houses in Italy (cf. Foerster 1995: 158ff. with further references).

[7] Indications for an upper floor have been found in rooms 1 and 6.



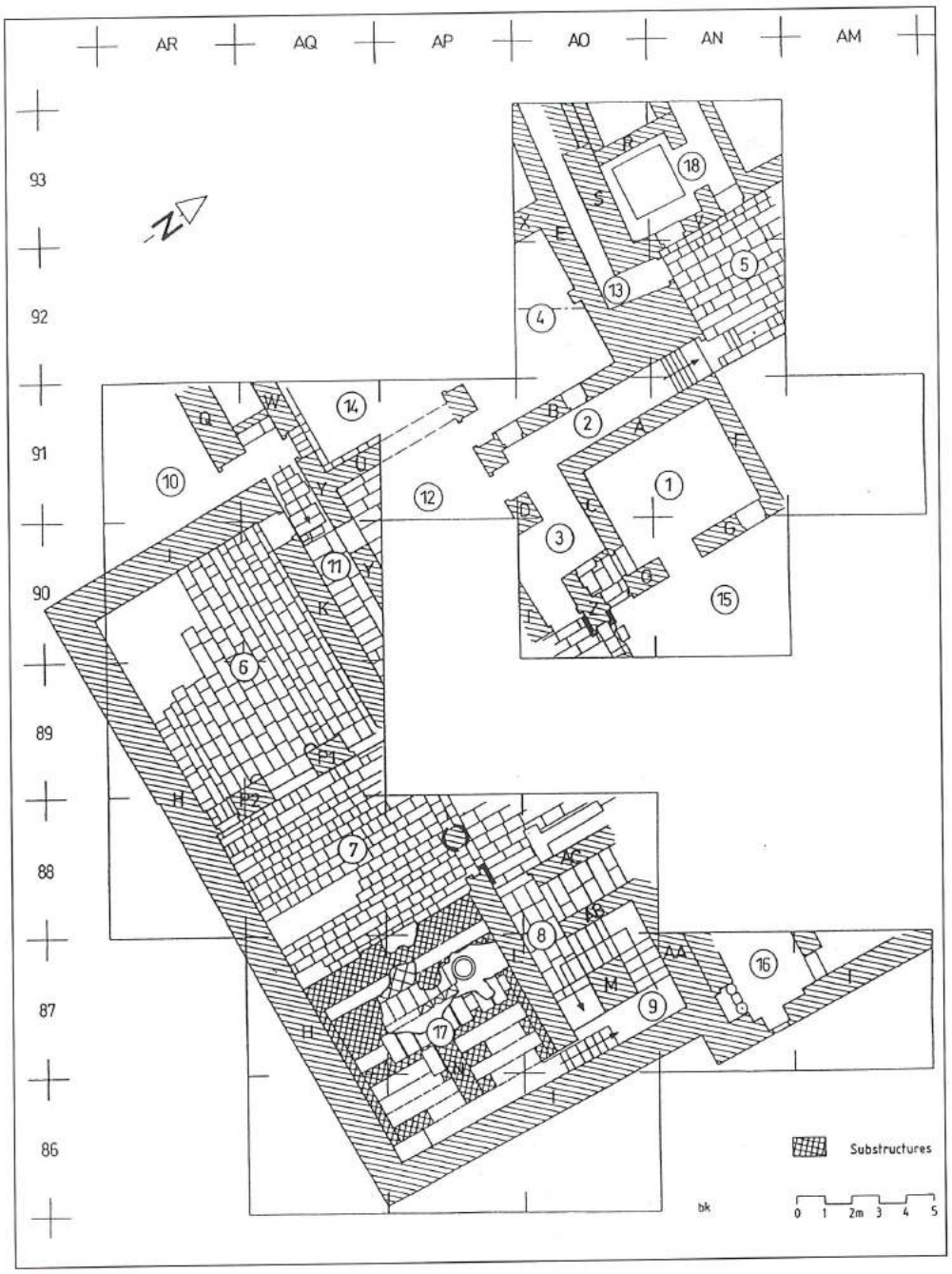
1. Petra. Topographic plan of the az-Zanṭūr area with the sites EZ I-IV.

pavement which was plundered at a later date. Far smaller and more simply decorated are the rooms around courtyard 5 to the west and room 16 to the east. These rooms probably belonged to the domestic area or servants quarters.

Dating

The shards of painted Nabataean pottery from the mortar bedding of the *opus sectile* pavements in rooms 1, 10 and 17 and from the rendering of the rough coats of plaster on the walls all belong to decorative phase 3c, giving a *terminus post quem* of AD 20 for the building.[8] For the time being it is impossible to ascertain the date of the building's initial phase, since all walls exposed are constructed directly on the bedrock, leaving no possibility to do foundation soundings. The probability that a major phase of

[8] The decorative phase 3a lasts from c. AD 20-70/80. For a concise overview see Schmid 1997: 131-137.



2. Petra. Schematic plan of the structures on terrace EZ IV.

refurbishment took place—i.e. new pavements in rooms 1, 10 and 17—without structural changes cannot be ruled out completely, but seems to be small.

The blocking of various doorways (see walls B, C, G, K and V) cannot be dated at the present stage of investigation. The building's last phase of use, however, is certain. A number of small finds dating from the fourth century AD came to light from beneath the compact layers of the collapsed wall decoration in several rooms. On the basis of dated coins found in these layers, the end of occupation of the site and the building's final destruction can be set during the earthquake of AD 363.[9]

Comment on Rooms 6, 7 and 17

We can now address the question as to where parallels to the conspicuous three room-suite consisting of a central *exedra* with two columns *in antis* and two flanking rooms are to be found in Palestine and to which cultural tradition these buildings belong.

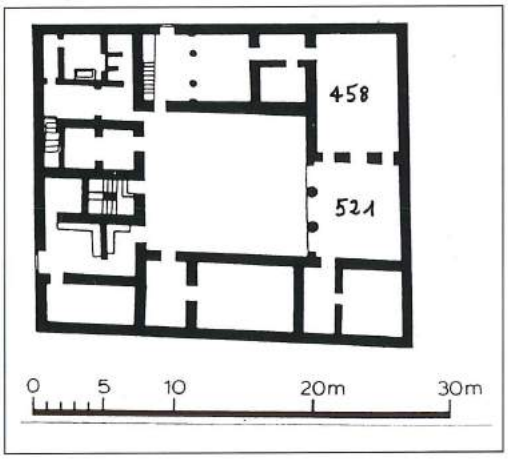
The rooms 458 and 521 in the early Herodian Core of the Western Palace at Masada dating from the fourth decade BC, offers an astonishing parallel to rooms 6 and 7 on

[9] See Russell 1980; Parr 1986: 192ff. For the impact of the erathquake of 363 cf. Stucky *et al.* 1996: 51.

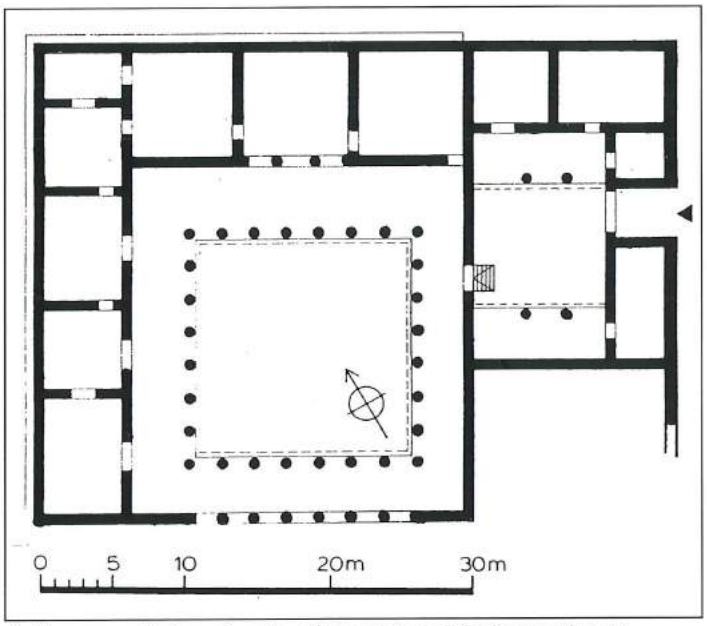
EZ IV—despite the fact that the symmetry of two flanking rooms has been dispensed with—there is a reception room on only one side of the *exedra* 521 (FIGS. 2-3).[10] The reception room 458, like room 6, has one central and two side entrances. It is also remarkable that the size of the two *exedrae* is almost identical (room 521: 7.1 x 6.9 m; room 7: 7.0 x 6.5 m) and that both open northwards onto a courtyard with a *distylos in antis*. The only difference between them worth mentioning is that the intercolumniations in room 7 could be closed with doors.

Symmetrical suits of three rooms with a central *exedra* and two flanking banqueting rooms are a generally accepted feature of Macedonian palace architecture from the late fourth century onwards (Heermann 1986; Lauter 1986: 234; Nielsen 1994: 84ff.). The importance of this room arrangment for Hellenistic house architecture is echoed in the much later and geographically distant examples in Pergamon and Ptolemais: House 1 near the Lower Agora in Pergamon, dating from the second century BC, has a three room-group on the northeastern side of the peristyle (FIG. 4).[11] In the famous late Hellenistic *Palazzo delle Colonne* in Ptolemais (Cyrenaica) the remains of a three room-group (17-18) are located on the north side of the garden peristyle (FIG. 5).[12] Contrary to the Macedonian "prototypes", indications for the use of the lateral rooms as banqueting halls or *triclinia* are missing in all four cases referred to.

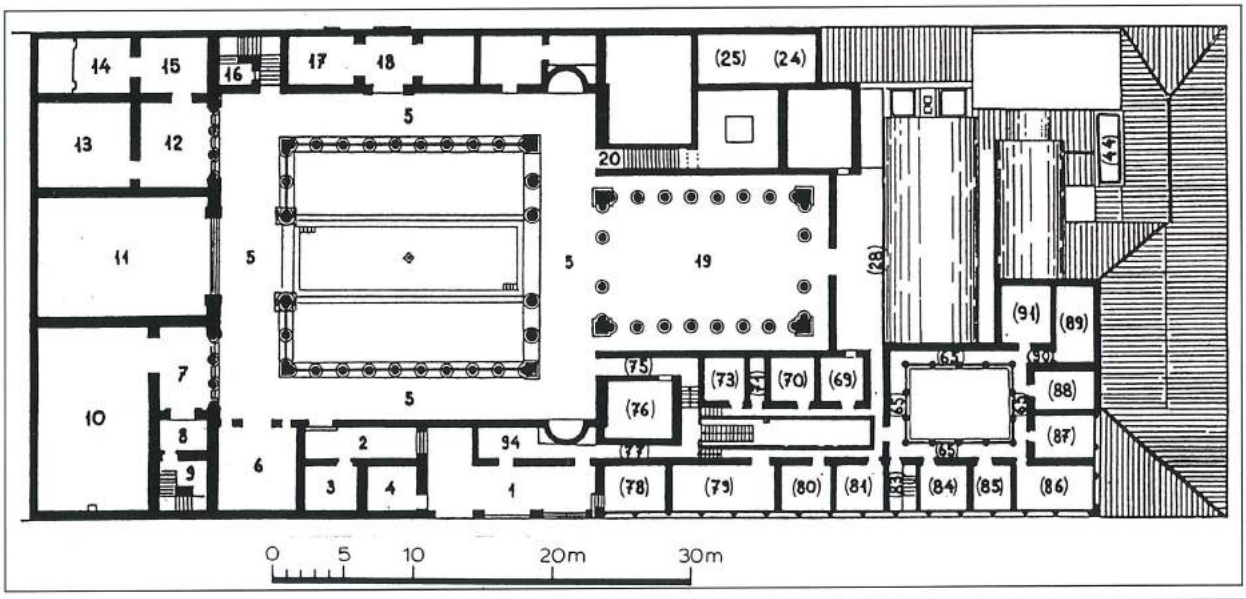
The *Palazzo delle Colonne* plays a key role, both geographically and temporally, in linking the Macedonian buildings of the fourth century BC with the buildings of



3. Masada. Nucleus of Western Palace. (After Foerster 1995: 163, fig. 270).



4. Pergamon. Schematic plan of House I near the Lower Agora. (After Pinkwart and Stammnitz 1984: 38, fig. 15).



5. Ptolemais. Schematic plan of the *Palazzo delle Colonne*. (After Pesce 1950: pl. 11).

10 Netzer 1991: 232ff. A similar arrangement of rooms is found north of the large peristyle in Herod's second palace in Jericho, dated c. 25 BC. See Netzer 1996: 37, fig 2.

11 See Pinkwart and Stammnitz 1984.

12 See Pesce 1950. For the dating of the building see Lauter 1971.

the first century BC/AD on Masada and on EZ IV. Although the number of buildings which can be referred to is very limited, we may assume that the three room-group was well established in the Ptolemaic architecture of North Africa and that the Western Palace at Masada along with the mansion on EZ IV were inspired by Ptolemaic models.

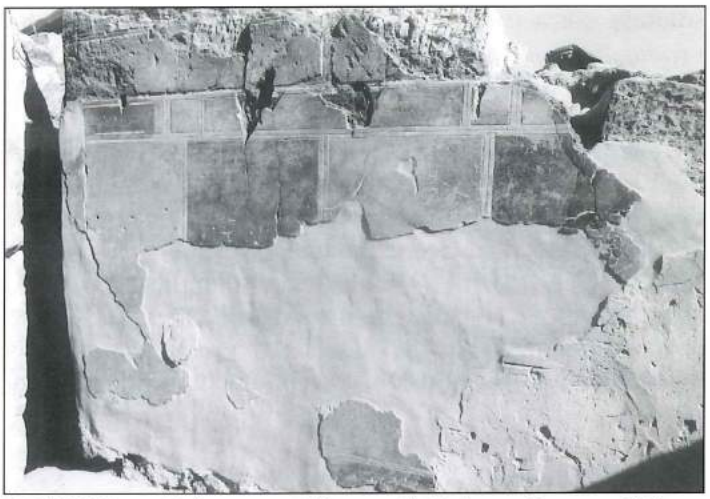
Wall Decoration in the Hellenistic Masonry Style

The use of decorative stucco in the temples, tomb façades and domestic buildings in Petra is well attested. The German Heinrich Kohl was the first scholar to publish a comprehensive study on the stucco decoration in Petra in his 1910 book on the temple Qaṣr al-Bint[13]. This work remained basic till the publication of the seminal article on decorative stucco at Petra by Fawzi Zayadine (Zayadine 1987).

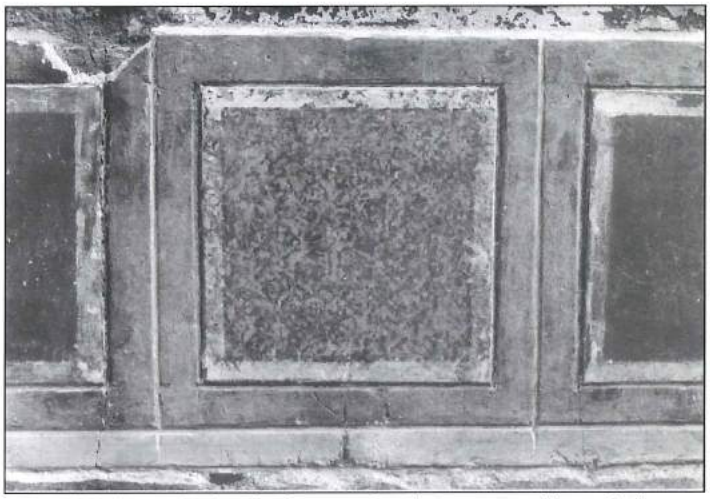
The very limited number of securely dated monuments has always been a problem in the discussion about stucco decoration in Petra. Suggestions for dating were, of necessity, based on stylistic comparisons. The problem inherent to this approach is that it relies chiefly on monuments in Hellenistic *poleis*. Petra was, however, situated on the cultural fringe, and we must therefore expect a degree of "provincialism" with specifically local forms and developments which do not fit into the usual pattern of development or chronology. The importance of the decoration remains preserved on EZ IV in so-called Masonry Style[14] is that they are dated with a *terminus post* of AD 20 and therefore offer the opportunity to reassess the dating of other comparable decorations in Petra.[15]

Large surfaces of stucco wall decoration in the Masonry Style are preserved on the western face of wall A in room 2 and on the northern face of wall C in room 3 (FIGS. 6-7). The following decoration scheme can be reconstructed for wall C: above a shallow black plinth (35 cm high) there are panels or orthostates measuring 70 x 140 cm, coloured alternately red and yellow. Incised lines and painted white drafts separate the orthostats from each other and from the plinth below. The string course (20 cm high) above consists of yellow headers and red stretchers, again with white drafts, topped by the remains of the first two courses of the stuccoed isodomic masonry. The stuccoed yellow headers from the string course on wall A have a finely applied marbling (FIG. 7). The careless repairs with white mortar to the corner A/C and to the plinth and orthostat zone in the easterly part of wall C are most probably of Late Roman date (FIG. 6).

An almost identical scheme of decoration is preserved in the staircase of the of the so-called Baths immediately south of the Temenos Gate (Zayadine 1987: 139, fig. 17).



6. EZ IV. Room 3: fragmented Masonry Style decoration on wall C.



7. EZ IV. Room 2: detail of stuccoed string course with marbeling on wall A.

There are close parallels not only in the decoration system consisting of plinth, orthostats, string course and isodomic masonry, but also in the colour scheme: the orthostats are painted in the same shades of alternating red and yellow and have the same white borders imitating drafts.

When considering the problem of dating, the supposition that the two, more or less identical, decorations were contemporary seems very reasonable. It can be assumed, as outlined above, that the building on EZ IV was not erected before AD 20. The staircase of the so-called Baths or rather its decoration, has recently been discussed by the expert Alix Barbet who, on the basis of stylistic arguments, dated it to the turn of the second/first century BC (Barbet 1995: 389). The striking difference in the suggested dates of more than 100 years demonstrates very clearly how difficult it is to date Masonry Style decorations at all and especially in Petra with its numerous undated monuments. In the introduction Barbet states ab-

13 Kohl 1910: 15-22, 26-35.
14 For the Masonry Style see Andreou 1988; Barbet 1985: 12ff.
15 For a colour reproduction see Weber and Wenning 1997: 65, fig. 96b.

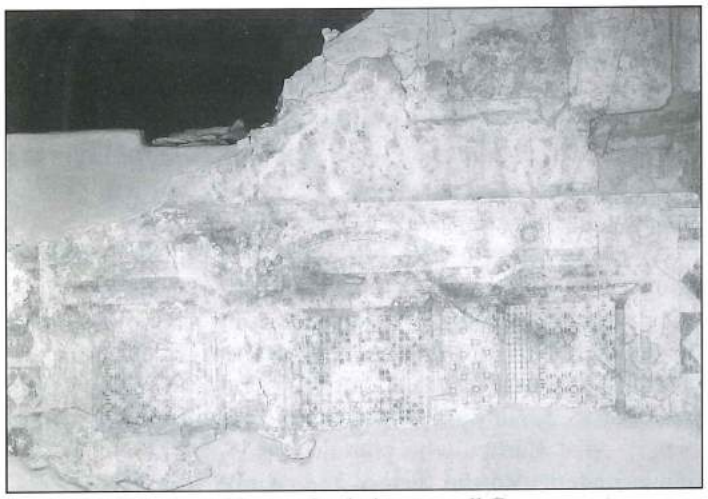
solutely correctly that "*Ce document s'insère dans une production, où, semble-t-il, des traits archaïques subsistent qui faussent nos perspectives et rendent difficile la datation*".[16]

The apparent persistance of the Masonry Style is certainly not a purely Petraean phenomenon. The remains of decoration found in the Herodian palaces and the private houses of the so-called Herodian Quarter in Jerusalem, make it clear that this type of decoration enjoyed a life span far above average in the Near East.[17] A similar anachronistic tendency in Nabataean interior decoration is to be found in the illusionistic architectural paintings in room 1.

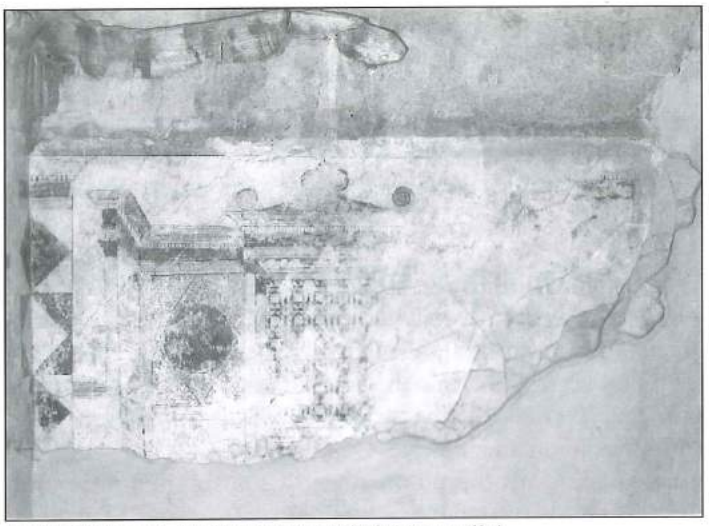
Illusionistic Architectural Painting in Room 1

Room 1, which has an area of 5 x 4 m, was originally decorated on all four walls with illusionistic architectural paintings. The frescoes in the best state of preservation are found on walls A and C (FIGS. 8-9). On wall C the paintings are completely preserved to a length of 2.9 m *in situ*, while those on the adjacent wall A are preserved to a length of 1.8 m.[18] The lower edge of the painted zone is to a large extent lost, but a few fragments still in place on wall G show that the façades did not stand on a painted socle zone but rather started at floor level.

The paintings which are limited to a zone of 1.5 m above floor level reproduce architectural façades against a background of yellowish alabaster imitation. The façades are framed by broad pilasters at the sides and spanned by a narrow blue-green epistyle. The pilasters are divided



8. EZ IV. Room 1: architectural painting on wall C.



9. EZ IV. Room 1: architectural painting on wall A.

into squares which are painted with two-dimensional motifs. The support in the corner C/A depicts a scheme of alternating red diamonds on a white background and white diamonds on a red background. The pilaster at the other end of wall C is decorated in the same colour scheme with a series of quadrilobes of four diagonally placed *peltae* and discs.[19] The fresco on wall C depicts a tripartite façade, consisting of a central pavilion with a segmental pediment flanked by two pavilions, each of which are adorned with a pair of disc-shaped acroteres depicting *gorgoneia*. The front columns of the pavilions are painted with a red on white marbling. The colour of the rear columns, in blue-grey and the crowning Corinthian capitals in dark brown,[20] contrast strongly with them. The entablature above the capitals consists of a red marbled epistyle, a reddish-brown frieze, black contoured dentils against a white background followed by the red marbled *geison* and *sima*. The illusionistic effect of the symmetrical architectural compositions give the impression that the façade's pavilions are "projecting" from the alabaster imitation background towards the observer. The pavilions backdrop is decorated with a conspicuous variety of polychrome geometrical patterns which are plainly borrowed from the repertoire of *opus sectile* and mosaic motifs.[21] Rather astonishing is the fact that these miniaturistic geometric patterns almost annihilate the impact of the illusionistic effect, at least in the fresco's present state of preservation (see FIG. 8).

Above the narrow painted main zone follows an inter-

16 Barbet 1995: 383.

17 For the Masonry Style decorations in the Western Palace (37-30 BC) at Masada cf. Netzer 1991: 232ff. and Foerster 1995: 1-12. For the Palatial Mansion in Jerusalem see Avigad 1984: 95ff. and figs. 84, 86-88, 90, 101-102; *ibidem* 1991: 62-63.

18 For a colour illustration see Weber and Wenning 1997: 65, fig. 69a.

19 The cleaning of the frescoes carried out during the 1998 campaign revealed that the east pilaster was not painted in a black and white colour scheme as has previously been stated (Kolb, Keller and Fellmann Brogli 1997: 237).

20 The acroteres are reminiscent of Hellenistic shield busts. See R. Winkes, *Clipeata Imago*, Ph.D. Dissertation. Giessen (1969) 10ff.

21 That the patterns are intended to represent incrustation is shown by the red marbling on white background. The *opus sectile* arrangements are described in more detail in Kolb, Keller and Fellmann Brogli 1997: 238 with note 11.

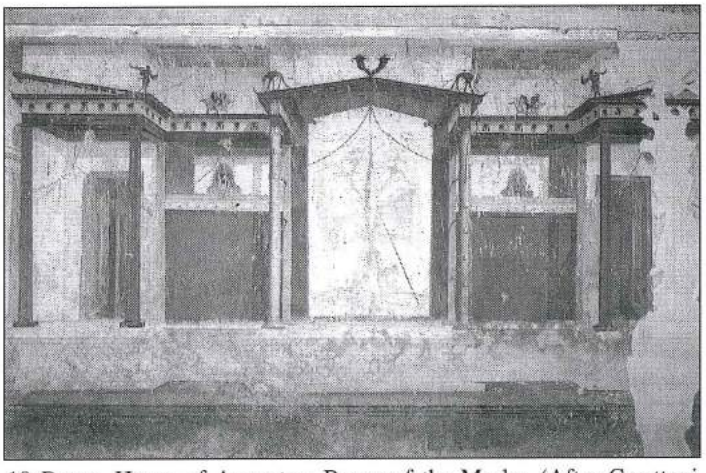
mediate zone of moulded stucco panels 30 cm in height topped by a painted and gold-plated moulded cornice. Above the cornice a few remains of an architectural scheme of moulded stucco in the Masonry Style are still *in situ*. The only apparent connection between the two zones is in the corner C/A where the pilaster motif, painted as a framing element in the main zone, is repeated in stucco in the upper zone.

Stylistic Classification.

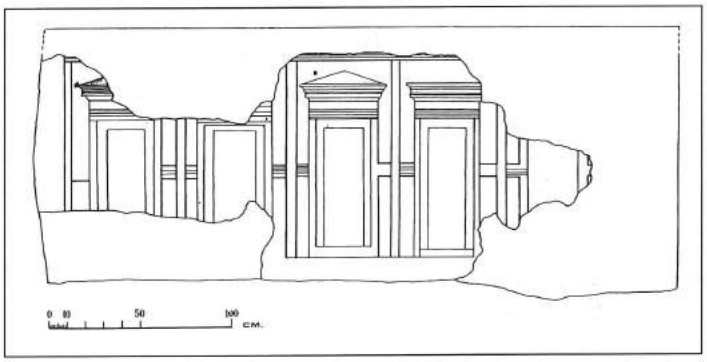
Illusionistic representations of architectural façades develop into the main feature of Roman wall paintings of the second Pompeian Style in the course of the first century BC (ca. 90/80-20 BC).[22] This illusionistic tradition was then renounced more or less completely during the subsequent third Pompeian Style which lasted approximately till the middle of the first century AD.[23] Bearing this in mind, it is quite obvious that the frescoes in room 1 cannot be attributed to the third Pompeian Style, although they appaear to date from around the same period.

The closest parallels to our frescoes are to be found in Roman architectural paintings from the Augustan Period. Probabely the best known examples are preserved in Rome, in the Augustus House on the Palatine, which is dated shortly after 31 BC (FIG. 10).[24] The frescoes on the west wall in the so-called Room of the Masks display parallels to the frescoes on EZ IV in the tripartite façade and the classicistic "severity" of the architecture with its rather flimsy columns. The substance and detailing of the architectural members is generally reduced in comparison to paintings from the middle of the same century.[25] The somewhat stretched appearance of the architecture and the relatively two-dimensional architectonic framework, consisting of corner supports and a narrow epistyle, are further comparable elements. But there are also notable differences: the frescoes in the Augustus House take up the whole surface of the wall, as is usual in Roman wall-painting but not the case on EZ IV. A clear wall-piercing perspective is observable, achieved chiefly by the vista through the dominant central *aedicula* and by the openings above the lateral screen-walls. The illusionistic painting on EZ IV, in contrast, is composed against a solid background and projects forwards.

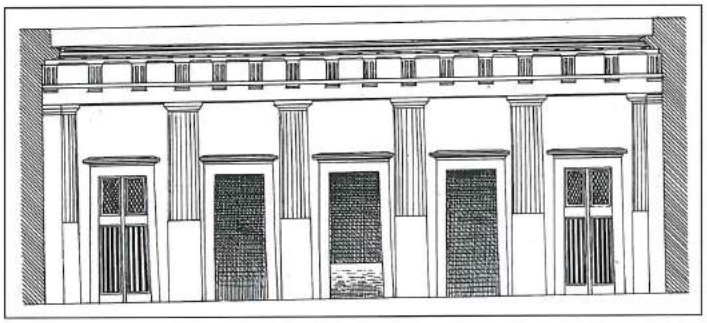
The limitation of the architectural painting to the lower part of the wall on EZ IV is striking but not singular in Petra. The decoration in a cave in Wādī aṣ-Ṣiyyagh appears to repeat this peculiarity (FIG. 11). The walls are painted with a very flat—i.e. non-illustionistic—row of closed doors, which is set within and subordinate to an architectural system consisting of supports and an epistyle. As F. Zayadine (1987: 140) correctly remarks, the paintings in Wādī aṣ-Ṣiyyagh belong not in the Roman but rather in the Hellenistic tradition of Ptolemaic Egypt. Firstly, the motif of a row of doors, subordinate to an architectural framework, is very close to the architecture in the Hellenistic *hypogaea* of Alexandria, e.g. chamber 4 in hypogeum 3 in the Mustapha Pasha necropole dated to the sec-



10. Rome. House of Augustus: Room of the Masks. (After Carettoni 1983: pl. 2.1)



11. Petra. Wādī aṣ-Ṣiyyagh cave, architectural fresco, west wall. (After Zayadine 1987: 141, fig. 23)



12. Alexandria. Mustapha Pasha Necropole, Hypogeum 3, chamber 4. (After Adriani 1963/6: no. 86, pl. 56, fig. 199)

22 For the second Pompeian Style see Barbet 1985: 36ff. Ling 1991: 23ff.

23 For the third Pompeian Style see Bastet and de Vos 1979; Barbet 1985: 96ff.; Ling 1991: 52ff.

24 See Carettoni 1983: 23ff., colour pls. B-F.

25 See, i.a. the powerful and expertly executed architectural paintings in triclinium 14 in Poppaea's villa at Oplontis - De Franciscis 1975: fig. 17.

ond half of the third century BC (FIG. 12).[26] Secondly, the two-dimensional adaptation of the architectural theme has to be viewed as a derivation from Ptolemaic funerary paintings whose tendency to flatness can be regarded as one of its characteristic features (Gordon 1977: 266).

To come back to the narrowness of the painted zone: one of the few known examples of architectural painting to be found in Judea must be mentioned (cf. Fittschen 1996). The relevant fragments are situated in the northwest corner of room 5 in the Herodian Palatial Mansion in Jerusalem.[27] What is still recognisable are the remains of small *aediculae*, which are set within an architectural framework consisting of supports and an epistyle. The epistyle is set at about eye-level, as it is on EZ IV—i.e. the architectural painting here also appears to have been limited to a low band on the wall. One is tempted to interpret the limitation of these Hellenistic —and Roman— inspired paintings to a narrow zone of the lower wall as a regional peculiarity, but this remains conjectural since the evidence is too slight.

As mentioned above, the architectural façades on EZ IV are painted on a background of alabaster imitation. Forerunners or models for alabaster imitation are probably monuments like the Hellenistic alabaster tomb in Alexandria which is constructed with huge monolithic alabaster slabs (Adriani 1963/6: n. 89, 140ff., pls. 61-63). There are also early examples of painted alabaster imitation in Alexandria, e.g. in hypogeum 3 in Mustapha Pasha, dated to the second half of the third century BC (Adriani 1963/6: no. 86, 145ff., pl. 54, fig.194) or in tombs 2 and 3 in the Anfushi necropole from the third-second centuries BC (Adriani 1963/6: nos. 142-3, 192ff., pls. 109, 111). It therefore seems reasonable to seek the models for the inconspicuous handling of the background of the architectural paintings in room 1 in Ptolemaic Egypt. The same seems to be true for the painted decoration of the pilasters on wall C. They have direct a forerunner in Petra in the stuccoed panel decoration of the *antae* of the temple of Qaṣr al-Bint (*terminus ante*: late first century BC)[28] —itself most probabely inspired by Alexandrian prototypes, e.g. hypogaeum 2 at Anfushi, where the painted decoration of the pilasters of the aedicula is closely comparable (Adriani 1966: no. 142, 192ff., pl. 109.).

Conclusion

In summary, it can be said, that both in the architecture of the mansion on EZ IV, and in certain details of the interior decoration of the rooms, a close connection with Ptolemaic Alexandria appears to exist. The illusionistic architectural painting in room 1, on the other hand, is a manifestly Roman component. The discussion of the details of the wall paintings has however made clear that the Roman models were freely interpreted and that Alexandrian elements and regional preferences were worked in. The limitation of the painted zone to the lower half of the wall in combination with a system of decoration in the Masonry Style gives the paintings in room 1 a new and un-Roman valence. The anachronistic tendencies one is confronted with on EZ IV, specifically the use of the Hellenistic Masonry Style and the adaptation of Augustan architectural painting in the first century AD, are especially striking.

Bibliography

Adriani, A. 1963/6. *Repertorio d'Arte dell'Egitto Greco-Romano*. Serie C. Vols. I-II. Palermo.

Andreou, A. 1988. *Griechische Wanddekorationen*. Ph.D. Dissertation. Mainz.

Barbet, A. 1985. *La peinture murale romaine*. Paris.

——1995. Les characteristiques de la peinture murale à Petra. Pp. 383-390 in *SHAJ* 5. Amman.

Bastet, F. L. and De Vos, M. 1979. *Proposta per una classificazione del terzo stile pompeiano*. The Hague.

Carettoni, G. 1983. *Das Haus des Augustus auf dem Palatin*. Mainz.

De Franciscis, A. 1975. *The Pompeian Wall Painting in the Roman Villa of Oplontis*. Recklinghausen.

Fittschen, K. 1996. Wall Decorations in Herod's Kingdom: Their Relationship with Wall Decorations in Greece and Italy. Pp. 139-161 in Fittschen and Foerster 1996.

Fittschen K. and Foerster G. (eds) 1996. *Judaea and the Greco-Roman World in the Time of Herod in the Light of Archaeological Evidence*: acts of a symposium organized by the Institute of Archaeology - the Hebrew University of Jerusalem and the Archaeological Institute Georg-August-University of Göttingen at Jerusalem, November 3rd-4th 1988. Göttingen.

Foerster, G. 1995. *Masada V. The Yigael Yadin Excavations 1963-1965, Final Reports. Art and Architecture*. Jerusalem.

Gordon, R. 1977. *Late Hellenistic Wall Decoration of Tel Anafa*. Ph.D. Dissertation. Columbia.

Heermann, V. 1986. *Studien zur makedonischen Palastarchitektur*. Ph.D. Dissertation. Erlangen-Nürnberg.

Horsfield, G. and A. 1938. Sela-Petra, the Rock, of Edom and Nabatene. *QDAP* 7: 2-42.

Kolb, B., Keller, D. and Fellmann Brogli, R. 1997. Swiss-Liechtenstein Excavations at az-Zantur in Petra 1996. The seventh season. *ADAJ* 41: 231-254.

Kolb, B., Keller, D. and Gerber, Y. 1998. Swiss-Liechtenstein Excavations at az-Zantur in Petra 1997. *ADAJ* 42.

McKenzie, J. 1990. *The Architecture of Petra*. Oxford.

Lauter, H. 1971. Ptolemais in Libyen. Ein Beitrag zur Baukunst Alexandrias. *Jahrbuch des Deutschen Archäologischen In-*

26 Adriani 1963/6: no 86, 145 ff., pl. 56, fig. 199.

27 See Avigad 1984: 112, fig. 102; 114, figs. 104-105; *ibidem* 1991: 58f., 62f. Fittschen 1996: 114 attributes the painting to the late second or early third Pompeian Style.

28 Zayadine 1987: 138, Fig. 14. McKenzie 1990: 137, pls. 73-74

stituts 86: 149-178.

Lauter, H. 1986. *Die Architektur des Hellenismus*. Darmstadt.

Lindner, M., Gasteiger, G. and Zeitler, J. 1993/4. Ez-Zantur at Petra - Tower, Palace or Temple? *Archiv für Orientforschung* 40/41: 308-319.

Ling, R. 1991. *Roman Painting*. Cambridge.

Netzer, E. 1991. *Masada III. The Yigeal Yadin Excavations 1963-1965. Final Reports. The buildings: stratigraphy and architecture*. Jerusalem.

Netzer, E. 1996. The Palaces Built by Herod – A Research Update. Pp. 27-54 in Fittschen and Foerster 1996.

Nielsen, I. 1994. *Hellenistic Palaces, Tradition and Renewal.* Studies in Hellenistic civilization 5. Aarhus.

Parr, P. 1986. The Last Days of Petra. Pp. 77-86 in M. A. Bakhit and M. Asfour (eds), *Proceedings of the Symposium on Bilad al-Sham during the Byzantine Period*, 15-19 November 1983, vol. II. Amman.

Schmid, S. G. 1997. Eierschalendünne Tongefässe und grobe Waren. Pp. 131-137 in T. Weber and R. Wenning (eds), *Petra. Antike Felsstadt zwischen arabischer Tradition und griechischer Norm*. Mainz.

Stucky, R. A. *et al.* 1996. *Petra Ez-Zantur I. Ergebnisse der Schwizerisch-Liechtensteinischen Ausgrabungen 1988-1992*. Mainz.

Pesce, F. G. 1950. *Il "Palazzo delle Colonne" in Tolemaide di Cirenaica*. Rome.

Pinkwart, D. and Stammnitz, W. 1984. *Peristylhäuser westlich der Unteren Agora*. Altertümer von Pergamon Vol. 14. Berlin.

Russell, K. W. 1980. The Earthquake of May 19 A.D. 363. *BASOR* 238: 47-64.

——1997. Eierschalendünne Tongefässe und grobe Waren. Pp. 131-137 in Weber and Wenning 1997.

Weber, T. and Wenning, R. (eds) 1997. *Petra. Antike Felsstadt zwischen arabischer Tradition und griechischer Norm.* Mainz.

Zayadine, F. 1987. Decorative Stucco at Petra and other Hellenistic Sites. Pp. 131-142 in *SHAJ* 3. Amman.

Martha Sharp Joukowsky
Brown University
Providence, RI
USA

Martha Sharp Joukowsky

Petra: Brown University Excavations of the Great Temple. Questions about Functional Analysis

Introduction

In 1997, the Brown University excavations introduced the fascinating discovery of a theater-like structure located inside the Great Temple at Petra (Joukowsky 1998a: 596). FIG. 1 shows the *theatron* remains. Clear stratigraphic and artifactual evidence shows that this structure was constructed in the second phase of temple building, which we date to ca. AD 44. One of the main objectives is to reconstruct and interpret the changes within the temple architecture before and after the theater in the temple emerged, during its use, and its operation as a center of activity. A second major objective is to reconstruct how this structure might have been used during the Nabataean and Nabataean-Roman periods.

Interpreting this large public edifice is at the heart of the archaeological process. The Great Temple stands alone above a large colonnaded Lower Temenos among thousands of architectural fragments, including elephant-headed capitals (Joukowsky 1998b). The Temple itself is embellished with floral Nabataean capitals, and is also decorated with masks. If our structure is, in fact, a Great Temple, the theater is certainly its dominant architectural element. On one hand, this structure is built as a temple, and on the other, it has a theater-like structure in place of the cella. It cannot have served as a sacred space, a religious building that was decommissioned and desacralized. It would not have been transformed into a civic structure; I have to assume that a shift in function would go against Nabataean religious tradition. Therefore, it must have served either as a religious or as a secular structure. And if it is a religious structure, why could it not have served as an instrument of religio-political propaganda? The kings of Nabataea certainly utilized religion to further their political ambitions.



1. The Great Temple theatron looking southwest. Photo by A. A. W. Joukowsky.

We might briefly consider the problems of temple use from several points of view: First, the contexts of this well-preserved structure, unique to Petra and the Nabataean world should be investigated. Second, the Great Temple architecture should be examined. Thirdly, the inscriptions and artifacts indicate that this structure may have had official use during the Nabataean-Roman period, or after AD 106. What do they offer the archaeological record? Lastly, theater-temples and civic structures are considered as structural classes for we know of several models from the classical period. In the search for comparative buildings we have found that the architectural plan of our structure is unique not only to Jordan but to the entire ancient Near East.

The City of Petra

The power and glory of the Nabataeans found a tangible expression in Petra. The city is dependent upon its setting, not only because it offers safety and protection but it is set at the crossroads of the desert highway. Set in the mountainous Nubian sandstone valleys and cliffs, at 30°19'N by 35°20'E, Petra's elevation is 900 m a.s.l.; the city is approximately 1.5 km north-south by 400 m-1 km in east-west width. It is the chiseling out of hundreds of tombs and architectural and decorative embellishments set in the walls of Petra's canyons that lends it a monumental unity and a sense of romantic detachment from the rest of

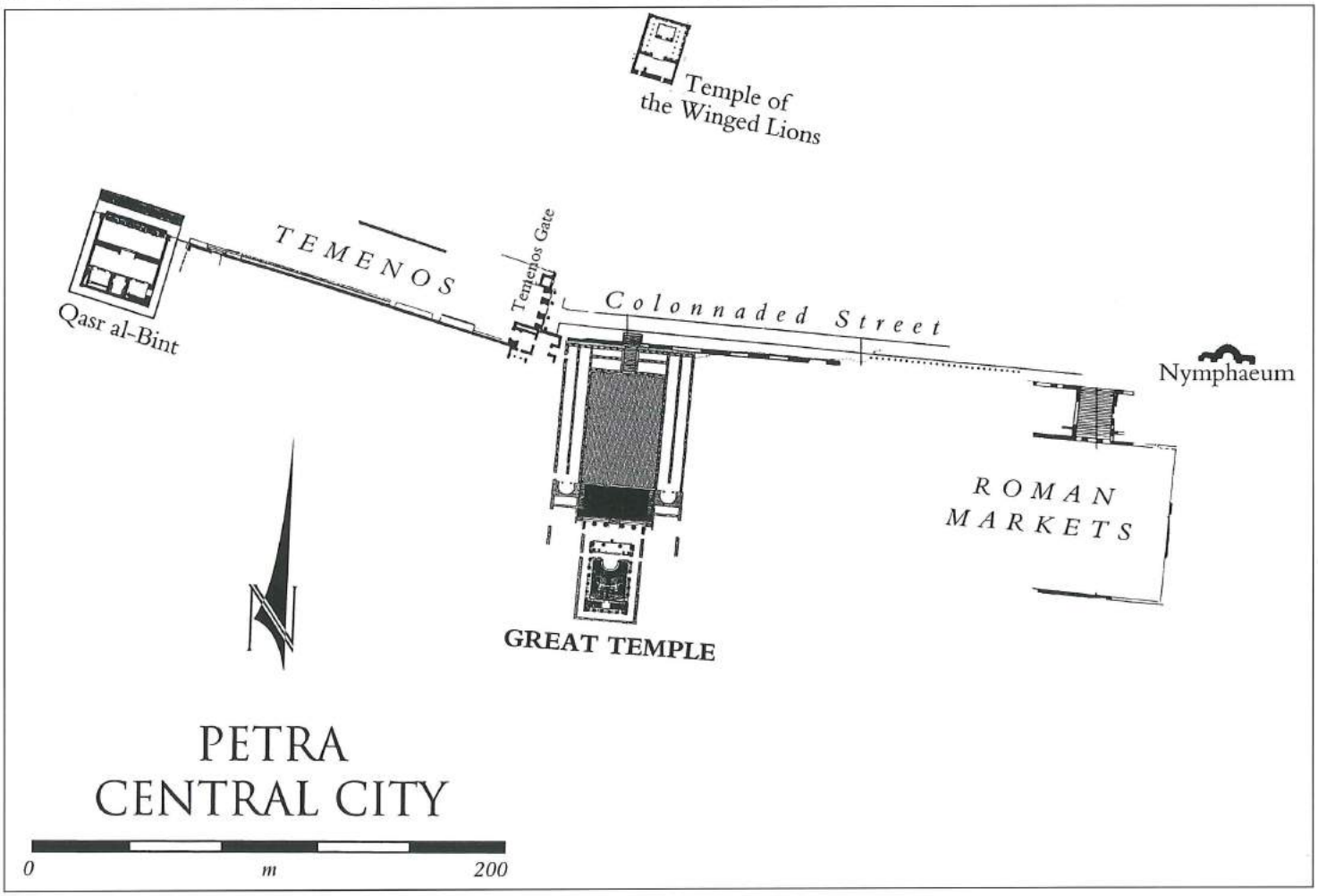
the world. We cannot be sure that an over-all layout was designed before construction began in the last quarter of the first century BC when the city suddenly made its presence known as a center of the Nabataean kingdom. Borrowing architectural stereotypes from the classical world, the rulers of Petra surely must have taken an active role in city planning, for they constructed their own royal palaces, tombs and public buildings, including the Colonnaded Street, market places, temples, a theater, a nymphaeum, hydraulic supply systems and baths. The building of Petra also enjoyed a political rationale; it gave voice to Nabataean authority, richness and power.

The orientation of the city is determined by the course of Wādī Mūsā, and the axes of buildings are built perpendicular to it. Carefully established in the central city are the axial relationships between the Colonnaded Street and the wadi, and the buildings lining each side of the street, including the Temenos Gate and other free-standing structures. This east-west street provides a visual unity to the site and dominates the flow of traffic into the central city (FIG. 2). Petra does have an innovative grid pattern with bridges spanning the Wādī Mūsā, serving as the connective tissue between the north and south sides of the city.

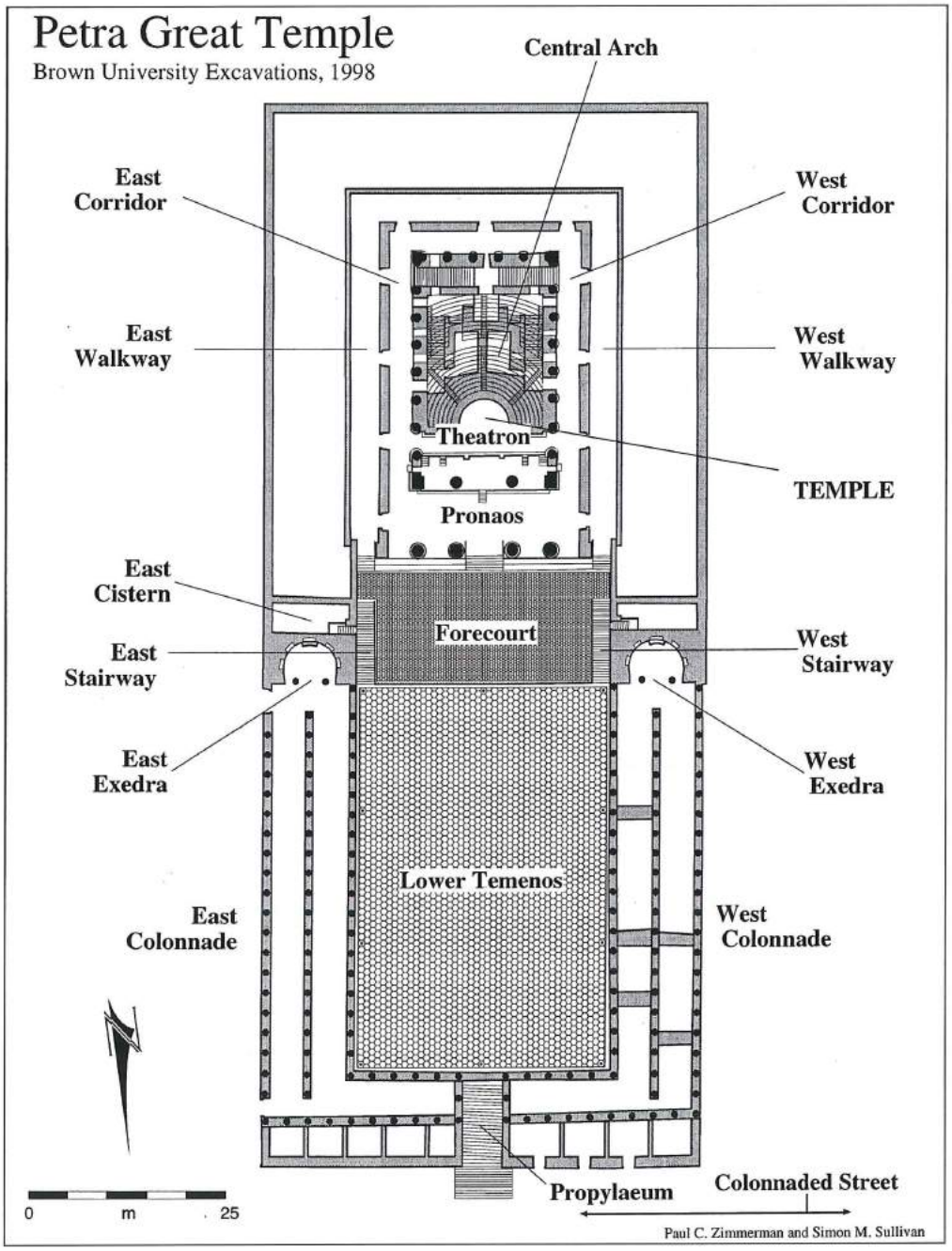
There is a measure of formal planning for the nuclear areas reserved for temples and other public buildings to work with the street system. There also had to be practical considerations for the topography, water systems, and for the drainage. The single free-standing buildings like the Temple of the Winged Lions and the Qaṣr al-Bint are symmetrical and balanced in plan and comprise independent entities set into large scale well-organized precincts with vast dimensions.

The Great Temple

The Great Temple (FIG. 3) represents one of the major archaeological and architectural components of central Petra. Located to the south of the Colonnaded Street and southeast of the Temenos Gate, the 7560 m^2 precinct is comprised of a Propylaeum (monumental entryway), a Lower Temenos with monumental east and west Stairways which in turn lead to the Upper Temenos — the enclosure for the Temple proper. Following that pattern, the site topography can be divided into three sectors: the Pro-



2. Petra Central City map. Drawing by Simon M. Sullivan.



3. 1998 plan of the Great Temple components. Drawings by Paul C. Zimmerman and Simon M. Sullivan.

pylaeum and the Lower Temenos which lie eight meters higher than the Colonnaded Street, and the Upper Temenos with the Temple, which stand another six meters above the Lower Temenos.

Oriented north-south, the 28x42.5 m Great Temple stands within its Temenos on the north edge of the al-Kātūta slope at 895 m a.s.l. Its northern border parallels the Colonnaded Street, its south, the ridge of al-Kātūta, and walls extend along its east perimeter delimiting it from the so-called 'Lower Market' and on the northwest from the "baths." Its two great terraces overlook the Colonnaded Street and the Wādī Mūsā to the north, Qaṣr al-Bint to the west and the Lower Market to the east. Thus the Great Temple sits on an elevated terrace above the vast Lower Temenos where on state or ceremonial occasions the Nabataean rulers showed themselves to the people — the precinct's location adjacent to the Temenos Gate and the most sacred Qaṣr al-Bint is hardly accidental.[1]

In the heart of the city, the Great Temple must have

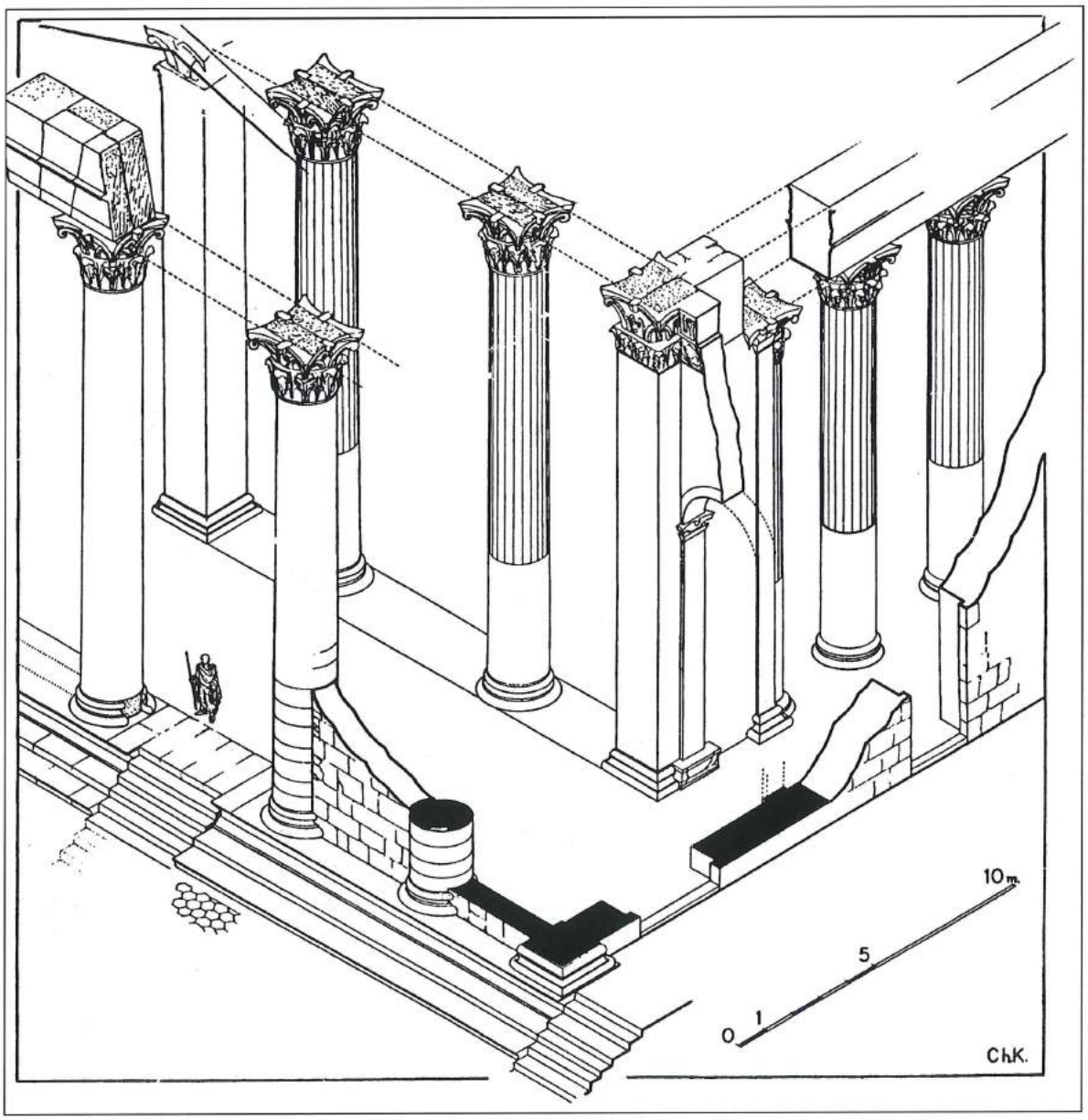
[1] The Great Temple may not have been experienced visually from the Colonnaded Street. It is entirely possible that the barrier from the street was intended to be visual as well as physical.

been impressive. The visitor entering the complex from the Propylaeum and crossing the great open expanse of the Lower Temenos became involved in a great architectural experience. The drama of classical Nabataean planning is evident — there are exciting vistas of the exedrae, the great double staircases, the seemingly limitless rows of columns and the remarkable façade of the Great Temple itself. The fabulous architectural decoration of the elephant-headed capitals set against the monumental architecture of the Lower Temenos and the height and breadth of the Temple structure with its deeply sculpted, elaborate, floral capitals demonstrated power and wealth. The overall construct of the precinct must have been directed by royal patronage, and clearly it is a response to the needs of the Nabataean court and its administration. A Great Temple or a bouleuterion-odeion should be accessible to the citizens of Petra and provide a gathering place where the decisions of the day could be announced. The wealth and importance of Petra as the Nabataean capital had to be made clear to both her subjects and those powers with whom she interacted.

Site Deposition Analysis

Based on site deposition, our excavations have determined the general sequence of four phases (0-III) of the Great Temple construction: Phase 0 is reserved for the preparation of the site by its Nabataean builders with a vast canalization system.

Phase I or Nabataean I represents a major construction of the Temple precinct. The major goal was to construct a building of importance in central Petra and to orient it toward the main thoroughfare of the city. FIG. 4 is a re-



4. Reconstruction of Great Temple Phase I. Drawing by Ch. Kannellopoulos.

construction of the phase. The dramatic rocky backdrop of al-Kātūta provided a perfect setting for an imposing structure set on a high terrace platform. Phase I included the erection of the four porch and the two pronaos columns, plus the eight interior, bichrome, plastered columns on the building's flanks and six columns at the rear. Decorated with deeply-carved fine sculpted limestone capitals, these column shafts were embellished with flat, red or yellow plaster until 3.76 m from their attic bases and with white ridged plaster above until the beginning of the capital. From the style of the floral decoration of the limestone capitals, the iconography appears to be similar to that of al-Khazna. Also decorated with multi-colored plaster, corridors were constructed to flank the structure. This structure was constructed sometime in the last quarter of the first century BC or during the reigns of either King Malichus I (62-30 BC) or Obodas II (30-9 BC), or perhaps both.

Phase II is what we refer to as Nabataean II. There was a completely new, monumental rebuilding program — an architectural metamorphosis was launched in this phase. The architects wanted to make a strong statement, and epitomize the architecture of a great city. It is obvious that the rulers of Petra took pride in the embellishment of their precinct while providing for its functional demands with a sense of spatial logic. The precinct had to emanate a sense of power befitting Nabataean wealth. So, what did these Phase II architects have in mind? To begin with, there had to be the building of an elegant, columnar Propylaeum for access to the precinct, and a series of new steps had to be laid to be built up to the level of the Lower Temenos. At the same time, the Lower Temenos was conceptualized as a symmetrical, formal presence that purposefully emphasized the Great Temple. There was, however, a challenging and exasperating problem confronting the planning of the area — the Canalization System had to be reconfigured and rebuilt. This set in motion a completely new series of changes that radically transformed the design of the Lower Temenos — for how were people going to access the Upper Temenos from the Lower Temenos? This may have provided the impetus for a scheme involving the precise planning for the complete remodeling of the Lower Temenos, approaching all aspects of the Lower Temenos design simultaneously — from the laying out of stairways and exedrae to enhancing the area with triple colonnades. In short, the area was converted to create a vast architectural foreground for the Great Temple.[2] A massive east-west retaining wall had to be built on the same line as the twin lateral stairways and the exedrae, which delimited the Lower Temenos on its south. This Lower Temenos court-plaza was then embellished with a sweeping, white, limestone hexagonal pavement, which tied all the elements together. These architectural components were all planned to be interconnected features that would boldly define the area's spacial importance.

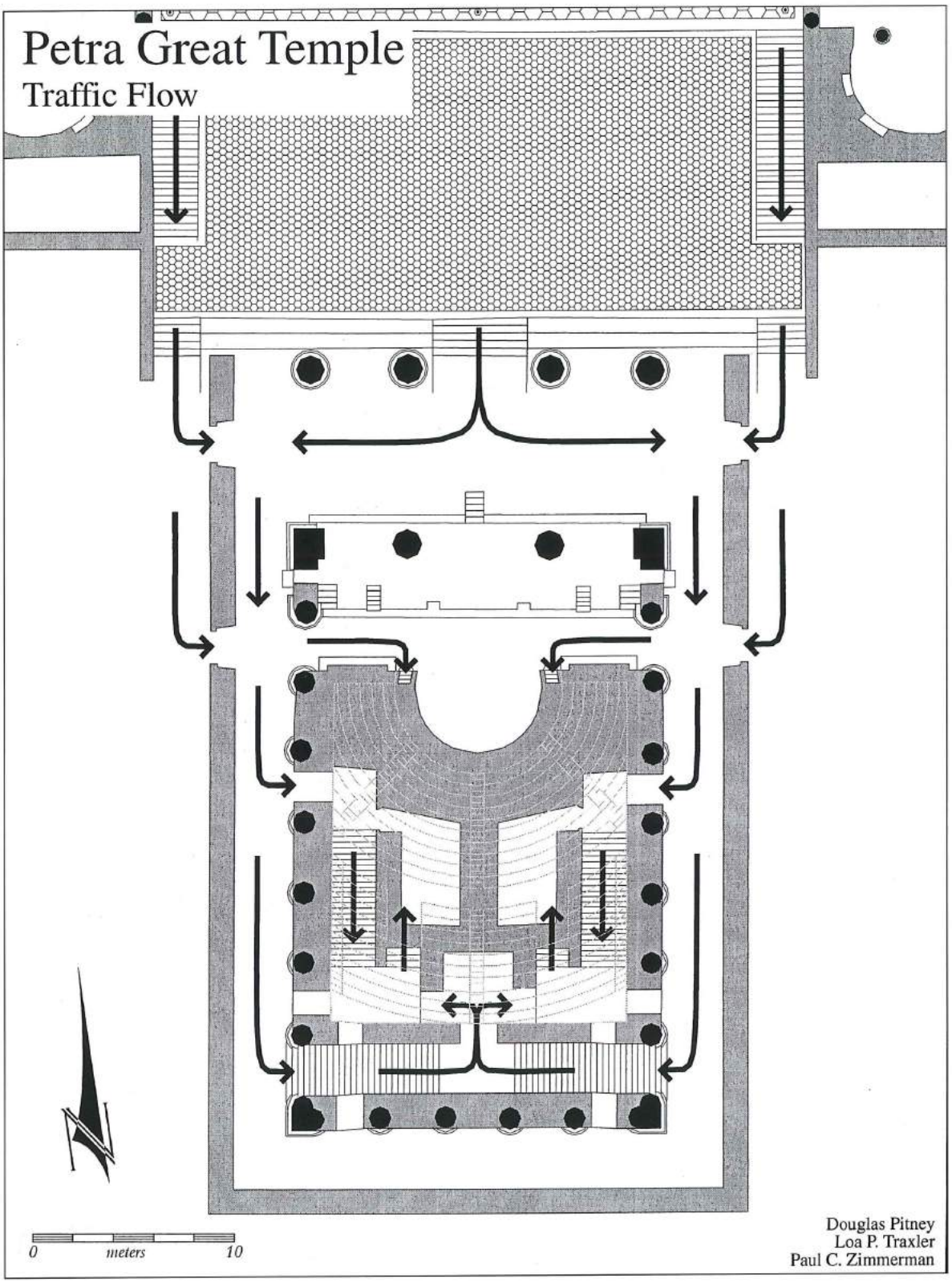
The Phase II Temple continued to crown the composition of space, and the edifice we know today as the Great Temple emerged. Its transformation must have reflected the changed circumstances of Petra royalty. The exterior was enlarged with exterior walkways on its flanks. Also at this time, there was the major reconfiguration of the Temple interior where there was the elegant construction of intercolumnar walls with arched doorways, windows and staircases. The building of these casemate walls, which are still preserved to a 5 m height, all but destroyed the plaster decoration of the Phase I stuccoed columns (these intercolumnar casemate walls fell short of covering the capitals).

The Phase I central room, was reconstructed as an open-air *theatron*. The heart of the Great Temple was now the theater, and the architects blended the proportions of the cavea seating to conform the Phase I architecture. The projected preserved diameter of the orchestra was approximately 6.5 m (the orchestra area was too restricted and small for any large function, but may have been used for speeches, dramatic presentations, or simple religious rituals and ceremonies. Unfortunately we found the upper portions of the theatron were either in poor condition or were completely missing, but we project there may have been 20 original courses of seats, with a diazoma between the tenth and the eleventh rows. Thus, a conservative estimate of the seating capacity would be a minimum of 565 and a maximum of 620 persons. These calculations must remain tentative, however, until we can confirm the extent of the cavea to the south.

Given the plan for this building, the flow pattern was extraordinarily well-planned and efficient (FIG. 5). Access was from the Lower Temenos, up the east or west stairways, to the east or west walkways and from the walkways into the east or west corridors. Multiple sets of new stairs were installed in the Temple rear — twin east and west, plus twin north and south stairways. These led to the lateral corridors and the East and West (north-south) stairways with adjacent east and west vaulted chambers. These four stairways directed traffic to the inner corridors, which led to the Temple exits — the walkways.

Alternatively, access might also have been though the front entrance. The participant was obliged either to turn to the right or left into the corridors, and the major route would be from the corridors through the arched doorways to one set of rear stairways. Once these had been mounted, access to the cavea was via the paved platforms, which

[2] These lateral staircases had to have accompanying luxurious exedrae and other appurtenances to complete the finished look of the ensemble.



5. Temple Traffic Flow. Drawing by Douglas Pitney, Loa P. Traxler, and Paul C. Zimmerman.

accessed an additional twin small flights of steps that probably led to arched passages that exited into the cavea at the middle diazoma.

This renovation we have placed sometime near the end of the reign of Aretas IV (ca. AD 40) or to the rule of Malichus II (AD 40-70) and possibly to the reign of Rabbel II (AD 70-106). It is therefore suggested that these modifications took place sometime in the first or early second centuries AD. But questions persist: What was the transition between the earlier Nabataean structure and

what we know as the Great Temple? Why was the transition from one type of installation to another so swift, in less than 100 or so years?

The next phase, Phase III, we identify as the Nabataean-Roman period. Serving as a buffer state against the desert tribes, Nabataea retained its independence but paid taxes to Rome. Completely subsumed by the Romans under the Emperor Trajan in AD 106, Petra and Nabataea then became part of the Roman province known as Arabia Petraea. Under Roman rule, Roman classical monuments abounded, many with Nabataean overtones; thus, it is appropriate to identify this time (post-106) as the Nabataean-Roman phase. As we know, Petra continued to flourish during the Roman period, with a Monumental Arch spanning the Siq and tomb structures either carved out of the living rock or built free-standing. There is no reason why the Great Temple should not have continued to serve as a principal monument of the city.

When Petra entered into the "Roman" world in the second century AD, we assume that the Great Temple was recycled by Nabataean-Roman architects, and the precinct continued to serve the Romans as one of the principal monuments of the city. And if there were post-106 changes made to the Temple and its precinct, these changes are not altogether clear from the stratigraphy. We posit, however, that at some point during the last half of the second century AD, the lower Stairs of the Propylaeum were modified to conform with the paving of the Colonnaded Street for ease of entry into the precinct.

As excavations continue, it must be borne in mind that this phasing is tentative and may be revised in light of future excavation. Our understanding of the site has been difficult, not because of the lack of dateable materials, but because the mixture within archaeological contexts of artifact stylistics ranges from the first century BC to the early fifth century AD in date, thus, the Great Temple precinct was in use for approximately 500 years. There are few sealed deposits, and much more has yet to be explored before we can confirm the archaeological deposition of these remains. The existence of this monumental edifice is now an established fact. Our discoveries over the past six campaigns will enable scholars and the public at large to study and visit this great structure. I hope to not only reveal more of the architectural layout of the building and its precinct, but also to better understand its function, its phasing and how it was woven into the fabric of its Nabataean, Nabataean-Roman and Byzantine urban environment.

Inscriptions and the Artifact Record

Highly informative is our artifact record, however, it offers few clues as to the function of this structure. After six excavation seasons, the catalog register includes 382 coins, several inscriptions including two in Nabataean; and several fragments in Greek. We must be mindful of the fragmented marble Latin Imperial inscription studied by Stephen V. Tracy (1999:372-376), and dated between AD 112 and 114, found in the rear west vaulted chamber on the floor. If we assume it is in some way associated with this building, it surely attests to its importance and one of its last uses. Exquisitely painted stucco fragments abound, including one with a partial human face. 146 sculpted elephant fragments, are included in our architectural fragment data base numbering over 6274 elements, along with fragments of elaborate floral friezes and acanthus-laden limestone capitals. 379 lamp fragments, and complete Nabataean bowls, small cups, juglets, unguentaria, and figurines are among the 149,640 fragments of pottery, glass, bone, and metal have been classified in our site database, but none of them offer us any clues.

Theater-Temples and Civic Structures

A. Negev (1993: 1187) states:

"Nabataean temples follow two distinct plans. Temples in northern Arabia, southern Edom (see er-Ram), northern Edom (Petra itself and Khirbat et-Tannur), and the Hauran and the Ledja (Seeia, Sahir, and Sur) had an encased outer temple, an inner temple, and an adyton — a plan erroneously ascribed to an Iranian origin, but in fact a Nabataean adaptation to specific cultural needs. Each of these temples had a *theatron*. The temple at Sur had a theater in addition to the *theatron*. An altar in the court completed the building's components. Temples of this type were constructed in the reigns of Obodas II and Aretas IV."

The identity of our structure as a temple has proved to be a complex problem. Up to this point in time, no theater-temples like the Great Temple with the theatron being the major component of the interior have been found in the Nabataean or Greco-Roman world. In collecting all the known examples, I found a most useful source in Hanson's 1959 publication, *Roman Theater-Temples*. I also perused The Herodian Temple Platform at Caesarea (Raban and Holum 1996), and looked at *Le sanctuarie syrien* published by E. Will (1985: Pls. A-C). In looking at the plans of these structures, even those at Dura Europos are not the same design as our structure (Rostovtzeff 1938: Pl. XIII). The closest Dura parallel is "H" associated with the Sanctuary of Artemis Nannaia. H. C. Butler's 1919 studies of the theater temple at Sahr (Sahir) show a small theater situated beside the forecourt of the temple; its orchestra is slightly larger than ours (or 10.25 m in diameter), and the stage is a speaking platform used in connection with temple rites. Butler also studied the temples at Ṣūr (1919:428-431) and Sī' (Seeia). At Sī' there is a long enclosure-courtyard with the temple of Baalshamin dated to 33-32 BC, in the middle of which is a theatron identified by a Nabataean inscription. Even without the

theater component, Nabataean temples including those at Petra, the Qaṣr al-Bint and the Temple of the Winged Lions offer us little help. N. Glueck's (1965: Plan A) Nabataean Temple at Khirbat at-Tannūr and F. Villeneuve's (1990:11) tripartite Khirbat adh-Dharīḥ temple with its heart-shaped corner columns at bear little resemblance to our structure. The lack of models leaves us without definite answers. And a serious obstacle for the Great Temple's identification as a temple is that as yet we have not confirmed the location of an altar!

Now it is possible that this is a civic structure and perhaps it is where the Nabataean "popular assembly" held their meetings. Thus, perhaps, the Great Temple was built as a bouleuterion? And we should not forget the multiple references to the boule at Petra in the Babatha Archives discovered by Yigael Yadin from the *Cave of the Letters*.[3]

Archaeological parallels afforded by civic structures were more helpful as I had thought they might be. I tried to find civic structures that might have the same plan as our theatron. In Athens the New Bouleuterion in the Agora bore some resemblance (P. Travlos 1980: Figs. 30-31) as did the Odeion of Agrippa constructed in ca. 15 BC (*ibid.*, Fig. 470), which is a considerably larger building than ours, but bears some common aspects. Obviously, the tradition of like buildings had been known for some time, e.g., the Bouleuterion at Miletus (Dinsmoor 1975: Fig. 109) built in ca. 170 BC, which, like the Great Temple, is a semi-circular auditorium built into a rectangle with radiating steps. There is also the 700 seat Ecclesiasterion at Priene (*ibid.*, Fig. 108), which in part also resembles our structure and is dated to ca. 200 BC. And closer to Petra, we should look to the similar elements found at Caesarea Maritima (Gleason 1998), particularly with the triclinium of the Lower Palace (*ibid.*, Figs. 4b; 4c) with its associated pool.[4] Additionally the first century BC monumental audience hall at Caesarea Maritima in the Upper Palace (Gleason 1998: Figs. 4b; 4c) shares few similarities with our structure, although it may be found that both structures served for court meetings. With future excavation we hope to be able to firmly establish the function of our building. But, finally, if what we have is a bouleuterion, ecclesiasterion or an odeion and not a temple, then what we have identified as the Lower Temenos would have functioned as an agora or perhaps a forum.

Although the conventions of classical architecture proscribe this building to a temple, it is clear that Nabataean creativity, their lack of preconceived ideas and their unusual architectural borrowings from the classical world could have led them to utilize the Great Temple either for ritual or administrative purposes. Although this theater-like structure must have served as the central focus when it was built, it remains enigmatic. In future seasons we will test several hypotheses to explain and understand this building.

1) It was a temple or a theater-temple, or
2) It served as the civic center for Petra in the Nabataean and Nabataean-Roman periods as,
   a) a bouleuterion where the boule (city council) met, as an ecclesiasterion or a comitium or curia, a Roman political meeting place;
   b) an odeion or small concert hall, or
   c) a law court, council chamber, audience hall, or meeting hall?

Even if we restrict the interpretation of the function of the building, we are still left in the dark with a number of compelling questions. If our structure is a temple, what deity is worshipped here? And where is the altar? And if it served as a civic center, what was its intended use — bouleuterion and/or odeion? How does this precinct relate to the urban fabric of the city itself? It must be considered in relation to the city plan of central Petra. While the function of this structure remains obscure, it surely presents a significant architectural component of Petra. So, was the Great Temple a center of worship where performances of a ritual nature were performed, or was it the location of the highest court? Or did this structure serve other or perhaps even multiple civic functions? We seek scholarly discussion of this issue. Although we have shed new light on urban Petra, the implications of these finds have certainly opened new questions about the site and the city. The reappraisal of the Great Temple architecture (if it is a temple at all), chronologically and stratigraphically, will greatly enhance our understanding of the socio-political and religious culture of Nabataean Petra.

Bibliography

ADAJ: Annual of the Department of Antiquities of the Hashemite Kingdom of Jordan. See annual excavation reports, 1993-1998, published by M. S. Joukowsky on the Great (Southern) Temple.

al-Muheisen Z. and Villenneuve, F. 1990. Khirbat adh-Dharīḥ: A Nabataean Site in Wādī al-La'ban. *ADAJ* 34 :5-11 (Arabic section).

Barton, I. M. (ed.) 1995. *Roman Public Buildings.* Exeter, Uni-

[3] Dating between AD 93/94 - 132, the 35 papyrus archives were found in a leather purse in 1961 by Yigael Yadin at the cave of Nahal Hever on the west shore of the Dead Sea. These priceless finds are known as documents from "the Cave of the Letters." Published in 1989 by the Israel Exploration Society, The Hebrew University of Jerusalem and the Shrine of the Book, as *The Documents from the Bar Kokhba Period in the Cave of the Letters*, Naphtali Lewis, (ed.).

[4] The association of the pool with Herod's building programs is common. To the east of the Temple precinct lies the so-called 'Lower Market,' which appears to be part of the Temple precinct. It is an enclosed formal garden with a large pool, reminiscent of a Persian *paradeisos* or pleasure park. In the center of the pool is a bridge leading to an island with the remains of pavilion which was embellished with marble and painted plaster. More about this extraordinary feature will be reported on the future.

versity of Exeter Press.

Bowersock, G. W. 1983. *Roman Arabia*. Cambridge, MA: Harvard University Press.

Butler, H. C. 1919. "Sahr". Pp. 441-446 in *Syria Princeton Archaeological Expedition* Div. II: Architecture, Sec. A, Southern Syria. Brill .

___1919. "Sur". Pp.428-431 in *Syria* Div. II: Architecture, Section A, Southern Syria. Brill.

___ 1919. "Si". Pp.379-380 in *Syria* Div. II: Architecture, Section A, Southern Syria. Brill.

Dinsmoor, W. B. 1975. *The Architecture of Ancient Greece.* Norton, Batsford.

Downey, S. B. 1988. *Mesopotamian Religious Architecture: Alexander through the Parthians.* Princeton: Princeton University Press.

Gleason, K. L. 1998. The Promontory Palace at Caesarea Maritima: Preliminary Evidence for Herod's *Praetorium. Journal of Roman Archaeology* Vol. 11: 23-52.

Glueck, N. 1965. *Deities and Dolphins*. Cassell and Co. 1966.

Hanson, J. A. 1959. *Roman Theater-Temples*. Princeton, NJ: Princeton University Press.

Joukowsky, M. S. 1998a. Rediscovering Elephants at Petra!" Pp.133-148 in L. Lesko, (ed.), *Ancient Egyptian and Mediterranean Studies, In Memory of William A. Ward.* Brown University, Department of Egyptology .

___ 1998b. The Great Temple at Petra, in Archaeology in Jordan. *AJA* 102.3: 595-596.

McKenzie, J. 1990. *The Architecture of Petra.* Oxford: Oxford University Press.

Negev, A. 1993. Petra. Pp. 1181-1193 in E. Stern, (ed.), *The New Encyclopedia of the Holy Land.* New York: Simon and Schuster.

Nielsen, I. 1994. *Hellenistic Palaces: Tradition and Renewal.* Aarhus: Aarhus University Press.

Rostovzeff, M. I. 1938. *Dura Europos and its Art*. Oxford: Clarendon.

___ 1941. *Social and Economic History of the Hellenistic World* I. Oxford.

Segal, A. 1995. *Theatres in Roman Palestine and Provincia Arabia.* New York: Leiden.

Tracy, S. V. 1999. The Inscriptions. Pp. 371-382 in *Petra*: *The Great Temple, Vol. I — Brown University Excavations 1993-1997,* by Martha Sharp Joukowsky. Petra Exploration Fund, Brown University.

Travlos, J. 1980. *Pictorial Dictionary of Ancient Athens*. New York: Hacker.

Ward-Perkins, J. B. 1981. *Roman Imperial Architecture*. Harmondsworth, Penguin.

Jean-Marie Dentzer
Jacqueline Dentzer-Feydy
Pierre-Marie Blanc
IFAPO
Damas - Syrie

Jean-Marie Dentzer, Jacqueline Dentzer-Feydy et Pierre-Marie Blanc

Buṣrā dans la perspective par millénaires : la Buṣrā nabatéenne[1]

Dans la perspective d'étude par millénaires de la Jordanie, il est légitime de présenter la ville syrienne de Buṣrā, toute proche, dont on commence à mieux suivre le développement sur une longue durée, du néolithique à la période ottomane.[2] D'abord la ville est située dans une unité géologique et géographique, la zone basaltique de la Syrie du Sud, qui se prolonge sur le territoire jordanien et constitue aussi une entité culturelle manifeste à différentes périodes. D'autre part, Buṣrā a été deuxième capitale du Royaume Nabatéen et doit figurer, et tient sa place, dans cette phase, dans une vue d'ensemble de l'histoire de la Jordanie. Notre contribution sera centrée sur cette phase nabatéenne mais rappelera brièvement quelques apports nouveaux sur la chronologie des autres périodes. Nous serons ensuite conduits à réfléchir, à Buṣrā, sur les critères chronologiques, les dénominations données aux différentes périodes, leurs références politiques et culturelles.

1. Buṣrā avant les Nabatéens

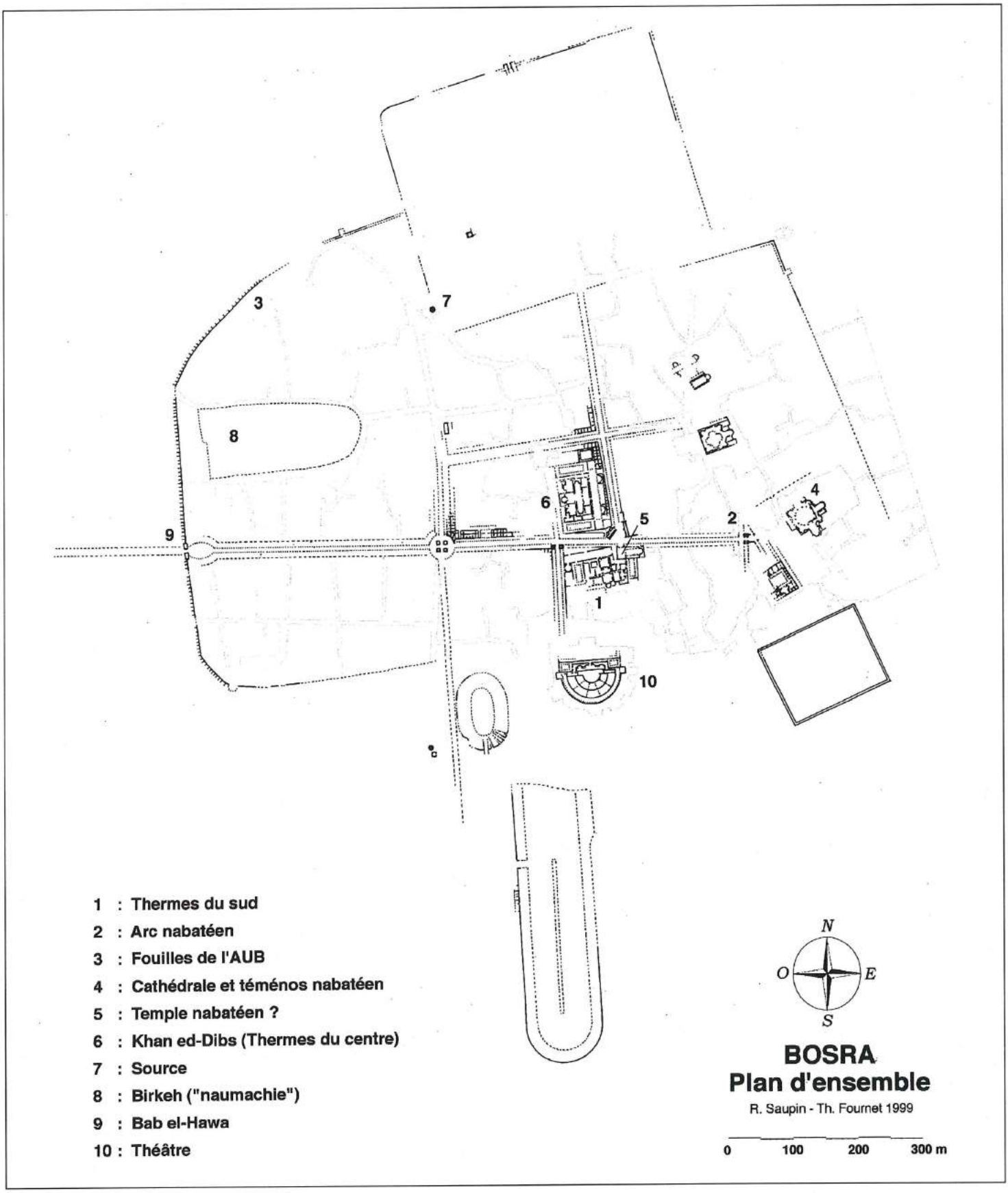
Les vestiges archéologiques fournissent un cadre chronologique discontinu tant que l'extension des fouilles reste limitée à une petite surface. De ce fait, surtout pour les périodes les plus anciennes, qui correspondent aux niveaux les plus profonds, le hasard garde un rôle dans la découverte des vestiges. Dans un site comme Buṣrā quelques textes peuvent ajouter d'autres repères chronologiques mais ils ne suffisent pas à établir une véritable continuité historique.

Les fouilles menées depuis 1981 par la Mission archéologique française en Syrie du Sud n'avaient pas pour objectif l'étude des phases les plus anciennes de l'histoire de Buṣrā. Cependant, les fouilles et sondages effectués ont révélé des phases de l'histoire de Buṣrā qui n'étaient pas illustrées jusqu'à présent par des traces archéologiques (FIG. 1):

- période néolithique : matériel néolithique à poteries, à partir du VIe millénaire avant notre ère. Nous avons trouvé en 1995 dans le chantier des Thermes du sud du matériel lithique (du type "pointes de Byblos", lames de faucilles denticulées) et céramique qui trouvent leurs parallèles à Byblos. Ces restes étaient associés à des ossements animaux, fragmentaires eux aussi, et témoignent d'une occupation in situ, mais dont les restes ont été remaniés au cours de l'une des phases d'occupation nabatéenne.

[1] Le programme de la "Mission archéologique française en Syrie du Sud à Bosra", (Maison René Ginouvès à Nanterre) a été élaboré et conduit en collaboration étroite et amicale avec la Direction générale des Antiquités de la République Arabe Syrienne à Damas et à Buṣrā où nous avons été accueillis chaleureusement depuis 1974 par Soleiman puis par Riyadh al-Mukdad.

[2] Publications de la Mission Archéologique française en Syrie du Sud : J.-M. Dentzer, "Les sondages de l'Arc Nabatéen et l'urbanisme de Bosra", *CRAI*, 1986, p. 62-87; J.-M. Dentzer *et al.*, "Sondages près de l'Arc Nabatéen de Bosra", *Berytus*, 32, 1984 (1986), p. 163-174; J.-M. Dentzer, "Céramiques et environnement naturel : la céramique nabatéenne de Bosra", *SHAJ*, II, Amman, 1985 (1986), p. 149-154; R. Al-Mukdad; J.-M. Dentzer, "Les fouilles franco-syriennes à Bosra (1981-1987) ", *AAAS*, 37-38, 1987-1988, p. 224-241; J.-M. Dentzer, "Neue Ausgrabungen in Sî' (Qanawat) und Bosra (1985-1987): Zwei einheimische Heiligtümer in der vorkaiserzeitlichen Periode", *Akten des XIII. Internationalen Kongresses für Klassische Archäologie*, Berlin, 1988 (1990), p. 364-370, Berlin, ; J.-M. Dentzer, P.-M. Blanc, R. & A. Mukdad, "Nouvelles recherches Franco-Syriennes dans le quartier est de Bosra ash-Sham", *CRAI*, 1993, p. 117-147; J.-M. Dentzer, P.-M. Blanc, "Techniques de construction et de revêtement dans la Bosra nabatéenne", Studies in the *SHAJ*, V, 1995 (=Vème congrès sur l'histoire et l'archéologie de la Jordanie, Univ. of Science & Technology, 12-17 avril 1992), p. 223-230.
Bibliographie sommaire : ouvrages de référence : R.E. Brünnow, A. von Domaszewski, *Die Provincia Arabia*, Strasbourg, III, 1909, p. 1-84; H.-C. Butler, *Publications of the Princeton Univ. Archaeol. Expedition to Syria in 1904-1905 and 1909 (= PPUAES) II A, Ancient Architecture in Syria, Southern Syria*, p. 215-295; M. Sartre, *Bostra: des origines à l'Islam*, , Paris,1985 (BAH 117). Autres publications récentes : S. Cerulli, "Bosra, note sul sistema viario urbano e nuovi apporti alla comprensione delle fasi edilizie nel santuario dei Ss. Sergio, Bacco e Leonzio", *Felix Ravenna*, 115, 1978,1, p. 77-120, 133-176. K.S. Freyberger, "Einige Beobachtungen zur städtebaulichen Entwicklung des römischen Bostra", *DaM*, 4, 1989, p. 45-60; R. al-Muqdad, J.-M. Dentzer, H. Broise, "Bosra", *Syrian-European Archaeology Exhibition; Working together*, Damas 30/5/96-11/7/96, Damas, 1996, p. 123-129; P.-M. Blanc, J.-M. Dentzer, "Bosra", dans "Archaeology in Syria", *AJA*, 101, 1, 1997, p. 113 - 116; R. al-Muqdad, R. Farioli-Campanati, *Syrian-European Archaeology Exhibition; Working together*, Damas 30/5/96-11/7/96, Damas, 1996, p. 167-170; M. Sartre, "Bostra", *Reallexikon für Antike und Christentum.*



1. Buṣrā: plan d'ensemble (R. Saupin - Th. Fournet).

- Âge du Bronze : Dans l'espace intérieur entre l'Arc nabatéen et les deux piliers tournés vers le quartier est de Buṣrā, un sondage effectué en 1992 a révélé de la céramique du Bronze Ancien I et II dans un contexte analogue, remanié à l'époque nabatéenne. La période du Bronze Moyen est mieux connue grâce aux fouilles effectuées à la limite nord ouest de la ville par l'AUB, sous la direction de H. Seeden[3] où sont apparus des bâtiments interprétés comme une ferme.
- Âge du Fer : période très mal connue dans la région[4], l'âge du fer est représenté par quelques tessons, malheureusement résiduels (?) et trop fragmentaires pour révéler des formes, à l'exception d'un pot à cuire. Ces restes de céramique pourraient être datés vers le VIe siècle avant J.-C. On peut les comparer à du matériel trouvé sous le temple 2 du sanctuaire de Sî' (Qanawât). Cette phase d'occupation est attestée dans le sondage de l'Arc nabatéen, qui a fourni le matériel du bronze ancien, dans un sondage près de la rue est-ouest au nord des Thermes, et sous une maison omeyyade donnant sur le carrefour de la rue nord-sud croisant une deuxième rue à colonnades est-ouest.
- L'époque hellénistique : un certain nombre de monnaies séleucides sont apparues dans nos fouilles à Buṣrā. Quelques rares tessons, en particulier des fragments de plats à poisson datés de la fin du IIIe - début du IIe siècle ont été trouvés sur tous les chantiers ouverts à Buṣrā par la Mission Archéologique en Syrie du Sud. On peut y ajouter quelques lampes et des formes caractéristiques de verres hellénistiques (en particulier bols moulés à décor incisé datés du Ier siècle avant J.-C.).

Il faut comparer la pauvreté de ces découvertes à celles faites récemment par M. Kalos à Suwayda et dans ses environs, dans le Jabal al-'Arab, où sont apparues des formes de céramique caractéristiques bien représentées dans les fouilles françaises du centre ville de Beyrouth : fragments à vernis noir, produits sans doute chypriotes (cruches peintes sur engobe beige, pâte rouge) et surtout des lampes d'Éphèse de la fin du IIe-début du Ier siècle avant J.-C.

À Buṣrā ce matériel céramique hellénistique, résiduel, ne peut être associé, pour le moment, à aucune construction.

2. Buṣrā à l'époque nabatéenne[5]

C'est avec l'époque nabatéenne que nous entrons dans une période représentée par une documentation archéologique plus riche et plus cohérente.

Nous disposons à présent d'un matériel céramique significatif, trouvé dans tous les chantiers qui ont atteint des niveaux suffisamment profonds du centre de la ville. Les tessons nombreux de céramique nabatéenne fine se rattachent sans difficulté au matériel trouvé et fabriqué à Pétra, les analyses pétrographiques effectuées dès 1980 conduisent à penser que cette céramique a bien été importée de la zone de Pétra.[6] Ses formes s'intègrent dans les recherches typologiques récentes sur le matériel de az-Zanṭūr à Pétra.[7] Aux productions de la zone de Pétra, on peut ajouter des formes de céramique commune, en pâte locale rouge, qui apparaissent comme des imitations de formes existant dans la céramique nabatéenne.

Ce matériel, complété par des échantillons d'autres productions datables, comme la sigillée orientale, fournit à présent des indications chronologiques solides. Il faut souligner d'abord l'absence, pour le moment, de céramique appartenant à la phase nabatéenne ancienne suivant la typologie établie par S. G. Schmidt. L'indication paraît confirmée par l'échantillonnage actuel de monnaies nabatéennes dont les plus anciennes datent au plus tôt de la fin du Ier siècle avant J.-C. Il faut signaler ici l'intérêt particulier d'une monnaie d'un type encore inédit, trouvée dans un sondage des Thermes du Sud en 1995 et datée du tournant de l'ère.[8]

Les deux ensembles monumentaux nabatéens actuellement dégagés sont, d'une part, l'Arc, complété à l'est par deux piliers ornés de demi-colonnes nabatéennes[9], d'autre

---

[3] M. Kadour, H. Seeden, "Busra 1980 : Reports of an Archaeological and Ethnographic Campaign", *DaM*, 1, 1983, p.77-102; H. Seeden, "Busra 1983-1984: Second Archaeological Report", *DaM*, 3, 1988, p. 387-412; H. Seeden, J. Wilson, "Buṣrā in the Ḥawrān: AUB's ethnoarchaeological project 1980-1985", *Berytus*, XXXII, 1984, p. 19-34; H. Seeden, "Bronze age village occupation in Buṣrā : AUB excavations on the northwest tell 1983-1984", *Berytus*, XXXIV, 1986, p. 11-82.

[4] C'est à la fin de cette période (époque achéménide) que se rattache un trésor monétaire, daté vers 445 avant J.-C., trouvé sur le territoire jordanien dans la zone la plus proche de Buṣrā : C.M. Kraay, P. R.S. Moorey, "Two Fifth-Century Hoards from the Near East", *Revue Numismatique*, 1968, p. 182-210, pl. XIX-XXIII.

[5] La Mission archéologique française en Syrie du Sud prépare actuellement une publication d'ensemble sur la Buṣrā nabatéenne.

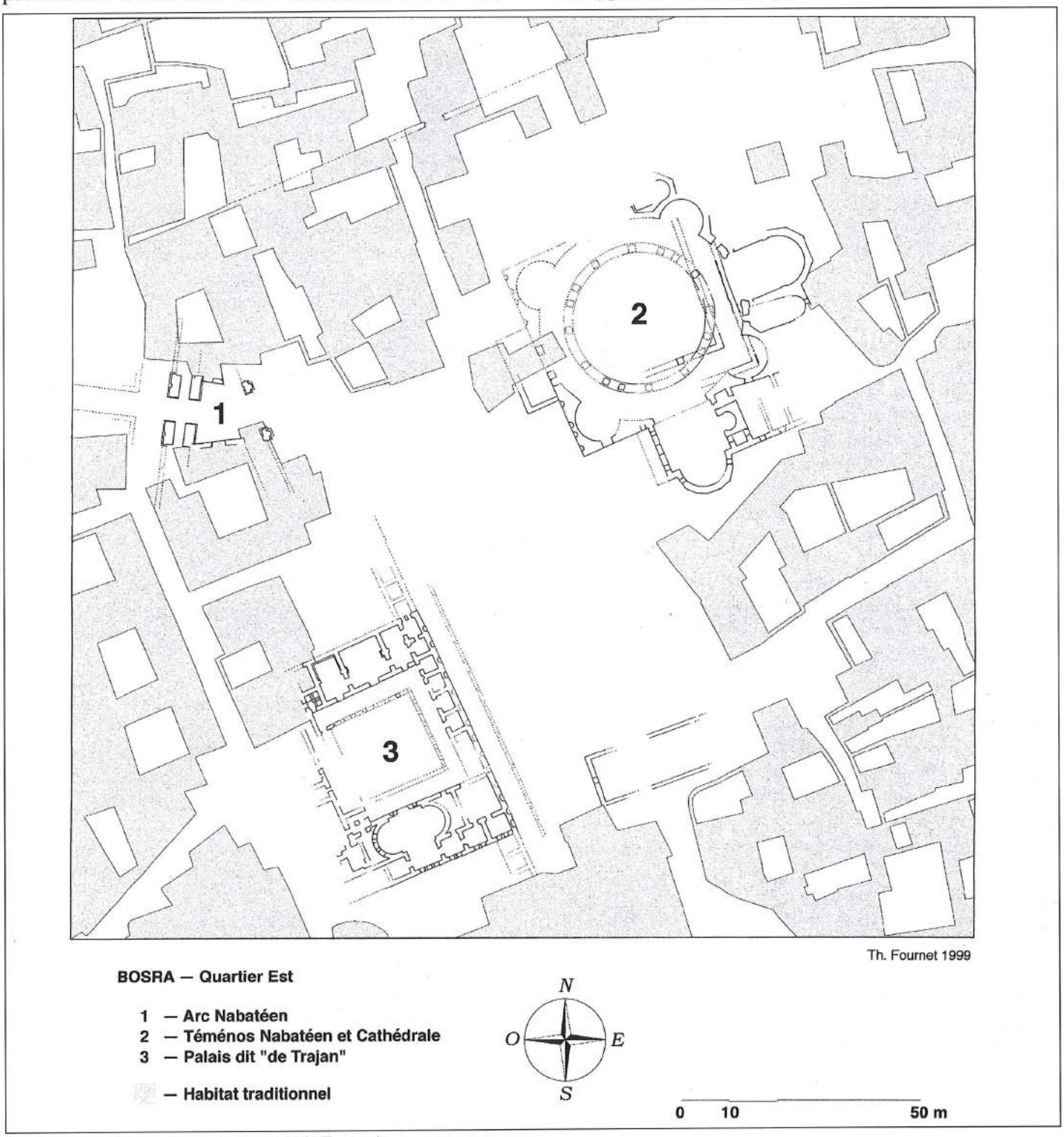
[6] L. Courtois, J.-M. Dentzer, D. Orssaud, F. Villeneuve," Examen scientifique, description et classement des céramiques de Sî': rôle d'une étude pétrographique, *Actes du 20ème congrès international d'archéométrie*, Paris,1980, p. 45-52; M. Barret; L. Courtois, D. Orssaud; F. Villeneuve, "Le matériau céramique", dans *Hauran* I, Paris 1986, p. 223-234; J.-M. Dentzer, Céramiques et environnement naturel: la céramique nabatéenne de Bosra, dans: *SHAJ*, II, Amman,1985, (1986) p. 149-154.

[7] S. G. Schmidt, Die Feinkeramik der Nabatäer, Typologie, Chronologie und kulturhistorische Hintergründe, Dissertation, Basel, 1995; *id.* "Nabataean Fine Ware from Petra", *SHAJ* V, 1995, p. 637-647; "Nabatarean Fine Ware Pottery and the Destructions of Petra in the Late First and Early Second Century", dans *SHAJ*, VI, 1997, p. 413-420, R.A. Stucky *et al.*, *Petra - ez-Zantur I. Ergebnisse der Schweitzerisch- Liechtensteinischen Ausgrabungen 1988-1992.*

[8] En cours d'étude par Christian Augé.

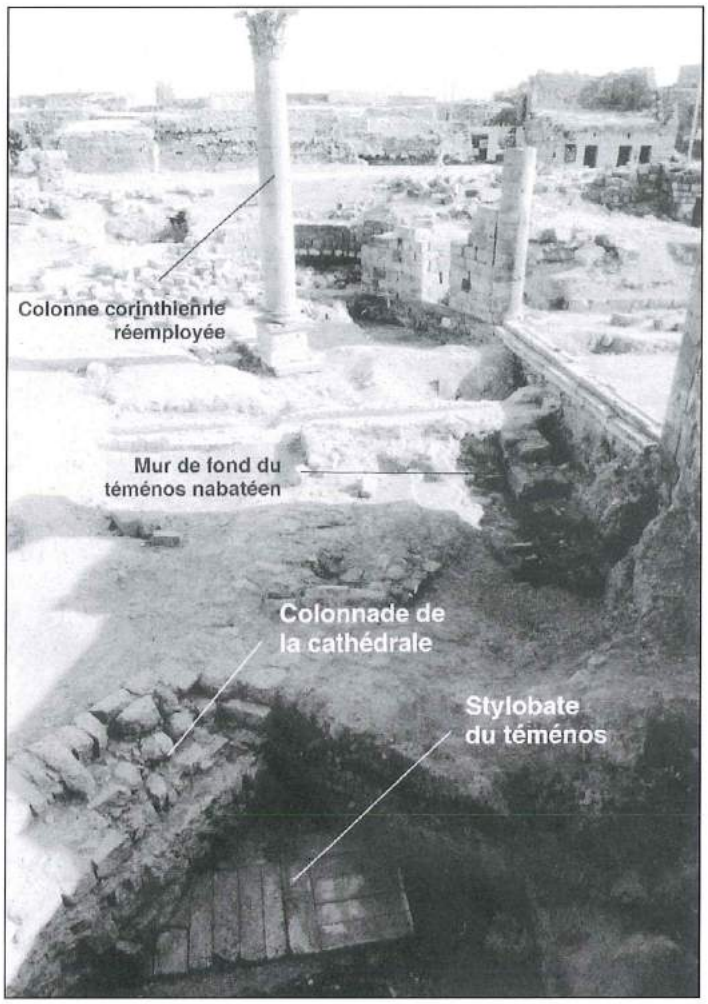
[9] voir ci-dessus note 2 et Brünnow - Domaszewski, *Provincia Arabia* III, p. 23; H.C. Butler, *PPUAES*, II A 4, p. 236-243; A. Negev, *Aufstieg und Niedergang der röm. Welt (ANRW)*, Berlin, 1978, II, p. 660-662; I. Kader, Propylon und Bogentor, *Untersuchungen zum Tetrapylon von Latakia und andere Frühkaiserzeitlichen Bogenmonumenten im Nahen Osten,* Mainz, 1996, (= Damaszener Forschungen, 7), p. 144-158.

part, le téménos monumental à portique, trouvé plus à l'est sous la cathédrale[10] (FIGS. 2-4). D'après la céramique sigillée et nabatéenne, le premier ensemble est postérieur au milieu du Ier siècle de notre ère et n'est vraisemblablement pas antérieur aux années 60-70. Une monnaie de cité d'un type daté vers 80 de notre ère a été trouvée dans la tranchée de fondation du téménos, associée aux types de céramique que l'on a trouvé également sous



2. Monuments du quartier est de Buṣrā (Th. Fournet).

[10] Voir *CRAI*, 1993, p. 126-147.



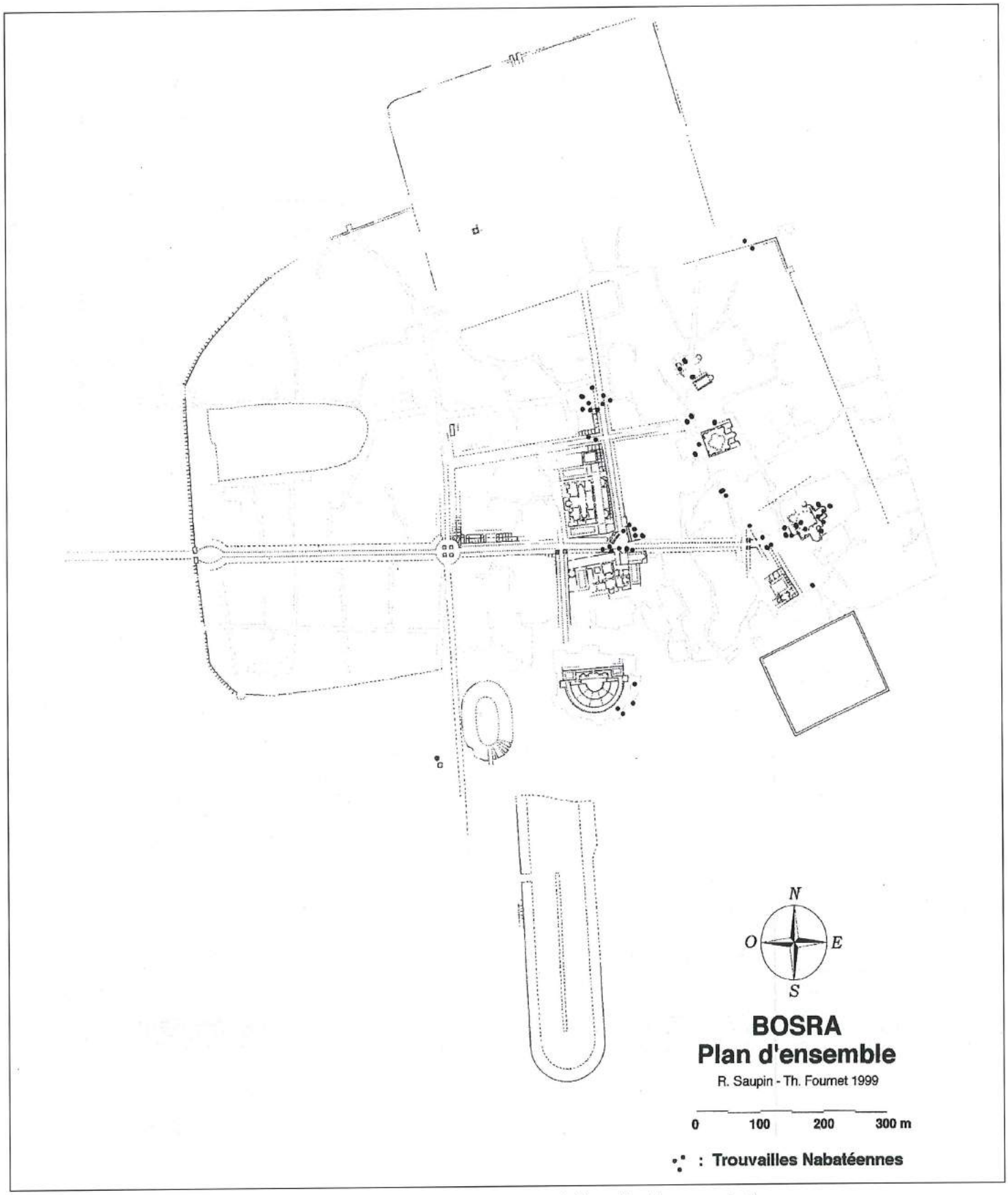
3. Fouille de la Cathédrale avec restes du monument nabatéen (mur de téménos, stylobate).

l'Arc.

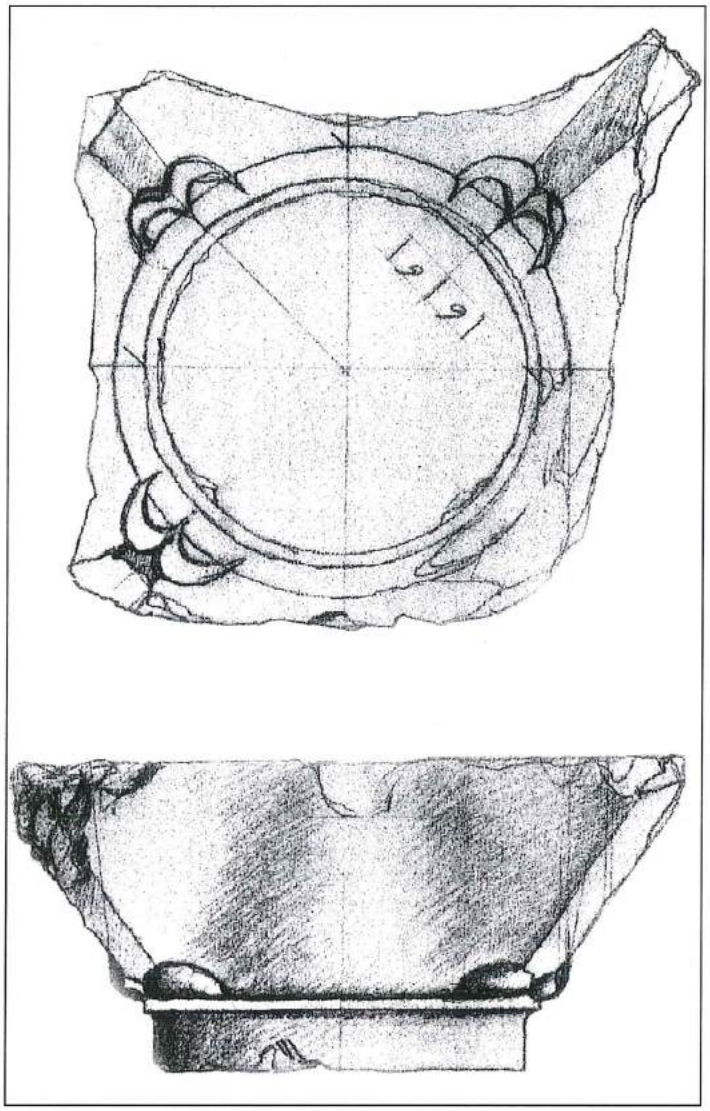
En dehors des monuments nabatéens qui sont soit *in situ*, comme l'arc, soit en remploi antique, par exemple dans l'église est, il existe un nombre important de blocs sculptés de style nabatéen isolés ou en remplois ancien dans des églises ou dans des mosquées (FIG. 5). La concentration la plus importante se trouve à l'est de la rue nord-sud, dans le secteur central et oriental de la ville, mais on a identifié des blocs nabatéens en remploi dans quelques édifices extérieurs à ce secteur. Si l'on excepte l'ensemble des blocs qui ont été rattachés à l'arc nabatéen et aux demi-colonnes et qui ont été trouvés à proximité, la plupart des éléments d'architecture isolés ne peuvent être rattachés à des monuments, dans l'état actuel de la recherche. Parmi ces blocs isolés les plus caractéristiques sont des chapiteaux "à cornes" à un ou deux registres avec une échine moulurée, utilisés couramment à Pétra et à Hegra (FIGS. 6, 7), un large chapiteau ionique (FIG. 8) qui peut se comparer à des exemples analogues à Pétra (dans la rue à colonnades et le triclinium 235). Aucun chapiteau à rinceaux n'a été trouvé à Buṣrā jusqu'à présent à l'exception d'un très petit chapiteau de pilastre isolé à l'est de l'Arc nabatéen (FIG. 9). On note, d'autre part, un nombre important des chapiteaux doriques du même type que celui qui est attaché au massif nabatéen à demi-colonnes et qui attestent l'existence d'une très grande cour ou de rues à portiques (FIG. 10). En ce qui concerne les autres blocs d'architecture il faut noter que les moulures sont lisses avec un parement fin et des profils surtout concaves et biseautés, comme à Pétra (FIG. 11). Les entablements sont composites dans le style de la fin de la période hellénistique : les architraves présentent à la fois des fasces



4. Photographie oblique par cerf volant du quartier est de Buṣrā ("Palais de Trajan", Arc nabatéen, Cathédrale) (Yves Guichard).



5. Buṣrā: plan d'ensemble (R. Saupin - Th. Fournet) emplacements de découverte de blocs d'architecture nabatéenne.



6. Chapiteau nabatéen àcornes (dessin Ph. Tondon).



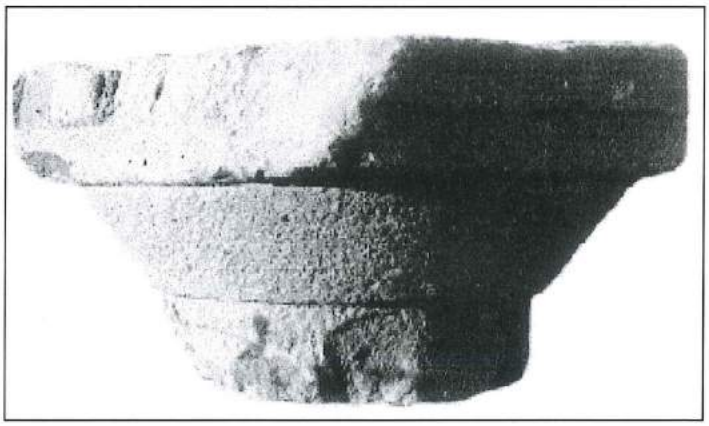
7. Chapiteau nabatéen.



8. Chapiteau nabatéen de type ionique en remploi dans une maison.

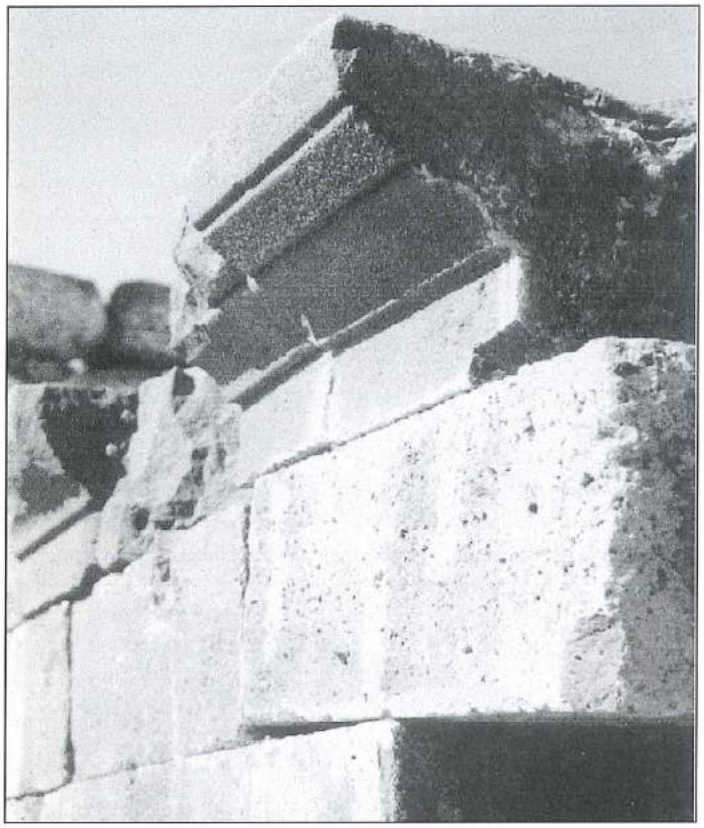


9. Fragment de chapiteau de pilastre àrinceaux.



10. Chapiteau dorique.

ioniques et des gouttes doriques (FIG. 12). Les frises sont doriques et les corniches sont doriques, sans modillons.

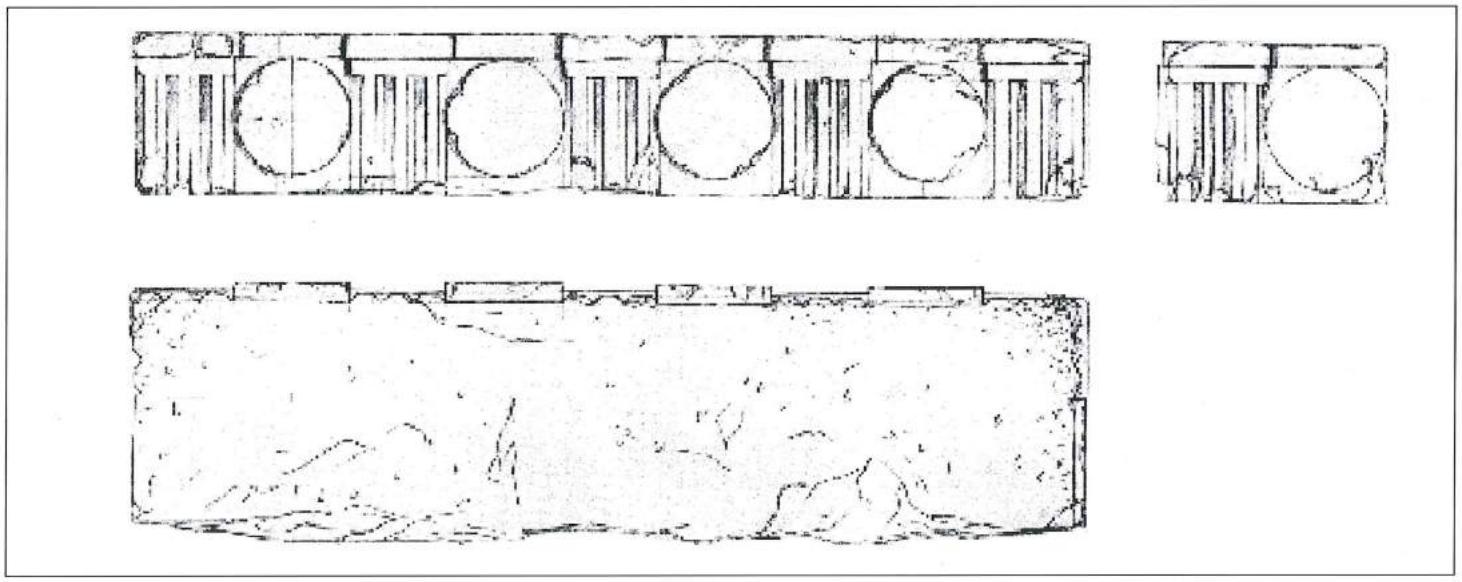


11. Blocs de corniche en remploi dans la façade de la "Kalybé - Nymphée".

D'après leurs dimensions et la qualité de leur traitement, on peut déduire que ces blocs architecturaux nabatéens, le plus souvent d'origine inconnue, attestent l'existence à Buṣrā de programmes de grande envergure et de belle facture mais aussi de constructions plus modestes comme des maisons.

On peut supposer un monument important à proximité de l'angle nord-est des Thermes du Sud (FIG. 13). En effet, le développement de ces Thermes dont la série de salles centrales est organisé sur un plan orthogonal, a manifestement été limité par la présence d'un bâtiment situé dans ce secteur.[11] Ce verrou disparaît au IVe siècle et à ce moment le secteur est acquis aux Thermes.

Au carrefour de la rue principale et de la rue nord sud ont été trouvés quatre blocs de corniche dont l'angle d'un fronton dont la mouluration lisse se rattache plutôt à une architecture classique du début de l'époque impériale qu'à une modénature de style nabatéen. Ces corniches ne sont pas comparables aux corniches tardo-hellénistiques du Jabal al-'Arab à Sî', ni aux premiers modèles connus de corniches impériales des temples de Sleim, Mouchennef, Rimet Hazem.[12] Ces éléments ont été trouvés à proximité d'un soubassement construit en blocs dont la surface a été traitée d'une façon plus soignée que celle des constructions impériales de l'époque de la province d'Arabie. Un nombre important de ces blocs font partie d'un mur qui limite à l'est un des accès aux Thermes à partir de la rue principale. N. Masturzo interprête ce mur comme le mur ouest, en place, d'un temple du IIe siècle de notre ère, dont il reste le pilastre d'ante.[13] L'état de cette construc-

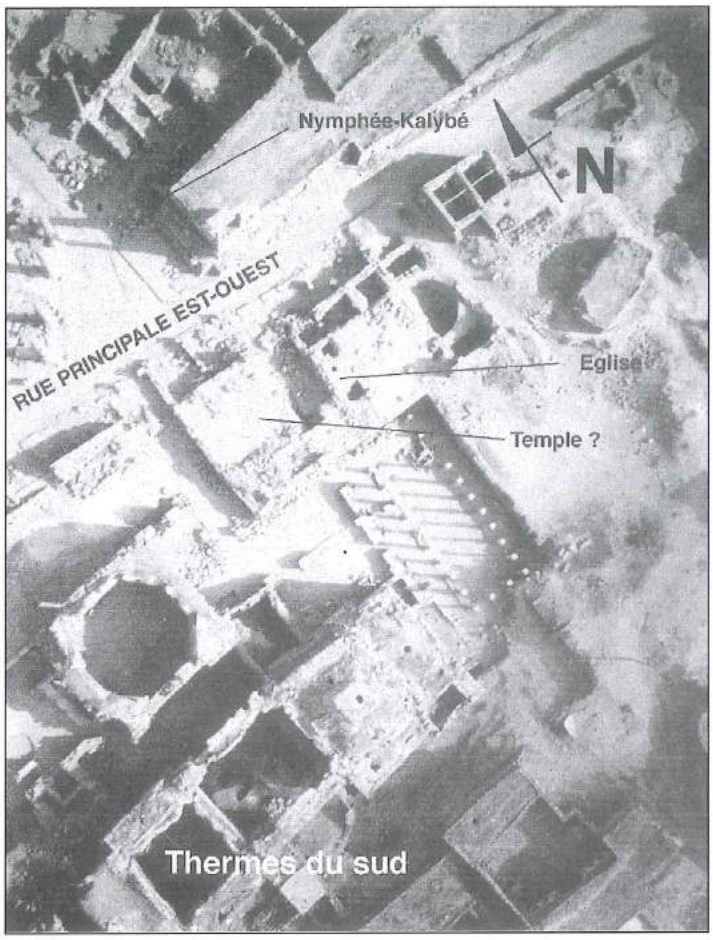


12. Blocs d'architecture nabatéens: frise dorique (dessin Ph. Tondon).

11 R. al-Muqdad, J.-M. Dentzer, H. Broise, "Bosra", *Syrian-European Archaeology Exhibition:Working together*, Damas 30/5/96-11/7/96, Damas, 1996, p. 125 -129

12 J. Dentzer-Feydy, dans *Hauran I*, p. 263-297.

13 N. Masturzo, "Bosra. Rilievo del tempio e della chiesa numero tre (Butler) sul "Decumano", XLIII *Corso di Cultura sull'arte ravennate e bizantina*, Ravenna 22-26 marzo 1997, p. 453-482; cf. N. Masturzo, Elementi di disegno urbano a Bosra. Rapporto preliminare sulla zona nord-oriental, *Felix Ravenna*, 141-144, 1991-92, p. 233-256.



13. Photographie verticale, par cerf-volant, du carrefour entral de Buṣrā (Yves Guichard).

tion et les irrégularités de son plan ne peuvent s'expliquer que par des remaniements importants, sans doute au moment du changement d'affectation au IVe siècle. On peut supposer aussi que le mur n'est pas en place mais a été construit, comme souvent à Buṣrā, avec des blocs pris sur un bâtiment plus ancien et replacés dans leur ordre d'origine. Ce monument, proche, pourrait être un temple nabatéen qui a fortement marqué ce quartier et qui a été désaffecté au IVe siècle.

La découverte non loin de là, dans la palestre des Thermes du centre (Khān ad-Dibs), d'une inscription nabatéenne évoquant des prêtres et un culte pourrait constituer un argument supplémentaire en faveur de cette thèse.[14] Elle contribuerait aussi à expliquer la construction à abside qui pourrait avoir été une église, au-dessus d'une série de boutiques tardives, entre la rue principale et la palestre est des Thermes du Sud. La permanence des lieux de culte sur un même site est un fait confirmé, encore récemment, par exemple à Jarash[15] et à Buṣrā même.

Au-delà d'échantillons de céramiques et de monnaies ou de vestiges de constructions, nous commençons à mieux saisir le développement urbain de Buṣrā. Il faut rappeler que l'occupation de la ville à l'âge du bronze et à l'âge du fer, que l'on pouvait supposer limitée à la partie occidentale de la ville, près de la source et d'une grande birkeh (interprétée autrefois comme une naumachie), avec des tronçons de muraille en appareil "cyclopéen", s'étendait également à la partie centrale de la ville jusqu'aux parages de l'Arc nabatéen. On ignore encore si l'occupation était continue sur toute cette surface ou si elle se limitait à des noyaux séparés.

L'occupation nabatéenne s'étendait elle aussi à l'ensemble de la ville, jusqu'à ses limites ouest et nord-ouest, avec un système de circulation est-ouest qui devait suivre le tracé de la future voie à colonnades. Des traces de cet état nabatéen de la rue, alors plus étroite, ont été reconnues dans des sondages au nord des Thermes du Sud. À l'est, la façade monumentale de l'arc nabatéen constituait une limite. Le véritable apport nabatéen a été la création d'un quartier neuf, d'orientation différente, organisé d'une manière apparemment plus cohérente que le reste de la ville et portant la marque d'un véritable projet d'urbanisme. On y reconnaît, en effet, un module récurrent de 35 m. L'ensemble monumental constitué par l'Arc et les deux piliers marque le passage d'un quartier à l'autre. L'orientation différente semble avoir été imposée par une construction majeure, le téménos à portiques découvert sous la grande église cathédrale de l'est.[16]

A l'autre extrémité de la ville, la construction de la porte ouest (Bāb al-Hawā) pourrait dater de la période de transition entre l'époque nabatéenne et la création de la province d'Arabie. J.-Cl. Bessac a relevé une certaine parenté dans le traitement du basalte entre les parements de mur nabatéens et ceux de cette porte.

Des traces d'organisation de la campagne autour de Buṣrā sont visibles sur des photographies aériennes anciennes. On a identifié un système de cadastration romaine à unités carrées de 705 à 710 m, à l'est de la ville, se développant en direction de Salkhad sur l'axe de la route romaine. Une organisation différente du paysage, sur la base de rectangles de 144 x 90 m de côté, a laissé

14 L. Nehmé, "Une inscription nabatéenne inédite de Bosrà (Syrie)", dans C.B. Amphoux, A. Frey, U. Schattener-Rieser (éd.), *Études sémitiques et samaritaines offertyes à Jean Margain*, Histoire du texte biblique 4, Lausanne, 1998, p. 62-73.

15 Temple sous la cathédrale de Jerash : J.W. Crowfoot, Recent Work round the Fountain Court at Jerash, *PEFQS* 1931, p. 145 sq.; C.H. Kraeling, *Gerasa: City of the Decapolis*, New Haven 1938, pl. XXXI; B. Brenk, La cristianizzazione della città tardoantica, dans La ciudad en el mundo romano. Actas XIV Congreso Internacional de Arqueològia Clásica, Tarragona, 1993 (1994), p. 129-135; B. Brenk, C. Jäggi, H.R. Meier, The Buildings under the "Cathedral" of Gerasa. The Second interim Report on the Jarash Cathedral Project, *ADAJ* 39, 1995, p. 211-220; C. Jäggi, H.R. Meier, B. Brenk, I. Kehrberg, New Data for the Chronology of the Early Christian Cathedral of Gerasa : The Third interim Report on the Jerash Cathedral Project, p. 311-320.

16 *CRAI*, 1993, p. 117-147.

des traces à l'ouest de Buṣrā. Comme elle suit l'orientation de la rue principale de la ville et qu'elle paraît antérieure au parcellaire à mailles carrées, on peut se demander si une opération de cadastration n'a pas été conduite avant l'époque romaine.

On peut rattacher aussi à cet état de la ville une nécropole avec des tombeaux à tumulus, non datés pour le moment, mais comparables à ceux fouillés dans la zone de Sî'-Qanawat et plus récemment, à Suwayda.

Le thème de la conférence *la Jordanie par millénaires* invite aussi à une réflexion sur le découpage chronologique par phases culturelles. Buṣrā offre une bonne occasion de redéfinir la phase nabatéenne.

Lorsqu'ils ne disposent pas d'autres repères chronologiques, pour la préhistoire en particulier, les archéologues sont conduits à adopter une périodisation fondée sur des faciès lithiques ou céramiques et à nommer une "phase culturelle" d'après le site de la découverte. La découverte du même facies dans une multiplicité de sites permet de définir une culture matérielle à l'échelle régionale. Avec l'apport de textes, pour les époques historiques, il devient possible de rattacher un faciès archéologique à une population ou des événements : il devient alors tentant de mettre les changements de faciès observés dans le matériel archéologique en relation avec des découpages historiques fondés avant tout sur l'autorité politique.

S'il est douteux que l'on puisse mettre en relation directe l'apparition de nouveaux types de céramique avec un changement politique, on peut, dans certains cas, leur attribuer une signification culturelle sans d'ailleurs pouvoir l'expliciter dans tous les cas. Alors qu'il est souvent difficile d'attribuer une catégorie de matériel à un groupe défini, nous avons la chance, pour les Nabatéens, de disposer de produits qui portent une marque de personnalité indiscutable. Ce sont d'abord les monnaies, très caractéristiques, et la céramique fine à décor peint dont la typologie et la chronologie ont fait récemment des progrès remarquables; mais ce sont aussi des formes de décor architectural dont les deux types de chapiteaux, l'un simplement épannelé, l'autre décoré de rinceaux sont les exemples les plus frappants. Il faut ajouter une taille particulière des moulures souvent concaves ou en biseau. L'analyse, actuellement en cours, des techniques de construction et de taille de la pierre permettra sans doute aussi d'identifier mieux des procédés propres au milieu nabatéen. Plus explicites sont des inscriptions nabatéennes ou des simplement noms nabatéens.

Réunis sur un même site, ces témoins apportent un solide faisceau d'arguments pour définir une "présence" nabatéenne mais n'offrent pas de références chronologiques d'une égale précision. Les monnaies sont en usage pendant une longue période en Syrie du Sud mais constituent, en tout cas, un "terminus a quo" incontestable. Les grandes étapes de production de la céramique nabatéenne peinte, ou non peinte, ont été précisées. Il est significatif que l'on n'ait pas trouvé à Buṣrā la production comme la plus ancienne connue à Pétra.

La diffusion de ces différents produits n'est pas la même sur des sites pourtant peu éloignés les uns des autres, comme l'a montré la comparaison entre les fouilles de Buṣrā et celles de la région de Suwayda.[17] La monnaie connaît une distribution très large et traduit de simples échanges économiques. En revanche la céramique fine, abondante à Buṣrā seulement, doit être en usage seulement dans une population bien définie.[18] On peut ainsi supposer la présence, dans la population de Buṣrā, d'un groupe nabatéen important. Quant au décor architectural, dans des programmes coûteux de caractère officiel, il est la marque imposée par l'autorité politique pour signer un grand projet d'architecture et d'urbanisme. C'est en ce sens qu'il faut interpréter le temple dit nabatéen, reconnaissable à ses chapiteaux, offert par un roi nabatéen, sans doute Rabbel II, dans le sanctuaire de Sî' dont l'audience était régionale et s'étendait jusqu'aux confins du Safa.[19] Au Ier siècle avant J.-C. et au Ier siècle après J.-C., cette zone n'appartient pas au royaume nabatéen mais a été placée par Rome sous l'autorité de la dynastie hasmonéenne. On y a qualifié, à tort, de nabatéen un courant d'art très original, très différent de ce que nous connaissons entre Buṣrā et Hégra. Il est l'oeuvre d'une École d'architecture et de sculpture de la Syrie intérieure qui a peut-être ses origines dans la Damas araméenne et des liens avec la Mésopotamie hellénisée.[20]

Les limites de la phase nabatéenne de Buṣrā se situent pour le moment entre la fin du Ier siècle avant J.-C. et le début du IIe siècle après J.-C. Les monuments portant la marque nabatéenne caractéristique ne semblent pas antérieurs au milieu du Ier siècle de notre ère. La céramique nabatéenne trouvée sur les chantiers du centre de la ville atteste cependant la présence nabatéenne dans une phase antérieure, sans doute à partir de la fin du Ier siècle avant J.-C. Le monument fantôme que l'on devine près du carrefour entre Thermes du Sud et Nymphée se distingue par sa modénature différente. Se rattachant plutôt à une tradition hellénistique, il pourrait dater de la fin du Ier siècle avant notre ère ou du début de l'époque impériale.

Pour le moment on ne dispose pas de matériel suffisant de la période hellénistique pour préciser les relations entre

17 J.-M. Dentzer, "La Syrie du Sud dans la période préprovinciale", dans *Hauran I*, 2, Paris, 1986, p. 411- 420.

18 P.J. Parr, Pottery, People and Politics, dans P.R.S. Moorey et P.J. Parr (ed.), *Archaeology in the Levant. Essays for Kathleen Kenyon*, 1978, p. 202-209, Warminster.

19 H.C. Butler, *PPUAES*, II A 4, p. 393-394

20 *Hauran I*, p. 411-420; cf. pour l'architecture, J. Dentzer-Feydy, Décor architectural et développement du Hauran dans l'antiquité, *ibid.* p. 261-286; pour la sculpture, G. Bolelli, *La ronde-bosse de caractère indigène en Syrie du Sud, ibid.* p. 311-372.

une phase hellénistique et une phase nabatéenne. On ignore quel était le modèle culturel dominant dans la Buṣrā des derniers siècles avant notre ère. L'autorité politique nabatéenne devait se faire sentir dans cette zone dès le début du Ier siècle avant J.-C. On n'expliquerait pas autrement que les marchands de Damas aient fait appel à Rabbel II pour se protéger contre les exactions des Ituréens de l'Anti-Liban. Dans la phase nabatéenne le fait marquant est le programme d'urbanisme du milieu du Ier siècle de notre ère. C'est lui qui a laissé les traces archéologiques les plus visibles.

Si les programmes de constructions nabatéens ont dû se poursuivre jusqu'en 106, date de la création de la province d'Arabie, on n'a pas de raison de penser qu'elles se sont poursuivies plus avant dans le IIe siècle.

Dans la céramique nabatéenne les formes caractéristiques du IIe siècle ne sont pratiquement pas représentées, ce qui ferait penser à un arrêt de l'importation de céramique nabatéenne à la création de la Province romaine d'Arabie.

3. Buṣrā à l'époque romaine

Il n'est pas possible ici de suivre toutes les étapes du développement de la Buṣrā romaine et paléo-chrétienne. On peut cependant citer quelques jalons apparus dans les fouilles des dernières années comme dans l'analyse des constructions et de leur décor. À part les Thermes du Sud la plupart de ces vestiges ne sont datés pour le moments que sur des critères stylistiques, avec une certaine sécurité cependant car ces dates reposent sur un corpus régional particulièrement important (plus de 5000 éléments).

On ne connaît pas, jusqu'à présent, de programme de construction engagé au moment même de la création de la Province romaine d'Arabie. La porte (Bab el-Hawa) qui limite à l'ouest l'axe est-ouest de la ville présente quelques ressemblances de détail avec des modénatures nabatéennes et la technique de taille des pierres révèle des traits intermédiaires entre ce monument et les programmes de constructions romains provinciaux.[21]

Les premières constructions impériales identifiables actuellement sont les Thermes du Sud[22] et sans doute le premier état d'un Nymphée improprement appelé Kalybé, vers le milieu du IIe siècle de notre ère.[23] Cette date a été établie pour le premier état du mur de façade des Thermes (céramique sigillée, formes en pâte rouge, monnaie), le reste du plan d'origine est rigoureusement lié à cette façade avec sa série de quatre salles et ses piscines froides extérieures. Le nymphée entre dans le même système d'orientations dont l'axe est exactement perpendiculaire à l'axe des Thermes.

La construction du théâtre a dû se dérouler sur toute la durée du IIe siècle. Le portique couronnant la cavea présente des chapiteaux caractéristiques de l'époque d'Hadrien et les niches situées sur les parascaenia sont identiques à celles du temple de Hebrân daté de 155 de notre ère. La *scaenae frons* date en revanche de l'époque sévérienne (fin IIe- début du IIIe siècle).

À l'époque antonine on peut attribuer le monument traditionnellement appelé "Nymphée" à l'entrée de la rue nord-sud.[24] Les chapiteaux correspondent à des types datables des environs de 150 après J.-C. D'autres constructions dataient de cette période comme l'attestent les chapiteaux remployés dans la grande église de l'est.

Un moment essentiel de l'organisation urbaine de Buṣrā a pu être fixé récemment. Les rues à colonnades que nous connaisson n'ont été créées qu'à l'époque sévérienne (fin du IIe-début du IIIe siècle). L'indice chronologique fourni par le style des chapiteaux ioniques est confirmé par des sondages effectués à la fois sur la rue est-ouest et sur la rue nord-sud. Un indice décisif est fourni par des inscriptions latines gravées sur des consoles des colonnes de la rue nord-sud et mentionnant des gouverneurs de cette période.[25] Ces consoles, très saillantes n'ont pu être mises en place qu'au moment même de la construction de la colonnade. Il faut noter que les deux rues à colonnades ne sont pas perpendiculaires entre elles. Leur orientation est différente également de celle des bâtiments voisins et en particulier des Thermes du Sud et des Thermes du centre (Khān ad-Dibs), tous les deux plus anciens. Pour la mise en place de la rue à colonnades et à boutiques est-ouest, le mur de façade des Thermes du Sud a été recoupé et il a été nécessaire d'aménager un espace de transition avec des boutiques de tailles décroissantes entre la rue nord-sud et les thermes du centre.

Ces alignements discordants suggèrent une organisation de l'espace progressive, sans plan préétabli au départ.

On devine encore au Ve siècle une nouvelle phase de grands travaux d'urbanisme. Aussi bien dans les Thermes du Sud que dans les portiques des deux grandes rues on a pu dater une réfection systématique du dallage en plaques

---

21 Brünnow - Domaszewski, *Provincia Arabia III*, p. 6-11; H.C. Butler, *PPUAES*, II A 4, p. 226-229; K.S. Freyberger, *Dam.M*, 4, 1989, p. 57-58.

22 H.C. Butler, *PPUAES*, II A 4, p. 260-264; H. Broise, Vitrages et volets des fenêtres thermales à l'époque impériale, *Les Thermes romains,* Actes de la table-ronde organisée par l'Ecole française de Rome, Rome 11-12/11/1988, Rome, 1991, p. 61-78. Rome, 1991; R. al-Muqdad, J.-M. Dentzer, H. Broise, "Bosra", *Syrian-European Archaeology Exhibition; Working together,* Damas 30/5/96-11/7/96, Damas, 1996, p. 128-129; la publication des Thermes du sud est en préparation sous la direction de H. Broise.

23 H.C. Butler, *PPUAES*, II A 4, p. 252-255; K.S. Freyberger, *Dam.M*, 4, 1989, p. 54-55. Le carrefour central et la rue nord-sud récemment dégagée sont en cours d'étude par la Mission Archéologique française en Syrie du Sud.

24 H.C. Butler, *PPUAES*, II A 4, p. 251-252; Ch. Makowski, "Le nymphée de Bosra", *Ktema*, 5, 1980, p. 113-124; K.S. Freyberger, *Dam.M*, 4, 1989, p.55.

25 En cours d'étude par Maurice Sartre.

de calcaire gris. On est tenté de mettre ce dallage en relation avec des inscriptions datées entre le Ve et le VIIe siècle qui permettent de supposer une commande de pierre dans les carrières de Ḥallābāt en Jordanie.[26] Celles-ci se situaient, à une quarantaine de kilomètres de Buṣrā, sur le territoire dépendant de Buṣrā.

Des tremblements de terre ont dû entraîner des reconstructions. La cathédrale à l'est de la porte nabatéenne a été touchée dans la deuxième moitié du Ve siècle. D'autre gros séismes comme celui de 747-749, doivent expliquer aussi des réfections hâtives de parties de constructions effectuées sur place pour redresser des murs tombés ou des colonnes. En effet, on constate souvent des alignements approximatifs et parfois des erreurs dans la repose de blocs comportant un décor.

Pour la période byzantine de la fin du VIe à la première moitié du VIIIe siècle on a identifié des échanges particuliers de céramique avec Gerasa. Les lampes et bols de Jerash ont été retrouvés non seulement à Buṣrā mais jusqu'à Suwayda.

Les nouvelles précisions chronologiques apportées dans les dernières années pour les différentes phases de l'évolution de Buṣrā - et en particulier une phase nabatéenne bien identifiée et essentielle dans développement de la ville - soulignent la complexité de l'histoire du site et une forte continuité dans l'utilisation des éléments de constructions et des matériaux remployés avec obstination. La solidité du basalte, qui résiste à l'usure courante, encourage, à partir de l'époque byzantine, au remploi systématique du décor architectural existant plutôt qu'à la création de formes nouvelles, alors même que sont créés des programmes architecturaux neufs et hardis comme la cathédrale à plan centré située à l'est de l'Arc nabatéen.

26 "Inscriptions grecques des carrières de Ḥallābāt", *SHAJ* V, 1995, p. 399-402.

David F. Graf
University of Miami
P. O. Box 248107
Coral Gables
Florida 33124-4662
USA

David F. Graf

First Millennium AD: Roman and Byzantine Periods Landscape Archaeology and Settlement Patterns

Our advances in the archaeological knowledge of Roman-Byzantine Jordan has come in dramatic spurts. Brünnow and Domaszewski's exploration of Transjordan in the 1890s followed shortly afterwards by the Princeton Expedition (1904-1909) and Alois Musil's efforts (1908-1915) represents the first stage. After WWI, excavations at Jerash and Petra began, followed by the pioneering surveys of Transjordan by N. Glueck, A. Alt, and Sir Aurel Stein in the 1930s. After WWII, projects were more sporadic, but in the past twenty years there has been a virtual explosion of projects in every region of the country. The major advances have been in four areas: (1) The excavation of the major urban centers; (2) extensive surveys of the whole Transjordanian plateau and desert steppe; (3) the investigation of the Roman military infrastructure with excavation of key sites; and (4) the systematic exploration of the country for inscriptions that have resulted in a number of important epigraphical contributions, including the extension of the IGLS project to Jordan, with its counterpart *Inscriptions de la Jordanie*, of which two volumes have already appeared (Central and Southern Jordan), and others to follow. But this Greek and Latin corpus shrinks in comparison with the far more sizeable finds recently made of pre-Islamic Arabian inscriptions called Safaitic and Thamudic found mainly in the desert regions, but increasingly now in settled regions. More extensive literary evidence has come from discoveries of papyri, namely the publication of the archives from the Judaean desert of the Bar Kokhba era that shed important light on the pre- and post-annexation period of Arabia. The more recent discovery of papyri from Petra of mainly the sixth century are equally important contributions for the history of the region in late antiquity.

From all of these efforts, an extensive body of evidence has been provided for the history of the Roman and Byzantine eras before the Islamic conquests, which have helped integrate the region into the wider spectrum of the Mediterranean world.[1] But a comprehensive history of the Byzantine period from the fourth century to the seventh century still languishes. The major contributions here have been mainly thematic.[2] Excavations of many of the urban centres have contributed greatly to our understanding of the period; these include the Decapolis cities in the north — Pella (Ṭabaqat Faḥl), Gadara (Umm Qays), Abila (Wādī Quwayliba), Capitolias (Bayt Rās), Jarash, and Philadelphia ('Ammān), and Petra, al-Ḥumayma and al-'Aqaba in the south. The transportation lattice that connected all of these urban centers has also been illuminated. Of course, the major provincial spur was the *Via Nova Traiana* constructed between 111 and 114, connecting the new Arabian capital at Bostra in the Ḥawrān to Ayla on the Gulf of 'Aqaba, *a finibus Syriae usque ad mare rubrum*, some 430 km in length. But other roads were created simultaneously and subsequently elsewhere in Transjordan, as the work of Thomas Bauzou and David Kennedy in northeast Jordan and my own explorations in southern Jordan illustrate.[3] Future maps of the Roman period should reflect the elaborate nature of this highway system, not just the single Trajanic artery known from the Peutinger Table. Nor should the popular theory that the Roman road system fell into disuse in the East during late antiquity, centuries before the Islamic conquests,[4] be giv-

[1] The grand syntheses are G. W. Bowersock, *Roman Arabia* (Cambridge: Harvard, 1983), Maurice Sartre, *L'orient Romain* (Paris, 1991) Pp. 309-355, and F. Millar, *The Roman Near East* (Cambridge: Harvard, 1993).

[2] Such as I. Shahid's major project on *Byzantium and the Arabs* (Washington, DC: Dumbarton Oaks, 1984-1995), M. Piccirillo, *The Mosaics of Jordan* (Amman, 1993), and R. Schick, *The Christian Communities of Palestine from Byzantine to Islamic Rule* (Princeton: Darwin Press, 1995).

[3] D. F. Graf, "The Via Nova Traiana in Arabia Petraea," in *The Roman and Byzantine Near East: Some Recent Archaeological Research, Journal of Roman Archaeology* supplementary Series number 14 (Ann Arbor, 1995), Pp. 241-267; D. Kennedy, "Roman Roads and Routes in North-east Jordan," *Levant* 29 (1997) Pp. 71-93; and T. Bauzou, "Le secteur nord de la via nova en Arabie de Buṣra à Philadelphia," in *Fouilles de Khirbet es-Samra en Jordanie I*, ed. J.-B. Humbert and A. Desreumaux (Turnhout: Brepols, 1998), Pp.101-255.

[4] Richard Bulliet, *The Camel and the Wheel* (Cambridge: Harvard, 1975), Pp. 19-26.

en credence. Any assumption that the camel replaced wheeled vehicles for transporting goods throughout the Near East is belied by literary, epigraphic, papyrological, and archaeological evidence.[5] What still lacks analysis is the rural landscape between the urban centers and the major arteries.

Demographic Patterns

The shift away from the great monuments of urban culture to the rural landscape has marked recent Roman archaeology elsewhere in the Mediterranean.[6] But if the rural landscape has been neglected factor in other regions of the ancient Near East either for lack of data or lack of interest,[7] it has not been true for Jordan. In fact, there have been a myriad of archaeological survey projects in the past several decades that have produced a picture of a fairly dense settlement pattern in Transjordan during the Roman-Byzantine era. These settlements extend from the Jordan rift to the desert fringe, supporting what must be considered the most sizeable population in antiquity for the region. The hydrological technology employed on the desert fringes and marginal lands for this expansive development is truly exemplary and has been duly noted.[8] The importance of this evidence for the economy and society of the period is equally significant, but only hinted at in recent studies. The Roman period has not been subjected to analysis and even the important summaries of the Byzantine evidence provided by Michele Piccirillo in 1985, and more recently by S. T. Parker in 1992 and by Henry MacAdam and Robert Schick in 1994, are limited.[9] The former is now outdated and the latter cover only the period from ca. 550 and afterwards. A more comprehensive appraisal of the results for Roman and Byzantine Jordan is then apropos.

These recent large-scale regional survey efforts began in the 1960s with S. Mittmann's exploration of the area between the Yarmūk and az-Zarqā' rivers. Of the 364 sites recorded, 170 showed traces of the Roman period and an impressive 240 of the Byzantine era.[10] In 1968-76, in conjunction with the Tall Ḥisbān excavation, a 10 km radius survey was conducted of the region around the site.[11] Some 148 sites were recorded, of which 57 had Early Roman pottery (38%) and 45 others Late Roman (30%), whereas Byzantine increased to 126 sites (85%). Further south, the "Central Moab survey" directed by J. Maxwell Miller recorded 443 sites on the Karak plateau between Wādī al-Mūjib and Wādī al-Ḥasā between 1978 and 1982.[12] Nabataean sites were predominant (65%), but only 115 were Late Roman (26%) and 107 Early Byzantine (24%), with a slight rise of 132 sites designated as Late Byzantine (30 %). Since another 75 sites were labeled merely "Byzantine" (17%), the number of sites is fairly consistent across the Roman-Byzantine era. These results stand in contrast to the *Limes Arabicus* survey directed by S. Thomas Parker between 1980 and 1987 in the territory just east of Miller's survey.[13] More than 557 sites were recorded; of these 334 (60%) yielded Nabataean and Early Roman pottery, whereas Late Roman was found on only 38 sites (7%), Early Byzantine on a mere 59 sites (11%), and a meager 18 with Late Byzantine (3% of the total), mostly in the western zone. An additional 100 sites (18%) had pottery designated as merely Byzantine, but the decline in sites from the earlier era is still dramatic.

For the region further south, the Wādī al-Ḥasā Survey directed by Burton MacDonald between 1979 and 1982 recorded 1,074 sites between the Wādī al-Ḥasā and aṭ-Ṭafīla.[14] Of these, 195 (18%) had Nabataean and early Roman sherds, but Late Roman sites diminished to 71 sites (7%), with another 25 yielding pottery of general "Late Roman-Byzantine" date. The clearly Byzantine sites numbered only 125 (12% of total), and were concentrated in the zone west of the *Via Nova Traiana* or just to the east in small clusters. In 1985-86, MacDonald directed another important project between the Southern Ghors at the northern edge of the Lisan peninsula to the

---

5 See my discussion in "Camels, Roads and Wheels in Late Antiquity," *Donum Amicitiae*, ed. E. Dabrowa (Kraków: Jagiellonian University Press) = *Electrum* 1 (1997), Pp. 43-49.

6 For example see G. Barker and J. Lloyd (eds.), *Roman Landscapes: Archaeological Survey in the Mediterranean Region* (London: British School at Rome, 1991), and *City, Town and Countryside in the Early Byzantine Era*, ed. R. Hohlfeder (New York, 1982).

7 As noted by M. Liverani, "Reconstructing the Rural Landscape of the Ancient Near East," *Journal of the Economic and Social History of the Orient* 39 (1996), Pp. 1-41. For the Late Roman Empire see now C. R. Whittaker and P. Garnsey, "Rural Life in the Later Roman Empire," in *The Cambridge Ancient History* XIII (1998(277-310.

8 See J. P. Oleson, "Aqueducts, Cisterns and Strategy of Water Supply at Nabataean and Roman Auara (Jordan)," in *Future Currents in Aqueduct Studies*, ed. A. Trevor Hodge (Leeds: Francis Cairns Publications, 1991), 45-62, and D. Kennedy, "Water Supply and Use in the Southern Hauran, Jordan," *Journal of Field Archaeology* 22 (1995), Pp. 275-290.

9 M. Piccirillo, "Rural Settlements in Byzantine Jordan," *SHAJ* II (Amman, 1985) 257-261, S. T. Parker, "The Limes and Settlement Patterns in the Roman and Byzantine Periods," *SHAJ* IV (Amman, 1992) 321-325; and H. I. MacAdam, "Settlements and Settlement Patterns in Northern and central Transjordan, ca. 550-ca. 750," (pp. 49-93), and R. Schick, "The Settlement Pattern of Southern Jordan: The Nature of the Evidence" (pp. 133-154) in *The Byzantine and Early Islamic Near East II: Land Use and Settlement Patterns*, ed. G. R. D. King and A. Cameron (Princeton: Darwin Press, 1994).

10 S. Mittman, *Beiträge zur Siedlungs- und Territorialgeschichte des nördlichen Ostjordanlandes* (Wiesbaden, 1970), Pp. 256-264.

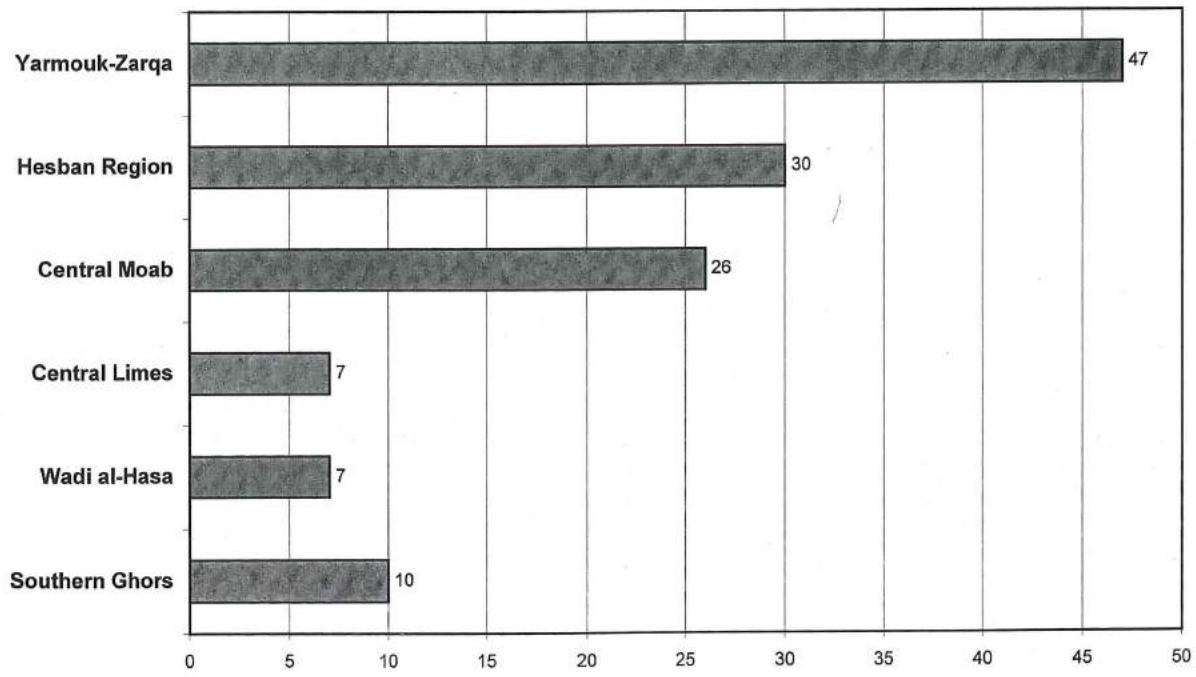
11 R. D. Ibach, Jr. *Archaeological Survey of the* Hesban *Region: Catalogue of Sites and Characterizations of Periods:* Hesban *5* (Andrews University: Berrien Springs, MI, 1987), Pp. 174-183.

12 J. Maxwell Miller (ed.), *Archaeological Survey of the Kerak Plateau* (Atlanta: Scholars Press, 1991).

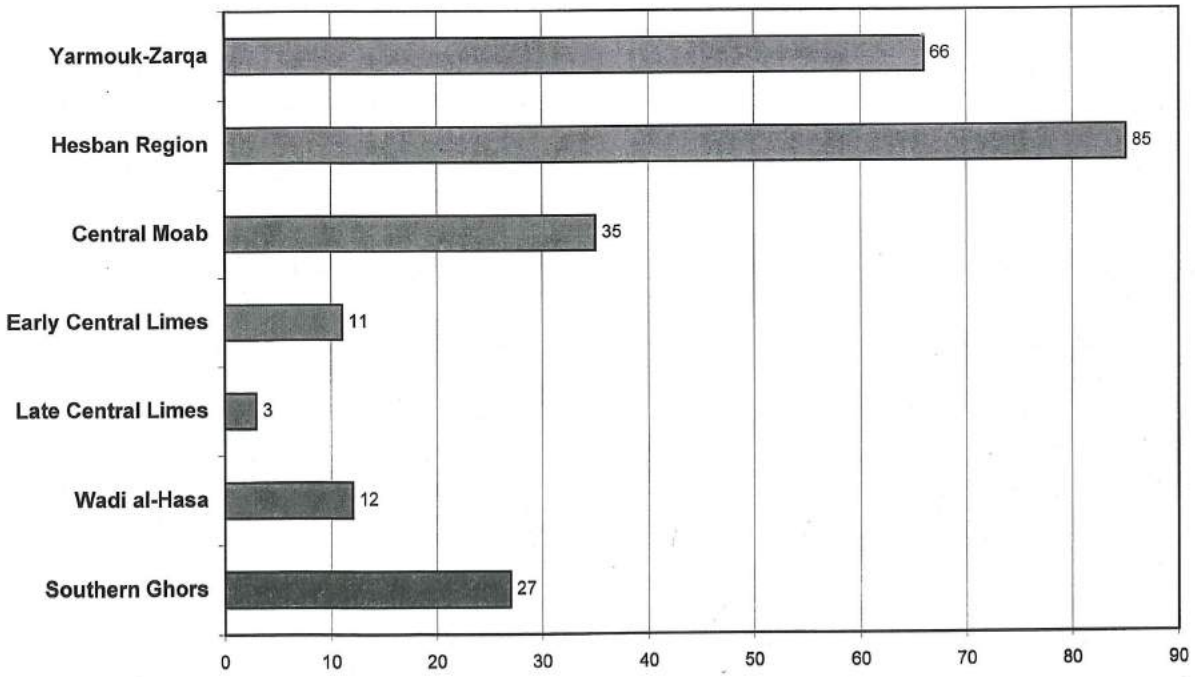
13 F. L. Kouchy ("Survey of the Limes Zone"), pp. 41-106 and V. A. Clark ("The Desert Survey") pp. 107-164 in S. T. Parker (ed.), *The Roman Frontier in Jordan* (Oxford, 1987).

14 B. Macdonald, *The* Wadi *el-Hasa Archaeological Survey 1979-1983, West Central Jordan* (Waterloo, Ontario, 1988), Pp.190-249.

LATE ROMAN SETTLEMENT PATTERNS
(% of Sites)



BYZANTINE SETTLEMENT PATTERNS
(% of Sites)



northeastern 'Arabah.[15] Some 240 sites were recorded, of which only 24 (10%) had Roman pottery and 64 Byzantine (27%). The rise in Byzantine sites in the 'Arabah is also a qualitative one, as demonstrated by the current Wādī Faynān project, which has yielded important evidence from the fifth and sixth centuries from ancient Phaeno, a Byzantine penal colony, and the extensive Byzantine cemetery in the aṣ-Ṣāfī region.[16] For the area further south, surveys have been less extensive and coordinated, but the impression is that the plateau and Ḥisma desert to the south are dominated by Nabataean sites, but with a healthy proportion of Roman and Byzantine sites comparable to other regions.

The results of these large scale surveys are then mixed. Between the Yarmūk River and Wādī al-Ḥasā, there is a evidence for a sizeable population in the Roman and Byzantine era. However, east of central Moab and south of Wādī al-Ḥasā, there appears to be a significant decline in the Late Roman period (the second and third centuries), followed by a slight increase in the Early Byzantine period (fourth and fifth centuries), and a dramatic decline at least for the central *limes Arabicus* zone in the Late Byzantine period (sixth and seventh centuries). Nevertheless, caution should be exercised before taking these results at face value. The tabulation of sites includes everything from sherd scatters to villages, and leaves the size of the majority of the sites undefined. Inter-site artifact scatters may also only represent urban-derived refuse included with manure and compost used in fertilizing fields.[17] Moreover, the ceramic typology utilized by most of the surveys is mainly dependent on the Ḥisbān excavations, where the implication for more remote regions is limited. This may account for the majority of the sherds collected in the surveys remaining unidentified. At any rate, excavations frequently produce results entirely different than the surface pottery collected.[18] Finally, a decline in the number of sites for any period also may only reflect shifts in the population to another region. For example, R. Canova collected Greek funerary inscriptions from 29 villages in the al-Karak region which date across the fifth and sixth centuries, but are particularly abundant for the latter sixth century, and even extend into the seventh century and later, with the latest dated to 736 and 785. The finds at Umm ar-Raṣāṣ cut across the same chronological period, demonstrating continuity from late antiquity into the early Islamic era.[19] Seeming declines in population may then only represent a migration into a different region. These mitigating factors diminish any demographic conclusions based purely on the survey data.

Strategies and Paradigms

For future efforts, the most pressing need is for a strategy to utilize in interpreting the survey results. Comparative models are needed for understanding the complexities of settlement patterns. Such material is at hand, as field surveys and "landscape" archaeology are currently in vogue in classical archaeology throughout the Mediterranean. The shift has been away from the urban-centric view of the ancient world promoted by Moses Finley, to the countryside.[20] These efforts have provided some basis for understanding demographic trends and the organization of territory, including land use, surplus production, and natural resources. They have also resulted in challenges to the standard orthodoxy of an economic decline in late antiquity.[21] A few illustrations will have to suffice.

1. GREECE. Although the "new wave" of multi-period, region surface surveys began about the same as those in Jordan, they have achieved a maturity that exceeds that of other regions.[22] Partially, this is the result of the thousands of excavations conducted in Greece, providing a refined diachronic database for the interpretation of surface finds. But these systematic intensive surveys have also been of long duration rather than brief two or three year surveys, permitting analysis of changes in landscapes on a smaller level.[23] Drawing from the results of these projects, Susan Alcock's historical reconstruction of the Roman rural economy is particularly noteworthy. What she observed is a progressive abandonment of small rural sites on the mainland and islands during the late Hel-

[15] B. Macdonald, *The Southern Ghors and Northeast 'Arabah Archaeological Survey* (Sheffield, 1992), Pp. 89-97.

[16] For Wādī Faynān, see A. McQuitty *et al, Levant* 30 (1998) Pp. 1-83, and for Ghawr aṣ-Ṣāfī, K. D. Politis, *AJA* 103 (1999) Pp. 518-520.

[17] See T. J. Wilkinson, "Extensive Sherd Scatters and Land-Use Intensity: Some Recent Results," *Journal of Field Archaeology* 16 (1989) Pp. 31-46.

[18] For two recent examples, see E. B. Banning, "Highlands and Lowlands: Problems and Survey Frameworks for Rural Archaeology in the Near East," *BASOR* 301 (1996), Pp. 25-45, and P. Bienkowski *et al*, "Soundings at Ash-Shorabat and Khirbet Dubab in the Wādī Hasa, Jordan: The Stratigraphy," *Levant* 29 (1997), Pp. 41-70.

[19] R. Canova, *Iscrizioni e Monumenti Protocristiani del Paese di Moab* (Roma: Città del Vaticano, 1954), and M. Piccirillo and T. Attiyat, "The Complex of St. Stephen at Umm er-Rasas-Kastron Mefaa," *ADAJ* 30 (1986) 341-351.

[20] See especially J. Lloyd, "Forms of rural settlement in the early Roman Empire," in *Roman Landscapes: Archaeological Survey in the Mediterranean*, ed. G. W. Barker and J. A. Lloyd (London, 1991), Pp. 233-240.

[21] See especially P. Garnsey, "Prolegomenon to a Study of the Land in the Later Roman Empire," *Energeia: Studies on Ancient History and Epigraphy Presented to H. W. Pleket* (Amsterdam, 1996) 135-153 = *Cities, Peasants, and Food in Classical Antiquity* (Cambridge, 1998) 151-165.

[22] See J. F. Cherry, "Regional Survey in the Aegean: The "New Wave" (and After)," *Beyond the Site: Regional Studies in the Aegean Area*, ed. P. N. Kardulias (Lanham, 1994),91-112, and T. E. Gregory, "Intensive Archaeological Survey and Its Place in Byzantine Studies," Byzantine Studies 13 (1986), Pp.155-175.

[23] J. Bintliff, "The History of the Greek Countryside: As the Wave Breaks, Prospects for Future Research," in *Structures rurales et sociétés antiques*, ed. P. Doukellis and L. Mendotti (Besancon, 1994), Pp. 7-15.

lenistic period and early Roman era, i.e. between 200 BC and 200 AD, that is simultaneous with a marked increase in the size of individual holdings and a marked nucleation of settlements in certain prime regions.[24] By emphasizing the continuity and size of sites, a change is detected in the pattern of land tenure. The signs are the shift from rural to urban, the growth of a few urban centers while others declined, and the creation of villas and large estates by local pro-Roman elites. In sum, what appears on the surface to be a demographic decline really represents only a population shift to urban centers by a marginalized peasantry that had become "economically more vulnerable under the empire."[25] As Alcock further notes, "Roman imperialism in Greece may not have been overtly *interventionist*, [but] it was nonetheless highly *intrusive*."[26] This study of the impact of Roman rule on a provincial culture may form a fruitful line of inquiry for interpreting the data base accumulating from the Jordanian surveys.

2. SYRIA. In northern Syria, the limestone hills stretching between Aleppo and Apamea contain some 700 Byzantine villages from antiquity, the so-called "dead cities." According to 19th century explorers, they were among the casualties of the Islamic conquest in the seventh century.[27] In the 1950s, George Tchalenko's extensive survey of the region classified the villages into various categories--industrial centers, small market towns, clusters of villas, and free peasant landowners-all engaged primarily in the production of olive oil until the Persian invasions in the early seventh century.[28] Tchalenko's impressive work was based on survey and epigraphy, without excavation. In recognition of this deficiency, Georges Tate and Jean-Pierre Sodini began excavations at Déhès in the center of the region in the 1970s, which Tchalenko had previously identified as a flourishing market town. What their excavations revealed instead was that the buildings were primarily domestic quarters for stockbreeders and farmers.[29] Further examination of more than a hundred other villages in the region led to similar conclusions.[30] Tchalenko's inns, bazaars and craft shops were discovered to be mainly houses. The villages also existed in relative security without any walls, growing steadily from the first through the mid third centuries, and expanding even afterwards before disappearing in the ninth century. Excavations of key sites led to the dismissal of the theories of an eclipse of the settlements from invading Persians or Islamic conquerors.

3. EGYPT. The evidence here is not from surveys, but from the papyri, which provide the documentation lacking for other areas of the empire for land use. The upper class landowners controlled the vast majority of the empire's wealth, with their estates employing large numbers of tenants and agricultural laborers and producing much of the agriculture that was the dominant industry in the Roman economy.[31] For example, at Oxyrhynchus in Middle Egypt during the early Roman era, privately owned land increased, with small landowners owning small tracts in scattered uncontiguous geographical locations, and even wealthy landowners with larger tracts possessing some small and scattered parcels.[32] By the time of Diocletian, the trend was for a permanent agricultural work-force living on subsistence wages on larger estates operated by the so called magnates of the "great domains."[33] The transition is marked by the huge estate of Aurelius Appianus, an Egyptian aristocrat of the equestrian class in the third century AD, which was divided among 30 villages in the Arsinoite nome in the Fayum. The archive of his manager Heronios from Theadelphia represents over a thousand papyri, the largest of the Roman period in Egypt, and reveal that he also managed estates for other prominent aristocrats from Alexandria, linking distant provincial magnates with the rural labor force.[34] In fact, one of the most noticeable changes in Egypt is the increased number of large land-owners of "great domains" from the third to the sixth centuries.[35] Similar trends may be sought elsewhere in the Levant.

Furthermore, the Egyptian papyri provide statistical evidence for demographic trends and changes in Egyptian society which have applicability elsewhere in the Near East. For example, Roger Bagnall and Bruce Frier have examined more than 300 census documents from Egypt,

[24] See now the map in J. Bintliff, "Regional Survey, Demography, and the Rise of Complex Societies in the Ancient Aegean: Core-Periphery, Neo-Malthusian and Other Interpretative Models," *Journal of Field Archaeology* 24 (1997), Pp. 16.

[25] Susan E. Alcock, *Graecia Capta: The Landscapes of Roman Greece* (Cambridge, 1993), Pp.113.

[26] Alcock, *Graecia Capta*, 171.

[27] For an excellent summary of the research see C. Foss, "The Near Eastern countryside in late antiquity: a review article," in *The Roman and Byzantine Near east: Some Recent Archaeological Research* (Ann Arbor, 1995), Pp. 213-234.

[28] G. Tchalenko, *Villages antiques de la Syrie du nord* (Paris, 1953-58).

[29] J-P. Sodini *et al*, "Déhès (Syrie du nord), Campagnes I-III (1976-78): recherches sur l'habitat rural," *Syria* 57 (1980), Pp. 1-304.

[30] G. Tate, *Les campagnes de la Syrie du nord I* (Paris, 1992).

[31] D. Kehoe, *Management and Investment on Estates in Roman Egypt during the Early Empire* (Bonn, 1992).

[32] J. Rowlandson, *Landowners and Tenants in Roman Egypt. The Social Relations of Agriculture in the Oxyrhynchite Nome* (Oxford 1996).

[33] J. Gascou, "Les grand domaines, le cité et l'état en Egypte byzantine (Recherches d'histoire agraire, fiscale et administrative," *Travaux et Mémoires* 9 (1985), Pp. 1-90.

[34] D. Rathbone, *Economic Rationalism and Rural Society in Third-Century A.D. Egypt: The Heronios Archive and the Appianus Estate* (Cambridge, 1991).

[35] R. S. Bagnall, *Egypt in Late Antiquity* (Princeton, 1993), Pp. 133-138 and 159-160.

the best demographic data available anywhere in antiquity. The documents extend from AD 11/12 to the last known census of 257/258, but 90% of the censuses are between the reign of Trajan and the Severan dynasty. Their analysis of the documents has led to increased respect for the impact of the Antonine plague, almost reduced to mythological proportions by previous scholars.[36] No one can dispute the impact of the later Justinian plague of 541, which arose in Egypt and later spread throughout the Levant, as well as the western Mediterranean. It even now seems possible that both the Antonine plague and that of Justinian may have appeared in South Arabia prior to their impact on the Mediterranean world.[37] After the Justinian plague struck the Levant, it appears to have erupted periodically in fifteenth year intervals across the Mediterranean into at least the seventh century, with an impact on even Ireland and England.[38] Future palaepathological analysis for epidemic diseases in skeletal remains of the Roman and Byzantine period in Jordan should consider the effects of these plagues on the population.

These examples of landscape analysis illustrate the need in Jordan for more intensive, and less extensive survey, with excavations and sondages of select sites as test cases. The tabulation of surface survey data should be used to achieve more than just a simple depiction of the distribution of sites in any period. Priority should be placed on a search for the fundamendal structures of ancient society. While there may be enormous differences between Arabia and provinces with the political prominence of Greece, the strategic importance of Syria, or the economic importance of Egypt, this should not prohibit the search for the local Transjordanian response to Roman rule in future investigations. In particular, some of the following typical features of the rural landscape found elsewhere in the Roman empire should be given further consideration.

Civic Territorial Markers

Investigation of the Roman road system in the region has helped expose the fundamental provincial and territorial divisions of the region. After the annexation of the province in 106, the *Via Nova Traiana* was constructed between 111-114, connecting the Arabian capital at Bostra in the Ḥawrān to Aila on the Gulf of 'Aqaba, a *finis Syriae usque ad mare rubrum*, some 430 km in length. This central transportation spine cut directly across the major dividing wadi systems, helping to unite the new province. More than 200 milestone inscriptions from Trajan to Julian document the itinerary and path of this route. They also reflect the territorial divisions that dominate the landscape. Initially, it is clear, Petra served as the *caput viae* for the whole route of the major Trajanic road. However, in 181 under Commodus, at least as far as the XLVIII Roman mile south of Bostra, the Arabian capital replaced Petra as the *caput viae*.[39] Rather than a reflection of a change in the original system, this may only designate the extensive territory of the capital city. In similar fashion, the milestones on the Roman road between Gerasa (modern Jarash) and Adraa indicate that the XLVI mile from Bostra, just nine miles from Gerasa, marked the southern boundary of the immense territory of Bostra.[40] For the Trajanic road connecting the two major Decapolis cities of Gerasa and Philadelphia, the milestones are inscribed according to the boundaries of the respective cities: the XII mile south of Gerasa and the XV north from Philadelphia separated their territories.[41] Afterwards, the city territories begin to mark the distances on the milestones along the *Via Nova Traiana*, just as they had elsewhere in the province. To the west, milestones on the Roman road to Pella in the Jordan Valley indicate that Jarash's territory extended to the XII mile.[42] The boundaries of the other Decapolis cities are not known, but this triad provides some indication of what may have existed elsewhere. Similar clues can be deduced from the milestones along the *Via Nova Traiana* between 'Ammān (Philadelphia) and Petra further south. South of Mādabā, milestones indicate the VIII, XI, XIII, XX and XXI miles from the town until the descent into Wādī al-Mūjib.[43] On the southern banks of the great divide of al-Mūjib, the milestones marked from Rabba begin, with the recent discovery of the XI at Abū Trābah, while at al-Muta approaching Wādī al-Ḥasā, the other great dividing line of Transjordan, a milestone marks the XIII mile south of Rabbah, dated like that marking its northern limit to the reign of Pertinax or 193 AD.[44]

At this point such city markers virtually disappear, but

[36] R. S. Bagnall and B. W. Frier, *The Demography of Roman Egypt* (Cambridge, 1994) 173-178; a view shared recently by D. W. Rathbone, "Villages, Land and Population in Graeco-Roman Egypt," *Proceedings of the Cambridge Philological Society* 36 (1990), Pp. 114- 119, and R. P. Duncan-Jones, "The Impact of the Antonine Plague," *Journal of Roman Archaeology* 9 (1996), Pp. 108-136.

[37] C. Robin, "Guerre et épidémie dans les royaumes d'Arabie du sud, d'après une inscription datée (IIe siècle l'ère chrétienne)," *CRAI* (1992), Pp. 215-234.

[38] See L. I. Conrad, "The Plague in Bilād al-Shām in Pre-Islamic Times," *Proceedings of the Symposium on Bilād al-Shām during the Byzantine Period II*, ed. M. Bakhit and M. Asfour (Amman, 1986), Pp. 142-163, and J. R. Madicott, "Plague in Seventh-Century England," *Past & Present* 156 (1997), Pp. 7-54.

[39] T. Bauzou, "Le secteur nord de la via nova en Arabie de Bostra à Philadelphia," in *Fouilles de Khirbet es-Samra en Jordanie* I, ed. J.-B. Humbert and A. Desremaux (Turnhout: BREPOLS, 1998) 242.

[40] S. Mittmann, "The Roman Road from Gerasa to Adraa," *ADAJ* 11 (1966) 65-87 = *ZDPV* 80 (1964) 113-136.

[41] A.-M. Rasson-Seigne and J. Seigne, "Notes préliminaires à l'étude de la voie romaine Gerasa/Philadelphia," *ADAJ* 39 (1995), Pp. 193-210, J. Seigne and S. Agusta-Boularot, "Milliaires anciens et nouveaux de Gerasa," *Mélanges de l'École Française de Rome antiquité* 110 (1998), Pp. 261-295, and J. Seigne, "Les limites orientale et méridionale du territoire de Gerasa," *Syria* 74 (1997), Pp. 121-138.

[42] Thomsen, *ZDPV* 40 (1917) nos. 221-222.

[43] Thomsen, *ZDPV* 40 (1917) nos. 116, 118-119, 125-126.

[44] Thomsen, *ZDPV* 40 (1917) no. 185.

there are indications the system continued. At 52 km and at 90 km north of Petra along the *Via Nova Traiana*, two fragmentary boundary markers are found, but the names of the respective villages are either missing or illegible.[45] The location of one is just south of Wādī al-Ḥasā, and the other near ash-Shawbak. The Peutinger Table indicates that the village of Thornia (Thawāna) and Negla (Nijl) were the major road stations in the region, and either could be the unidentified villages mentioned on the milestones. Of course, the region further south is dominated by Petra, the former capital of the Nabataean kingdom, and it may be one of the intended villages. Further south, none of the milestones divulge city territories, but it is likely that Petra dominated the plateau up to the Ḥismā desert. The dominance of al-Ḥumayma and Ayla (al-'Aqaba) in the desert suggest that either or both were names on milestones in that region. In essence, city territories from north to south, seem to command the landscape of Transjordan. What the relationship of the urban centers was to their rural regions is difficult to determine without documentation, but the tendency has been to emphasize the extension of the urban aristocratic elite into the countryside by expanding their wealth by rents and extracting surpluses from the rural hinterland.[46] Whatever the case, the connections between the city and countryside is apparent.

Centuriation

The system of land-division known as "centuriation" is strongly linked to the foundation of veteran colonies and the allocation of land to the new settlers. The land grants for these discharged veterans were arranged in a grid pattern around two intersecting lines. Aerial photographs have revealed such arrangements in the environs of Carthage, Italy, Spain and France.[47] In the Levantine Near East, such field divisions have appeared in just such places as one would suspect, at various veteran settlements: the central Biqā' near Berytus and Heliopolis in Lebanon where the *Colonia Augusta Felix Iulia* was founded in the Augustan era;[48] at Laodicea on the Sea near Antioch and the Severan *colonia* at Emesa (Ḥumṣ) in Syria;[49] and at Ptolemais ('Akkā) in Palestine, where the *Colonia Claudia Felix* was founded in the reign of Claudius.[50] But other regular field-system patterns also appear elsewhere. At Damascus, based on the FFL aerial photographs of the 1930s, before the post WWII modifications of the structure of these cities took place, two different plans have been observed, one of rectangles in the area to the north/northeast of the city, and another grid of squares to the west and southeast of the city. The former may be a Hellenistic development, but the latter fits the early Roman imperial grid pattern of squares of 20 actus x 20 actus or 200 iugera (50 ha).[51] Such regular field-divisions are probably the result of large-scale veteran settlement, the present evidence for which is fairly minimal in Arabia. The study of the aerial photography for Jordan currently being conducted by David Kennedy may reveal more, but it is a matter that deserves systematic investigation.

For the province of Arabia, the only such grid patterns detected are in the Syrian Ḥawrān. At the capital of Bostra, where the legionary camp of the *III Cyrenaica* was located, regular property divisions (144 x 96 m) have been observed in the west and southwest within the city and its suburbs, and east of the city in the countryside towards Salkhad where there are 532m sq regular plots, just as there are at Damascus, Aleppo and Ḥamāh.[52] Nearby, at Khirbat Qumayra, just west of Imtān, some 10 km south/southeast of Ṣalkhad, post WWII RAF aerial photos disclose a regular pattern of thin rectangles whose shape and size (40 m x 300 m) contrast with the normal centuriation square plan of 706-710m^2. But the pattern is peculiar, standing in marked distinction from the irregular fields of the surrounding area and elsewhere in the Ḥawrān.[53] The same pattern has been observed just north of Imtān.[54] If this system is the product of military settlement, the candidates for the discharged veterans provided with the land

45 M. Sartre, *IGLS* XXI/IJ IV (1993) nos. 116 and 118.

46 C. R. Whittaker, "Do theories of the ancient city matter?," *Urban Society in Roman Italy*, ed. T. Cornell and K. Lomas (New York, 1995), Pp. 9-37, provides a recent critique of the various models for interpreting the role of cities.

47 For a general discussion see, J. Bradford, "Roman Centuriation: A planned Landscape," in *Ancient Landscapes: Studies in Field Archaeology* (London, 1957), Pp. 145-216, and O. A. W. Dilke, *The Roman Land Surveyors: an Introduction to the Agrimensores* (Newton Abbot, 1971).

48 L. Marfoe, *Between Qadesh and Kumidi: A History of Frontier Settlement and Land Use in the Biqa'* (Ph.D. dissertation, University of Chicago, 1978), and "Empire and Ethnicity in Syrian Society: 'From Archaeology to Historical Society' Revisited," in *Archéologie au Levant: Recueil à la mémoire de Roger Saidah* (Lyon: Maison de l'Orient, 1982), 470.

49 J. Sauvaget, "Le plan de Laodicea sur mer," *Bulletin d'Études Orientales* 4 (1934) 81-1113, and W. J. Van Liere, "*Ager Centuriatus* of the Roman Colonia of Emesa (Homs)," *Annales Archéologiques Syriennes* 8-9 (1958-59), Pp. 55-58.

50 S. Applebaum, "The Roman Colony of Ptolemais-Akko," in *Greece and Rome in Eretz Israel*, ed. A. Kasher et al (Jerusalem, 1990), Pp. 135-140.

51 M. Dodinet, J. Leblanc, J.-P. Vallat and F. Villeneuve, "Le paysage antique en Syrie: l'exemple de Damas," Syria 67 (1990), Pp. 339-355; but G. Tate, "A propos des cadastres romains du Nord de la Syrie," in *Structures rurales et sociétés antiques*, ed. P. N. Doakellis and L. G. Mendoni (Besançon, 1994), Pp. 443-451, argues against any Hellenistic system in Syria.

52 F. Villeneuve in *Hauran* I, ed. J.-M. Dentzer (Paris, 1985), 128, and M. Dodinet, J. Leblanc, and J.-P. Vallat, "Étude morphologique des paysages antiques de Syrie," in *Structures rurales et sociétés antiques*, ed. P. N. Doakellis and L. G. Mendoni (Besançon, 1994), Pp. 427-442.

53 D. Kennedy, "Aerial Photography: Ancient Settlements in Syria," *Popular Archaeology* (September 1985), Pp. 42-44.

54 Villeneuve in *Hauran* I (Paris, 1985), 128 with pl. VIIb.

grants are not wanting. The *cohors I Augusta Canathenorum* was recruited in the region, and inscriptions indicate that ethnic units of Thracians, Illyrians, and *Gothi gentiles* were once stationed in the area. But such regular field patterns are unknown in Transjordan, according to David Kennedy, who is presently engaged in the close scrutiny of the available aerial photographs for the region.[55] But this is an on-going project, and further scrutiny of the Jordanian landscape may yield such patterns.

In fact, several unusually regular ancient-field patterns have been observed in Jordan. In the environs of Umm al-Quṭṭayn in northern Jordan, some narrow parallel or rectangular strips of fields have been signaled, but they are of varying widths.[56] Far more impressive is the regular field pattern that appears on RAF photos from the 1930s at aṭ-Ṭilāḥ about 25 km south of the Dead Sea on the eastern side of Wādī 'Arabah. Adjacent to the well preserved small fort (40 x 40m), reservoir, and aqueduct system is a regular pattern of square terraced walls. Glueck found exclusively Nabataean sherds at the site, but later investigations of the site by Burton MacDonald and myself have produced both Late Roman and Byzantine ware.[57] The site seems to be identified with *Toloha*, where the *Ala Constantiana* was stationed according to the *Notitia Dignitatum* (Or. XXXIV.34). A large village and cemetery nearby, where Byzantine sherds have been connected, enhances the identification. The plots are smaller than those regularly assigned veterans, but the regular arrangement is peculiar. It is well to remember that such regular field divisions could be the product of a fiscal policy involved in rural development as seems to be the case in Roman Syria.[58]

In this regard, the most dramatic case is the effort of the Tetrarchic land surveyors, who left evidence of their work scattered across eastern Turkey, Syria, the Golan Heights and al-Ḥūlah Valley in Galilee, and Egypt.[59] What is particularly striking is the activity of the Tetrarchic censitores demarcating land in the Syrian southern Ḥawrān, skirting the province of Arabia.[60] Yet no evidence exists of their effort in Arabia, either in the area of Bostra or the other major cities of Transjordan from Gerasa to Petra. This seems strange, since it appears that the enterprise comprised the entire Roman Near East. For example, the same *censitor*, Aelius Statutus was active in Damascus, Gaulanitis, and al-Ḥūlah Valley, and another *censitor*, Julius Septimius Sabinus was active in Syria and the Arsinoite nome in Heptanomia in Egypt.[61] But neither of the two cadasters known from northern Jordan appear to reflect the activity of the Tertrachic *censitores*.[62] This lacuna in Arabia would seem to be purely accidental, and perhaps eliminated by some future epigraphic discovery.

Rural Markets

Urban and rural markets and periodic and annual commercial fairs are a well documented phenomenon across the empire.[63] It has been observed that "of all aspects of Roman commerce there is none so neglected as the arrangements for markets within a short radius."[64] The recent discovery of the *macellum* at Gerasa, known previously only from dedicatory inscriptions of the Hadrianic era, provides now an excellent example of an urban market in Arabia.[65] Rural markets, organized around central towns and their satellite villages, and usually located on or near important junctions of local roads, are also well known. According to Libanius (Or. 11.230), in the vicinity of Antioch, large and well populated villages (*kômai*), exchanged with one another their goods and crafts through festivals (*panêgyreis*), having "little need of the city" (*mikra tês poleôs chrêizousai*), because of their exchange among themselves." This depiction of economic self-sufficiency in rural villages may seem to be merely a *topos* for the "glorification of the country life," but Brent Shaw has demonstrated that in at least Roman North Africa, the rural markets were strikingly not integrated into the urban market centers.[66] At such markets, farmers and

55 D. Kennedy, "Aerial Archaeology in Jordan," *Levant* 30 (1998), Pp. 91-96.

56 D. Kennedy, H. MacAdam, and D. Riley, "Preliminary Report on the Southern Hauran Survey, 1985," *ADAJ* 30 (1986), Pp. 151-153 with fig. 2; cf. H. MacAdam, *The Byzantine and Early Islamic Near East II* (1994) 61, n. 68.

57 D. Kennedy and D. Riley, *Rome's Desert Frontier from the Air* (Austin: University of Texas, 1990), Pp. 205-207. For the pottery see Graf, "Wādī 'Arabah Survey (Amman: Department of Antiquities, 1980) and Macdonald, *The Southern Ghors and Northeast 'Arabah Archaeological Survey* (1992) P. 89 and P. 105.

58 G. Tate, "The Syrian Countryside during the Roman Era," in *The Early Roman Empire in the East*, ed. S. E. Alcock (Oxford: Oxbow, 1997), Pp. 60-62.

59 See F. Millar, *The Roman Near East 31 BC-AD 337* (Cambidge: Harvard, 1993), Pp. 535-544, for the details.

60 M. Sartre, "Nouvelles bornes cadastrales du Hauran sous la Tétrachie," *Ktema* 17 (1992), Pp. 111-131.

61 Millar, Roman Near East, 536 [Aelius Statutus]; A. H. M. Jones, J. Martindale and J. Norris, *The Prosopography of the Later Roman Empire*, vol. 1 (Cambridge, 1971), P. 794 [Iulius Septimius Sabinus 17].

61 E. Littmann, *Princeton Archaeological Expedition to Syria* IIIA (Leiden, 1907) no 28 (Sama) and SEG 17 (1960) no. 760 (Jabin).

63 See J. M. Frayne, *Markets and Fairs in Roman Italy. Their Social and Economic Importance from the Second Century BC to the Third Century AD* (Oxford, 1993), and L. De Ligt, *Fairs and Markets in the Roman Empire: Economic and Social Aspects of Periodic Trade in a Pre-Industrial Society* (Amsterdam, 1993), D. Sperber, *The City in Roman Palestine* (Oxford, 1998)< Pp. 9-47.

64 D. Peacock, *Pottery in the Roman World* (New York/London, 1982), P. 156.

65 A. Uscatescu and M. Martín-Bueno, "The *Macellum* of Gerasa (Jerash, Jordan): From a Market Place to an Industrial Area," *BASOR* 307 (1997), Pp. 67-88, and T. Marot, *Las monedas del Macellum de Gerasa (Yaras, Jordania)* (Madrid, 1998).

66 B. Shaw, "Rural Markets in North Africa and the Political Economy of the Roman Empire," *Antiquités Africaines* 17 (1981), P. 67.

pastoralists could exchange common goods, and village craftsmen sell their wares. Most villagers would have their common needs satisfied in this fashion, especially those who lived some distance from major urban markets.[67] These locals could purchase here the necessary clothing, pottery, metal or wood implements, salt, and other items to satisfy their basic needs, and perhaps even a few luxuries like gold and silver jewelry for a few. Slaves, land, and animals could also be sold in such locations. Estate owners often provided the location for the event, clearing a space of their property for such exchanges. Any doubts about the realistic nature of this picture need only consider the mounting evidence for the monetarization of the rural economy and the stratification of peasant society.[68] Nor should the volume of peasant demand, who represented more than 80% of the total population of Roman empire, be underestimated.

Of course, the fairs (*panygereis* or *nundinae*) were of greater magnitude, attended by both local population and foreigners. These periodic events attracted itinerant merchants, peddlers and caravans from afar who traveled from fair to fair. Many of these merchants received a tax or customs exemption from the emperor, since their large-scale trade involved expensive items. In the fourth century, Ammianus mentions the annual fair at the town of Batne, just east of the Euphrates from Zeugma, where crowds gathered to purchase wares from India and Persia (14.3.3). Shortly afterwards, another Syrian describes the festival at Immae near Antioch, where merchants from afar gathered and attracted a crowd "beyond number" (Theodoretus, *Hist rel.* 7 = PG 82.1365). Such large gatherings of locals and foreigners could arouse the suspicions of the authorities, especially in the frontier provinces, where security could be threatened. Consequently, legal permission was required before holding such affairs, and supervision and monitoring must have been demanded during the events. Since long-distance trade was conducted by ship, many of the fairs were located in port cities along the Mediterranean coast from Gaza to Tyre, but others were inland. For example, at Botnah near al-Khalīl/ Hebron in Palestine a famous fair was located. Herod is known to have enclosed the location with a massive wall, and after its destruction in the Bar Kokhba revolt, it was rebuilt by Hadrian and Constantine later added to it a church. Numismatic evidence from the site indicates that it flourished throughout the Roman and Byzantine periods, with its inter-regional nature reflected by coins from Egypt, Syria, Asia Minor, Greece, Italy, Spain and Gaul.[69] The location of such open-air fairs and markets may be difficult to determine in the absence of any literary material such as the Rabbincal sources that attest to Botnah, but, as Ramsay Macmullen has suggested, the archaeologist "might find at a cross-roads an area littered with coins, pottery, and other small objects attesting to the presence of crowds of people."[70] Perhaps more specific is Shaw's suggestion that rural markets should be sought along regularly used routes connecting disparate zones, such as the frontiers zones, rather than villages or small towns. The preference is for a neutral ground for rural periodic markets, a place juxtaposed between adjacent populations in a kind of "no man's land."[71] It is also evident that such affairs were of pre-Roman vintage. In fact, our first literary reference to the Nabataeans refers precisely to their participation in just such a regional fair in the early Hellenistic period (Diodorus Siculus 19.95). It is a reminder that rural markets began in the East. In fact, both the Latin terms *mercatus* and *macellum* are of Semitic derivation, suggesting that the phenomenon was imported to the West from the East.[72]

Villas

Large estates are a typical feature of the Roman and Byzantine landscape in the western provinces and Greece.[73] Thousands have been excavated in Britain, Belgium, Gaul, Spain, the Upper Danube and Rhineland, as well as Italy. In contrast, villas appear to be noticeably rare in the Near East.[74] Part of the reason for their seeming absence is the tyranny of an overly-precise definition that emphasized only the luxury and leisure aspects of the Italian rural complexes, neglecting their productivity (*fructuaria*). Emphasis on the sterility of the *villae* in the Latin literary tradition also contributed to the perception that villas were "a little island of urban uselessness marooned in the real countryside."[75] The reality is that production of a

67 A. H. M. Jones, "The Economic Life of the Towns of the Roman Empire," *The Roman Economy* (Oxford, 1974), P. 38.

68 L. de Ligt, "Demand, Supply, Distribution: The Roman Peasantry between Town and Countryside: Rural Monetization and Peasant Demand," *MBAH* 9 (1990), Pp. 24-56, and "The Roman Peasantry: Demand, Supply and Distribution between Town and Countryside. II: Supply, Distribution and a Comparative Perspective," *MBAH* 10 (1991), pp. 33-77.

69 I Magen, "Mamre," *The New Encyclopedia of Archaeological Excavations in the Holy Land*, ed. E. Stern (Jerusalem, 1993), III: 939-942; cf. Z. Safrai, *The Economy of Roman Palestine* (New York/London, 1994), Pp. 254-256.

70 R. Macmullen, "Market-Days in the Roman Empire," *Phoenix* 24 (1970), Pp. 33; cf. K. W. Harl, "Coins in Taxes and Markets of the Roman World," *Ancient World* 27/2 (1996), Pp. 197-204.

71 Shaw, *Antiquités africaines* 17 (1981), Pp. 40-41.

72 L. DeMyer, "L'etymologie de *marcellum*, marché," *L'Antiquité Classique* 31 (1962) 148-52, and E. Gabba, "Mercati e fiere nell'Italia romana," *Studi Classici e Orientali* 24 (1975) 141-160 at 145.

73 J. Percival, *The Roman Villa: An Historical Introduction* (Berkeley, 1976) and B. Bergmann, "Visualizing Pliny's Villas," *JRA* 8 (1995), Pp 406-420.

74 J. J. Rossiter, "Roman villas of the Greek east and the villa in Gregory of Nyssa Ep. 20," *JRA* 2 (1989), Pp. 101-110, and H.-P. Kuhnen, *Palästina in griechisch-römischer Zeit* (Munich, 1990), Pp. 241.

75 N. Purcell, "The Roman *villa* and the landscape of production," *Urban Society in Roman Italy*, ed. T. Cornell and K. Lomas (New York: St. Martin's Press, 1995), Pp. 173, a remarkably perceptive essay.

surplus and exploitation of the countryside was just as much a part of their essential function as the elements of privacy. Of course, the large villa estates with their luxurious baths, porticoes and mosaics that were common in the West is unlikely to be found in the East. In fact, there is a wide variety of types even in the West, reflecting regional diversity and the tastes of the indigenous local elite society.[76] It is now recognized that a provincial villa was not a "slavish reproduction of the Italian one," but one exhibiting its own unique properties.[77] Those in the East took on a different form than elsewhere, where there was already a long tradition of the Oriental *paradeisos*, with its productive gardens and water resources.

In the Levant, many of the villas are linked to nucleated villages and cities, intermingled among the farmsteads in the nearby surrounding suburbs. They are also typically associated with garden estates and plantations for supplying food for the owner's household. Libanius indicates that the wealthy citizens of Antioch escaped in the summer to their villas in the suburb of Daphne (*Ep.* 419), where senators and emperors also erected villas. Such villas near Antioch had been excavated, as well as others before 1980 in the environs of Beirut and Baalbek in Lebanon, and Ascalon, Baysān/ Beth-Shean and Emmaus in Palestine.[78] But the list from Palestine has been significantly expanded since 1980, with Byzantine *villa rusticae* now known throughout Palestine, especially along the coastal plain northeast of Caesarea, and from Hebron to the northern Negev.[79] A number date to the early Roman era (first century BC-first century AD), including even the possibility that the settlement at Qumran was originally a *villa rustica* before its possible conversion to an Essene center.[80] These large complexes occupy several hundred yards, including adjacent industrial areas, with sometimes a fortified tower connected to the residential quarter. The estates appear to be the product of wealthy and powerful magnates, and involved a significant work-force.

The recent surveys in Jordan have revealed the intensity of rural settlements, but few villas have been identified. Villeneuve has drawn attention to several *villae rusticae* in the environs of Bostra.[81] There are also a number of large farm houses with towers in the area near Suwayda in the Ḥawrān, similar to those in Palestine. Other rural estates might be expected in the vicinity of the Transjordanian urban centers, Jarash, 'Ammān, Mādabā, and Petra, such as the badly destroyed large Byzantine villa complex Pam Watson discovered about 2 km north of Pella overlooking the hot springs at Wādī al-Ḥammah. It appears to be connected to the adjacent bath house structures, and produced abundant late sixth and early seventh century pottery.[82] The identification and excavation of such sites elsewhere in Jordan should be a desideratum for the future. The focus should be as much the field system, as the palatial elements among the ruins.

Imperial Estates

It has been observed that imperial estates are spread fairly evenly around the empire,[83] but the documentation for the provinces in the Eastern Mediterranean is rather uneven.[84] Most are concentrated in papyrologically rich Egypt and the Hadrianic forest preserve of Phoenicia.[85] Yet, others must be scattered throughout the region. In Palestine, the royal lands of the Herodian monarchs and much of Judaea was confiscated and transformed into imperial property, beginning with the collapse of Archelaus' rule (Josephus, *AJ* 17.13.1-2 [340-44]; cf. 18.2.1 [26]), then after the First Revolt (*BJ* 7.6.6 [216]) and in the aftermath of the Bar Kokhba Revolt (Eus. *H.E.* 4.6.1). Even if much of it was later liquidated, the overwhelming impression is that large tracts of land continued to exist as crown property.[86] Some vestiges of these imperial lands still appear in Byzantine sources, such as with the abundant references to *Saltus Geraiticus* and *Saltus Constantinianus*, located on the desert frontier southeast of Gaza, and protected by imperial troops, the *equites Thamudeni Illyricani* and *equites promoti Illyricani* respectively.[87] These forts of the *Limes*

76 See now J. T. Smith, *Roman Villas: A Study in Social Structure* (New York/London: Routledge, 1998).

77 J. Percival, "The Villa in Italy and the Provinces," *The Roman World II*, ed. J. Wacher (London/New York: Routledge & Kegan Paul, 1987), Pp.542.

78 See Rossiter, *JRA* 2 (1989) 102 n. 8, for a list.

79 Y. Hirschfeld, "Farms and Village in Byzantine Palestine," *Dumbarton Oaks Papers* 51 (1997), Pp. 44-59.

80 Y. Hirschfeld and R. Birger-Calderon, "Early Roman and Byzantine Estates near Caesarea," *IEJ* 41 (1991), Pp. 81-111; R. Donceel and P. Donceel-Voûte, "The Archaeology of Khirbet Qumran," *Methods of Investigation of the Dead Sea Scrolls and the Khirbet Qumran Site: Present Realities and Future Prospects*, ed. M. O. Wise *et al* (New York: The New York Academy of Sciences, 1994), Pp. 26-27, and Y. Hirschfeld, "Early Roman Manor Houses in Judea and the Site of Khirbet Qumran," *Journal of Near Eastern Studies* 57 (1998) 161-189. But cf. J. Magness, "A Villa at Khirbet Qumran?," *Revue de Qumran* 16 (1994), Pp. 397-419.

81 Villeneuve in *Hauran I* (1985), P. 76 and P. 114.

82 P. Watson, "Pella Hinterland Survey 1994: Preliminary Report," *Levant* 8 (1996), Pp. 69-71.

83 R. MacMullen, "Two notes on imperial properties," *Athenaeum* n.s. 54, (1976), P. 19.

84 D. J. Crawford, "Imperial Estates," *Studies in Roman Property*, ed. M. I. Finley (Cambridge, 1976), Pp. 63-64, and "Imperial Estates," *The Roman World*, ed. J. Wacher (London/New York: Routledge, 1987), II: 555-567.

85 G. M. Parassoglou, *Imperial Estates in Roman Egypt* (Amsterdam, 1978), and J. F. Breton, *IGLS* VIII/1: *Inscriptions forestières du mont Liban* (Paris, 1980).

86 S. Applebaum, "Royal and Imperial Estates in the Sharon and Samaria," *Judaea in Hellenistic and Roman Times* (Leiden, 1989), Pp. 97-110, and Z. Safrai, *The Economy of Roman Palestine* (London/New York: Routledge, 1994) 322-326.

87 Y. Tsafrir *et al*, *Tabula Imperii Romani: Judaea-Palestine* (Jerusalem, 1994), Pp. 132-133, 183 s.v. Menois with 220), and see Notitia Dignitatum, Or. 34.19 and 22.

Palestinae suggest the possibility that military garrisons were located on imperial estates elsewhere on the eastern frontier.

For Transjordanian Arabia, there are also scattered references to imperial estates in literary sources, inscriptions and papyri. The Babatha archive mentions that the Jewess' date-grove bordered on imperial property at Zoar and the Dead Sea.[88] An earlier still unpublished Aramaic document from her archive dates to AD 99, and indicates the same imperial property formerly belonged to the Nabataean king Rabbel II.[89] There must have been a number of other such agricultural estates of the Nabataean royal house that passed into the emperor's patrimonium after the annexation.[90] In addition, two inscriptions in the southern Ḥawrān from the villages of Sama and Jabin delineate the boundaries private property and land that is imperial property, each has the Greek equivalent (*engion tamiakon*) for the Roman Latin *ager fiscalis*, indicating imperial land.[91] Another possibility is the town of as-Salṭ, just 15 km from 'Ammān, the former Ottoman capital of Transjordan, which bears a name perhaps derived from *saltus*, suggesting it once was a Roman imperial estate, perhaps protected by a vexillation of the Legio VI Ferrata.[92] Further south, Byzantine geographers list a *Salton Hieratikon* in the metropolis of Petra, perhaps located in the forest districts at Khirbat al-Miqdis, 11 km south of ash-Shawbak.[93] It could also be a sacred area in the immediate vicinity of Petra formerly associated with the royal dynasty of Nabataea before being acquired by Rome. In AD 385, both Areopolis and Petra were vigorously defending their temples against attacks by Cynegius, the praetorian prefect of the East.[94]

Other possibilities may be associated with the imperial efforts in creating estates in border regions to develop the agricultural potential of marginal lands, farmed normally in late antiquity by coloni, ingenui and slaves.[95] Many of the late Roman forts located on the periphery of the settled region bear names derived from military terminology—al-Qasṭal, al-Lajjūn and al-Qaṭrāna reflect Latin *castellum*, *legio* and *castra*. Such names suggest this was previously undeveloped territory, and that they represent efforts to extend the agricultural and pastoral potential of the region. Such forts may have been responsible also for providing animals to the *stationarii* and the cavalry units located in the region.[96] These lands would comprise part of the *prata* or *territorium* of the legionary and auxilary units. A papyrus from Dura Europos on the Euphrates in Syria dating to AD 221 indicates that imperial freedmen issued barley to a detachment of soldiers at nearby Appadana *ex praedis fiscalibus*, in essence transferring rent in kind from an imperial estate to soldiers as provisions for their animals.[97] It may be assumed that such transfers were typical for imperial estates.[98] It is possible that the military camps in Arabia had similar functions. Some mention should also be made of the recent discovery in 1993 of more than 150 scrolls of carbonized papyri during the excavations of a Byzantine church of the sixth century at Petra.[99] They are mainly economic documents ranging in date from AD 528 across the sixth century and deal with the possessions and acquisitions of property by local families in the agricultural hinterland extending from 10 to 30 km from the city. Listed are the names of towns, villages, and farmlands, in the region such as Augustopolis (Udhruḥ), and Kastron Zadakathon (Ṣadaqa), and Eletheropolis (Bayt Jibrīn in Palestine). They are certainly equal in importance to the Nessana papyri found in the Negev a half century ago which are from the same period, but the Petra papyri provide far more insights into the rural landscape.

The general result emerging from surveys of the rural regions throughout the Mediterranean has been to find more and more of the population in the countryside. What such features as discussed above illustrate is that the Transjordanian landscape should not be considered as just a bland world of sameness. Like other parts of the Roman and Byzantine empire, it was a world of diversity and

---

88 N. Lewis, *The Documents from the Bar Kokhba Period in the Cave of Letters*. Greek Papyri (Jerusalem, 1989), no. 116, l. 24

89 H. Cotton, "Rent or Tax Receipt from Maoza," *Zeitschrift für Papyrologie und Epigraphik* 100 (1994) 548 = *P. Yadin* 2.

90 Lewis, *Documents from the Bar Kokhba Period*, 70.

91 Littmann, *Publications of the Princeton University Archaeological Expedition to Syria* IIIA (Leiden, 1907) no. 28, and *SEG* 17 (1960) no. 760.

92 See P.-L. Gatier, *Inscriptions de la Jordanie* 2 = *IGLS* XXI (Paris, 1986) no. 3.

93 George of Cyprus, *Descriptio orbis Romani 1057* (ed. H. Gelzer 1890), with E. Honigmann, *Le Synekdèmos d'Hiérokles et Georges de Chypre*, Bruxelles, Corpus Bruxellense Historiae Byzantinae, Forma Imperiii Byzantini, I (1939), Pp. 43-44.

94 A. H. M. Jones, *The Later Roman Empire, 284-602* (Baltimore:, 1964), P. 167, and G. Fowden, "Bishops and Temples in the Eastern Roman Empire A.D. 320-435," *Journal of Theological Studies* 29 (1978), Pp. 64-76.

95 D. J. Crawford, "Imperial Estates," *Studies in Roman Property*, ed. M. I. Finley (Cambridge, 1976), P. 54; D. Kehoe, *The Economics of Agriculture on Roman Imperial Estates in North Africa*, Hypomnemata 89 (Göttingen, 1988), 200-21; R. Delmaire, *Largesses Sacrées et Res Privata: L'Aerarium impérial et son administration du IVe au VIe siècle*, Collection de l'Ecole français de Rome vol. 121 (Rome, 1989), Pp. 679-682.

96 R. W. Davies, "The supply of animals to the Roman army and the remount system," *Service in the Roman Army*, ed. D. Breeze and V. Maxfield (New York, 1989), Pp. 167-171.

97 *P Dura* 64 = R. O. Fink, *Roman Military Records on Papyrus* (Cleveland, 1971) no. 91, A, col. I, lines 10-11.

98 N. Pollard in *The Roman Army in the East*, ed. D. L. Kennedy (Ann Arbor, 1996) 224; cf. T. K. Kissel, *Untersuchungen zur Logistik des römischen Heeres in den Provinzen des grieschischen Ostens (27 v. Chr.-235 n. Chr.)* (St. Katharinen, 1995), 150.

99 L. Koenen, "The carbonized archive from Petra," *JRA* 9 (1996), Pp. 177-188.

complexity, a world of farmers and pastoralists for certain, but also one of merchants and artisans.[100] The inclination to divide the population into an elite minority and a broad majority of peasants has obscured this variety of lifestyles. It is now recognized that ancient towns and villages were self-sufficient in regard to their common needs, which were supplied by local craftsmen.[101] Their workshops interspersed among agricultural contexts should be recognized. These rural tradesmen and craftsmen have been neglected, but even the small villages in Egypt had seven to twelve. A small town like Korykos in Rough Cilicia in Asia Minor had over 100 different tradesmen, whereas Pompeii had only about 80. When compared to the slightly over 200 named trades and occupations in Latin inscriptions from Rome, the differences and distinctions between urban and rural begin to diminish.[102] What this search for land-divisions, rural markets, villas, and estates represents is a quest for the "lost peoples" on the Jordanian landscape.

[100] See A. Bounni, "Métiers et fonctions à Palmyre," *Études et Travaux* 15 (Warsaw, 1988), Pp. 78-86, and G. Tate, "Les métiers dans les villages de la Syrie du Nord," *Ktèma* 16 (1991), Pp. 73-78. Such a study is still needed for Roman-Byzantine Transjordan, but a beginning is made by L.-A. Hunt, "The Byzantine Mosaics of Jordan in Context: Remarks on Imagery, Donors, and Mosaicists," *PEQ* 126 (1994), Pp. 106-126.

[101] A. H. M. Jones, "The Economic Life of the Towns of the Roman Empire," *The Roman Economy*, ed. P. A. Brunt (Oxford, 1974), P. 38.

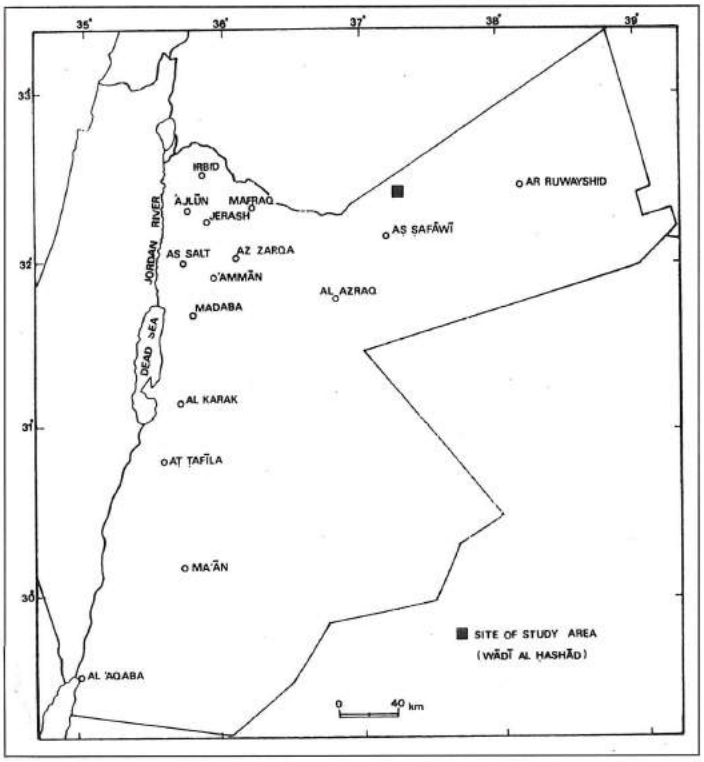
[102] K. Hopkins, "Economic Growth and Towns in Classical Antiquity," *Towns in Societies*, ed. P. Abrams and E. Wrigley (Cambridge, 1978), Pp. 71-72, who emphasizes that the distinction between village and town in antiquity is arbitrary.

Sabri Abbadi
Jordan University
Amman
Jordan

Sabri Abbadi

A New Safaitic Inscription Dated to 12-9 BC*

The inscription under discussion measures 30 x 25cm. It was found in Wādī al-Ḥashad, 45km northeast of aṣ-Ṣafāwī (previously known as H5) near the Jordanian-Syrian borders, at 750m above sea level (FIG. 1). The inscriptions of this wadi are characterized by their relative length and by their resemblance to the inscriptions of the nearby Wādī Salma. It seems that the wadi was a site where many Arab tribes converged and met, especially during the winter season when the wadi is warm and green, and pasturage is available. Bedouins today still use the wadi during winter for the same reasons. Trade caravans from Syria used to cross the wadi on their way to Wādī as-Sirḥān.



1. Map of Jordan showing the site of the study area.

The inscription was inscribed on a smooth surfaced basalt stone, fit for inscribing long thin letters on. The inscriber utilized a pointed sharp tool. The inscription is composed of four spiral connected lines, with 89 letters (FIG. 2).

The importance of this inscription lies in the fact that it gives us a precise and definite date, and includes a new verb (*'ḥb*) and the word (*ġwṯ*), as they have not appeared in Safaitic inscriptions before.

Transliteration

L tm bn msk bn qtl bn brd bn ḥmt wwjm 'l ġyr w'l qtl w'l mṭl snt 'ty sly mrm wḫrṣ h snt fh b'lsmn ġwṯ wslm wqbll lḏ 'ḥb.

Translation

By Taim b. Msk b. Qtl b. Brd b. Ḥmt and he grieved for Ġyr and for Qtl and for Mṭl in the year that Syllaeus came from Rome, and he was on the look-out for this year. O Ba'al-samin grant succour and security and acceptance, to him who is in love.

Commentary

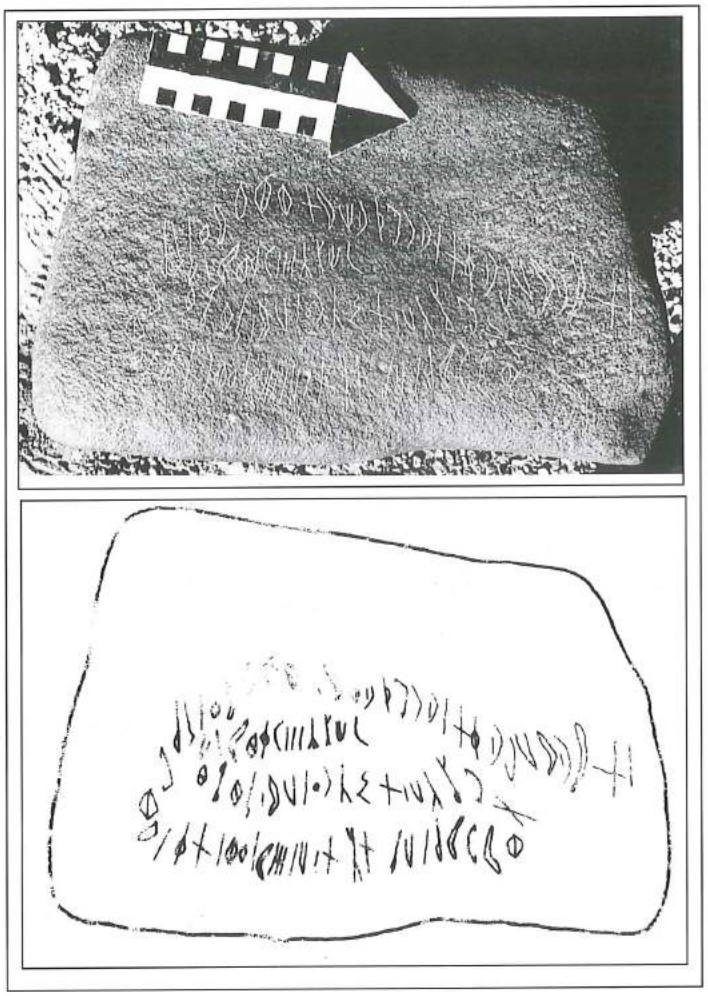
Tm and Msk: These names were mentioned in Safaitic, and in other North Semitic Onomastica (Abbadi 1996a: 242; 1997a: 227).

Qtl: is known in Safaitic (Littmann 1943: 342; Harding 1971: 476; Winnett and Harding 1978: 602).

Brd: A familiar name in Safaitic (Harding 1971: 101), in Thamudic (King 1990: 478), in Nabataean *Brdw* (Negev 1991: 17) and in Arabic (Ibn-Doried 1979: 136). I met a Bedouin named (Burad), he informed me that he was given this name on account of having been born on a night when it rained hail.

Ḥmt: This name was mentioned in Safaitic (Harding 1971: 199; Winnett and Harding 1978: 569; Clark 1980: No.

* Editor's note: this inscription is published in Arabic by the same author, see Abbadi 1997c.



2. The inscription.

699).
w: Conjunction "and", passim. *wgm*: verb meaning "to grieve, mourn". *'l*: preposition meaning "for" (Abbadi 1998: 122).
Ġyr: This name occurred in Safaitic (Littmann 1943: 337; Harding 1971: 460).
Mṭl: Mentioned twice in Safaitic, one of which the reading is unintelligible (Harding 1971: 551), in Thamudic (King 1990: 547).
snt: Year.
'ty: Came. This verb is mentioned in Safaitic (Littmann 1943: 301; CIS: No. 860; Winnett 1957: No. 78).
Sly: Corresponds to Nabataean "Sullay" and to Syllaeus in Classical sources. Littmann (1914: 39; 1953: 25) vocalized the name "Shullai or Sullai" or considered it as an emphatic of "Sulaim" or "Sallai". The interpretation of Jawad 'Ali (1976, Vol. 2: 44) as "Ṣāliḥ" is not correct in my opinion.
m: preposition meaning "from".
Rm: Rome or the Romans (see below).
ḫrṣ: To look for, to be on the look-out (Abbadi 1996b: 243).
fh: Vocative article "O".
B'lsmn: "The Lord of Heaven". The god name was frequently used in Safaitic and was connected with agriculture as he was asked to grant rainwater in some Safaitic inscriptions (CIS: No. 2803; Winnett and Harding 1978: No. 2143). He was also offered sacrifices (CIS: Nos. 4358, 4360, 4409). One of the Safaitic inscriptions mentioned *fhb'l smn 'lh s''*, Clark (1980: No. 424) interpreted *s''* as the town of Sī' mentioned in Classical sources, it is not far from the town of Suwayda in southern Ḥawrān, and so the meaning of the phrase becomes *B'lsmn* the god of Sī', or it could be (*'L hs''*) but the former interpretation is better. It was built for that god of the temple in *Si'* (Littmann 1914: No. 100). One of the Nabataean inscriptions mentions that he is a god for the Nabataean King Mālik/ Malichus (56-29 BC) (Khairy 1981: 25-6). A temple was built for him in the city of Palmyra (Teixidor 1979: 20), he was also worshipped in the city of Hatra (Abbadi 1983: 59; Aggoula 1991: 195). Likewise, he was worshipped by the Lihyanites (Jaussen and Savignac 1914: 405, 484 Nos. 64, 194). That god was known to the Canaanites and Phoenicians from the beginning of the first millennium BC (Donner and Röllig 1973: No. 4).
ġwṯ: A new word in the Safaitic corpus: "a cry for aid or succour" (Lane 1968: 2306). This word occurred in Safaitic as a personal name (Harding 1971: 459; Winnett and Harding 1978: No. 3086b).
qbll: Acceptance (Abbadi 1996a: 245).
ld: To him who (Abbadi 1997b: 84).
'ḥb: A new verb meaning "one who loved".

The most important sentence is *Snt 'ty Sly m rm*: The year Sullay came from Rome. The epigraphists interpret Rm in the Safaitic inscriptions as Rome or the Romans (Littman 1943: 343; Winnett and Harding 1978: 579). However, M. Macdonald.(1993: 330-32) interpreted it as a tribe name, except for one inscription, without providing any evidence. Some scholars may believe that the name *Rm* means *Wādī Ramm*, but the real name of this wadi is *Iram*, as it appears in one inscription near the water reservoir of al-Quṣayr, at the foot of Jabal al-Judaydah (Savignac 1932: 592-593 "May be remembered Ḥayan son of 'Abdallahi, son of Ibn-'atmou, in front of Allāt, the goddess who dwells in Iram"). The same name appears in another inscription of Wādī Iram (Savignac 1933: 408). This name of the valley is confirmed by the Holy Qur'an, Surat 89: 6-9: "Seest thou not how thy Lord dealt with the 'Ād (people), of the (city of) Iram, with lofty pillars, the like of which were not produced in (all) the land, and with Thamūd (people), who cut out (huge) rocks in the valley?".

Concerning Sullay whose name is mentioned in this inscription, he was famous under Obodas III (30-9 BC). Strabo in his *Geography* 16, 4, 24, records: "This came to

pass because Obodas, the king, did not care much about public affairs and particularly military affairs, and because he put everything in the power of Syllaeus". Similarly, Josephus, *Ant.* XVI, 7.6 described Obodas as being "inactive and sluggish by nature; for the most part his realm was governed by Syllaeus". The same author qualified Syllaeus as being a shrewd man although he was but young and handsome. Strabo accused Syllaeus of being the cause of the failure of Aelius Gallus expedition to Arabia Felix (*Geog.* 16, 4:25). According to this author, the intention of the Nabataean minister was "to spy out the country and, along with the Romans, to destroy some of its cities and tribes, and then to establish himself lord of all, after the Romans were wiped out by hunger and fatigue and diseases." (*Geog.* 16.4.24).

Syllaeus paid several visits to Herod the Great and fell in love with his sister Salome and asked for her hand. However, Herod imposed on him to convert to Judaism which he declined, claiming that he would be stoned by his people (*Ant.* XVI, 7.6). After the failure of his love, the relations worsened. Herod travelled to Rome and the tribes of the Trachonitis (the Lijja) revolted against him. His generals quelled the revolt. The tribe leaders fled to the fortress of Raepta (Qal'at ar-Rabaḍ in 'Ajlūn). On his return, Herod asked Syllaeus to deliver the rebellious tribesmen. He also urged him to repay the debt king Obodas received by his intermediary. The case was presented to the Governors of Syria, Saturminus and Volumnius who confirmed Herod in his complaint. But Syllaeus refused to comply. He journeyed to Rome to expose the case at the court of Augustus. During his sojourn to Rome, Herod attacked the rebellious tribesmen and captured them. This attack was reported to Syllaeus in Rome who reported the matter to Augustus and exaggerated the number of killed tribesmen. Augustus was angry and sent a message of threat to Herod (*Ant.* XVI, 9.1.2.3). During one of his visits to Rome, he left an inscription in Nabataean and Greek at the port of Miletus, in Asia Minor: "Syllaeus, brother of the king son of Taymu, this offering for the life of Obodas the king in the month of ..." (Lidzbarski 1915: 89; Meshorer 1975: 37f). The expression "brother of the king" means that he was the epitropos or first minister of the king (*Geog.* 353). This inscription could be dated in 12-9 BC.

After Obodas' death, Aretas IV assumed the function of the king of the Nabataeans, without asking the permission of Augustus who was dissatisfied with Aretas. Meanwhile, Aretas IV dispatched gifts to Augustus and accused Syllaeus of having poisoned Obodas (*Ant.* XVI, 9.4). Nicolas of Damascus who happened to be in Rome informed Augustus of the treachery of Syllaeus who was accused of having poisoned Obodas and several Nabataean dignitaries. Augustus ordered Syllaeus to be executed (*Ant.* XVI, 10.8 -9).

Conclusion

The writer of the inscription dated his inscription by the return of Syllaeus from Rome because he was an outstanding personality and his influence with the Bedouin tribes of the Syrian desert was great. Like the other Bedouin tribes, this man expected the return of Syllaeus, to protect them from Herod the Great. The inscription, which mentions *snt ḥrb Nbṭ Yhd* (the year of the Nabataean Jewish war) in Wādī al-Ḥashad (Abbadi 1996b: 239-253) probably refers to the attacks of Herod the Great on the Safaitic tribes of the Lijja.

At the time I thought that it referred to one of these wars between both sides (96-40 BC), and it is a fact that many wars have taken place between both parties. The earliest one is dated to 90 BC, which occurred between Alexander Jannaeus and Obodas I, and another war in 30 BC between Herod the Great and Malichus I, and a later war occurred in AD 36 between Aretas IV and Herod Antipas (Abbadi 1996b: 244-245). Actually the inscription does not go back to that date, I believe it refers to the war waged by Herod the Great against the Nabataeans, when there was heightened tension between him and Sullay (12-9 BC), especially when we note that both inscriptions were found near each other. That is why I believe the two inscriptions refer to the same event. The pertinent inscription is dated to the year in which Sullay came from Rome (12-9 BC) and the other inscription gives the date of the Nabataean-Jewish war, in actual fact, they both refer to the same event.

The Sullay inscription, on the other hand, contradicts the theory of Winnett who stated that the square script is the oldest Safaitic script, dating to the first century BC (Winnett 1957:19). Nevertheless, a Safaitic inscription in the Square script was dated to Nepos, governor of the Provincia Arabia in AD 132-134 (Abbadi and Zayadine 1996: 160-161), which also contradicts the hypothesis of Winnett.

References

Abbadi, S. 1983. *Die Personennamen der Inschriften aus Hatra.* Texte und Studien zur Orientalistik. Hildesheim: Georg Olms Verlag.

____1996a. Nuqūsh ṣafawiyah jadīdah fī al-'urdun/ wādī al-ḥashad. *Dirasat, Human and Social Sciences* 23, No. 2: 242-252.

____1996b. Dhikr ḥarb al-'anbāṭ wal-yahūd fī an-nuqūsh aṣ-ṣafawiyah. *Mu'tah Lil-Buhooth wa al-Dirasat, Humanities and Social Scienes Series* 2, No. 2: 239-253.

____1997a. Naqsh ṣafawī fī muṭḥaf at-turāth al-'urdunī fī ma'had al-'āthār wal-anthrubulujiah fī jāmi'at al-yarmūk. *Dirasat, Human and Social Sciences* 24, No. 2: 226-233.

____1997b. Nuqūsh ṣafawiyah jadīdah min muṭḥaf 'āthār al-mafraq. *Abhath al-Yarmouk, Humanities and Social Sciences Series* 13, No. 2A: 79-90.

____1997c. Naqsh ṣafawī jadīd yu'arakh ila ar-rub' al-akhīr min al-qarn al-'awal qabl al-mīlād. *Abhath al-Yarmouk, Humanities and Social Sciences Series* 13 No. 3: 141-151.

____1998. Naqsh ṣafawī jadīd min marab as-suway'id. *Dirasat, Human and Social Sciences* 25, No. 1: 121-127.

Abbadi, S. and Zayadine, F. 1996. Nepos the Governor of the Provincia Arabia in a Safaitic Inscription? *Semitica* 46: 155-65.

Aggoula, B. 1991. *Inventaire des inscriptions Hatréennes*. Bibliothéque Archéologique et Historique, T. CXXXIX. Paris: P. Geuthner.

Ali, J. 1976. *Al-mufaṣal fī tārīkh al-'arab qabl al-'islām*. 10 vols. Beirut.

Ali, Y. 1965. *Translation and Commentary of the Holy Qur'an*. Beirut: Printing Production.

CIS 1950. *Corpus Incriptionum Semiticarum*. Part V, Inscriptiones saracenicae, Vol. I. Paris: Imprimerie Nationale.

Clark, V. A. 1980. *A Study of New Safaitic Inscriptions from Jordan*. Unpublished Ph.D. Thesis, University of Melbourne, 1979. Ann Arbor: University Microfilms International.

Donner, H. and Röllig, W. 1973. *Kanaanäische und aramäische Inschriften*. 3 Bde, dritte Auflage. Wiesbaden: Otto Harrassowitz.

Ibn Doried, Abu Bakir Muhammed bin al-Hasan. 1979. *Kitāb al-'ishtiqāq*. Revised by 'Abd es-Salam Harun. Baghdad.

Harding, G. L. 1971. *An Index and Concordance of Pre-Islamic Arabian Names and Inscriptions*. Near and Middle East Series 8. Toronto: University of Toronto Press.

Jaussen, A. and Savignac, R. 1914. *Mission archéologique en Arabie*. Vol. 2. Paris: P. Geuthner.

Josephus, F. 1961. *Jewish Antiquities*. Translated by Ralph Marcus. London: Loeb Classical Library.

Khairy, N. 1981. A New Dedicatory Nabataean Inscription from Wadi Musa. *PEQ* 113: 19-26.

King, G. 1990. *Early North Arabian Thamudic E: A Preliminary Description Based on a New Corpus of Inscriptions from the Hisma Desert of Southern Jordan and Published Material*. Unpublished Ph.D. Thesis, School of Oriental and African Studies.

Lane, E. W. 1968. *An Arabic English Lexicon*. Beirut.

Lidzbarski, M. 1915. *Ephemeris für semitische Epigraphik*. Bank III. Giessen.

Littmann, E. 1914. *Nabataean Inscriptions*. Publications of the Princeton University Archaeological Expeditions to Syria in 1904-05 and 1909, Division IV, Section A. Leiden: Brill.

____1943. *Safaitic Inscriptions*. Publications of the Princeton University Archaeological Expeditions to Syria in 1904-05 and 1909, Division IV, Section C. Leiden: Brill.

____1953. Nabataean Inscriptions from Egypt. *Bulletin of the School of Oriental and African Studies* 15: 1-28.

Macdonald, M. 1993. Nomads and the Hawran in the Late Hellenistic and Roman Periods: A Reassessment of the Epigraphic Evidence. *Syria* 70: 303-403.

Meshorer, Y. 1975. *Nabataean Coins*. Qedem 3. Jerusalem: The Hebrew University of Jerusalem.

Negev, A. 1991. *Personal Names in the Nabataean Realm*. Qedem 32. Jerusalem: The Hebrew University of Jerusalem.

Savignac, R. 1932. Notes de voyage. - le sanctuaire d'Allat a Iram. *RB* 41: 581-597.

____1933. Le sanctuaire d'Allat a Iram (I). *RB* 42: 405-22.

Strabo. 1961. *The Geography of Strabo*. Translated by Horace Leonard Jones, Loeb Classical Library, Vol. 7. Cambridge: Harvard University Press.

Teixidor, J. 1979. *The Pantheon of Palmyra*. Études préliminaires aux religions orientales dans L'empire Romain, 79. Leiden: Brill.

Winnett, F. V. 1957. *Safaitic Inscriptions from Jordan*. Near and Middle East Series 2. Toronto: University of Toronto Press.

Winnett, F. V. and Harding, G. L. 1978. *Inscriptions from Fifty Safaitic Cairns*. Near and Middle East Series 9. Toronto: University of Toronto Press.

Pamela M. Watson
6 Moulds Close
Coffs Harbour
Australia 2450

Pamela M. Watson

Roman Water Installations in the Vicinity of Pella

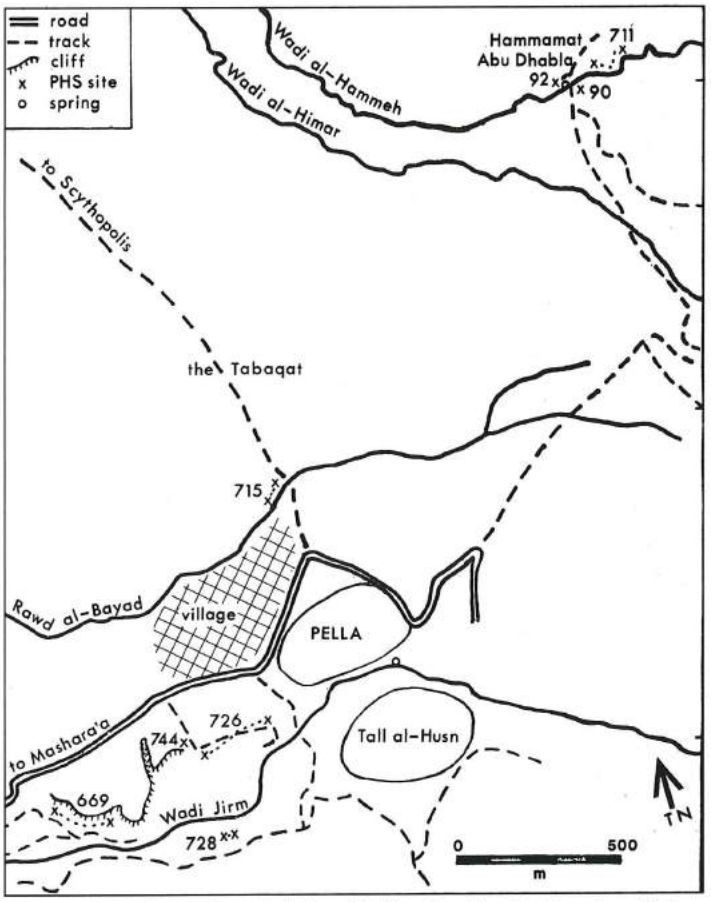
The Pella Hinterland Survey (PHS) was conducted for three seasons in the autumns of 1994-1996, in order to intensively investigate landuse and settlement patterns in the immediate vicinity of Pella, in the eastern foothills of the north Jordan Valley. Whilst evidence from all periods was recorded, the principal analysis is focused on the Roman-Byzantine material. This report is concerned with a number of water installations apparently constructed in the Roman period (first-early fourth century AD), whose remnants were mostly identified and recorded during the 1996 season. All PHS sites mentioned in the text are shown in FIG. 1.[1]

The Water Installations

As Pliny noted in his description of the Decapolis cities in the first century AD, Pella was "rich in water" (*NH* 5.16.74). A number of installations for water distribution were found to the north and west of the site which are not only of interest for understanding the structure and activities of the city in its wider context, but also for the clarification of certain myths or assumptions associated with the site.

The Roman Baths and Aqueduct at Ḥammāmāt Abū Dhabla (Sites 92 and 711)

The present-day hot springs of Ḥammāmāt Abū Dhabla in Wādī al-Ḥammeh, ca. two kms north of Pella, boast a small crude single-roomed bath house, actively used by the local populace. The hot springs of Pella were mentioned in the *Jerusalem Talmud* (6.I.)[2] when a Rabbi Zeira, dated sometime between AD 279-359, was wondering whether he was permitted to go there and use the baths (he was). While the centre of the city contains the remains of a Roman-period bathhouse (Smith and Day 1989), the spring here has a normal temperature and probably hasn't changed since antiquity. Some interpreters have assumed that the hot spring was "near Pella" and would therefore be Ḥammāmāt Abū Dhabla. Robert Smith who worked numerous years at Pella, considered that "the few ruins at the spot are insufficient to represent a famous ancient



1. Map of the immediate vicinity of Pella, showing the location of sites mentioned in the text (based on the topographical map series: Jordan 1:25,000 Sheet 3154 IV NW, al-Mashāri')

[1] The project was jointly sponsored by the British Institute at Amman for Archaeology and History and the University of Adelaide, Australia with myself and Dr Margaret O'Hea directing. The intrepid 1996 season staff members comprised Mathew Bradley, David Connolly, and James Wright (surveyors), Fiona Baker, Kirsten Drummond, Amy Dumas, Samantha Gibbins, John Meadows, Holly Parton, David Thomas, and Ruth Ward. The aims and methodology of the overall survey are presented in Watson and O'Hea 1996: 63-64.

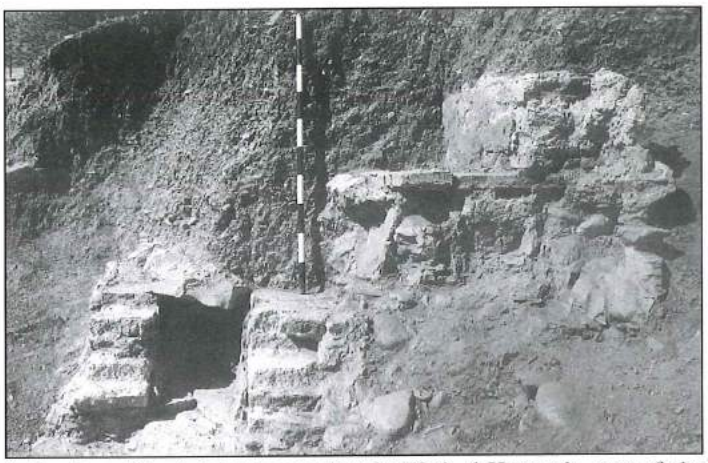
[2] Cited in Smith 1973: 57.

bath" (Smith 1973: 58). However in 1986 the wādī was severely scoured after heavy winter rains, deepening its course and causing erosion of the banks near the current bathhouse. As a result the bathhouse was pedestalled several metres above the new water table, and the massive walls of a buried building complex were revealed, having originally existed at this newly-exposed lower level. Pottery sherds of the Roman through Byzantine period were noted. Unfortunately, before resources could be martialled to excavate and properly record this complex, local villagers bulldozed the site in an effort to fill in the wādī and raise the water table to its previous level in order for the modern bathhouse to function again. The effort was futile at the time, but the complex was destroyed. The Pella Hinterland Survey (PHS) recorded all the remnants in 1996 as PHS site 92. A wall beneath the present bathhouse (FIG. 2) and a number of upslope peripheral walls were still *in situ*. A related Late Byzantine complex across the natural rock bridge to the south was also recorded (Site 90).

However, examination of the wādī to the east revealed a quite unexpected addition to the bathing installations. A fired-brick aqueduct had been cut into and exposed by a bulldozed road cutting, buried in the thick colluvium of the steep northern hillside. Some clandestine digging had destroyed and further exposed sections of the structure. Approximately 70m in length is patchily visible in the slope, running roughly east-west, although the direction varies as it follows the undulation of the slope profile. The westernmost exposure lies some 100m east of the ancient bathhouse (FIG. 3). The aqueduct is set into the hard-packed pebbled colluvium of the slope, and consists of a square-sectioned channel with an exterior measurement of 0.95m wide by 0.50m high, and the interior 0.22m wide by 0.18m high. The side walls are of low-fired terracotta bricks, four courses high. The exposed side has an outer face of white mortar embedded with rubble stones. The base of the channel comprises a single course of flat terracotta tiles, very well fired, set upon a white mortar bed with rubble and bedrock. The channel was capped with unworked limestone rocks of uneven size. The structure is stepped upwards into the hill on the north side and the resulting shelf is lined with tiles.



2. Modern bathhouse at Ḥammāmāt Abū Dhabla, pedestalled above the wādī floor, with earlier Roman-Byzantine wall exposed beneath it (Site 92). View NE.

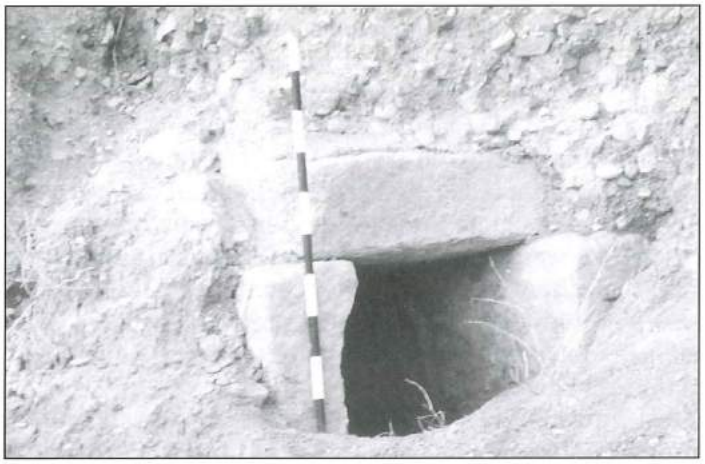


3. Section of buried brick aqueduct in Wādī al-Ḥammeh, east of the bathhouse, looking into the channel at left (Site 711). View NW.

The structure is assumed to be originally Roman in date, by association with the bathhouse. No artefacts were found within it and the pottery in the adjacent colluvium ranged from Roman to Byzantine. The purpose is slightly puzzling as the eastern source of the water channel has not been found, either buried in the considerable slope wash from the north, or destroyed by natural erosion in the wādī. As the spring beside the bathhouse is quite hot (today, ca. 40° Celsius), perhaps it was tapping a cooler and less sulphurous spring to the east, also necessary for the bathing regime and for potable water. In this region dominated by limestone constructions, this is the first fired-brick structure, so often employed in generic Roman architecture, to be found at Pella.

The Rawḍ al-Bayyāḍ Box Drain (Site 715)

The Rawḍ al-Bayyāḍ is a small wādī separating the agricultural *ṭabaqat* (plateau) from the urban limits of the extended city. It flanks the northern side of a small hill which lies just to the north of the main city mound of Pella and which reveals the remains of classical period structures. A subterranean box drain was exposed through erosion on the north bank of this wādī, buried beneath the rich terra rossa soils of the *ṭabaqat* (FIG. 4). The channel is square in section (interior dimensions: 0.55m wide x ca. 0.65m high), with side walls and capstones of finely-fitted limestone ashlar masonry. Three exposures were identified ca. 40m apart, one being exposed in section. The drain was probed but not excavated; however the lower surface seems to be the alluvium within which it is set. There is no evidence of mortar or sealing. Therefore it seems truly to be a drain, allowing for controlled seepage,



4. Section of buried ashlar box drain in the Rawḍ al-Bayyāḍ (Site 715). View SW.



5. Remains of reservoir at the western end of the aqueduct on the northern bank of Wādī Jirm (Site 726). View SSE.

rather than a channel to transport water from a source to a destination. The base of the current wādī is now 3-4m below the drain and to one side of it. In antiquity the drainage level must have been a shallow dip rather than an incised wādī, but nevertheless followed a similar line as today. The need to have regulated drainage of this area rather than allowing uncontrolled runoff is understandable, as this is a natural crossing point to the agricultural plains of the *ṭabaqat* to the north, and the main route approaching the city from Scythopolis / Baysān (remains of which were found on the northern descent from the *ṭabaqat*).

The North Wādī Jirm Aqueduct (Site 726)

This aqueduct runs westwards from the spring head of Wādī Jirm in the centre of the city, along the north bank of the descending wādī, finishing at a reservoir. Roughly 130m of its length is sporadically exposed in eight sections and it is first encountered some 200m southwest of the base of the two talls. The channel is set into the pebbly conglomerate and limestone marl of the bank, with an outer downslope wall of unworked rubble stone set in thick cement mortar. It is lined internally with hard, smooth cement ca. 4cm thick, reaches a truncated depth of 12cm and a width of more than 1.20m. Much of it has been destroyed by a modern road, although erosion, silting and other depredations have degraded it. The large reservoir (FIG. 5) is of the same construction and cut into the conglomerate bedrock. It measures 18.50m x 5.0m, divided into two parts using a large *in situ* boulder which was mortared. It is situated downslope from a large Roman building (Site 744) which it may or may not have served. Pottery from the construction mortar of the aqueduct dates it to the Roman period.

The South Wādī Jirm Aqueduct (Site 728)

The south side of the Wādī Jirm has been well-served by aqueducts. A modern aqueduct, now out of use, runs along the southern terrace above the wādī orchards. Below this, appearing in two sections, is another aqueduct channel which could not be dated but seems to be 20th century by the appearance of the mortar. Some 10m north of this line, lower down, is another long low wall line buried in the colluvium with much decayed mortar associated with it. It leads to a very solidly built multi-roomed structure on the low knoll, dating to the Roman period (FIG. 6). The prevailing remnants of mortar suggest that this too may have been a water channel serving this building.

The Western Wādī Jirm Tunnels (Site 669)

Further westwards on the northern side of the Wādī Jirm ca. 600m from Pella, where the wādī base drops considerably and tall cliffs have formed, lies an enigmatic network of rock-cut subterranean tunnels, water channels and cistern, weaving in and out of the cliff face (FIG. 7). About halfway up the cliff where the angle of slope changes to vertical, is a suite of tunnel entrances, twelve in all, with the highest to the east (L) and the lowest to the west (A). A computer-generated contour map of these tun-



6. View of Roman building remains on the south terrace of Wādī Jirm, with a line of mortared channel leading to it from the east (Site 728). View SE.

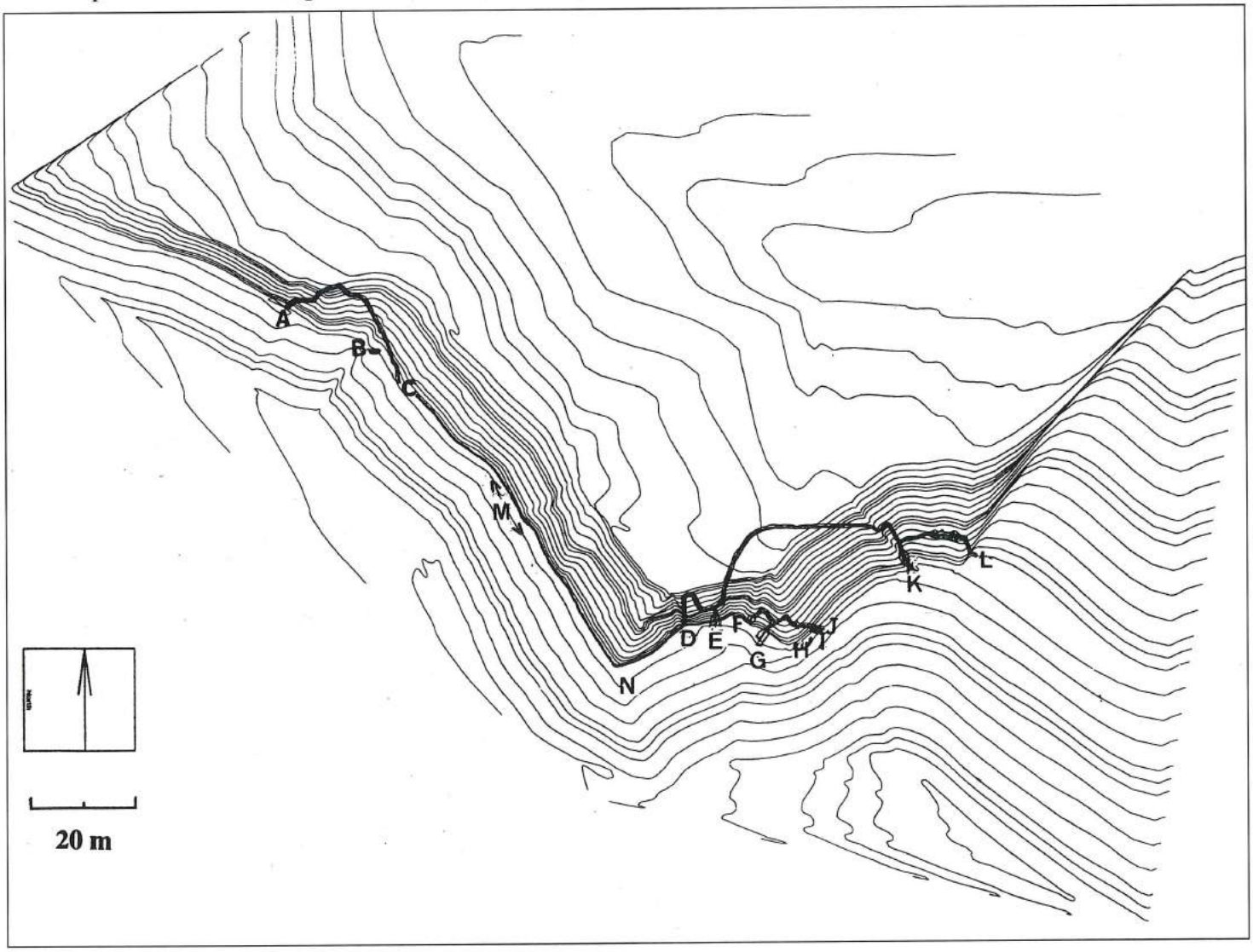


7. View of the northern cliffs of the western Wādī Jirm, showing the tunnels of Site 669 located at the junction of the sloping talus with the vertical face. The upper line of caves along the vertical face contains sites 666-668. View NNE.

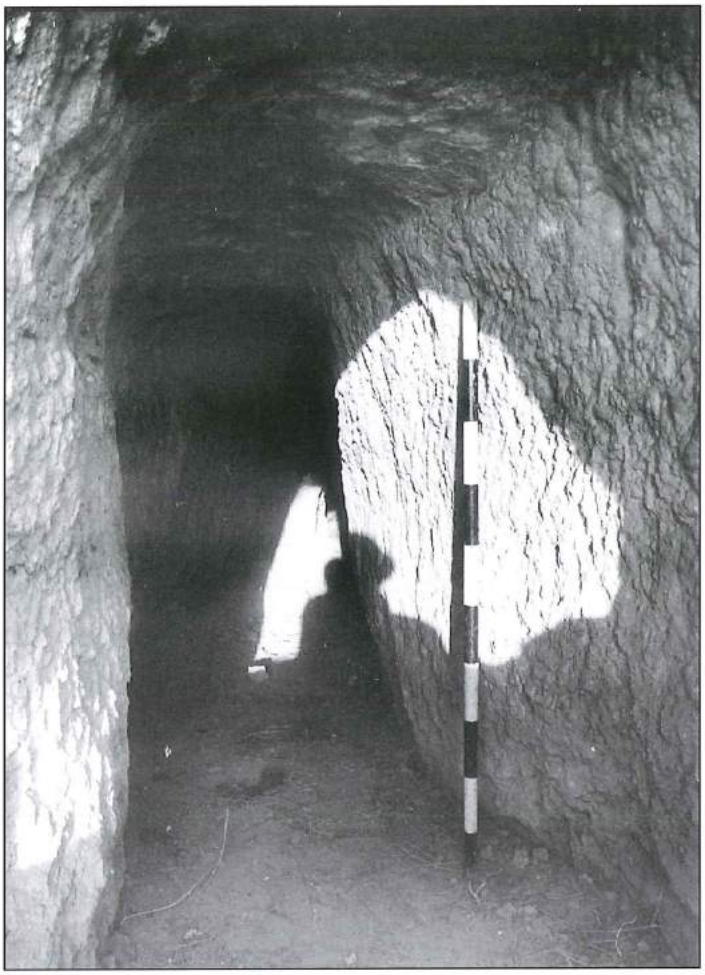
nels is shown in FIG. 8. They are clearly man-made with striated pick marks and lamp niches (FIG. 9), although natural tunnels in the tufaceous limestone were utilized where useful (FIG. 10), as well as caves (FIG. 11).

The bedrock is a combination of areas of tufaceous limestone with characteristic tubular columns and spaces formed by vigorous discharge from fast-flowing springs (FIG. 12), and more compacted limestone, above a gravelly soft conglomerate. Most of the tunnels are heavily silted and we were unable in the given time to fully expose them; much of the exploration and mapping involved crawling through tight and claustrophobic spaces. The tunnel builders left occasional barriers or low walls of uncut bedrock on the floor.

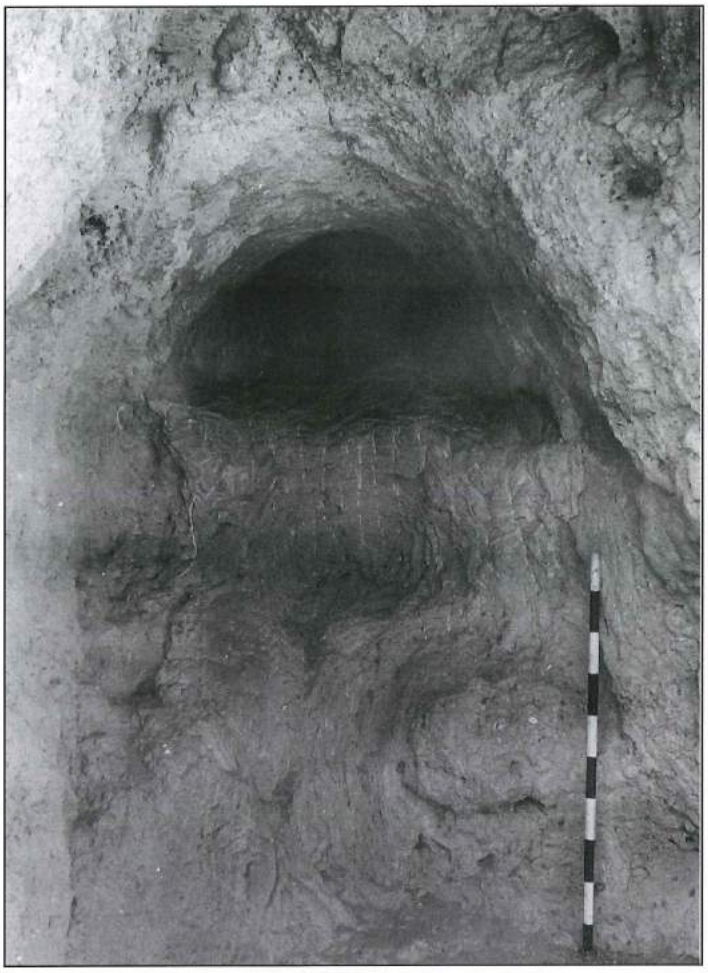
There were also stretches of open channels, identified by layers of *sinter*, a calcine build-up formed by continual fast flowing water (FIG. 13). These exterior channels lack any outer containing wall. Examination of the cliff itself shows it to be extremely friable, with frequent signs of cliff collapse. Taken with the evidence of pick marks in some areas of exposure (FIG. 14), these considerations



8. Computer-generated contour map showing the tunnel system 669 A-L (contours at 2m intervals).



9. Interior view of tunnel 669A, hand-hewn. View NE.



10. Entrance to tunnel 669K, a natural tunnel within the tufaceous limestone, utilized and enlarged by man within. View NNW.

suggest that the exterior channels were once interior tunnels now exposed by subsequent collapse of the cliff face.

On investigating the tunnels which incorporated three entrance caves, we found branch channels cut into the rock, one leading to a cistern whose outer wall was built of rubble stone and mortar (FIG. 15), another connecting to what is now an exterior channel (FIG. 16). Pottery found in the excavations of different areas belongs uniformly to the Roman period, with absolutely no Byzantine sherds at all. It therefore functioned for a limited period only. It is quite clear that the network of tunnels and caves is a water system, but its specific purpose is obscure. The highest and easternmost tunnel (L, FIG. 12) is located a long way above the wādī floor in the tufaceous limestone area where a spring, now dry, had once gushed forth. The barriers in the tunnels may have served to gather sediment and increase the power of the flow. The lower westernmost tunnel at A is in an area of severe cliff collapse and the ultimate destination of this system is thus destroyed. What was its purpose when there was a wādī below, well-supplied with perennial



11. Caves 669 E, F, and G (from left). View NE.

flowing water? It represents a massive investment of labour, not lightly undertaken without a gainful purpose. The system is located well beyond the urban limits of the city and therefore cannot be compared to the water systems recently documented at Umm Qays and Abila, where their urban needs had to be transported from afar (Kerner



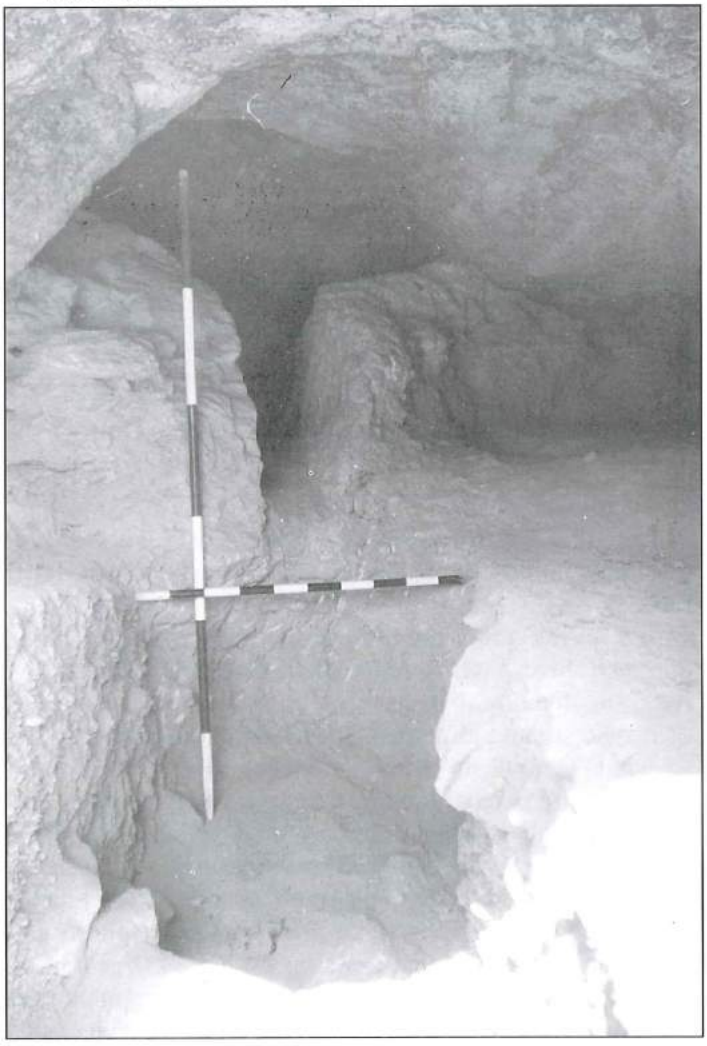
12. Tunnels 669 K (left) and L (right) within the tufaceous limestone formation. Note the fallen tubular rock downslope from K. View NW.



13. Channel 669 M emerging from tunnel D. View ENE.



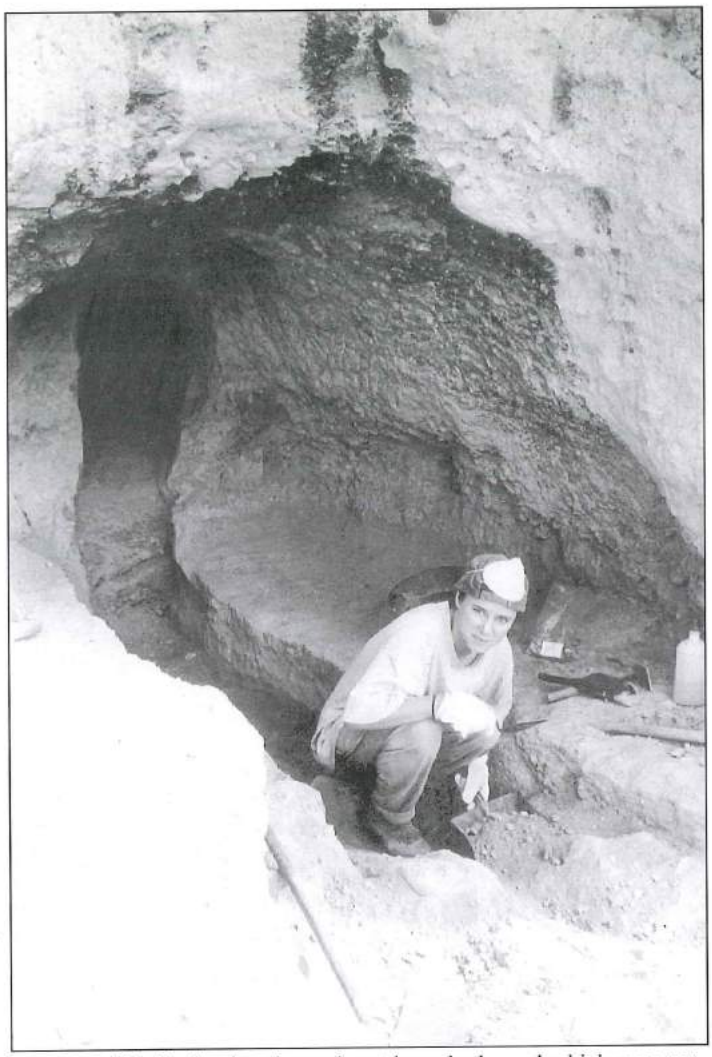
14. Channel 669 M emerging from silted tunnel H, with pick marks visible in the cliff above the metre scale. View NNE.



15. Cave 669 E with a rear tunnel perpendicular to channel leading into a cistern (partially excavated, in centre). View NNW.

1997: 283-287; Mare 1996: 267-269). One might assume a special processing function - agricultural or industrial. Unfortunately there is no further evidence in the landscape, as the forces of nature and man have continued to change and develop the immediate environment.

The identification of the water tunnels however has laid one theory or myth to rest. The tradition is recorded



16. Cave 669 G; clearing the rock-cut branch channel which runs perpendicular to the tunnel behind the rear wall of the cave. View NE.

by the church historian Eusebius (*EH* III.5.3-4) in the early 4th century, that the early Christian Jews of the Jerusalem church fled sometime between 66-68 AD to Pella, seeking refuge from the imminent confrontation of Romans and Jews during the First Jewish Revolt. The 19th century traveller Gottlieb Schumacher visited Pella and found this same suite of caves and tunnels, which he interpreted as habitation caves and escape tunnels for the Jewish Christian refugees, thus also categorizing them as anchorites. His claim was reaffirmed by subsequent visitors such as John Richmond in the 1930s, and the story lived on (Richmond 1934: 20-22). No further physical investigation had been made until the Pella Hinterland Survey of 1996. In fact, habitation caves were found on the survey which would better suit (but not confirm) his hypothesis, but that is beyond the scope of this paper.[3]

Conclusion

The identification of a number of hydrological works associated with Roman Pella enriches our understanding of the infrastructure that contributed to the functioning of a well-organized classical city. The finely made box drain attests to concern for public utilities on the urban fringe. The aqueducts around the city seem to have serviced important structures beyond the city limits. The existence of a renowned bathing complex outside the city, mentioned in early texts, has now been confirmed and clarified. Finally, we have established the hydrological nature of an outlying network of tunnels and caves in the western Wādī Jirm, although the specific purpose of this intriguing system still eludes us.

References

Eusebius *Ecclesiastical History*.

Kerner, S. 1997. Umm Qays-Gadara: A Preliminary Report 1993-1995. *ADAJ* 41: 283-302.

Mare, W.H. 1996. The 1994 and 1994 Seasons of Excavation at Abila of the Decapolis. *ADAJ* 40: 259-269.

Pliny *Natural History*.

Richmond, J. 1934. Khirbet Fahil. *PEFQS* 66: 18-31.

Smith, R.H. 1973. *Pella of the Decapolis I.* Wooster.

Smith, R.H. and Day, L.P. 1989. *Pella of the Decapolis II.* Wooster.

Watson, P.M. and O'Hea, M. 1996. Pella Hinterland Survey 1994: Preliminary Report. *Levant* 27: 63-76

[3] An upper line of caves in the cliff face shown in Figure 7, some 10-15 metres above the system of water tunnels, revealed clear evidence of habitation, and in one important instance, of deliberate and sophisticated concealment (Sites 666-668). These particular caves had not been noted by Schumacher, nor by any other researcher. Unfortunately our investigations produced no dateable information that would relate them to the water system below.

Jacqueline Calzini Gysens
Istituto Italiano per l'Africa e l'Orient
via Merulana 248
00185 Rome - Italy

Luigi Marino
Dipartimento di Storia dell'Architettura e Restauro delle Strutture Architettoniche
Facolta' di Architettura
Università di Firenze
Via Micheli 8
50121 Florence - Italy

Jacqueline Calzini Gysens and Luigi Marino

The Qaṣr Rabba Temple Project: Preliminary Remarks on the Architecture and State of Conservation

Introduction

Since 1996, under the auspices of the Department of Antiquities, the Italian Institute for Africa and the Orient (Istituto italiano per l'Africa e l'Oriente, former Is.M.E.O.), in Rome, and the History of Architecture and Conservation of Architectural Structures Department of Florence University,* started a research project involving the study of the archaeological sites and architectural monuments of Rabba and the adjoining territory.[1] First object of our study is the isolated ancient monument located at al-Qaṣr, five km north of Rabba, in the al-Karak District.[2]

A preliminary analysis of the architectural structures still *in situ* and of the building materials of the monument in question has been elaborated in view of their conservation and in function of future archaeological excavations. The ruins are in a relatively good state of preservation, but some of the structural collapse, caused by a major earthquake, and the effects of recent quarrying, cause some concern. Particular attention has thus been drawn to the need of diagnostic surveying.

Al-Qaṣr is a small village located five kilometers north of Rabba (the ancient city known as Areopolis/Arsapolis or Rabbathmoba of the classical sources), fifteen kilometers north of al-Karak. Located near a road that in ancient cartography appears to be the King's Highway, are the present remains of a massive nearly square ancient construction, with walls in some places reaching up to 6 meters. Since the early years of the 19th century its impressive presence in a still unsettled area and its exceptional technical workmanship had been noted by visitors such as U. J. Seetzen (1803) and J. L.Burckhardt (1812).[3]

But it is only at the beginning of the 20th century that the monument became the object of scholarly observations with photographes taken. N. Glueck had the occasion to visit it during his survey of the region and he published a number of decorated architectural features, such as elements of the frieze and some lion head gutters.[4]

Not so long ago, the locally called "*qaṣr*" was occupied by some members of the Majâli family. The Department started to intervene in the archaeological area from the late sixtees onwards and in 1986 the archaeological area was cleared of abusive constructions.

Working at al-Qaṣr has turned out to be a stimulating experience, thanks also to the helpful and enthusiastic cooperation of the habitants. Our first two campaigns (1996, 1997) have been dedicated to architectural surveying. A number of interior and exterior sections have been drawn as well as a detailed ground plan of the site. All architectural features still *in situ* have been indicated (FIG. 1). All traces of earthquake damage on the structures have been documented in view of a detailed interpretation. The presence of several canalizations and cisterns has been investigated. These studies together with a detailed analysis of building techniques are now prepared for publication.

A proposal for a project for the general enhancement

---

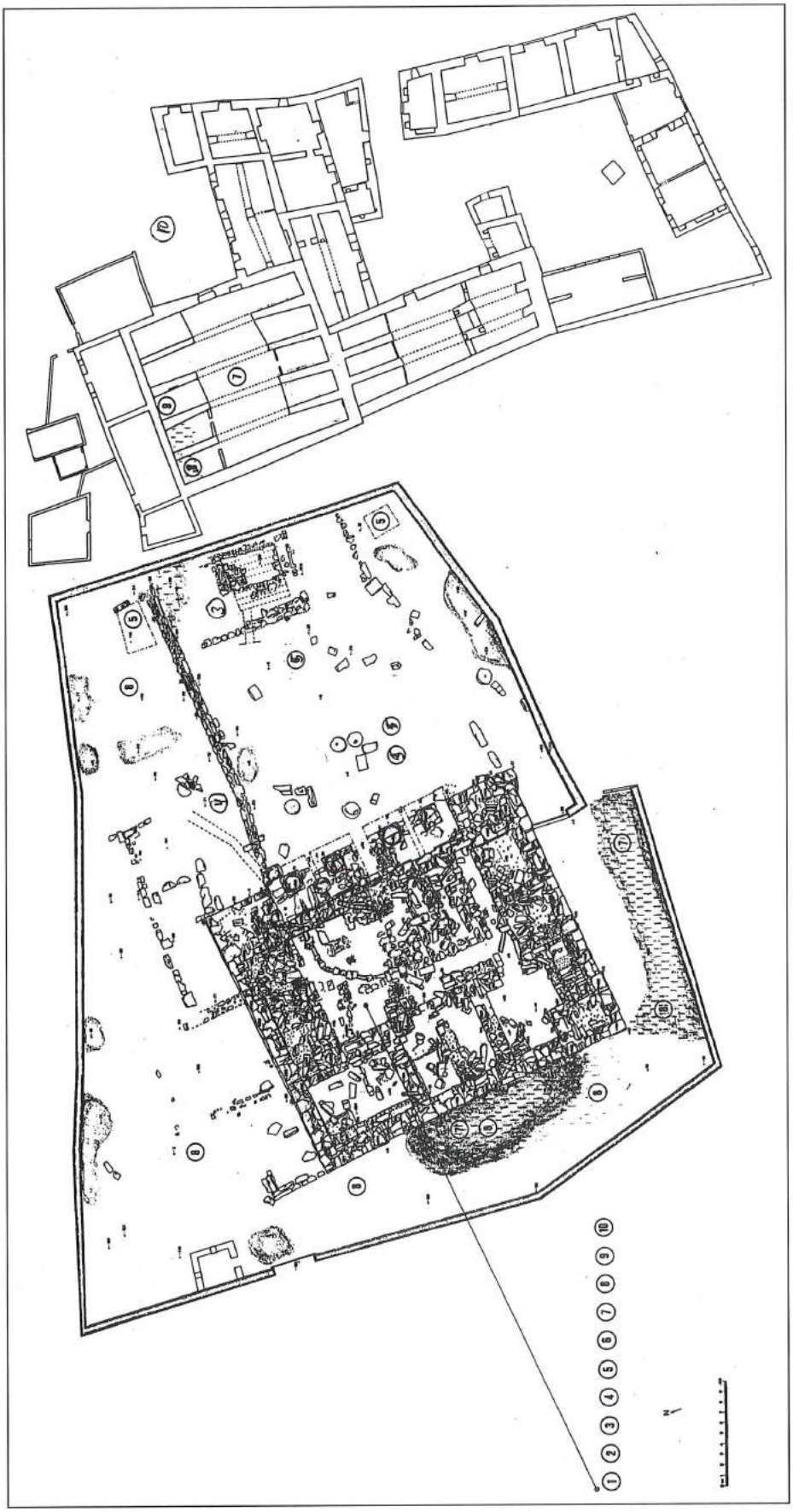
* Members of the team were: Architects Ombretta Dinelli, Roberto Sabelli, Giovanna Battista, Francesca Malesani; Archaeologists Valentina Manzelli, Gianluca Grassigli.
This project is supported by the Department of Antiquities of Jordan, the Italian Ministry of Foreign Affairs, the Comitato Nazionale delle Ricerche, the University of Florence, the Italian Institute for Africa and the Orient, Rome. Our gratitude is expressed to all these Institutions. We enjoyed the firm support of the local Jordanian authorities. We would like to express our gratitude to the Italian Consular authorities, H.E. E. Cerulli, Italian Ambassador to Jordan and the Italian Cultural Attaché, Dr. G. Benenati.

1 J. Calzini Gysens et L. Marino, Etude du temple antique de Qasr-Rabba dans le Moab. Rapport sommaire d'une première campagne de relevés (1996), *ADAJ* 40 (1997): 189-193. J. Calzini, L. Marino *et alii*, Il Qasr Rabba in Giordania, *Quasar* 19 (1998): 110-113.

2 Palestine Grid Map, K series 737, 3/52

3 F. Fruse (ed.), *Ulrich Jasper's Seetzen's Reisen durch Syrien, Palästina, Phönicien, die Transjordan Länder, Arabia Petraea und Unter-Aegypten*, I, Berlin (1954): 416. J. L.Burckardt, *Travels in Syria and the Holy Land*, London (1922): 376-377. Cf. R. E. Brünnow und A. von Domaszewski, *Die Provincia Arabia*, I, Strassburg (1904):46-53.

4 N.Glueck, The Nabataean Temple of Qasr Rabbah, *AJA* (1939) : 381-387. Ibid, *Deities and Dolphins*, Toronto (1965): 56ff.



1. Ground plan of the temple and its surroundings.

of the archaeological site could envisage the inclusion of a sector of the existing vernacular architecture. This project could eventually lead to a trasformation in the visitors' facilities. Also to be taken into consideration is a possibility of creating a local museum. In one of the first houses built at al-Qaṣr one can admire reutilized decorated materials from the ancient monument.

Architecture and Ground Plan

The building appears as a freestanding massive quadrangular structure (32 x 27 m) with walls of an avarage width of 1.80 m. The tetrasyle porch on the front is flanked on both sides by tower-like structures. Contrary to R. Amy's opinion, these are empty inside and were probably used for storage purposes.[5]

These "towers" present singular entrances on the outer side. A principal door opening in the axis of the porch and lateral secondary doors gave access to the interior of the *qaṣr* (FIG. 2). The possible existence of a staircase-tower in the southwestern corner of the building will be verified when the destruction debris are removed. A section of the outer wall corresponding to this sector appears to have been substantially restructered at different times, with variations in the courses and the integration of a number of adjusting elements.

Against the front wall, engaged pilasters were constructed as well as niches (not conserved in elevation) flanking the main entrance. Only a lintel remains of this main entrance. Of the order of the porch, only the attic basis of corinthian columns are *in situ*, with only one drum still attached to the last basis on the right. The diameter of these columns bases reaches 1.50 m. The fallen column drums of that porch lay scattered on the forecourt as well as inside the *qaṣr*. Their material is a fossil-rich limestone. Very different from the hard limestone used in the construction of the monument.

Among the fallen debris two Corinthian capitals could probably belong to the front columns. Interesting is the discovery among the fallen material inside the *qaṣr* of a huge Corinthian capital of the composite figured type, presenting busts of Selene/Luna and of Helios/Sol (FIG. 3; a third figure has not yet been identified).

Concerning the internal arrangement of the building, one can observe two broadroom units, with perpendicular side rooms. A tripartite division characterizes the sector at the rear. In the southwestern corner are the remains of a staircase. Poor remains of a stone pavement can seen in the main hall; the original flooring of the tripartite sector is completely missing.

Oriented along an east-west axis, with its façade opening to the east, the monument was connected with an open area the extension of which is now impossible to determine. This partially collapsed monument buried under its débris has never been excavated. In the forecourt a large underground cistern lies deprived of its original roofing. It appears connected to the *qaṣr* through underground canalization. An additional bottle-shaped cistern supplied water inside the building. Both have been investigated.

Building Style and Date

The monument at al-Qaṣr is considered a monument of Nabatean architecture revealing some parallels with monuments such as Qaṣr al-Bint in Petra, the temple of the Nabatean period at Dhībān etc. Nevertheless its surviving decoration points to a construction or decoration of the late Antonine, early Severan period. (end of second-beginning of third century AD).



2. The Qaṣr Rabba monument: general view of the porch (1997).



3. Composite Corinthian capital - the Celene/Luna figure (1997).

5 R. Amy, Temples à escaliers, *Syria* (1950): 97. Cf. A. Negev, The Staircase-tower in Nabataean Architecture, *RB* 80 (1973): 364-383; E. Will, 'Iraq al Amir. Le château du *Tobiade Hyrcan,* Paris (1991): 270ff.

The emerging outer walls are preserved in some places at more than 6 m. Its isodomic building technique uses blocks of medium-large dimensions (0.50 x 0.60 x 0.60/ 0.70m in average) set in a relatively regular header and stretcher alternation. The interior side of the outer walls present instead a lesser refined technique of the pseudo-isodoma type, with the use of smaller stones to correct the horizontal curtains.

The recuparation of the isodoma technique in the upper courses is significant.

Local limestone has been used for construction materials, with the exception of some basalt blocks for the foundations. Samples collected from different features have been analyzed by Prof. P. Malesani, of the Earth Science Department of Florence University. We kindly thank him for his courtesy. From his general observations it results that the limestone seem to belong to three geological formations of a single Pleiocene carboniferous platform, mainly consisting of organogenic sedimentary rock formation presenting inclusions of *foraminifera*, *brachiopods* and *gastropods*. Their high diagenic level provides good physical and mechanical resistance. On the contrary, samples taken from limestone blocks of the columns including molluscs (i.e. *pecten*, *lamellibrachs* etc.; with visible mother-of-pearl parts on the plinth surface) show a minor density and less resistency over time to rock deterioration.

Identification

In the absence of written sources, and even if no cultic furniture has so far been discovered, there are good reasons to believe that the *qaṣr* was a public building with a religious function. This thesis is supported by its peculiar architectural composition and interior organization — with what seems to be a tripartite cella and tower-like structures in the front, and of two distinctive divine representations: One is a limestone bust of the Greek-Roman god Helios/Sol, originally an element of the architecture; first noted by R. E. Brünnow among the archaeological debris; and now reused as the base of an arch in an old house of the village; the second, is the figure on a block of a frieze, presenting a male bust, arms raised. This figure may be identified as Lycurgos, a not so much favoured member of the mythological cycle of Dionysos. The block was used in the construction of a modern walled fence. Another divinity carved in a limestone panel, the face badly damaged, integrated upside down in a wall pertaining to the same building where the Helios figure has been found, could maybe be confronted with a similar type found at Khirbat at-Tannūr. There are good reasons to assume that several architectural blocks presenting elements of a vegetal frieze of the type referred to in archaeological litterature as "peopled scrolls", and presenting acanthus leaves encircling flower buds belong to the same composition. We have also to consider other blocks of the same dimensions, stylistic cravings and vegetal background, with anthropomorphic (*Erotes*) or animal figures (a fawn and possibly a panther), now exhibited in the museum of al-Karak. This classical ornament is best known from regional studies.[6] Another interesting architectural element now only partially liberated from the destruction layers inside the *qaṣr*, is a Corinthian style limestone capitel of the so-called composite style. It is of huge dimensions (the diameter measures more than 1.50 m) and presents the damaged figures of Selene/Luna and what could probably be Helios/Sol (FIG. 3, see above). At this stage of our research it is impossible yet to propose a location for it.

Two simple Corinthian capitals present on the spot are — because of their dimensions — better suited to crown the colums of the porch. Other architectural features discovered until now include Corinthian pilaster capitals, fragments of a trabeation, and of a cornice with lion-head gutters damaged by an earthquake. All these features, like the general composition certainly attest to the original magnificence of the monument. On stylistical grounds only it could be attribueted to the late Antonine-Severan period (end of second-beginning of third century AD). The striking high quality of the workmanship suggest a probable official or maybe even imperial commitment.

Its structural collapse was certainly the consequence of a major earthquake. Prior to its definite abandonnement, the *qaṣr* appears to have been occupied, at least in its southern sector. In circumstances not known to us yet, part of the collapsed elements have been utilized in what seems a thorough structural fortification. In the tripartite section, new masonry had also been erected leaning against the outer wall, consisting of carefully squared blocks with the use of mortar. No earthquake damage is noted there.

An analysis of this occupation phase is now in the process of completion.

Moreover, during a recent archaeological sounding in front of the temple, a typical Nabataean style anta echinus has been discovered.[7] This important element added

6 N. Glueck, The Nabataean Temple of Qasr Rabbah, *op. cit.*, 382 figs. 3-5, 9 (Erotes), 12 (Helios), 385, fig.11 (panther), fig.10 (gazelle). Cf. for example:Y. Turnheim, Acanthus scrolls "peopled" with flowers. A classical ornament in the architectural decoration of Eretz Israel in the Roman and early Byzantine periods, *Rivista di Archeologia* 18 (1994): 119.

7 Atif al-Shiyab, An Archaeological Excavation at the Temple of Qasr Al-Rabbah in Al-Karak, *Newsletter of the I.A.A., Yarmouk University* 16 (1994): 25-28; Ibid. , Highlights of the Excavations of al-Rabbah and al-Qaṣr in Al-Karak in the Year 1996, *Newsletter of the I.A.A., Yarmouk University* 18 (1995): 14-16.

to several other architectural material found scattered or reused in the village (among which fragments of two Doric/Nabatean columns), suggest a first building stage of the monument or an installation prior to the incorporation of the region in the Provincia Arabia.

Observations on the Figures (FIGS. 1, 4, 5)
In its present configuration we propose to read our graphic documentation as following:

Ground Plan (FIG. 1)
The archaeological area of al-Qaṣr has been divided into two sectors: ground plan includes the ancient temple and its associated structures (cisterns, canalizations etc.), and a schematic plan of a sector of the adjoining old village.[8]

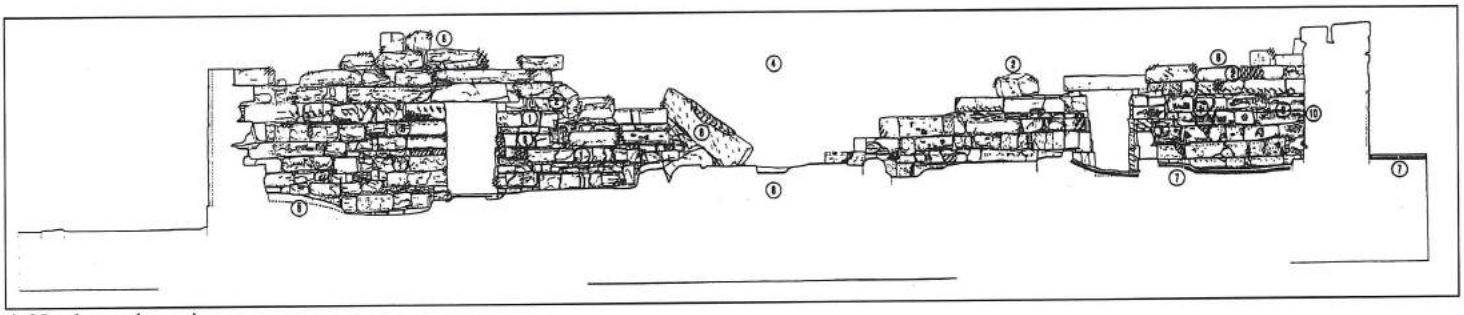
The archaological area is limited by the most directly contiguous structures:

1: Two large sectors of collapsed material are seen on the eastern and western outskirts of the area probably fallen from perimetral structures.
2: Remains of recent building activity (in the forties or fifties) by the last Majâli occupants of the *qaṣr*.
3: Archaeological remains of a large square cistern (5 x 5 m) at the southern end of the courtyard. An underground channel brings the water to a bottle-shaped reservoir. The underground passage has been investigated for a distance of about 11 m.
4: A modern boundery wall built from ancient materials runs over the courtyard.
5: Column drums from the front porch appear scattered all over the courtyard, and inside the *qaṣr* (some had been removed and transported in the village).
6: Traces of a recent sounding.
7-8: Huge amounts of fallen debris from the outer wall.
9: Ancient architectural features reused in a house of the "Ottoman" period.
10: Schematic plan of the village sector.

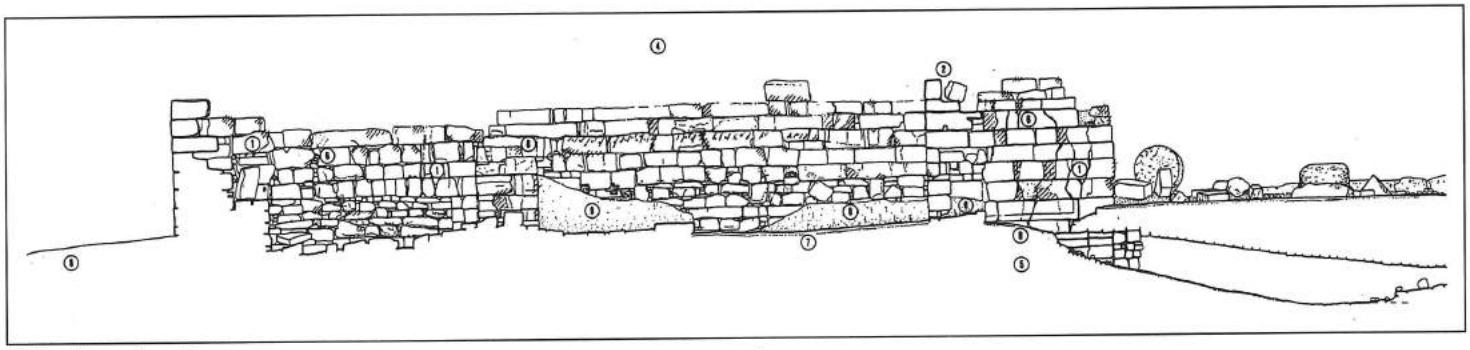
North-South Section (FIG. 4)
Inner side of the front wall. Actual ground level and destruction levels. Earthquake damage situation is evidenced here. Large-sized ashlars are slightly rotated (some are in danger of falling). Traces of plaster.

Southern Elevation (FIG. 5)
1 and 6: large parts of erosion on the outer wall. The upper part of the corner is slightly rotated. 5: fallen material. The "tower" structure on the east presents a severe structural collapse, the expelling and the inward rotation of some ashlars.

Western Elevation (not illustrated)
Masonry wall in a fairly good state of conservation, but covered with modern graffiti. Fallen material at the basis of the wall hides the lower curtain courses. Some upper ashlars are rotated and expelled, some are fractured. In the south corner an overall bulging out of ashlars is noted.



4. North-south section.



5. Southern elevation.

8. R. Kana'an and A. McQuitty, The Architecture of Al-Qaṣr on the Kerak Plateau: An Essay in the Chronology of Vernacular Architecture, *PEQ* 126 (1994): 127-151.

Northern Elevation (not illustrated)
Ashlar courses showing vertical and diagonal fissuring; local rotation of or missing ashlars are present in the upper courses.

East-West Section (not illustrated)
Fallen material mixed with ground-soil on the west side. A secondary wall-structure against the perimeter wall; a clear difference is detected on the surfaces and between the upper and lower parts. Traces of intervention; a rather widespread cracking is evident, and trasversal fissures in some ashlars; feeble remains of plaster; accumulation of fallen material. On the east limit an underground passage is shown (blocked after 11 m). The upper level of the foundations was reached here. Near the archaeological area's enclosure a large cistern has been investigated. East of the perimeter the section cuts into the embankment, a former passage between two parallel urban streets was discovered next to the first village houses.

W. Harold Mare
Covenant Theological Seminary
12330 Conway Road
St. Louis, Missouri 63141
USA

W. Harold Mare

Abila of the Decapolis in the Roman Period: A Time of Revitalization and Expansion

Our excavations at Abila of the Decapolis (FIG. 1) have shown that Roman occupation at the site was large, diverse and thriving. Somewhere during the Late Hellenistic period, Abila became part of the Decapolis, sharing in its Greek culture and city-state plan, and joining through inter-city road systems in local and foreign commerce. This set the stage, at the time of the conquests of the Roman general Pompey in AD 64, for the beginning of further revitalization of all the site during the time when the Decapolis flourished and beyond that time into the Late Roman period after the reign of Hadrian and up to the time of Constantine the Great at the beginning of the fourth century AD.

By way of introducing Roman Abila in its expansion and sophistication, it is well to note that the excavated material culture: 1) sheds light on the culture, philosophical stance and religious values of people and city; 2) reveals levels of material/industrial/commercial and cultural advancement of people and city; and 3) reveals the political and military influences on people and city. The excavated Roman material culture from Abila of the Decapolis, according to these principles, has shed considerable light on the character of the people, on their beliefs, lifestyle and prosperity, and how they lived and what they believed in.[1]

The material culture remains thus far excavated at Abila of the Decapolis can best be reviewed as shedding light on the following:

1) Roman Abila's broad/diverse economic (industrial, agricultural) and commercial base;
2) the diverse cultural and social life; and
3) a strong religious element.

1. Material Culture Pointing to Roman Abila's Broad/ Diverse Economic (Industrial, Agricultural) and Commercial Base

Crafts and Industry

Glass: The excavated glass repertoire at Abila is extensive, with examples of glass lamps, bowls, platters, bottles, kohl tubes, perfume bottles (unguentaria), small jars, bracelets, quantities of glass slag, goblets (possibly wine goblets)—a large quantity of which we found in the theater ruins near the Zeus statue niche in 1994—etc. We have concluded that with all of this evidence, Abila had a glass factory, an installation we have yet to uncover. About the Roman glass industry, Fleming speaks about the production of glass of all shapes and kinds,[2] both in the Early and Late Roman periods.[3]

Pottery: The ceramic material at Abila is ubiquitous. In the controlled survey in 1980 when we covered less than one fifth of the site, we retrieved from the surface over 32,000 pottery sherds. In the succeeding excavation seasons, in addition to ceramic material from other periods, we have retrieved a large quantity of Roman pottery and pottery sherds, indicating heavy activity of the local potters and a lively commercial trade in ceramic vessels. We have recovered remains of a pottery kiln on the eastern edge of the site, located on the upper east ledge of Wādī Quwayliba, indicating active pottery making at Abila. Excavated remains of Hellenistic black ware and Roman Eastern Terra Sigillata (plates, rouletted ware, etc.), Megarian bowls, Cypriot ware, and the presence of well-made molded figurines from Greek and Roman mythology, such as Dionysos, Terpsichore, and horse and rider figurines found in Tomb H 2 in 1982, point to a flourishing commercial trade in the Eastern Mediterranean.[4]

Guilds, Craftsmen Projects

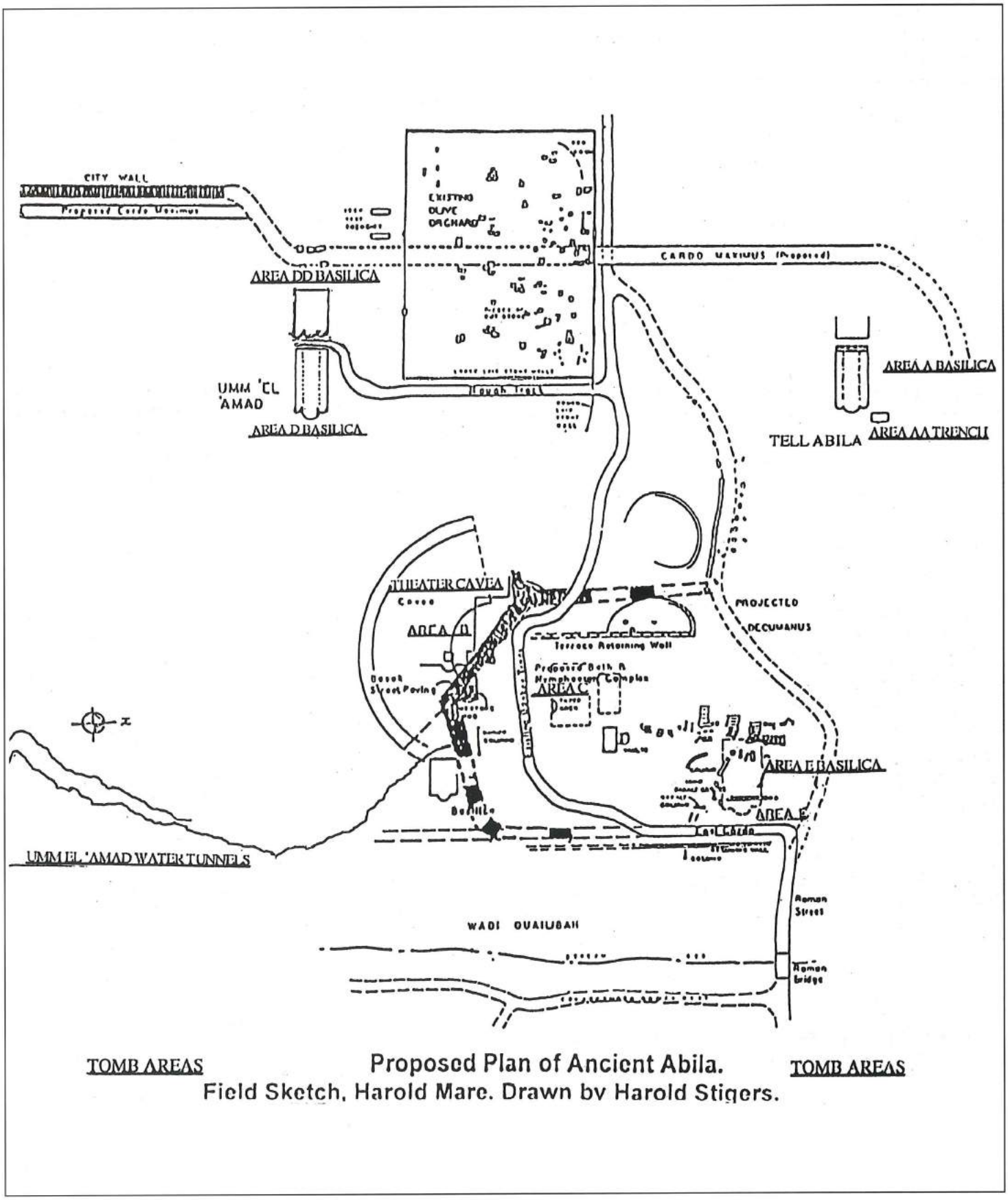
Tomb Stone Masons: In the many tombs and tomb complexes we have thus far excavated (94 to date) we have

[1] Cf. Stuart Fleming, "Reflections on the Roman World," *The Pennsylvania Gazette*, April 1988, Vol. 96, No. 6, pp. 31-35, who comments [for example] on how ancient Roman glass production reflects on the character of the people, on their skills, lifestyles, etc.

[2] Fleming, "Reflections," p. 34.

[3] Fleming, "Reflections," pp. 34-35.

[4] John W. Hayes, *Late Roman Pottery* (London: British School at Rome, 1972), *Roman Pottery in the Royal Ontario Museum* (Toronto: Royal Ontario Museum, 1976); *Ancient Lamps in the Royal Ontario Museum, I: Greek and Roman Clay Lamps* (Toronto: Royal Ontario Museum, 1980).



1. Plan of Abila.

found evidence—through geotecture study of the tombs—of a class of artisans, a tomb guild who were evidently hired to hew out from the wadi limestone ledges large tomb complexes; the number of masons per tomb can often be calculated by the tool size, and by the nature of the stroke, whether the person was right or left-handed.[5]

Fresco Painters and Relief Sculptors: Examples of fresco painting can be seen, as, for example, in Tombs L 5 depicting columns, roofs and tympanum—in H 60 (FIG. 2), and in other tombs. Relief sculpture can be seen in tombs such as H 60 (sphinxes and lions). All of this suggests a class of artisans trained in painting and sculpturing in the Roman period.[6]

Wine and Olive Industry: We have what seems to be remains of a wine press installation built high up and behind the theater (Area R 1, 1997), and there is evidence today of many olive trees, of a large underground olive press installation cut out of the bedrock (excavated in 1998) (FIG. 3), and of modern olive presses in the region,[7] and we have found many carbonized grape seeds and olive pits[8], all of which strengthens the supposition that there was a wine and olive industry at Abila. With a great quantity of productive farm land all around Abila, we assume that in ancient times there were large landed estates for the growing of grapes and olives.[9] Excavation of Rhodian wine jar handles at Abila suggests also that the city imported wine in the Late Hellenistic period and beyond.



2. A 1996, Tomb H 60 Fresco.



3. A 1998, Area H olive press (underground).

The finding of large Roman mills (Abila 1980), and flat grinders, mortars and pestles, suggest that there was a local milling industry present as well.

Business, Finance: Coins found at Abila of the Decapolis point to the fact that there were wide ranging business transactions and dealings with Roman and other governmental administrations and sometimes with the Roman military that were being conducted in the Roman period. From the Late Hellenistic period comes a coin from Tyre (155/154 BC, Abila 1984, No. 132), and from the Nabataean and Roman period a coin of the Nabataean King Aretas IV and his Queen, Shaqillah (8 BC-AD 40, Abila 1984, No. 174), and a coin of Archelaus, son of Herod the Great (4 BC-AD 6, Abila 1986, No. 212).[10]

Architectural Craftsmen and Structures

Types of Building Material: The material used by the Romans in this medium included limestone, basalt, marble and wood.[11] Besides plentiful limestone and basalt, considerable marble pieces have been found at Abila, seen in

5 John J. Davis, "Abila Tomb Excavations, 1984," *NEASB*, New Series, No. 24 (Winter, 1985), p. 70.

6 Paul Veyne, ed., *A History of Private Life from Pagan Rome to Byzantium* (Cambridge, Mass.: Belnap Press, Harvard University Press, 1987), p. 314 (fresco in a Roman domus).

7 Rafael Frankel, *The History of the Processing of Wine and Oil in Galilee in the Period of the Bible, The Mishneh and the Talmud, Parts I and II,* Dissertation submitted (Tel Aviv: Tel Aviv University, April, 1984); he discusses the types of ancient olive and wine presses and the processes in using them.

8 Cf. our archaeobotanical studies in 1984, etc. (*NEASB*, new series, 26 (Winter 1986), pp. 39-43, etc.

9 See Deena Berg, *Roman Wine and Oil Presses*, Dissertation for M.A. (Austin: University of Texas at Austin, May 1986), who talks about landed estates and the large amount of slaves necessary to work these landed estates. See also *Manual of Olive Oil Technology*, Multi-authored, Project: Centre for the Improvement and Demonstration of Olive Production Techniques (Cemedeto), Cordova, Spain (Rome: Food and Agriculture Organization of the United Nations, 1975), pp. 1-228.

10 W. Harold Mare, "Abila: A Thriving Greco-Roman City," *ARAM*, p. 14.

11 Cf. Doris Vanhove, *Roman Marble Quarries in Southern Euboea* (Leiden: E. J. Brill, 1996).

the Artemis statue and the large marble foot (found in the theater area), in circular marble discs used in stone flooring, in a large red marble column from the Island of Euboea (Area D), etc.[12]

Large Public Buildings

Theater: The robustness of Abila's architechural achievements is seen in the theater which the city built in the Greco-Roman period into the north slope of Umm al-'Amad so that it was facing north and east (cf. the north theater at Umm Qays).[13] The fact that there are no seats visible in the theater cavea today, and the fact that Byzantine architectural structures were built within the cavea (cf. the altar posts found with in the cavea and remains of a basilica) and an Umayyad palace/fort built within the cavea, has raised a question on the part of some whether this cavea was truly a theater. However, according to Dr Reuben Bullard (in 1988), one of our geologists, the slope of the cavea is too steep to be a natural depression (one is reminded of the acropolis theater at Pergamos in Asia Minor built into a steep slope). Furthermore, Gottlieb Schumacher in his survey at Abila in 1888 said, "...the seats - of which but few remained - were placed on a masoned foundation, for the reception of which the soft rock had been prepared."[14] Also in the cavea, re-used classical columns and capitals and the large marble foot of a male statue have been found, all pointing to a classical monumental structure. In 1990, with our electronic theodolite, we determined that the diameter across the seating area of the theater is ca. 90 m (295.20 feet), and the height from the street floor in front of the cavea to the top of the cavea is ca. 25.0 m (82.0 feet). If MacDonald's estimate that the theater of Marcellus in Rome, 120 m wide and 32 m high, seated 11,000,[15] then the Abila theater (FIG. 4), about one third less than the size of the Marcellus theater, must have held 6,000 to 8,000 persons. It is well to remember that it is difficult to estimate the population size of an ancient city from theater capacity without knowing the amount of money the citizens and the city were willing to expend on such a cultural facility. In order to test further the fact that the Abila cavea was a theater, in a special probe in 1997 along the outer southeast edge of the theater, we uncovered a large cavity, some 4 m wide and 4 m deep as far as we were able to dig, a cavity which later had been filled in - packed with layers of stone fill, supported with two basalt cut stone supports to help hold the fill in place. This was all done to avoid the collapse of the limestone bedrock above and the limestone all around which had been fractured due to earthquake activity. It is to be noted that on the crest of Umm al-'Amad above and to the west of the theater's large cavity, the seventh/eighth century AD basilica had been destroyed by the severe earthquake of AD 747/748. We believe that the large cavity just behind the theater cavea is of a size and position to be identified as an exit for the theater. We have compared the cavity of the theater in size and location with the large theater exits of the west and north theaters in nearby Gadara (Umm Qays) which circle around the outer edge of those theaters. We project that after the time of the theater's use in the Greek and Roman periods, because of earthquake activity which fractured the limestone bedrock, the citizens of Abila filled in this large cavity for their own protection and for the preservation of the cavea.



4. A 1998, Theater cavea.

Stair Cases: On the north side of the civic center complex in the middle of the saddle depression, along the south slope of Tall Abila are ruins of a grand entrance stair way with side banisters, the remains of a grand staircase, leading from the commercial center to the acropolis of Tall Abila. These were used by interested participants who, following the conclusion of their business in the commercial center below, could proceed to the top of the *tall* and participate in worship and other activities in the Roman temple and Byzantine basilica, and, other public buildings and structures located there. Macdonald points out the importance of ancient classical stairways as "essential links in the architecture of connection" in ancient classical cities.[16]

[12] Dr. Reuben Bullard identifies this red marble column, actually found in the Area D basilica, as from Euboea.

[13] This northern position of the theater agrees with the strictures of Vitruvius who remarks that an ancient city's theater should be protected from the rays of the sun on the south and should be built preferably in a hillside where "above the foundations, the stepped seats ought to be built up from the substructure in stone or marble." Vitruvius, *On Architecture*, Frank Granger, ed., Vol 1 (Loeb Classical Library) (Cambridge, Mass.: Harvard University Press, 1931), Vol. 1, V, VIII, 1, pp. 262-265.

[14] Gottlieb Schumacher, *Abila of the Decapolis* (London: Palestine Exploration Fund, 1889), p. 30.

[15] William L. Macdonald, *The Architecture of the Roman Empire: II, An Urban Appraisal* (New Haven: Yale University Press, 1986), p. 125.

[16] Macdonald, *The Architecture*, II, p. 66.

The Roman Bath House, Nymphaeum and Exedra: The ruins of the bath house located just north of the theater are extensive; from the excavation results we gather that the building probably faced south and/or east. This meets the requirement of Vitruvius who says that the bath house should be located in a place as warm as possible, with the hot (caldarium) and tepid (tepidarium) baths facing the winter west or else to the south.[17] In one east vault (either a holding or settling tank, *piscina*, or a water distribution tank, *castellum*),[18] or possibly part of a nymphaeum, water channels are to be seen which in ancient times brought water from the 'Ayn Quwayliba and Khurayba springs on the south, through the Khurayba and Umm al-'Amad underground aqueducts. Water was also brought from the south and west of Abila as indicated by the water shafts (*putei*) found in these areas. All of this indicates that a large amount of water was needed in the civic center of Abila for the bath and nymphaeum complex and other public installations there. Fletcher talks about the great quantities of water needed daily in Rome.[19] The Roman bath and its civic fountain which may have been part of this large complex (cf. the fountain at Jarash and its nearby bath house) were important parts of Abila's civic center. About this, Macdonald comments on the Roman habit of furnishing water for all kinds of installations, such as fountains, exedrae, courtyards, etc.[20] As noted above, to meet these needs of a flourishing and expanding city, Abila depended upon the water supply from the Quwayliba and Khurayba springs which were connected by an underground connecting segment, as well as water from four other springs from more distant areas, aqueducts which also seem to have been connected with Quwaylibа-Khurayba segments.[21] There is tentative evidence pointing to an underground aqueduct bringing water some distance from the west.[22] M. J. Fuller comments on how expensive it was and how essential it was for the people of Abila to bring water from 'Ayn Quwayliba to the center of the city.[23] Roman instruments used to accomplish the task of aqueduct construction and other major architectural construction (seen, for instance, represented in carvings of artisans at work) included the hammer, axe, adze, pick, plane, chisel, drill, file, screw, iron nail, windless, crane, metal clamp, groma (for extended line, or right angles), chorabates (leveling device), etc.[24]

Exedra and Nymphaeum: A small exedra (a semicircular recess)[25] is to be seen in the east wall of the bath house ruins in Area C; this exedra could have been a part of a small fountain (see the fountain on a main thoroughfare in Gerasa).[26] As for the nymphaeum, although not surely found yet, we assume it to have been located somewhere near or connected with the bath house. As to such fountains/nymphaeums, Macdonald comments that such structures in the classical world took various sizes and shapes.[27]

The craftsmen, as early as the Iron Age and also in the Roman period, cut a a series of underground aqueducts to take care of the need of an adequate water supply for the needs of the citizens, the city's industrial and cultural complex, and the farm animals. The Umm al-'Amad and Khurayba aqueducts, running underground for some 3 to 4 km, from 'Ayn Khurayba on the south, through the underground connection at S. Wādī Quwayliba, through the Umm al-'Amad 1400 m underground aqueduct running from 'Ayn Quwayliba on the south to the center of the city. This flow of water of the Spring 'Ayn Quwayliba at a rate of 7.7 liters per second, with the extra flow from 'Ayn Khurayba, and the flow from other connecting aqueducts coming from the south and the west (cf. West Transect 15 and the deep 24 m shaft on the western part of Abila), was sufficient (assuming the same flow as today) for a population of 8,000 to 10,000 persons.[28]

Other Public Buildings on the South Tall, Umm al-'Amad: In 1984. On this south tall in a probe to the west of the Area D basilica we uncovered a number of column drums, arranged in a pattern suggesting the presence of a Roman villa or forum or palaestra or even a meat market (*ma-*

17 Vitruvius, *On Architecture*, Vol. 1, V, X, 1, pp. 302-303.

18 Frontinus, *The Aqueducts of Rome*, Charles E. Bennett, tr., Mary B. McElwain, ed., Book I (Loeb Classical Library) (Cambridge, Mass.: Harvard University Press, 1961), pp. 25, 367, where he describes these features.

19 Bannister Fletcher, *A History of Architecture,* eighteenth edition, revised by J. C. Pales (New York: Charles Scribner's Sons, 1975), p. 339.

20 Macdonald, *The Architecture,* II, p. 99.

21 W. Harold Mare, "Abila: A Thriving Greco-Roman City of the Decapolis," *ARAM* (Oxford University, 1993).

22 Through the discovery of a possible puteus in the West Transect 15, located 1.5 km. west of Abila, we postulate that water was also brought underground to Abila from springs south and/or southwest of the site. M. J. Fuller, "The Abila Excavation: The Third Campaign (1984), Part II," *NEASB* 25 (Summer, 1985), pp. 57, 58. In addition the discovery in 1995 of a puteus just west of Abila, a puteus some 24 meters deep adds to this assumption that water was brought to Abila from afar, in this case, some distance from the west.

23 M. J. Fuller, "The Abila Excavation: The Third Campaign (1984), Part II," *NEASB*, 25 (Summer, 1985), p. 57.

24 Colin O'Connor, *Roman Bridges* (Cambridge: The University Press, 1993), pp. 45-59.

25 William L. Macdonld comments, "Exedras-curved demi-plazas or recesses of semicircular plan unwalled along their straight, open sides-appeared in classical architecture from at least the mid-fifth century B.C. (Delphi). They served many functions, commemorative and ritual among others." *The Architecture,* II, p. 103.

26 William L. Macdonald, *The Architecture*, II, pp. 100, 103.

27 Macdonald, *The Architecture*, II, pp. 100-104.

28 W. Harold Mare, "Abila: A Thriving Greco-Roman City," pp. 9-10.

cellum) (1 *Cor.* 10:25).[29]

An Odeon: In our 1980 Abila survey we found a small semi-circular *odeon*- like structure on the top central part of Tall Abila, like the Early Roman *odeon* found at Pella,[30] and the small theater at the Asclepion at Pergamos. We will be excavating this structure in the future.

Basilicas and Temples: The Roman basilica structure was adopted by the structure of the Jewish synagogue (cf. The Capernaum synagogue and the earlier one at Masada), and then, in the Byzantine period, into the church building. That the public buildings of Abila followed in the classical style is shown in the classical architrave piece found east of the theater,[31] and the re-used triglyph stone block[32] found in a wall of an Umayyad building in Area AA 3 on Tall Abila, and this motif can be seen depicted in the paintings in the Temple Tomb on the south slope of Umm al-'Amad; some buildings are portrayed with a double roof (as is also seen on some Abila coins).[33] Although we have not as yet excavated any extant remains of Roman temples, some of the Christian basilicas (i.e., the Area A and Area D basilicas) seem to have been built on the foundations of earlier Roman temples. Compare the temple foundations upon which the Christian basilica at Heshbon was built.

Road and Street Building: One of the prominent features of Roman Abila was its well-constructed road system.[34] Bridges and roads were essential for the maintenance and spread of the Roman Empire. Therefore, the provision, construction, and maintenance of a well developed road system was of major importance. As Colin O'Connor describes the three essentials for building bridges and roads: 1) officials to make decisions; 2) technicians to implement them; and 3) a large labor force, including slaves, provided by the Roman army to do the work.[35] The Legion as a whole was responsible for all building and engineering works. Among the laborers were specialists (who were exempt from heavy labor) including surveyors, architects, craftsmen, bronzesmiths, carpenters, hydraulic engineers, leadsmiths, blacksmiths, stonemasons and the like.[36] Of course, for much of the heavy work the Romans used slaves who composed a sizeable segment of the population,[37] obtained through subjugated people due to successful military campaigns. Abila had an extensive, well thought-out and executed road system both, within the city (both a Cardo Maximus and Decumanus) and leading in all directions from it,[38] which the archaeological evidence has revealed.[39] Thus, it is to be assumed that a large quantity of slave labor was needed, and we would also assume that help from the Roman army, possibly from the Legions quartered in Syria, a small distance to the north, was also obtained. This well-established road system served Abila well in its commercial enterprises, such as its involvement in the lucrative spice and luxury Roman camel caravan trade business going from Mesopotamia, to Palmyra, over to Damascus, and south just to the east of Abila and on to Petra.[40]

Material Cultural Remains Pointing to a Strong Agricultural Economy: With excellent *terra rosa* soil and an

[29] W. L. Macdonald, *The Architecture*, II, pp. 118-119; a dining room has been found attached to the Temple of Demeter at Corinth, and presumable the meat from the sacrifices which was not eaten there was taken and sold in the meat market in the forum.

[30] Robert H. Smith and Leslie P. Day, *et. al.* , *Pella of the Decapolis*, Vol. 2 (Wooster, Ohio: The College of Wooster, 1989), pp. 20-33.

[31] George W. Botsford and Charles A. Robinson, Jr., *Hellenic History*, third edition (New York: Macmillan, 1948), p. 105, Fig. 9, and Bannister Fletcher, *A History of Architecture*, p. 224, for a diagram of an Ionic column and entablature. Fletcher (*op. cit.*, p. 1312) defines architrave, "Architrave (Greek, chief beam). The beam or lowest division of the entablature, which extends from column to column."

[32] This triglyph piece is further evidence for a Greco-Roman temple or other classical public building on Tall Abila. Cf. Botsford and Robinson, *Hellenic History*, p. 105, fig. 9, for a drawing of the triglyph. See Vitruvius, *On Architecture*, Vol. 1, Book IV, II, 3, 4, pp. 214-217, where in talking about ancient buildings, including religious temples, he discusses triglyphs and their place in classical building.

[33] Augustus Spijkerman, *The Coins of the Decapolis and Provincia Arabia* (Jerusalem: Franciscan Press, 1978), plates 7-9.

[34] Cf. *Roman Roads* (Swiss National Tourist Office), regarding Roman Roads in Switzerland.

[35] Colin O'Connor, *Roman Bridges* (Cambridge: The University Press, 1993), p. 36.

[36] O'Connor, *Roman Bridges*, p. 42.

[37] Findlay (1973) indicates that classical Greece and Rome were slave societies, and he states, "Caesar alone is said to have been responsible for I million (slaves) during his campaigns in Gaul between 58 and 51 B.C." The slave population in classical Athens is estimated to be between 20,000 and 400,000. Findlay goes on to say, "The slave population of Italy may have been twice that of adult males citizens at the death of Caesar." Loane (1979:11) estimates that in Rome in the first and second millennium A.D. there were about 1 million slaves. Cf. O'Connor, *Roman Bridges*, p. 42.

[38] The Jordanian Government's aerial maps show the connection between the Abila roads and the north-south road north to the Yarmūk and south to Bayt Rās (Capitolias).

[39] W. Harold Mare, "Abila: A Thriving Greco-Roman City, *ARAM*, p. 2-3.

[40] "Abila, for its part, at the southern end of Syria and located on the Wadi Quailibah, just west of Wadi Shallalah, and thus just to the west of this north-south route as it went through Edrei/Dera'a, was only 4 or 5 kilometers south of the Yarmouk Valley which had been a conduit, along with passages along the connecting wadis like Shallalah and Quailibah, for travel from the Jordan Valley east to where the traffic met the main north-south Palmyra-Damascus-Petra caravan route at Edrei/Dera'a. Abila undoubtedly played an important role in the north-south spice and luxury trade on this caravan route, particularly in the Roman and Byzantine periods, and she, no doubt, was a conduit for the Palmyra-Damascus caravan goods to be carried to sites to the west, to Gadara, Pella and Scythopolis, and the Mediterranean coast, and also south to the northern Sinai and Egypt." W. Harold Mare, "Abila and Palmyra: Ancient Trade and Trade Routes from Southern Syria into Mesopotamia," ARAM, 7 (1995), p. 201.

adequate water supply through the springs satisfying the needs of a sheep and goat industry, and an adequate annual rainfall of 350 to 450 mm for the production of grain and truck gardening crops. Abila's ancient agricultural industry in the Roman period was thriving, and large landed estates all around, each with a *pater familias* and his extended family, including slaves, is to be assumed. Our modern ethnoarchaeological studies at Abila (1982, 1984 and 1986) have shown a continued strong husbandry of sheep and goats, and also the raising of crops, such as olives, grapes, figs, wheat, barley, garden vegetables, melons of all sorts, and our botanical studies of the ancient Abila carbonized seeds shows that in ancient times the following crops were grown: olives, grapes, lentils, cultivated peas, date palm, legumes, bottle gourd, plums, grasses, hard wheat, etc.

2. Material Cultural Remains Pointing to Roman Abila's Diverse Social and Cultural Life

With its forum/agora in the center of the city and its theater, bath house/nymphaeum complex, temples and other public buildings, one can assume a complex and diverse social structure at Roman Abila. Compare the agora-forum plans of Greek and Roman cities with their markets, shops, administrative buildings, temples, coliseums, etc.

Social Classes

The societal structure of Abila of the Decapolis was no doubt influenced by both Greek and Roman culture. In the Greek format, these social classes were composed of ruler, soldiers and laborers; in the Roman format, there were the Emperor and his family, the Senatorial class, the Equestrian Order, the Decurions, the Magistrates, and the lower classes; in Jerusalem, there were the rich, the middle class, and the poor.[41]

Based on this cultural background, we project that Abila's Greco-Roman societal structure was made up of the following: 1) the wealthy composed of rulers, the *pater familias* members and their large household units, merchants, tax-farmers (for the Roman government), bankers and religious officiants; 2) The middle class entrepeneurs, composed of retail traders, craftsmen, ordinary religious officiants, freedmen, innkeepers and other service oriented businesses, etc.; and 3) the poor: slaves (poor in privilege and position) and day laborers.

Evidence from the Abila tombs support the above projection and depict the following social classes:

1. The wealthy. The elaborately painted tombs, containing loculi (L 5, L17, the Temple Tomb on the south slope of Umm al-'Amad, etc.), some with stone sarcophagi (H 1, L 5, K 2), monumental tower tombs (L12), and a wide ranging and expensive grave goods (as in J 1 with its two gold earrings, etc.), all point to wealth and affluence.
2. The middle class. Evidence for this class is seen in smaller and less elaborately decorated tombs (H 1 and H 2), also equipped with loculi (H 1 and H 2), and sometimes with arcosolia (J 13 and L2, etc.),[42] and with a moderate variety of grave goods (H1 and H 2).
3. The poor and day-laboring class. Evidence for this class at Roman Abila is seen primarily in Area J in the shaft and cist graves (J 9, J 10, J 14, J 15, etc.), with few grave goods buried with the dead. Davis comments, "...simple graves and cist burials reflect the hasty disposition of the body of individuals of a poorer class."[43]

The types of grave goods excavated from the Roman tombs are culturally instructive, including the following: cooking pots and lids, oil lamps, storage jars, limestone busts of humans, Roman hairstyle, drapery, etc., fibulae pins and other metal objects, such as hair pins, spatulas, bracelets, rings, earrings, necklaces, bowls, bottles, etc. Particularly instructive are elements found in a Late Roman tomb H 60, excavated in 1996. Here we uncovered an elaborate and well-decorated tomb with a large central chamber, with an elaborately carved façade around an arched doorway leading into an auxiliary room. The façade is carved with lions, sphinxes, garlands and the like. The walls and burial niches carved into the sides of the main chamber and auxiliary room contained frescoes and paintings of medallions with portraits of lovely women with Roman hairstyle and garments, paintings of birds, inscriptions, etc. From this tomb we have excavated Late Roman pottery and objects, cooking pots and lids, lamps, storage jars, coins, etc. The material just described points to a wealthy Roman social class, and their tombs tend to be located on Area L and some in Area H, with the Middle class tombs located in H and J. Grave goods in these tombs include weapons, vases and bowls, glass and ceramic unguentaria, needles, medical instruments, coffins (of wood and stone), coffin rings and bosses, iron nails, spatulas and other cosmetic instruments, jewelry, dishware, etc.

In summary, some of the items pointing to cultural sophistication, especially among the upper classes, include the following:

a. Personal items such as eye paint (the kohl tube, example Abila 1986, L 2010, G154, No. 111), the use of unguentaria both glass (A 1986, L 2010, G 155; A 90, H 25005, No 24; A 92, H 31011, 36), and ceramic (example, A 82, H 3002, No. 62); personal grooming

41 See Joachim Jeremias, *Jerusalem in the Time of Jesus* (Philadelphia: Fortress Press, 1969), Chapters IV to VII.

42 John J. Davis, "Abila Tomb Excavations, 1984," *NEASB* 24 (1985), pp. 79-80.

43 John J. Davis, "Abila Tomb Excavations, 1984," *NEASB* 24 (1985), p. 91.

items, such as hair pins, fibulae, earrings, rings, etc.

b. Other items include: tomb frescoes, as one one showing a figurine of a Roman figure wearing Roman clothes and holding a scroll (A 88, H 16001, #849), and home scenes such as that on a fresco in Tomb H 60.

Of course, from various areas of Abila we have excavated items used in every day life, items such as ordinary dishware and metal objects such as cups, and vases, bowls, lamps, etc.

3. Material Cultural Remains Pointing to Roman Abila's Strong Religious Element.

Remains of religious structures and objects in the Roman period include the following:



5. A 1982, Altar, Roman period.



6. A 1994, Artemis, goddess of the hunt, Marble, life size.

a. Religious statues, altars (FIG. 5), and other objects of worship, include 1) the life-size, white marble statue of Artemis (Roman Diana) (FIG. 6), goddess of the hunt, found in Area A in 1994, probably sculpted in the first century BC; 2) a large white marble foot probably belonging to the Zeus statue which stood in the niche (the letters DI(OS) are painted inside the niche), excavated in 1996 - all representing Zeus, the chief of the pagan gods[44] ; 3) the north Abila weathered limestone, small stone altar, with a *patera* on the top for libation, and carved scenes of a bull on the sides, an altar which may

[44] Cf. Charlotte R. Long, *The Twelve Gods in Greek and Roman Art* (Ann Arbor, Michigan: University Microfilms International, 1980), pp. i-xii, 1-357, Plates I-XI. Dr. Long states, p. 9, "In our study, therefore, we shall maintain that the Twelve Gods had as their primary responsibility the safety and prosperity of the state." Long comments further (p. 241) that in private monuments "The most elaborate of these reliefs have, at the top, an area corresponding to the heavenly regions of the gods. The number of gods varies; they tend to be male, especially Jupiter, Mars and Mercury. The Osterburken relief has the Twelve Gods with Jupiter enthroned in the center."

have been connected with the Mithraic religious worship, which was popular with Roman soldiers;[45] and 4) religious objects, such as the silver pendent amulet, used as a religious charm (Abila, 1982), figurines of Greco-Roman gods and semi-gods (Dionysos, Terpsichore, Abila, 1982), etc.

b. Cult practice at Abila. Tomb evidence at Abila has revealed religious artifacts as well as evidence of religious cult practices as follows: 1) The radiating loculi and central sump of a Roman tomb, as those in H 1, which may reflect a belief that life after death is an experience similar to living in a Roman house, with a compluvium pool in the atrium and rooms radiating off a courtyard. 2) The sealing of loculi with solid stone or of stones and plaster (often with fresco painting), would allow the families, soon after the internment to visit in comfort the tombs of their loved ones for cult worship; 3) The limestone busts or headstones found in a number of the Abila tombs, such as K 1 (where nine of them were found), suggesting the practice of cult feasts or annual family reunions,[46] 4) The Dionysos figurine found in H 2 (also possibly the figurine of Tersichore also found there) pointing to a tomb cult; a Dionysos mythology is associated with burial rites and the hope of life hereafter,[47] 5) Remains of food and incense offerings, found in L 15, also pointing to a tomb cult; 6) Many lamps and lamp niches (as in H 2, L 5 and L 13) pointing to tomb cultic practice, as borne out by Roman literature and inscriptions. The Romans brought their lighted lamps to honor the dead on the *Kalends*, *Ides* and *Nones* of each month, and yearly celebrated the dead in the *Parentalia* (or, *Dies Parentalia*), February 13 to 21. They lighted lamps and took them to the tombs. An Inscription indicates the practice of lighting lamps for the family's deceased on Rosalia and on the individual's birthday.[48] 7) The frequent presence of bronze bells in the tombs (as in K 4 and L 15) pointing to an apotropaic practice of warding off evil.[49] 8) The tomb inscriptions found in 1981 in one of the tombs of Area L, "Cheer up. No one is immortal," which would seem to speak to the individual's and family's sentiment on life after death; the exact words of this sentiment have also been found in a number of Jewish grave inscriptions.[50]

The material cultural evidence of Roman Abila thus far excavated points to a flourishing, expanding and highly sophisticated city.

---

45 Charlotte R. Long comments, *The Twelve Gods*, p. 241, Mithras was....widely worshipped in the third century, and far more Mithraic reliefs have survived than all the representations of the Twelve Gods put together." Cf. Michael P. Speidel, Mithras-Orion:Greek Hero and the Roman Army War God (Leiden: E. J. Brill, 1980), pp. 39-40.

46 John J. Davis, "Abila Tomb Excavations," *NEASB* 24 (1985), p. 72.

47 Davis, *NEASB* 24 (1985), p. 90; cf. J. M. C. Toynbee, *Death and Burial in the Roman World* (Ithaca, New York: Cornell University Press, 1971), pp. 3-39, 236.

48 Neathery B. Fuller, "Abila Tomb Excavations, 1986," *NEASB* 29 (Summer, 1987), p. 59. J. M. C. Toynbee, *Death and Burial*, pp. 63-64.

49 Neathery B. Fuller, "Abila Tomb Excavations," *NEASB* 29 (1987), p. 59. N. P. Toll, *Excavations at Dura Europos, Part II. The Necropolis. Preliminary Report on the Ninth Season of Work, 1935-1936.* M. Rostovzeff, *et al.*, editors (New Haven: Yale University Press, 1946), p. 122.

50 R. P. Jean-Baptiste Frey, *Corpus Inscriptionum Iudaicarum* (Roma: Pontificio Istituto di Archeologia Cristiana, 1952).

Nayef Goussous
Amman - Jordan

Nayef Goussous

Four Unpublished Coins of the Decapolis and Provincia Arabia in the Second Century AD

The publishing of inedited coins or new varieties has many advantages, since each coin may shed a new light on our knowledge. Mainly, new coins provide us with varied informative data on the history, economy and religion or even on the geographical aspect. Publishing such new coins will stimulate other scholars and encourage collectors to publish new material from their collections. On the other hand, presenting and publishing these four coins will contribute and facilitate the eventual arrangement of a complete corpus of the coinages of the cities of the Decapolis and Provincia Arabia.

In this respect, the writer runs an intensive survey to figure-out "inedited coins" or a new variety in his collection, and consulted many available publications and major works,* though some related literature are inaccessible. Such academic approach is helpful to deduce whether these coins had been published in the vast numismatic literature or not. Anyhow, if any of the coins described below happened to have been published in other publications, including auction catalogues, this will change its classification from an inedited coin or a new variety into an extremely rare coin.

The present work offers a new contribution to the coins of Transjordan (the Decapolis and Provincia Arabia), and includes four unpublished coins described below from the writer's collection.

The Gerasa Coins

Gerasa, ancient Jarash, lies in a deep valley among the mountains of Gilead. Gerasa is said to have been founded by Alexander the Great, whose bust is found on one of its coins. Also inscriptions found in its ruins attribute its founding to Alexander the Great (Franciscan 1984: 190).

According to Pliny, Gerasa was one of the Decapolis cities handed over to Provincia Arabia in AD 106 by the Emperor Trajan (Harding 1967: 49).

Hadrian visited Gerasa at the period it was known as Antiochia on Chrysorrhoas (Golden River) (Spijkerman 1978: 156). This may mean that it was one of the Seleucid Kings, probably Antiochus IV (175-163 BC) who made the original village into a great centre (Franciscan 1984: 190). Most Probably it received the title "Colony" at the time of Caracalla, and became a Roman Colony with the name of Colonia Aurelia Antoniniana (Spijkerman 1978: 156). Gerasa struck quasi-autonomus coinage and colonial coins from the times of Nero (AD 54-68) to Elagabalus (AD 218-222), who was the last ruler on its coins (Qedar 1996: 311).

The prevailing type on the coins of Gerasa is the bust of Artemis as Tyche of the city. The coins of Gerasa bear no date except for two coins of Elagabalus with Tyche on the reverse, these coins are dated according to the Pompian era which was also in use on inscriptions at that time.

Coins Nos. 1-2 (FIGS. 1-2) are new varieties produced from two different dies. The obverse of both coins bear the bust of Marcus Aurelius to the right in contrast to Spijkerman's coin No. 9 where the bust is to the left. The reverse of the two coins is struck by two different dies which differ from that of Spijkerman's coin No. 9.

Coin No. 3 (FIG. 3) is an unpublished coin of Commodus. It measures 9mm in diameter and might indicate a new denomination. This type is known and issued at Gerasa under the same emperor with larger modules varying from 16-20mm in diameter (see coin No. 22 in Spijkerman's catalogue). On the reverse, Tyche wearing a turreted crown seated on a rock, upper part of body is turned right, holding in both hands ears of barely. Part of inscription only on flan, X G E.

---

* Hill, G., *Catalogue of the Greek Coins of Palestine*, London, The British Museum, 1914; Rosenberger, M., *The Coinage of Eastern Palestine and Legionary Countermarks, Bar-Cochba Overstrucks*, Jerusalem, 1978; Spijkerman, A., *The Coins of the Decapolis and Provincia Arabia*, Jerusalem, Franciscan Printing Press, 1978; Burnett, A. *et. al.*, *Roman Provincial Coinage*, Vol. I, Parts I -II, London, The Trustees of the British Museum, 1992.



1.a. Coin No. 1 with the bust of Marcus Aurelius, obverse.



1.b. Reverse of coin No. 1.



2.a. Obverse of coin No. 2, with bust of Marcus Aurelius.



2.b. Reverse of coin No. 2.



3.a. Obverse of coin No. 3.



3.b. Reverse of coin No. 3.

TABLE 1. Description of coins No. 1, 2 and 3.

No.	Wt.	Metal size	Obverse	Inscription	Ax.	Reverse	Inscription
1.	10.8	23/25	Marcus Aruelius Bust right	AVTKAICM AVPANTW	↑	Tyche, wearing turreted crown and long chiton, standing l. on half figure of river-god, resting r. on rudder , l. holding cornucopiae; behind her at r. male figure, togate , standing to front, looking r., r. hand holding spear.	ANTWΠP XPTWΠPΓE
2.	12.8	23	Similar	Similar	↑	Similar	
3.	0.6	9	Commodus. Bust right	.... M	←	Tyche, wearing turreted crown, veil and long chiton, seated on rock upper part of body turned r. holding in both hands ears of barley, below half-figure of river - god swimming l.	X ΓE

The Petra Coins

In AD 106, the Nabataean Kingdom was annexed by the governor of Syria, Cornelius Palma, into the Roman Provincia Arabia. The capital, Petra, flourished as a Roman city and the tomb of one of its Roman governors has an inscription mentioning that he was responsible for coin minting, which was modelled on the Greek and Roman types (Harding, 1967: 125).

The Emperor Hadrian visited the city and bestowed on the city the titles *Hadriana* and *Metropolis* (Spijkerman 1978: 218). In the time of the emperor Elagabalus it became a Roman Colony. Consequently, Petra struck the founder type to commemorate that event.

Its coinage under the Roman Empire extends from Hadrian to Elagabalus. The chief type of the Petra coins, during the Roman period, is the city-goddess Fortuna, called Tyche by the Greeks. She was mostly worshiped by the Romans rather than by the Greeks, and was represented in various cities which each had its own Tyche. Usually adorned with mural crown sheltering the inhabitants of the city as if they were her children, and also was represented with different attributes with a rudder, a ball, and cornucopiae (Larouse 1964: 187) .

Coin No. 4 (FIG. 4) is a new variety of coins Nos. 7, 8 and 9 in "*The Coin of Decapolis and Provincia Arabia*" is described below (TABLE 2), in which the bust of Tyche appears for the first time on the Petra coins without the turreted crown. This reminds us of the Nabataean Tyche appearing on al-Khaznah in Petra. Both lack the mural crown and reflects a re-emergence of earlier local tradition which might indicates that the city of Petra had almost no walls surrounding it as a means of protection due to its natural fortifications.



4.a. Obverse of coin No. 4.



4.b. Reverse of coin No. 4.

TABLE 2. Description of coin No. 4.

No.	WT.	Metal size	Obvers	Inscription	AX	Reverse	Inscription
4.	6.3	19	Hadrianus bust r. Laur.wearing Paludamentum and cuirass.	AVTOKPATWPKAIC TRAIANOCAΔPIANOC CEBACTOC	↖	Bust of Tyche r. draped and veiled.	AΔPIANHΠE TPAMHTPOΠ O Λ IC

References

Burnet, A., Amandry, M. and Pau Repollés, P. 1992. *Roman Provincial Coinage* Vol. 1 , Parts I-II. London.

Franciscan Fathers, 1984. *Guide to Jordan.* Jerusalem: Franciscan Printing Press.

Harding, G. L. 1967. *Antiquities of Jordan.* London: Lutterworth Press

Meshorer, Y. 1981. *Sylloge Nummorum Graecorum, The Collection of the American Numismatic Society, part 6, Palestine-South Arabia.* New York: The American Numismatic Society.

Hill, G. 1981. *Catalogue of Greek Coins of Arabia Mesopotamia and Persia.* Arnaldo Forni.

Larouse Encyclopedia of Mythology, 1964. London: Paul Hamlyn.

Rosenberger, M. 1978. *The Coinage of Eastern Palestine and Legionary Countermarks, Bar-Kochba Overstrucks.* Jerusalem.

Spijkerman, A. 1978. *The Coins of the Decapolis and Provincia Arabia.* Jerusalem: Franciscan Printing Press.

Niels Hannestad
Department of Classical Archaeology
Museum of Ancient Art
University of Aarhus
DK-8000 Aarhus C
Denmark

Niels Hannestad

The Marble Group of Daidalos, Hellenism in Late Antique 'Ammān

During the early months of 1947 it was rumoured that a full scale marble statue had been found while clearing a level space for building a house nearly half way up the southeastern face of the Citadel hill in 'Ammān. The owner of the land had come upon fragments of the statue scattered about along a sort of terrace. A clearance of the immediately adjacent area by the Department of Antiquities revealed the remains of what had apparently been an exedra or platform for the group, a commanding location overlooking the theatre. Various architectural elements were found including several capitals. Due to lack of funds no further excavation was undertaken.

The fragments of the statue were brought to the then Palestine Archaeological Museum in Jerusalem (now the Rockefeller Museum), where they were photographed and studied, and a start was made on the reconstruction of the whole figure (FIG. 1a).[1] Owing, however, to the political situation the Jordanian government requested the return of the statue to 'Ammān. This was done but several fragments disappeared (cf. FIGS. 4a-5b), and what is now on exhibition in the Jordan Archaeological Museum, 'Ammān, is the main figure, standing 1.9 m tall (FIGS. 1b-c). Hopefully someday somebody will find the missing fragments!

Shortly after the discovery the statue was admirably published by J. H. Iliffe.[2] Being no classicist Iliffe clarified the structure of the statue, related it as a work of art to the so-called School of Aphrodisias named after the city of that name in Caria, southwestern Asia Minor, which produced huge quantities of high quality sculpture from the Early to the Late Empire. He suggested a dating to the Antonine period, which has since been accepted—a dating I question.[3] He failed to identify the subject. For this, however, he should not be blamed, since the group is unique as regards its subject. It was H. Möbius who two years later advanced the correct identification of the motif.[4] The mythical artist Daidalos, one of whose works was the Labyrinth at Knossos also constructed two pairs of artificial wings for himself and his son Ikaros to escape the revenge of King Minos. In youthful arrogance Ikaros flew too close to the Sun and the wax of his wings melted. He fell and drowned in the Aegean Sea.

In anger and despair Daidalos rushes forward looking up at the burning Sun (FIGS. 1a-c) while carrying the body of Ikaros in his arms. The arms and the body of Ikaros are now missing (cf. FIG. 4b) and so are the wings of Daidalos which were probably made of metal. Two holes for attachment on the back (FIG. 2b), together with straps crossing the chest, attest that wings were fastened to the figure.[5] Of Ikaros, who was rendered as a child, very little

[1] I am grateful to Ronny Reich, who has provided me with copies of the photographs taken when the statue was in Jerusalem. The photos used for FIGS. 1a; 2a-b; 4a-5b are published by courtesy of the Israel Antiquities Authority (the rest of the photos were taken by the author in 'Ammān). It has sometimes been suggested that the missing parts of the group are still in Jerusalem (in the Rockefeller Museum), but this can be ruled out.

[2] "A Heroic Statue from Philadelphia-Amman" in *Studies Presented to D.M. Robinson I* (Saint Louis 1951) 705-12, pls. 75-80; T. Weber, *Gadara Decapolitana. Untersuchungen zur Topographie, Geschichte, Architektur und Bildende Kunst einer "Polis Hellenis" im Ostjordan*. Mainz 1995 cat. D.6 (with extensive bibliography) and passim. I am most grateful to Thomas Weber for having generously made available to me this preprint of his Habilitationsschrift. See also N. Hannestad, *Tradition in Late Antique Sculpture. Conservation - Modernization - Production* (Aarhus 1994) 144-9 with references and R. Reich, "A Hellenistic Statue of Daidalus and Icarus Discovered in Philadelphia/Amman" *Quadmoniot* XXIX, 1 (1996) 39-43 (in Hebrew).

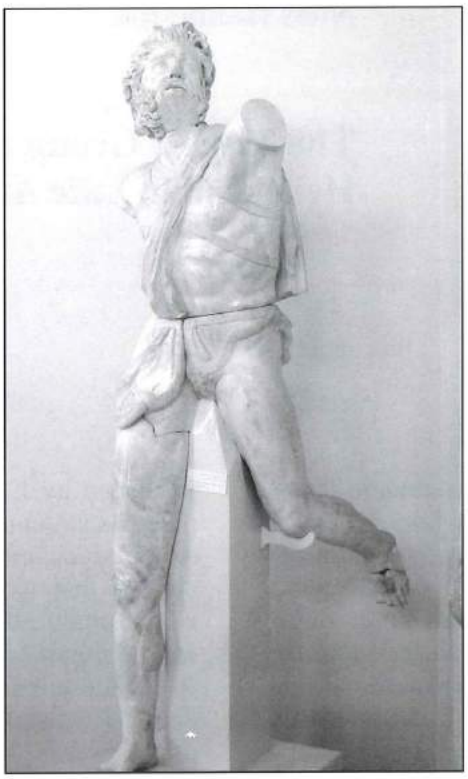
[3] See Hannestad, *Tradition* (supra n. 2). The dating I propose is accepted by Amanda Claridge in a letter (26 October 1992): "I note that you cite the Amman Daidalos...Fine by me if you want to date the work far later than AD 200". In her review of my book in *JRA* 10 (1997) 447-53 her view has changed completely now to be entirely opposed to this (and to any idea proposed in the book, from: "- lots of plausible ideas") but even more strangely, she partly cites my text incorrectly in order to make her point.

[4] "Ein hellenistischer Daidalos" *JdI* 68 (1953) 96-101. On the motif, cf. also *LIMC III* 320 no. 52.

[5] Weber (supra n. 2) 175 follows Iliffe 707, in seeing the twin holes on the back as attachment holes for metal cramps to secure the figure to the wall. One central (and bigger) hole would have been sufficient and Daidalos had made himself wings, so they must have been visible. A different material would have been obvious for an alien addition to the human body. Of course the fastening holes could have served both purposes.



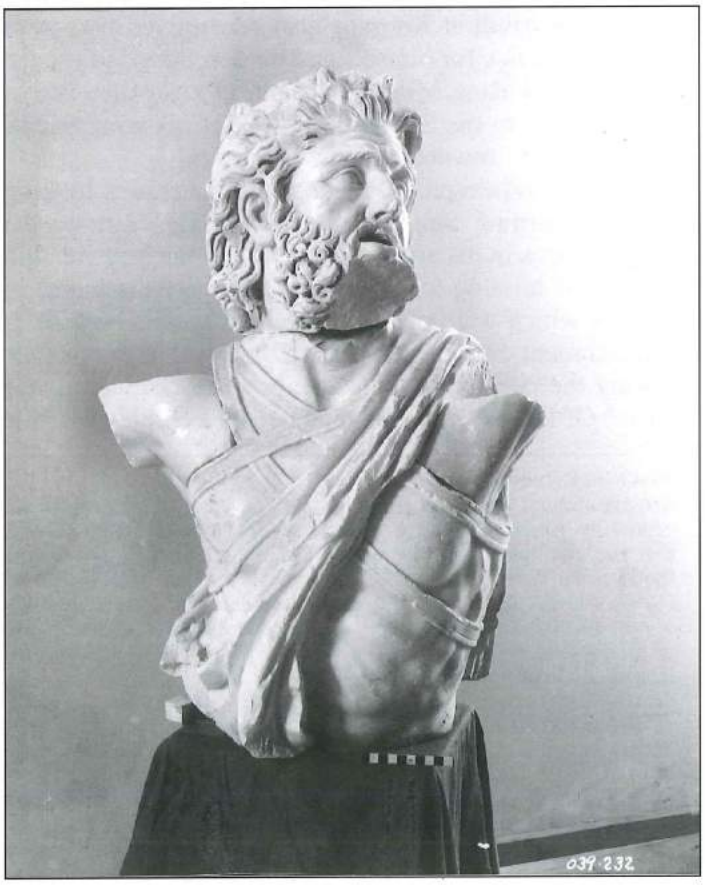
1a. Provisional erection of Daidalos in Jerusalem.



1b. Final erection of Daidalos in 'Ammān, same view as FIG. 1a.



1c. Final erection of Daidalos in 'Ammān„ profile view.



2a. Torso with head of Daidalos in Jerusalem, front view.



2b. Torso with head of Daidalos in Jerusalem, back view.



3a. Central part of torso of Daidalos, front view.



3b. Central part of torso of Daidalos, back view.

remains—or remained: this comprises part of the limbs and a fragment of the abdomen (FIG. 5b), which has been hollowed out to reduce the weight (FIG. 5a).

The construction of the figure, like the motif, is unique. It was made in separate parts, presumably in Aphrodisias, to be assembled in 'Ammān. The figure of Daidalos consists of five different pieces: One comprises the head and torso down to the belt at the waist (when the statue collapsed the head was severed from the torso). The two arms, of which the shoulders are preserved have been inserted in sockets. To hide the joins they correspond with the lines marked by the straps, the gown of the torso (FIGS. 2a-b) and the line of the belt (FIGS. 2a-3b). The lower part consists of two elements, the bottom part of the torso and the left leg. The right hip and leg of which only the knee is preserved carried the entire weight of the figure through an internal pole probably of metal (cf. FIG. 4c) ending in the right hip. The termination of the drill hole made by a tubular drill is visible in the lower fracture of the hip at the transition to the thigh (FIG. 4a). In the provisional reconstruction in Jerusalem a similar pole, but made of wood, was attached (FIG. 1a)[6]. Comparing this provisional installation with the present one in 'Ammān one notices how much of the figure has been blurred by plaster reconstruction. The arms, as shown by the now vanished fragments of the left one, were also strengthened by inlaid metal (FIG. 4b).

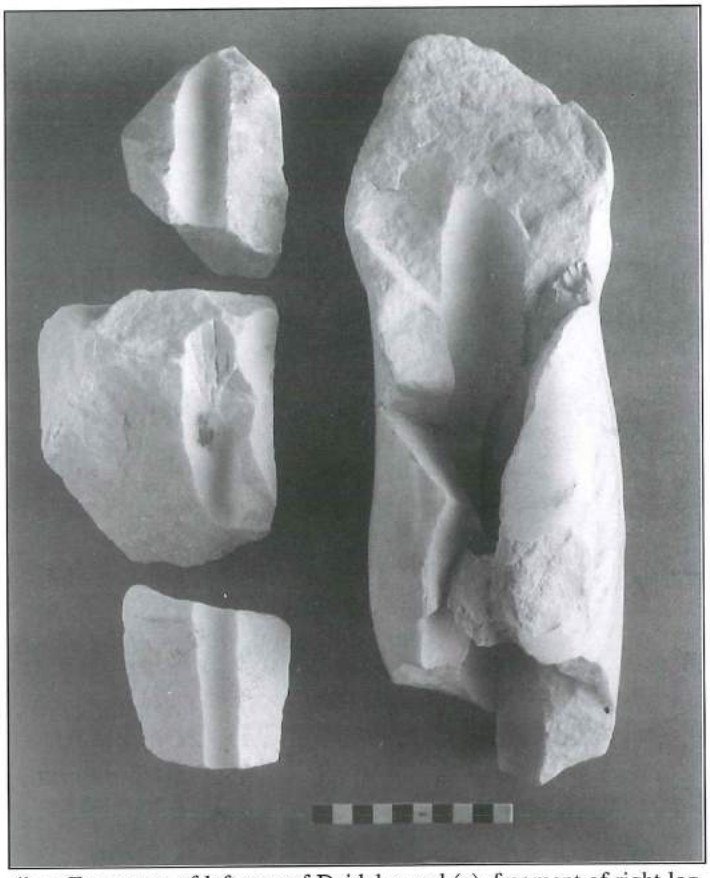
The marble is mostly bluish-grey as so often used for Aphrodisian sculpture, but the right hip and with it the knee are carved in a creamy white marble, also quarried in Aphrodisias. Actually this hip does not fit too well and on the back (FIG. 3b) one notes that, despite the fine carving, there is no consistency in the drapery above with that below the horizontal dividing line following the belt. It has been a considerable task to stabilize this very complicated group and, as mentioned, a most unusual solution has been chosen.[7] It should be added that, technically, such a composition could not have been carved

[6] This is shown in the reconstruction as illustrated in Reich (supra n. 2) but in this reconstruction the body of Ikaros is omitted.

[7] On the structure, see A. Claridge "Ancient Techniques of Making Joins in Marble Statuary" in *Marble. Art Historical and Scientific Perspectives on Ancient Sculpture* (Malibu 1990) 150-2.



4a. Upper right thigh of Daidalos, showing tubular drill-holes and remains of core.



4b-c. Fragments of left arm of Daidalos and (c). fragment of right leg (back of knee).

from one block without a solid base and innumerable struts—only the trace of one strut at the side of the thigh of the left leg is preserved. Whether the sculpture reflects a bronze original or not is hard to say.

The technique is, however, not the only curious feature of this group. Several odd traits differentiate it from the style of the High Empire. Despite the high quality of the sculptural work and the superb polishing of the surface, some parts of the sculpture are of surprisingly coarse execution. The eyebrows are sketchy, and only the part of the hair close to the face is properly finished (FIG. 6a); moreover the drilled channels in the beard go in part below the level of the skin, a characteristic which is mostly seen in Late Antique sculpture. On the surviving foot (FIG. 6b), apparently broken during transport—it was repaired with an iron dowel in Antiquity—we notice that the toes are not properly shaped but separated from each other by linear furrows and the transverse wrinkles of the joints are only rudely carved. Other parts of the sculpture are markedly abstract. This applies particularly to the semicircular grooves above the knees and the rendering of the veins on the legs. The right part of the chest looks as if it has been squeezed in, and the nipples are shaped as though it were a metal statue. The lower border of the abdomen is definitely un-anatomical in its transition to the thigh (FIG. 3a). Finally one should note another peculiar trait: the iris of each eye is rendered as a semicircle, nothing more. This is a feature first encountered about AD 300 and sometimes occurring in the fourth century.

The Daidalos group is most expressive, an offshoot of Hellenistic baroque. A similar baroque flavour sometimes appears in Antonine sculpture, hence the conventional dating. It is, however, mixed with a certain mannerism, a trait characteristic of Aphrodisian sculpture, not least in the late period. The Daidalos figure has, with reason, been compared with the so-called Esquiline group in Copenhagen, executed by Aphrodisian sculptors working in Rome and known to have been active in the late Constantinian period.[8] The expressive composition, almost like an explosion, characterizes the Satyr of the Esquiline group, who seems virtually to be dancing forwards while smiling affectedly up at the infant Dionysos sitting on his left shoulder. Two more replicas together with some unfinished fragments of this group, Satyr with Dionysos, have been found in a workshop in Aphrodisias itself,

[8] See Weber, *Gadara* (supra n. 2) 197, Hannestad, *Tradition* (supra n. 2) 110-3. A full scale publication of the group by Mette Moltesen will appear in the *Antike Plastik*, Lief. 27.



5a. Fragment of abdomen of Ikaros, interior part.



5b. Fragments of abdomen, right arm and left foot of Ikaros.

which was destroyed in the fourth century by a result of an earthquake.[9]

When visiting the museums of present-day Jordan (or Syria) one gets the impression that as material for Roman sculpture in the high style, marble was much preferred to bronze. The large number of sculptures in the local limestone or basalt tends to follow a more provincial style albeit sometimes of considerable refinement. The proportion between the two surviving groups of material, marble and bronze, is not, however, a true reflection of how the use of one material compares with that of the other. Marble, especially when carved, is very difficult to transport compared to bronze. When we look at imperial portraits of the High Empire it is a clear pattern that the further East we go, the more common bronze becomes as a material. This is evidenced by the statue bases.[10]

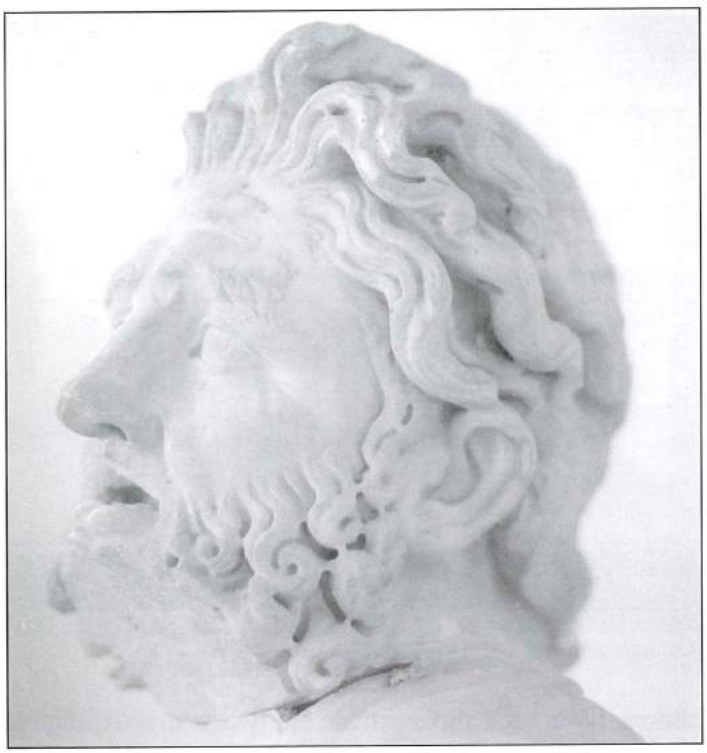
Marble is not quarried in the Levant. More sculpture in marble will be found in areas close to the quarries or to which easy access by sea and rivers could be established. This means that marble is rarely found in the hinterland of the Eastern Roman provinces compared with the coastal zone of this same area. Prevailing conditions have also played their part in the formation of this pattern; and conditions have been different for the two materials, marble and bronze. In contrast to many other parts of the former Roman empire, many structures in Syria and Jordan managed still to be standing and avoid being covered by earth throughout the Late Antique period; and even to be fairly intact when those areas were conquered by the forces of Islam. This means that sculptures had been exposed for a considerable period of time in societies which had long before lost any interest in sculpture. Sculpture then became a material for re-use and in this respect bronze was valuable, while marble could only be used for the limekilns. The fate of marble sculpture is mostly evidenced by pieces cut up in handy size for the limekiln. Very seldom was it deliberately smashed.[11] In addition, appreciation of ancient sculpture is a fairly recent phenomenon in these areas.

An idea of the relationship between bronze and marble (when it is a matter of portraits) may be obtained from the statue bases but it can for several reasons be difficult to work with this material. Thus bases are very often not properly registered and displayed or very inadequately published (the text of the inscription being considered the main priority). In this respect the consoles on columns are

9 See P. Rockwell, "Unfinished statuary associated with a sculptor's studio" in *Aphrodisias Papers 2* (Ann Arbor 1991)127-143. It is suggested that the two well preserved statues were brought in for repair despite the find of four unfinished fragments of this same type. For a different view (i.e. that also the two statues were late antique products), see J. A. van Voorhis, "The sculptor's workshop at Aphrodisias and the production of ideal sculpture in Late Antiquity" Abstract from the 99th Annual Meeting. *AJA* 102/2 (1998) p. 409.

10 This ratio has attracted very little attention. An exception is made by K. Tuchelt, *Frühe Denkmäler Roms in Kleinasien* I (Tübingen 1979) 74-90, who enumerates 26 statues in bronze out of a total of 30 statues. A similar ratio seems to apply for emperor portraits in the East. The problem will be discussed in a forthcoming Ph.D. thesis by Jakob Munk Højte about ruler portraiture in the Hellenistic-Roman period.

11 See Weber's Catalogue (supra n. 2) for instances of cut-up marble statuary, see also A. Schmidt-Collinet, "Skulpturen aus dem Nymphäum von Apamea/Syria" *AA* 1985: 119-33. On the attitude to sculpture in the later period, see N. Hannestad, "How did rising Christianity cope with pagans sculpture?" in *East and West. Proceedings of the first plenary conference at Merida* (in print).



6a. Head of Daidalos.



6b. Foot of Daidalos.

more helpful, such as those we encounter in Apamea or in Palmyra.

On the Agora of Palmyra, the consoles of the peristyle court are placed fairly low, for which reason they are easier to study compared to those in other places.[12] Respectively the sides framing the open square have 18 and 24 columns, which makes 80 altogether. They have all been provided with consoles of which 17 are sufficiently well-preserved to permit the front face to be studied. One front face is blank, the rest (i.e. 16) bear inscriptions saying that they have supported statues. Of these 13 can be proved to have been of bronze owing to the marks left in the stone. About the remaining three nothing can be said for certain, one is too weathered and two are lying on the ground upside down. In terms of statistics this means that more than 70 out of 80 consoles (94%) have supported statues and most likely all of these were made of bronze. In the museum in Palmyra there are only small fragments of one statue in bronze.

The type of stone statue designed for the consoles seems to have been a seated figure executed in the same material as the column itself.[13] This must have been the modest version of the honorific statue, and presumably what was placed on the top of the consoles without the aid of dowels. The seated statue could of course also have been carved in marble, but to my knowledge no trace of such a type has come to light.

The agora of Palmyra is only one example from a Semitic speaking city at the eastern fringe of the Roman Empire. If we relate this to the excellent catalogue in Thomas Weber's above mentioned *Gadara Decapolitana* (note 2) it appears that sculpture in marble is not abundant in the Hellenized cities compared to other areas of the Roman Empire, but this should rather be explained by the conditions of survival, and sculpture in local stone is abundant. Bronze had been, too. It should be stressed that nothing supports the sometimes proposed tension between human representation and anti-pictorial tendencies in the Semitic religions of the Ancient Near East.[14]

Apart from the Daidalos there is in 'Ammān a certain amount of marble statuary from the High empire and a few pieces from the third century, some of it of slightly provincial character other pieces of almost municipal Roman standard. Bringing marble to 'Ammān must have

12 The complex was excavated in 1939-40. Most of the inscriptions of the date to the second century, see J. Starcky, *Inventaire des inscriptions de Palmyre,* vol 10 (Damascus 1949). I wish to thank Jakob Munk Højte for valuable suggestions and discussion concerning the statuary of the agora at Palmyra.

13 Two such limestone statues are now placed in the court yard of the old museum in Ḥamāh. They have been acquired with no provenance and will be published in the forthcoming catalogue by Ilona Skupinska-Løvset. In the Museum in Suwayda in the Ḥawrān is a funerary relief depicting this type of honorific monument, *Le Djebel al-'Arab. Hist. et patrimoine au musée de Suweida* (Cat. de H. Hatoum) (Paris 1991) Cat. 7,13.

14 See also Weber (supra n. 2) 135-8 and 207-10. Concerning the Hellenistic period the absence of sculpture corresponds with the absence of architecture. The evidence for the well-known Hellenistic foundations is scanty, indeed.

been relatively expensive but no major problem. Large scale statues existed, too, as indicated by a hand and elbow of a colossus, estimated to have been nine metres high found in the nearby Great Temple of the Citadel Hill.[15]

Against this background the Daidalos is totally different. The piecing together of marble to form a statue is a technique known to date back to the Hellenistic period when marble statuary was required in places distant from the centres of production. It is a different technique than that used for the Daidalos, but it reflects the same problem—the difficulties inherent in the transport of heavy goods, e.g. marble.

This was a problem the Aphrodisian workshops of the late period had learned to deal with. Sculptural embellishment became closely connected with the stately home of the nobility, the rural villa or the urban domus. Even in very remote areas such stately homes could be supplied with marble sculpture, and Aphrodisas became the great supplier in the late period. Most sculpture produced for export was made small in size, typically about 1.20 m or less for a statue, since it could thus be loaded on a pack animal. The composition could be strengthened by heavy trunks or many struts or the sculpture could be sent semi-manufactured. However, Late Antique sculpture has many more breaks and repairs than sculpture of any other period, an example of which is the breaking off of the left foot of Daidalos.[16]

For the Daidalos a unique solution has been chosen. The work demonstrates a determination to acquire a full-scale marble group executed in the Classical tradition in Late Antique 'Ammān, despite all complications, not to mention the expense. A bronze statue would have been the easy solution. Most likely the customer was the owner of a large suburban villa. Among members of this social class real wealth existed combined with a great nostalgia for the glorious past.

15 Weber (supra n. 2) Cat. D.12. Being a cult statue marble would be the appropriate material.

16 See Hannestad (supra n. 2) esp. 155-7, also Hannestad, "Rising Christanity" (supra n. 11) passim.

Abdel Sami Abu Dayyah
Department of Antiquities
Amman - Jordan

Abdel Sami Abu Dayyah

Selected Roman Stone Quarries in Central Jordan: A Cultural Resource

Introduction

It is said that Augustus has found Rome a city of brick and left it, when he died in AD 14, a city of marble (Briggs 1947: 32.38; Abdel Jawad 1970: 271).

Sun-dried brick or even masonry was from the time of Augustus replaced by marble for important buildings, and baked brick was largely used later for the construction or facing houses and utilitarian structures (Briggs 1947:38-40).

Before Augustus, little has survived. Important buildings such as temples, triumphal arches, acqueducts, forums, vaults, domes, thermae, theatres, amphitheatres, palaces and roads were carried out by Augustus and other later emperors such as Titus, Trajan, Hadrian, Diocletian and Constantine (Briggs 1947: 35- 46).

Though Rome was magnificent in its buildings and town planning, other Roman Mediterranean cities in North Africa and Western Asia, including Syria, Jordan and Palestine, witnessed that aspect too (Briggs 1947: 46). The great cities of the Decapolis, the forts and legiondary camps of the Roman *Limes Arabicus* in Jordan, show good evidences on the greatness of Roman Imperial construction activites outside Rome and display stone as the main and essential available building material (Briggs: 1947: 46).

This paper deals with part of the aspect in question: the places where stone was exploited for the purpose of construction. The study concentrates on three selected stone quarries in central Jordan, two in and around 'Ammān in the north and one at al-Qaṭrāna in the south.

'Ammān (Classical Philadelphia) was the southernmost city of the Decapolis during the Graeco-Roman periods (Khouri 1988: 19-21; Parker 1982: 1; Ghawanmeh 1979: 50-59).

At around 20 km to the west of al-Qaṭrāna, al-Lajjūn — a Roman legionary camp of the *Limes Arabicus* — was established together with other adjacent forts in the beginning of the fourth century AD, after the rise and consequent defeat and destruction of Palmyra (AD 270-275), when the Romans were faced with the task of reorganization and reconstruction, as a challenge met by Emperor Diocletian in the Late Roman period (AD 284-324, see Parker 1976: 25-27). The number of forts increased rapidly during that period from fourteen to thirty, including the construction of al-Lajjūn, the legionary garrison camp of *legio IV Martia*, together with other forts in the neighbourhood such as Qaṣr Bshīr, Khirbat al-Fityān, and Qaṣr ath-Thuraya (Parker 1976: 27).

The Roman Quarries: Cultural Resources

Though the area of Central Jordan was variously explored and archaeologicaly surveyed, none of the surveys shed light on quarries, in general, as a cultural resource or an aspect of heritage (Parker 1976; 1981; 1982; 1983; Graf 1978; Merrili 1988; Conder 1980; Glueck 1930's; Brünnow 1900). Meanwhile buildings are taken as standing evidences of human activities of construction on the ground over ages, quarries give the physical evidences for many aspects relating the preparations for construction. They show the methods of extracting blocks, the means of transportation, and an aspect of the economical and social life of a part of the community. Moreover, we can learn about the development of tools and equipment even though they changed very little in antiquity (Ward-Perkins 1971: 137-158).

Locations and Geological Setting of the Quarries

1- Al-Qaṭrāna Quarry

Located two kilometers south of the modern village of al-Qaṭrāna, 500 m east of the Desert Highway, and next to the railway line. The area is composed on the surface of sedimentary formations with several outcrops of different successive layers of massive limestone, including oyster coquina in different spots. The stone is sufficiently hard to suit building (Abed 1982: 84-90; Parker 1982: 1-2).

2- Wādī al-'Ish Quarry

Located about 10 km east of 'Ammān. The outcrop of the

site is part of what is known as "Muwaqqar Formation". The texture is pinkish white limestone with shell inclusions and few voids (Abed 1982: 94; Kanellopoulos 1994: 87).

3- 'Ammān Quarries

In the city of 'Ammān there are different locations of quarries, such as the one located at Rās al-'Ayn, another existed along the al-lstiqlal Street, adjacent to its junction with al-Urdun Street. A third is along the east Ring Road. The quarries of 'Ammān are of the same outcrop that exists in Wādī al-'Ish, of pinkish to yellowish white limestone with shell inclusions.

Description

1- Al-Qaṭrāna Quarry (FIG. 1)

Out of al-Qaṭrāna, after the distance of 200 m to the south of the intersection of the Highway, one can turn left and drive along a dirt path that leads to a railway bridge. Beyond that bridge, one has to drive 200m to the right in a southeastern direction.

After that distance, the outcrop of a slightly merging and westward sloping hill show artifical cuts in the bedrock (FIGS. 2-4).

The western part of the hill has step-like cut, an indicator of quarried and transported blocks. The horizontal surface of rock, just beyond that cut is channelled with intersected grooves, that look like a network. Channelled blocks range in sizes from 60 to 120 cm in length (FIGS. 3-4).

Channels range in depth from 20-40 cm and in width from 10-15 cm. The rock component is hard white limestone with shell inclusions. The hardnes of rock is tempting modern industry to resume quarrying in the neighbourhood, considering the stone as coquina marble. Neither scattered scrap nor debris were compiled on or around the site. No paved road was found to lead to the quarry. It was accessible by dirt route. No settlement was found around it (Parker 1982: 18-19).

Next to the field of grooved blocks there is an artifical depression created as a result of a completey quarried area.

2- Wādī al-'Ish Quarry (FIGS. 5-6)

To reach the site one has to drive along the 'Ammān - az-Zarqā' highway to the distance of 6 km, and then turn right towards the location of modern quarries where limestone is crushed into gravel with modern machinery. Driving along that extension road to the distance of 1.5 km, one can see to the left on the summit of the western slope of a rising long hill the site of an ancient quarry. A column drum can be seen from a distance of 200m (FIG. 7).

The quarry consists of two parts located on a north-south axis. At the northern part (FIG. 5), two huge drums



1. Al-Qaṭrāna quarry: general view.



2. Al-Qaṭrāna quarry: quarried portion.



3. Al-Qaṭrāna quarry: rectangular slots.



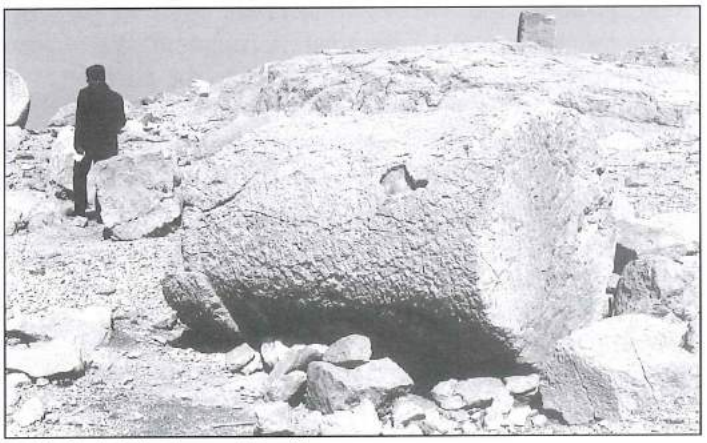
4. Al-Qaṭrāna quarry: channelling operation.



5. Wādī al-'Ish quarry: rectangular blocks.



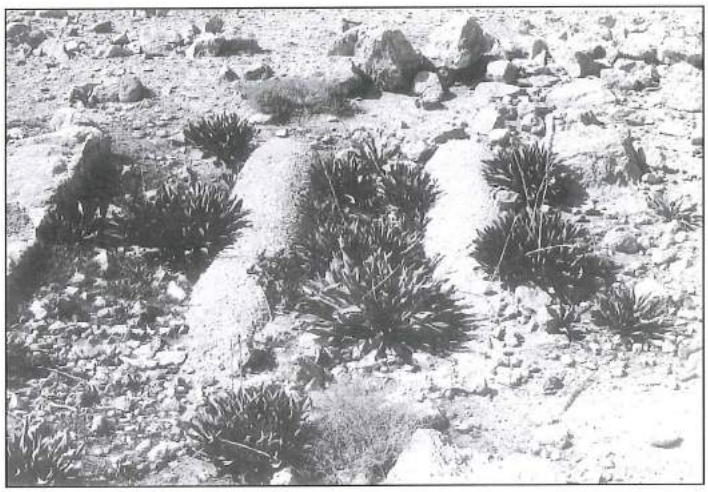
6. Wādī al-'Ish: quarried portion.



7. Wādī al-'Ish: drum with a flange.



8. Wādī al-'Ish: huge column of two drums.



9. Wādī al-'Ish: long one-piece columns.

were shifted to the edge of the quarry (FIG. 8). Another drum is still attached, partly channelled. A huge long rectangular block was detached and left *in situ*. An ashlar of a partly hewn small drum can be seen at the edge of the quarry. Impression of few transported blocks could be noticed. Pick marks and chiselling are still clear on the step-cut face.

The southern part of the quarry (FIG. 9) is still embracing three whole column shafts embedded and attached horizontally. Little channelling of a few blocks of different forms can be recognized. Impressions of quarried and transported blocks are visible in few spots.

The surface of the limestone outcrop is continuous but with shallow scars (FIG. 5). The quarrymen, in some cases, had to go a few centimeters deeper than the surface so as to avoid scars. The component is semi-pure pinkish hard limestone with very few shell inclusions. No flint or conglomerate rocks are noticed around or in the neighourhood. The adjacent hills are occupied with modern quarries with machinery for producing gravel by crushing limestone. A small settlement is located on the summit of a high hill to the west of the quarry. Tumbled walls were constructed with roughly trimmed limestone blocks. Roman pottery was collected on the surface.

3- 'Ammān Quarries

A- *Rās al-'Ayn Quarry* (FIGS. 10-12): Next to the cross-road at which two roads meet, one coming from Nā'ūr, the other from al-Wiḥdāt. At that point there is a high limestone rocky hill, with a northwest extremity deeply cut as a result of old quarrying, forming a sharp vertical



10. Rās al-'Ayn: vertical quarrying.



11. Rās al-'Ayn: methots of quarrying.



12. Rās al-'Ayn: thickness of the limestone.

deep facade, in some parts step-like cut.

The rock consists of slightly hard off-white limestone. Impressions of quarrying tools are defaced. Quarrying was mainly vertical, due to the thickness of the limestone layers which usually dictate the thickness of blocks.

The topography consists of three mountains overlooking the convluence of the valley of Rās al-'Ayn with a tributary. The valley runs from the southwest and at the point of the quarry site, where it meets an eastern tributary, it turns to the north.

Umm Ṣwaywīna, a huge settlement of long history including the Roman period, is located after a distance of 300m to the southeast. The site was easily accessible along the main valley from the old city of Philadelphia.

Quarrying was resumed along the valley some 50 years ago, for 30 years, in the form of producing gravel by using machinery to crush limestone rocks. Modern quarrying removed all traces of old quarrying except that of the south hill, which was protected by modern forestry. A portion of the hill, with a shallow layer of dirt, was forested 30 years ago.

B- *Al-Istiqlal Road Quarry* (FIGS. 13-14): At the intersection of al-Urdun and al-Istiqlal streets, rock abruptly rises up forming a high plateau overlooking a deep north-south valley. The western extremity of that rocky area was vertically quarried in the Classical periods (properly Roman). Pottery fragments were collected on the surfuce.

The western quarried end looks like a step-like deep facade. Evidence of quarrying is preserved by step cutting and by the impressions of extracted blocks. Tool marks are defaced. The thickness of the layers of rock was sufficient to produce any type of blocks and ashlars. Component is off-white hard limestone.

The quarry was easily accessible. A Roman paved road, possibly the *Via Nova Traiana*, used to pass by, along the modern al-Urdun road. A fragment of that road, with a milestone, is still visible 100 m to the north.

Juraynīn, an old settlement, is about 500m to the east of the quarry. Pottery collected on the surface indicated the Roman period as an episode of its long history that started from the first millenium BC.

Evidence for Ancient Quarrying

1- Al-Qaṭrāna Quarry

The quarry preserves an exploitation area, where one can see rows of rectangular blocks, on a large sector of the sloping surface of the limestone outcrop isolated by straight parallel channels on four sides but still attached to the bedrock (FIG. 4). The general view looks like a network. A western inclined step-cut face parallel to the north-south trending channels show deep homogenious limestone and display the traces of exploited rectangular blocks (FIG. 2). Cessation of quarrying occured after a large sector of blocks was extracted and transported to some destination in the neighbourhood.

2- Wādī al-'Ish Quarry

Some huge whole columns and column drums were cut and roughly carved and left *in situ* still attached to the



13. Al-Istiqlal Road quarry: vertical quarrying.



14. Al-Istiqlal Road quarry: threatened.

bedrock. Three huge drums were already extracted from the bedrock and slightly shifted out of the quarry in order to transport them, but cessation of the work hindered that operation (FIG. 9). Few long rectangular blocks were outlined with deep grooves in different parts of the site (FIGS. 15-17). Vertical faces of the outcrop were step-like cut. Tool marks are clearly visible in different spots such as those of picks and chissels. A domed impression of an already exploited, but not transported, drum can be recognized in the bedrock (FIG. 18).



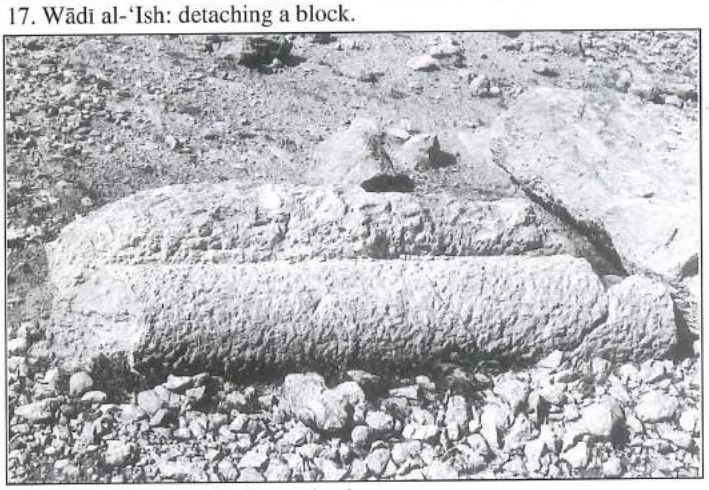
15. Wādī al-'Ish: channelling around a block.



16. Wādī al-'Ish: channelling around a block.



17. Wādī al-'Ish: detaching a block.



18. Wādī al-'Ish: partly dressed columns.

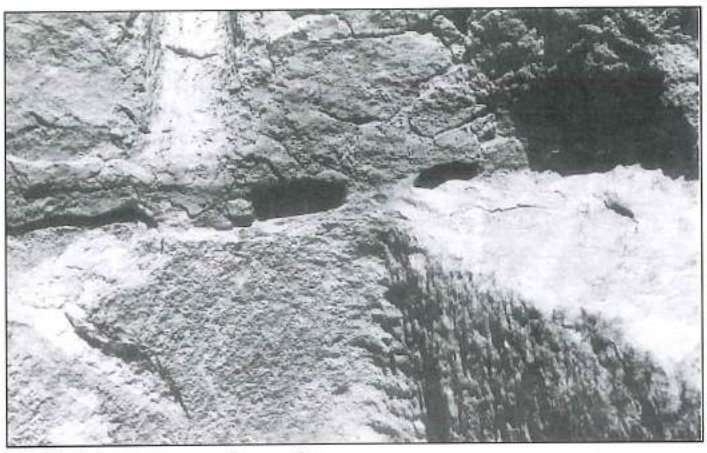
3- 'Ammān Quarries

Since the mountains of 'Ammān are steep and high (Saleh 1980: 21-22), an exploitation method was adapted on the vertical faces of the outcrop. Most of the faces were left step-like cut after the cessation of quarrying. Impressions of huge rectangular exploited blocks are still clearly visible. The exaggerated thickness of layers helped the quarrymen to outline any demanded size of blocks.

Quarrying Technology

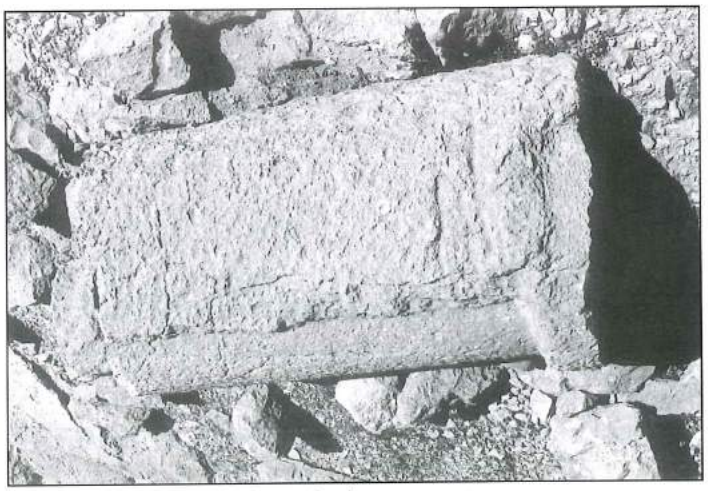
Impressions of tools noticed at the different quarries indicate that picks, hammers, wedges and chisels were mainly used to outline blocks with grooves and channels to split them free, a method conservatively adopted in ancient Mediterranean quarries over the ages (FIGS. 7, 19). Quarrying methods and tools changed very little in antiquity. Classical methods were still in use at the end of the ninteenth century. The Romans developed the use of metal wedges or plugs, feathers and metal broad chisels or blades and abrasives (Dunkin 1983: 79-80; Ward-Perkins 1971: 137-158).

In the Wādī al-'Ish quarry, rough surfaces or sides of drums and rectangular blocks show that they were exploited and transported in the form of ashlar blocks or roughly-hewn pieces. One column drum ends with terminal flange to allow a measure of adjustment to the finished length and diameter (FIG. 7). Worked capitals, bases and friezes were found. Few extracted rectangular blocks at the al-Qaṭrāna quarry show unfinished and unsmoothed faces (FIGS. 7, 20).



19. Al-Qaṭrāna quarry: lunar slots.

The absence of debris at all the quarries supports the hypothesis that the final dressing may have been carried out somewhere around the construction destinations. No scrap is disbursed on or around the quarries. Even the broken pieces or those blocks which did not fit the measurements were transported and used as filling material for foundations and broad walls. For the foundations of the great Temple of 'Ammān, mortar mixed with earth and ashes was used to bond the foundation blocks and ashlars which were mainly of uneven surfaces and unequal measurements (Kanellopoulos 1994: 87-88). The masonry blocks of that temple built in the second century AD are said to have been brought from the Wādī al-'Ish quarry (mentioned as quarry east of 'Ayn Ghazāl) and other quarries around the city of 'Ammān (Kanello-poulos 1994: 88-



20. Wādī al-'Ish: partly dressed column.

89; Paradise 1994: 111).

The Roman legionary camp of al-Lajjūn and other forts of the *Limes Arabicus* constructed in the vicinity of al-Qaṭrāna in the fourth century AD were built of thick walls, with facing trimmed limestones for interiors (FIG. 21). In between, the filling was executed with rough blocks (Parker 1982: 20; 1981: 178; 1983: 216-277; Homes 1989: 363). The Romans were very skillful in implementing that technique, which they adopted long ago. Moreover they executed walls with concrete, consisting of mortar and stone fragments. Their quarries never suffered of scrap or compiled debris (Abdel Jawad 1970: 284-286).

Close examination of the al-Qaṭrāna quarry proved that running drill was used vertically in the case of exracting huge boulders which fitted the size of blocks used in framing the four gates of al-Lajjūn camp (FIG. 22). Two —1.5 m spaced— clear vertical rounded indentations of drilling were noticed. The diameter of drilling hole is 4 cm, and the depth is 1.5m. Once drilling was executed, hammered metal wedges were accomodated in holes to split the drilled blocks.

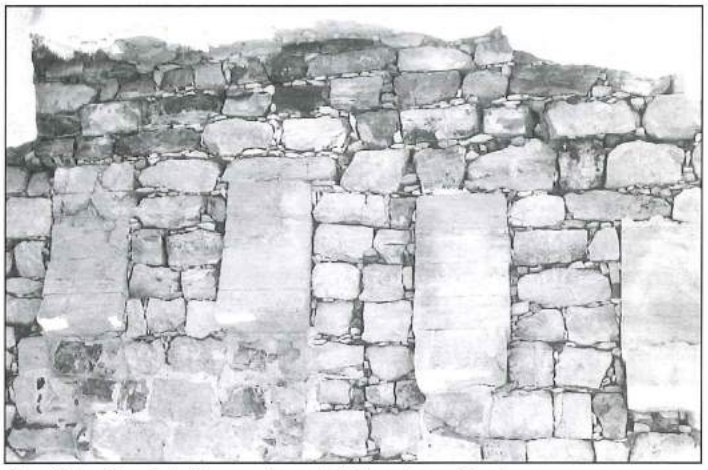
Bases of some vertically channelled blocks show lunate horizontal holes for the accomodation of water soaked wood and/or hammered metal wedges in an attempt to exploit them (FIG. 19). Each block shows at least two horizontel, nearly 20-30 cm spaced holes. Widths of holes range from 6-12 cm. Sections vary from semi rounded to long lunate or oval.

Chisel and pointed pick marks are still visible vertically and diagonally on a few channelled blocks. Channelling or grooving operations, as shown on some spots, were executed by chiselling the outline of the channel, then picking besides chiselling started in a next step.

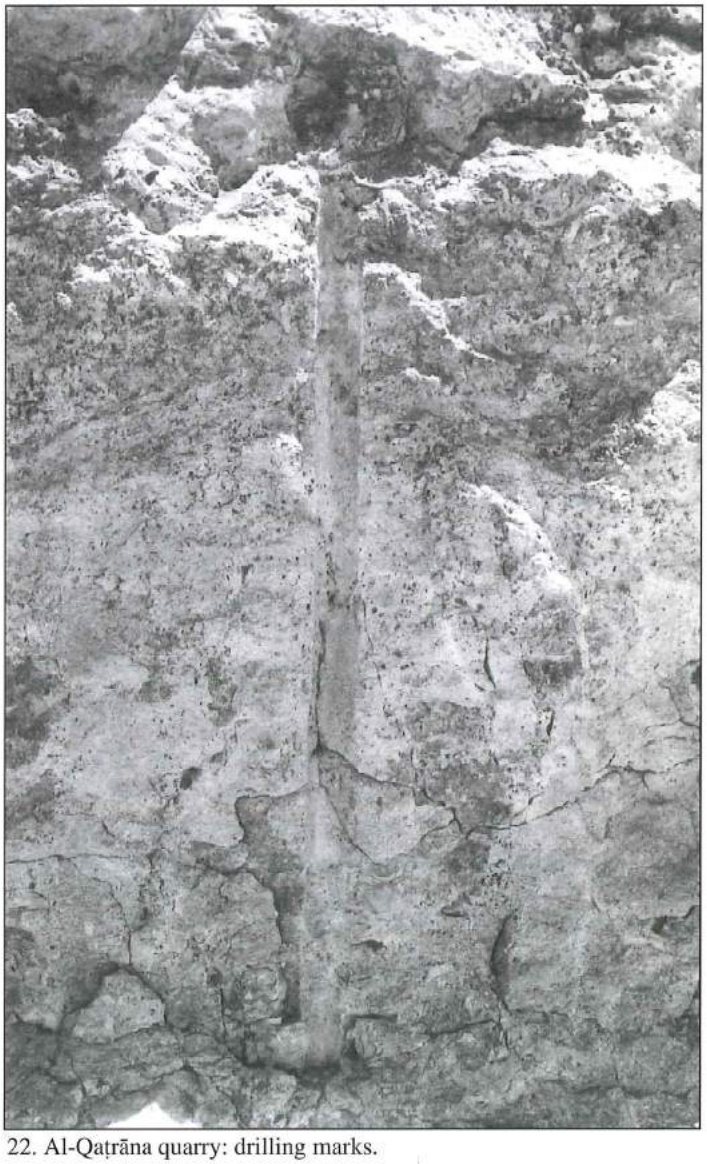
Who did the Quarrying ?

The organization, transportation and extent of trade in the stone reached its peak by people of specialty within the Roman Empire. (Ward-Perkins 1971: 137-158). In the case of Roman quarries of Jordan, there is no decisive indication as to the type or class of the quarrymen. In a papyrus from Kanaris, dated to AD 107, there is a clue. It mentions the work of legionaries as stone cutting all day in south Jordan after the annexation of the new Arabian province by Trajan, who was responsible of the construction of the *Via Nova Traiana* (Bowersock 1983: 81).

Alistair Killick referred to extensive limestone quarries discovered in 1980 near Udhruḥ in south Jordan. He gives the possibility of relating these quarries with the legionaries mentioned in the papyrus of Kanaris. Moreover, he related the work of those legionaries and the limestone quarries to the construction of the military and trade roads of Trajan rather than to a civilian project (Killick 1980: 175). If that were the case, it would be applied to the construction of the military "rather than civilian" projects.



21. Al-Lajjūn: interior coating with limestone blocks.



22. Al-Qaṭrāna quarry: drilling marks.

And since al-Qaṭrāna quarries supplied the military projects with demanded blocks, then the same type of

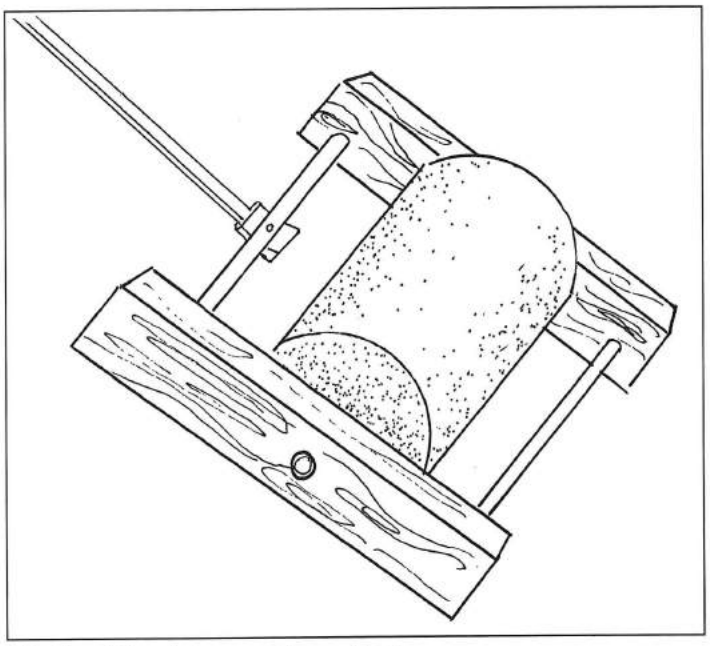
stone quarrymen had been employed. To support this hypothesis we should note that no installation of any permanent civic settlement was found near those quarries. Probably a temporary shelter of military type had been efficiently used.

As for the 'Ammān quarries, it should be mentioned that a big settlement is still located 200 m to the southwest of the Wādī al-'Ish quarry. There is no reason to argue against the possibility of considering the work of that settlement as stone cutting and trading. Roman pottery is scarttered on the surface. Projects of building in Philadelphia were various, in number and utility, and generally of a civic rather than military character (Hadidi 1974: 71-73; Northedge 1992: 52-59). The area of east 'Ammān is plotted with different limestone quarry sites, since most of the outcrops of that area and the area to the south are of the same white and pinkish limestone used in constructing Classical Philadelphia (Northedge 1992: 20). To the south of 'Ammān, next to the quarry of Rās al-'Ayn there exists Umm Ṣwaywīna, a huge settlement of different succeeive dates, starting from the Iron Age to the modern time, including the Roman period (Abu Dayyah 1991: 391, nos. 48-37.1).

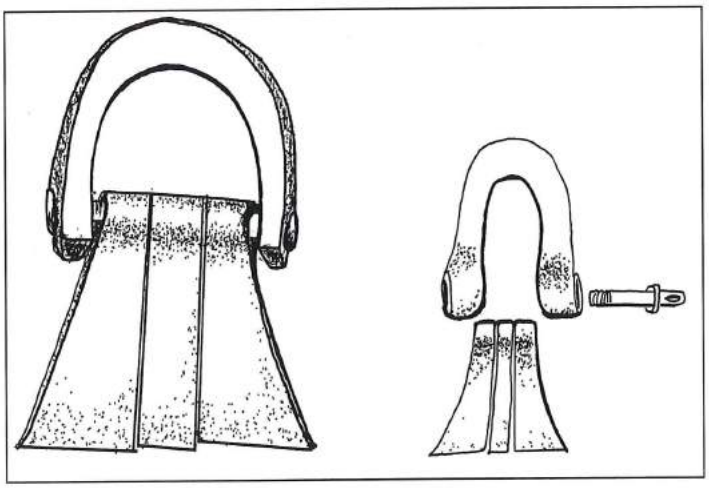
Transportation of Quarried Blocks

Even though it is not within the scope of this paper to deal with mechanisms, a brief notice should be mentioned about the method of transporting the quarried blocks. Small blocks could be easily transported on wheeled carriages, but in the case of huge blocks it was not an easy matter considering the local uneven topography. In the Wādī al-'Ish quarry, huge columns and drums have already been exploited with round forms. It is believed that a square socket was carved in the center of each side of the drum so as to fix pivots on both sides. The pivots are fixed in a wooden square frame that could be pulled (FIG. 23). The rounded block served as a wheel, a mechanism called Chersiphron's after the Greek architect who supervised the construction of the Artemis Temple at Ephesus in the fourth century BC (Kanellopoulos 1994: 88; Toorn 1995: 174; Nasiri 1977: 583). Large rectangular blocks could have been pulled along rollers to the site and then slid into position by men operating pullies through windlasses (cranes) (Adam 1977: 31-63).

A lifting device (called lewis, FIG. 24) consisting of three metal pieces was used to lift blocks. A replica was manufactured and used to lift blocks during the anastylosis projects of the great Temple of 'Ammān. Lewis sockets were hewn on certian sides of the blocks such as the upper surfaces of column drums, and anta elements and capitals and some of the architrave blocks. In heavy blocks more than one lewis were used. The number and depth of sockets depended on the hardness of the stone (Kanallopoulos 1994: 89).



23. Chersiphron's transporation method.



24. Replica of an original lewis.

Destination and Dating

It is worth to quote that "in the absence of documentary evidence, the dating of quarrying operations poses particular problems, as very similar practices continued for centuries and even millenia. Quarrying and stoneworking are among the most conservative of trades maintaining the traditional techniques in defiance of the passing of time, in many parts of the world. Classical quarrying methods were still in use at the end of the nineteenth century A.D. Hence exact dating indicators are few" (Durkin 1983: 79).

The method of grooving and chanelling around blocks, particularly rectangulars, which is evident at al-Qaṭrāna quarry and to some extent at the Wādī al-'Ish quarry, was practiced in ancient quarries of all ages throughout the Mediterranean area. This system persisted although the Romans had develped by the early first century AD the use of metal wedges and feathers, that would be ham-

mered, and were aware of the use of saw and metal blades and abrasive sand to cut stone and to help in fixing joints (Durkin 1983: 80; Kanellopoulos 1994: 87-88).

Insertion of metal wedges, plugs and feathers all around the periphery of blocks noticed at the Wādī al-'Ish quarry, was practiced in quarries of the Roman empire. Metal wedges were even used for stone-dressing. (Durkin 1983: 82). Pliny, in his *Naturalis Historia* (XXXVI, IV, 14) mentioned the use of wedges to split blocks by the Romans. Herson of Alexandria referred, in the middle of the first century AD to the striking of wedges, in the operation of detaching blocks (Durkin 1983: 82).

The use of wooden wedges, expanded by soaking in water, should be considered. The quarry of Wādī al-'Ish and other quarries in 'Ammān show some traces and indicators for the use of wooden wedges. Some bases of goooves are exceptionally broad and have rectangular rather than lunar or triangular ends.

The nearest Roman construction projects to al-Qaṭrāna qyarry were the military compound of al-Lajjūn and the adjacent forts of Khirbat al-Fityān, ath-Thuraya, Rujm Banī Yāsir and Qaṣr Bshīr, all constructed in the fourth century AD (Parker 1983: 227). The Wādī al-'Ish quarry and other quarries in and around 'Ammān undoubtedly supported the numerous projects carried out in Philadelphia of the second century with heavily demanded elements of architecture. The city with its multi and huge projects in that period looked as a burst of activity. The Great Temple and the Roman complex on the Citadel Hill, the Theatre, the Odeon, the Nymphaeum and Forum stand as symbols and indicators. (Northedge 1992: 59; Kanellopoulos 1994: 87-89).

Close investigation of the camp site of al-Lajjūn showed that the builders used any type of available rocks to carry out the construction of the outer and enclosure walls of the camp, and even the interior details (FIG. 21). Huge amounts of roughly dressed conglomerate or even flint and basalt blocks of different sizes and shapes were used. But for the construction of the four main gates of the enclosure wall, and for vaulting and arching, neatly dressed rectangular blocks of limestone were used (FIG. 25). This kind of blocks was used for the execution of the inner faces of many structures and for framing different doors. Columns and bases were executed of the same material. The texture of the limestone used in the camp matches that of the outcrop of the al-Qaṭrāna quarry. The component is coquinoidal off-white with small voids and shell inclusions. Sizes and shapes of blocks on both are compatible. Most blocks on the camp are rectangular, with the exception of a few huge ones that show semi triangulation. Impressions of a few exploited blocks at the quarry site show the same phenomena

The geology of the close environment of the camp show that the surface outcrop is a mixture of conglomerate and successive fragmentary layers of coquinoidal limestone that could not help to locate any fixed productive quarry. Probably some scattered limestone boulders were collected and dressed. But that undependable and critical situation forced the architects to look for a more convenient quarry site that could provide them with demanded architectural elements, despite the remoteness.



25. Al-Lajjūn:roughly dressed blocks.

Diameters of average drums at the Wādī al-'Ish quarry range from 130 to 142 cm. The same measurments are found on the columns of the Great Temple. The texture of material of the temple matches with the texture of Wādī al-'Ish and other quarries in and around 'Ammān (Kanellopoulos 1994: 87). Roman pottery fragments were collected on the surface of the Wādī al-'Ish quarry could be dated to the second century AD. The 'Ammān quarries started in the Early Roman period or before that, but continued in use during all the phases of the Roman era.

Conclusion

The great distribution and variety of stone monuments and installations throughout the highland of Jordan provide us with a strong evidence that stone was used as a most substantial and locally available material for the construction of official and domestic buildings, or even towns and cities, over the ages, particularly in the Roman era, in Jordan. The massive Coquinoidal Limestone Componment of "Amman-Muwaqqar" and "Middle Jordan" formations provided building material that made most of the Roman structure look white except those of North Jordan, where igneous black basalt is the most available component of the outcrop.

The limestone horizon ranges in thinkness from 70 to 80m, essentianally composed of sedimental dense grain cemented oyster shell. Colour ranges from chalky white to off and pinkish white. The quarries in question supplied limestone of the same given component. Different elements of masonry were quarried up to the standardization and transported as ashlar blocks or roughly hewn and dressed rounded unfluted columns and drums, to be finally finished and smoothed at the construction destinations.

Different means of transportation were adapted. Rectagular blocks and long columns were carried on wheeled carriages, or on rollers. Huge drums were rooled in a

Chersiphron's method, pivoted on each side and fixed in wooden frames to be pulled as roolers.

Quarries were chosen and opened as needed. Villages or settlements of quarrymen were established adjacent to some quarries. The people who worked in quarrying were sometimes of the legionaries in case of official and urgent cases. In other cases civic quarrymen practiced stone trading.

Since big stone elements are heavy and liable to break or crack, quarries were planned to be as near to construction destinations as possible.

In the absence of documentary records or evidence, it was not easy to give a firm and decisive or even a narrow dating for quarries depending on quarrying methods which were conservatively changed over ages. The existence or scattering of any typologically dated evidence, such as pottery fragments on the surface, could help to give semi absolute dating. The comparison of the embedded or exploited elements at the quarries with the masonry of different neighbouring monuments contribute to the narrowing of the absolute dating.

Even though Roman roads reached in their extension and branching to different communities and fortifications, no paved roads could be traced to reach stone quarries. Dirt routes were probably efficiently used.

To conclude this study it is worth to mention that, at least from the point of view of archaeology, architecture should be taken and considered as an operation of two components, the building operation on the one hand and the quarries as a place of supply on the other hand. That is to say quarries should not be low classified as a cultural resource. They should be recognized and protected as a heritage material as well as the standing monuments.

References

Abdel Jawad, T. 1970. *Architecture in Antiquity*, 2 vols. Cairo.

Abed, A.-K. M. 1982. *Geology of Jordan*. Amman: Al-Nahda Al-Islamiah Library (Arabic).

Abu Dayyah, A. *et al.* 1991. Archaeologecal Survey of Greater Amman. *ADAJ* 35: 361-395.

Adam, S. 1966. *The Technique of Greek Sculpture in the Archaic and Classical Periods*, VII. London: Thames and Hudson.

Boethius, A. 1978. *Etruscan and Early Roman Architecture*. Harmondswork: Penguin.

Bowersock, G. W. 1983. *Roman Arabia*. London: Harvard University Press.

Butler, H. C. 1913. *Ancient Architecture in Syria, Publication of Princeton University Archaeological Expedition to Syria in 1904 - 1905 and 1909*. Leiden.

Conder, C. R. 1889. *The Survey of Eastern Palestine*. London.

Dahash, M. M. 1993. *Methods of the Architecture of Roman Theatres in Amman and Um Qais*. Unpublished M.A. thesis.

Durkin, M. K. and Lister, C. J. 1983. The Rods of Digenis: An Ancient Marble Quarry in Eastern Crete. *Annual of The British School at Athens* 78.

Ghawanmeh, Y. D. 1979. *Amman, its History and Civilization*. Amman (Arabic).

Glueck, N. 1934-1939. Explorations in Eastern Palestine, I, II, II. *AASOR* .

Hadidi, A. 1974. The Excavation of the Roman Forum at Amman (Philadelphia). *ADAJ* 19: 71-91.

Homès-Fredericq, D. and Hennessy, J. B. (eds.) 1989. *Archaeology of Jordan*. Leuven.

Kanellopoulos, C. 1994. *The Great Temple of Amman*. Amman: American Center of Oriental Research.

Kennedy, D. 1995. The Via Nova Traiana in Northern Jordan. *ADAJ* 39: 221-227.

Killick, A. 1987. Udhruh and the Trade Route Through Southern Jordan. In *SHAJ* III. Amman.

Nasiri, S. A. A. 1977. *The Greeks, Their History and Civilization*. Cairo: Dar Al-Nahda Al-Arabia (Arabic).

Northedge, A. 1992. *Studies on Roman and Islamic Amman*. Oxford.

Paradise, T. R. 1994. Limestone Weathering Rate Analysis. Pp. 115-116 in *The Great Temple of Amman*. Amman.

Parker, T. S. 1976. Archaeological Survey of the 1976 Limes Arabicus: A Preliminary Report. *ADAJ* 21: 19-31.

——1982. Preliminary Report on the 1980 Season of the Central Limes Arabicus Project. *BASOR* 247: 1-22.

——1983. The Central Limes Arabicus Project : The 1982 Campain. *ADAJ* 27: 213-227.

Saleh, S. 1980. *The Geography of Jordan*. Amman.

Toorn, K. van der *et al.* 1995. *Dictionary of Deitiesand Demons*. Leiden: E. J. Brill.

Vitruvius 1960. The Ten Books on Architecture. Translated into English by Morris Morgan. New York: Dover Puplications.

Ward-Perkins, J. B. 1971. Quarrying in Antiquity, Technology, Tradition and Social Change. Proceedings of the British Academy 57: 137-158.

Thomas Weber
Sonderforschungsbereich 295
Johannes Gutenberg-Universität
Johann Becher-Weg 2
D-550099 Mainz
Germany

Thomas Weber

Roman Monumental Arches in the Near East. Monuments of Civic Representation or Custom Toll Stations?

The monumental arch is one of the most striking architectonical features of the Roman Empire (FIG. 1).[1] Developed during the reign of Augustus, rooting in Italian city gate architecture, this specific type of monumental architecture was not limited to the Italian peninsula but distributed all over the Empire during the first three centuries after the birth of Christ. Thus, the monumental arches have also been adopted in the oriental provinces.



1. Monumental arch at Beneventum, Italy, dating to the reign of Emperor Trajan. (Photo by the author).

Two examples have been excavated in recent years in Gadara of the Decapolis, modern Umm Qays (FIG. 2).[2] The reconstructions of the excavated Gadarene structures revealed them as free standing city-gate shaped monuments with barrel-vaulted passageways flanked by towers of circular or horseshoe-shaped plans (FIG. 3). They were located at some distance in front of the urban fortification line not being connected to any wall but raising as solitary street monuments within the ancient cemeteries of the city. Furthermore, these arches marked important traffic points within the street network between the mediterranean littoral and the fertile plains of southern Syria. An important ancient communication line can be traced running in east-west direction from the harbours of Caesarea Maritima and Akkon to Sepphoris and Tiberias, then following the southern shore of the Galilean lake, crossing the rivers Jordan and Yarmuk west of Gadara. From there, the road follows the northern foothills of the 'Ajlūn mountain range leading to Buṣrā, the administrative center of the Roman Provincia Arabia within the heart of the Ḥawrān plain.

In antiquity, a traveller got acquainted with various those solitary tower-flanked arches in front of the cities: Monuments very similar to those in Gadara have been excavated in the cemetries of Tyre (FIG. 4)[3], and in the southern environs of Tiberias (FIG. 5).[4] Approaching to Gadara on the road from this Galilean city, one was im-

[1] This paper is based on several public lectures held at the Universities of Mayence and Greifswald, Germany, and at the German Archaeological Institute Damascus in December 9th, 1998. A German version of this article is forwarded for the forthcoming volume of the Saalburg-Jahrbuch (1999).
On the topic of the Roman monumental arches in general s. F. S. Kleiner, *Journal of Roman Archaeology* 2, 1989, 185 ff.; H. von Hesberg, in: Die römische Stadt im 2. Jh. n. Chr. Kolloquium Xanten (1992) 277 ff.; for the monumental arches in the oriental Provinces: I. Kader, Propylon und Bogentor, *Damaszener Forschungen* VII (1996); C. Arnould, Les arcs Romains de Jerusalem, *Novum Testamentum et Orbis Antiquus* XXXV (1997) 244 ff.

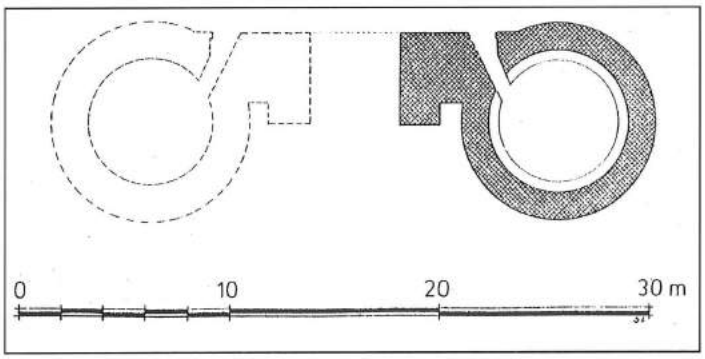
[2] Th. Weber, *ADAJ* 34, 1990, 325; P. C. Bol - A. Hoffmann - Th. Weber, *Archäologischer Anzeiger* 1990, 204 ff.; 216ff. For the location of the city walls cf. A. Hoffmann, *Nürnberger Blätter zur Archäologie* 12, 1995/96, 34.

[3] M. Chéhab, *Bull. Musée Beyrouth* 33, 1983; Kader loc. cit. 165f. with note 1088 (further references).

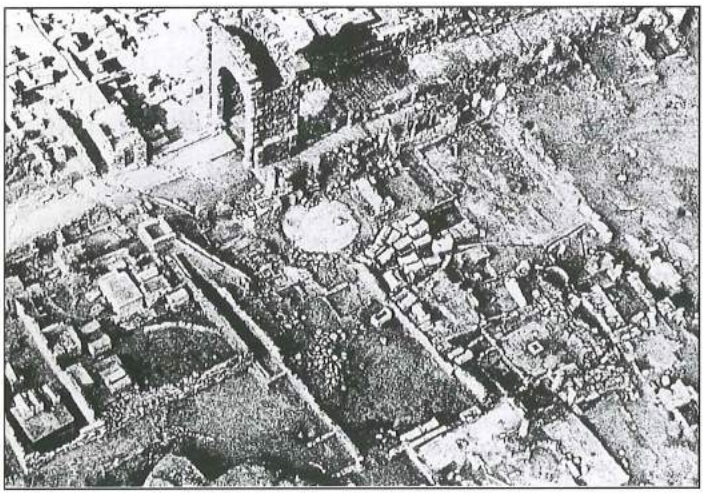
[4] Kader loc. cit. 164 with note 1083 (with further references); Arnould loc. cit. 239 ff.



2. Monumental arch at Gadara/ Umm Qays - Jordan. (Photo by the author).



3. Reconstructed plan of the older monumental arch at Gadara/ Umm Qays ("Tiberiade gate"). [After I. Kader, Propylon und Bogentor (1996) Fig. 87: 5].



4. Monumental arch with cylindrical towers at Tyre. [After N. Jidejian, *Tyre through the Ages* (1969) Fig. 84].

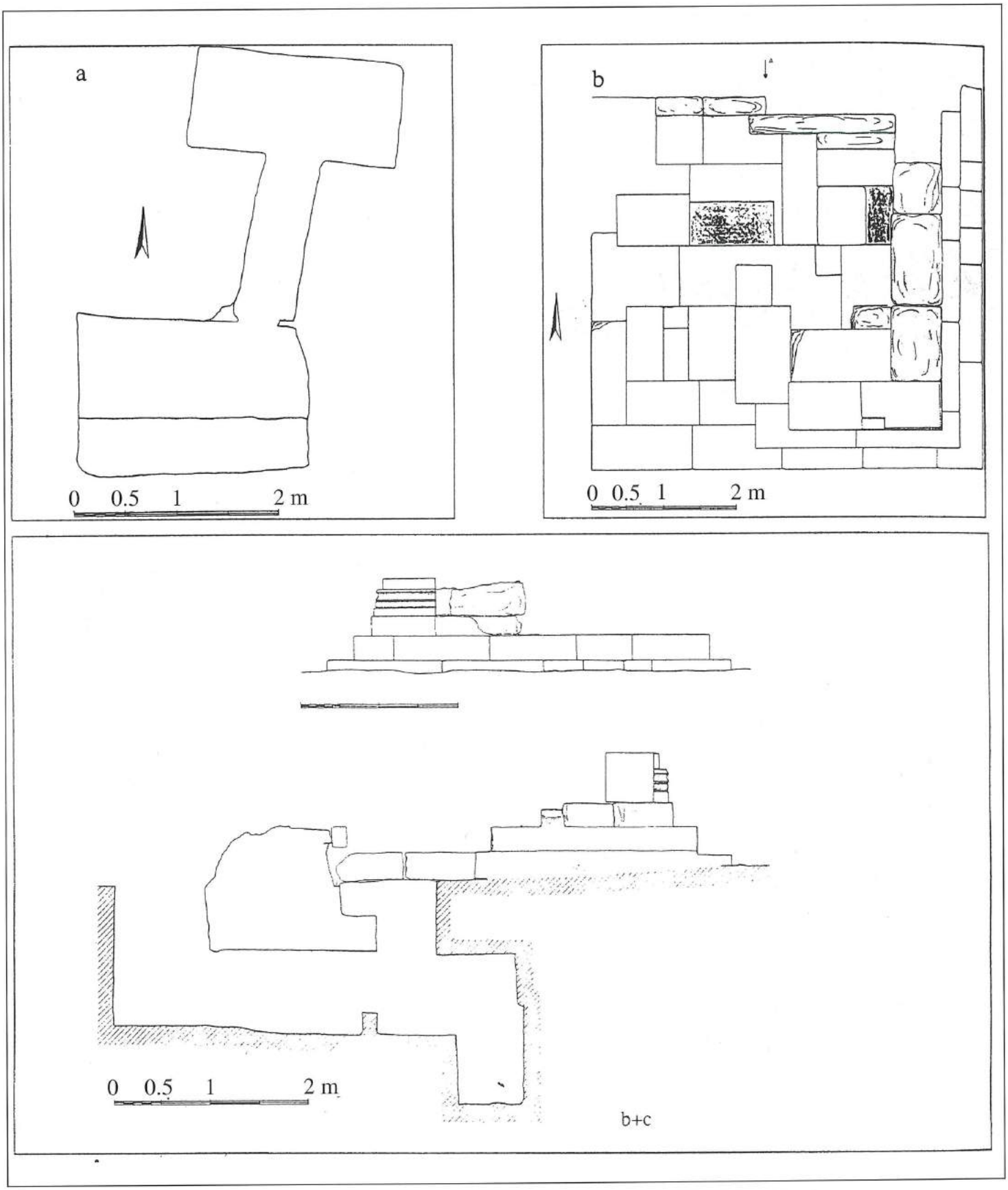


5. Monumental arch with cylindrical towers at Tiberias, Galilee. [After G. Foe, *Encyclopedia of Archaeological Excavations in the Holy Land* (1978) 1174, s.v. Tibrias].

pressed by the towered arches before entering the fortified settlement quarters. At the eastern border of the territory of Gadara, at the location of al-Manāra, a small tomb monument close to the ancient road was recently uncovered by the Department of Antiquities (FIG. 6).[5] In the immediate vicinity of this "rujm al-Manāra" richly decorated rounded limestone blocks (FIG. 7) indicate the presence of another city monument consisting of rounded towers.[6] The Arabic toponym "manāra" means "watch tower" and points to an urban control installation at the eastern frontier of the Gadarene lands. Further east along the same road was probably another monument with round towers. In the western necropolis of Buṣrā the

5 T. Weber and U. Hübner, *ADAJ* 43, 1998, 452f. Abb. 9a-c.

6 G. Schumacher, Northern Ajlun - within the Decapolis (1890) 103 f.:"Rujm Menâra - A small square ruined tower on the Roman high road from Umm Keis to the Haurân, situated near Ibdar. Its elevated position, its extraordinary large and well hewn building stones, with the columns and capitals, above which run a cornice and an architrave, would render it probable that we have here either the remains of a small temple or else a watch-tower at the frontier for the collection of toll".



6. Al-Manāra, ground plan and elevation of the Rujm. [After O. Hammuri and U. Denis, *ADAJ* 42 (1998) 454 Fig. 9 a-c].

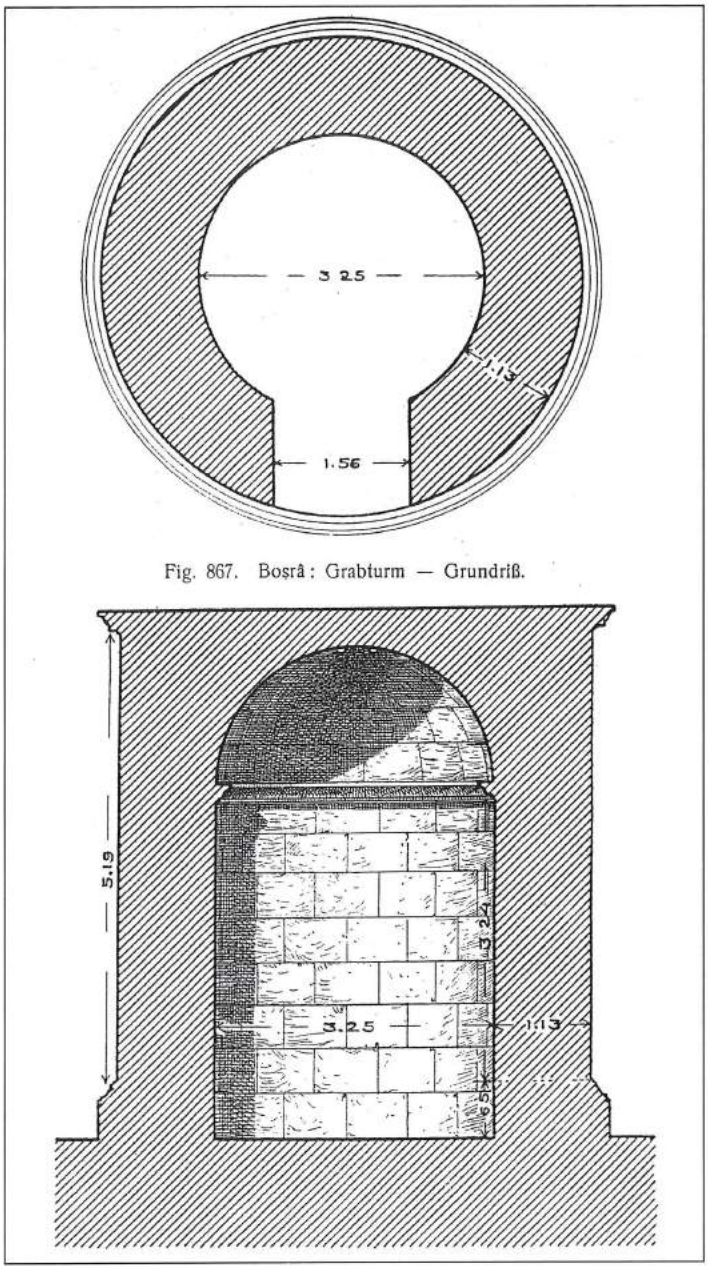


7. Al-Manāra, rujm: Rounded ornamented block belonging to an older circular monument. (Photo by the author).

Princeton University Expedition reported an isolated cylindrical tower (FIG. 8),[7] which has recently been identified as a part of a Roman arch by Ingeborg Kader.[8]

Free standing gate monuments are testified also in other cities east of Jordan, such as the Hadrianic arch in the southern outskirts of Gerasa,[9] spanning over the ancient road leading to Philadelphia. Here again, the presence of two accessible flanking pavillons is remarkable: They could not have any military purpose due to the lack of walls and to their well decorated facades. Reviewing the examples at Gadara, Tiberias, Tyre and Gerasa, such flanking towers are characteristic for the oriental arches giving them an impressive appearance. Regarding this specific architectural feature one may raise the question of the function of those towered monuments within the ancient urban community.

An interpretation of the peculiar phenomenon of "decorative" towers was first proposed by Paul Zanker.[10] He was puzzled by the fact that many Italian cities rebuilt their fortifications during the first decades of the principate of Emperor Augustus, during a period when peace, the Pax Romana, was officially proclaimed in the political propaganda. Although there was no actual threat by internal or foreign enemies, these cities often received considerable funds by the emperial house in order to renovate their enclosure walls. In this period, especially the richly decorated city gates were enforced by towers which were no more dedicated to military purposes. The Porta Palatina (FIG. 9)[11] of north-Italian Torino was errected in 28 BC. Reinforced by high polygonal towers in brick masonry it gives the impression of military strength while the



8. Buṣrā, western necropolis, rounded tower. [After R. Brünnow and A. von Domaszewski, *Die Provincia Arabia* III (1909) 3f.].

passages with their double-storeyed window galeries have a more palace-shaped appearance. The Augustean gate of Nîmes in southern France (FIG. 10)[12] has entirely lost its military character introducing a colonnaded architecture at both facades. Zanker assumed that these representative towered gates served for the civic self-representation. In this consequence, he saw the towered city gates as docu-

[7] R. Brünnow and A. v. Domaszewski, *Die Provincia Arabia* III (1909) 3 f.; H. C. Butler, in: *Publications of the Princeton University Archaeological Expedition to Syria in 1904-1905, and 1909,* Sect. A 4 (1914) 277 f. Fig. 244-245.

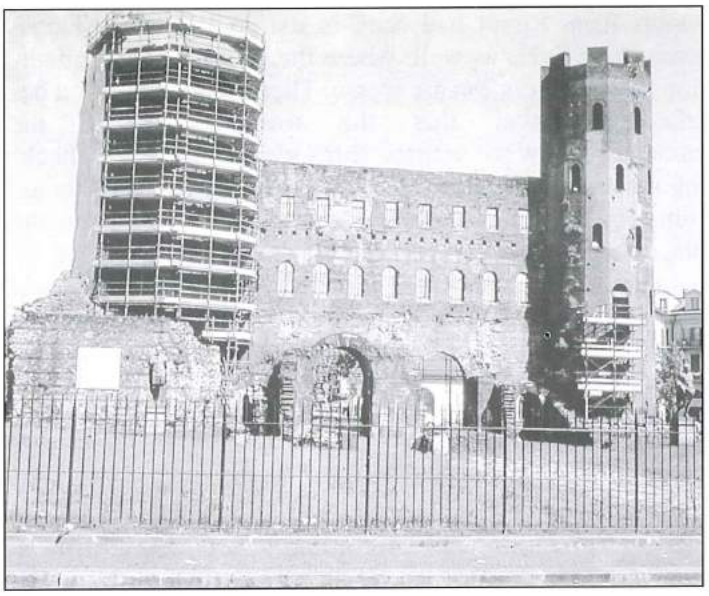
[8] Kader loc. cit (note 1) 163 note 1071.

[9] A. H. Detweiler, in: C. Kraeling, *Gerasa - City of the Decapolis* (1938) 73 ff. esp. 81 ff.; R. G. Khouri, *Jerash - a Frontier City of the Roman East* (1986) 46f.

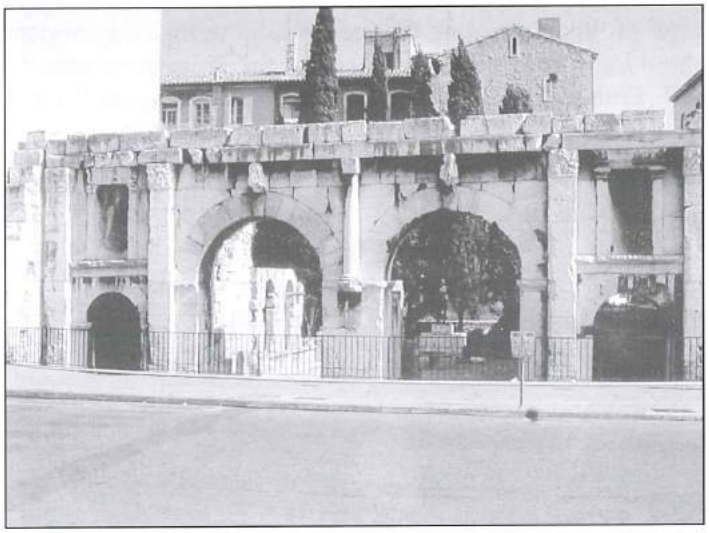
[10] *Augustus und die Macht der Bilder* (1990) 323 f.

[11] H. Kaehler, *Jahrb. Deutsches Arch. Institut* 57, 1942, 5 Fig. 1; 101f.

[12] Kaehler loc. cit. 70 f. Fig. 60-61; 96 ff.



9. Torino, Porta Palatina. (Photo by V. Hübner).

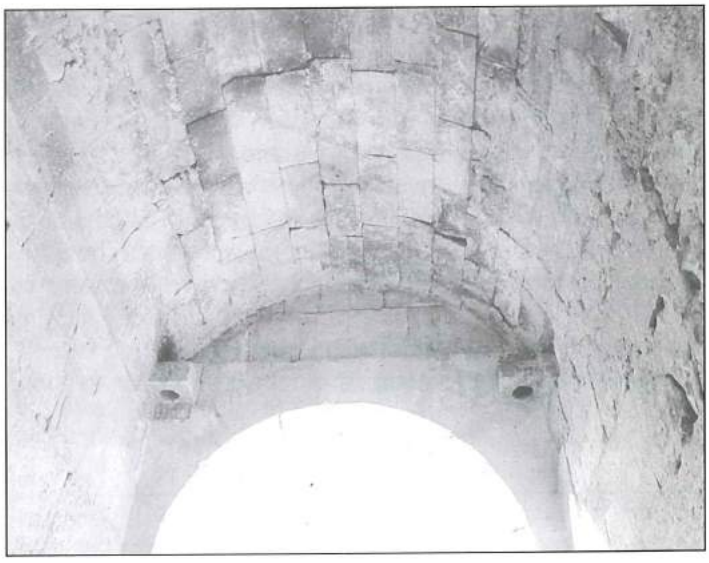


10. Nîmes, Porte d'Auguste. (Photo by author).

ments of a revived political confidence of the urban community. In the western provinces of the Empire the towered gates were symbols to indicate the urban character of the settlement. Following Zanker's interpretation, Ingeborg Kader[13] evaluated the oriental example of the Roman arch monuments as indicators of the process of Romanization which started after the occupation of Pompey, reaching its first peak in the years of Herod and Augustus. According to her view, the towered arches of the Decapolis are to be taken as allegoric emblems of a "new urban quality achieved during the reign of Augustus". In a recent study, C. Arnould[14] attributed to the towers of the arches no more than "valeur symbolique" resulting from an "acte de prestige".

Against this point of view, one could argue that the passages of arches and the towers certainly served for a specific purpose in everyday life. In the interiors of the towers, staircases give access to upper storages, possibly to the attic of the monument where statues of the Emperor or of urban notables were shown. Further, the doors of the towers have thresholds with traces of lockable wings. The central and lateral passageways of the Hadrianic arch in Gerasa preserve hinges in the door-cases (FIG. 11).[15] Peculiar enough, not only the towers but also the passages of the solitary monument could be closed for passenger and car traffic. How can this fact been explained?

A possible solution for the problem is gained by papyrology: The dry sands of Egypt preserved some hundreds of custom receipts (FIG. 12)[16] refering to the taxation during the transport of merchandise goods. All these paper bills start with the hand-written Greek formula "τελωνεῖται δια πύλς" which indicated that customs had to be paid while passing through the gate. Always, following this formula the location of the toll post is named. Further, the carrier is mentioned, the type of taxation, the medium of transport (carriage, animal) and the article of merchandise. Reference is made on these papers if the goods are for export or import and to which amount they were cleared. At the end of the receipt the custom clearance is dated and signed by an official stamp. Also in ancient Palestine, customs had to be declared at gates since relevant references are to be found in the literary tradition (II Reg



11. Gerasa, Hadrianic arch, detail of the door-hinges in the passageways. (Photo by Th. Reiss).

13 Kader loc. cit. (note 1) 174 ff.
14 *ZDPV* 114, 1998. 181.
15 Detweiler loc. cit. (note 9) 79 f.
16 P. J. Sijpestejin, *Custom Duties in Greco-Roman Egypt* (1987); W. Habermann, *Münsterische Beiträge zur antiken Handelsgeschichte* 9, 1990, 50 ff. note 1 (further references).



12. Custom reipt from Soknupaios Nesos, Egypt. Aberdeen, University Library. [After P. J. Sijpesteijn, Customs Duties in Greco - Roman Egypt (1987)].

7, 1; Midrasch Psalm 118, 18).[17] The interpretation of the solitary arches in the orient as custom stations is further supported by a reference of the Arab author al-Maqrīz (1364-1442 AD) to a monument at Ayla/ al-'Aqaba:

وكانت حد مملكة الروم في الزمن الغابر وعلى ميل منها باب معقود لقيسر قد كان فيه مسلحته يأخذون المكس.

"*And it (scil.: Ayla) was located in ancient times at the borders of the Roman Empire, and one mile in front of it there is an arched gate for the (Roman) Emperor, where his garrison collected the customs*".[18]

Solitary custom arches were also known beyond the borders of the Roman Empire: Pliny[19] refers to such a gate at Sabota (today Shabwa), the ancient capital of south Arabian Ḥaḍramawt. Incense traders were obliged to pass through with their goods in order to be taxed. Such a taxation at check-points in extra-urban gates seems to be a traditional oriental practice already testified in Iron Age by literary sources or, archaeologically, by the free standing market-gate in front of Tall Ashtara in southwest Syria.[20]

There can be little doubt that receipts similar to those papyri from Egypt had been in use in Palestine, Transjordan and Syria as well, where the environmental conditions for preservation are worse. There is no need for a detailed explanation that the towers flanking the passageways of the solitary gates were suitable for checking the arriving or departing traffic. If one follows this assumption, the flanking tower gates could have been the places where the official customs papers were issued by publicans. The wide area around the monuments could easily be used for parking and loading the carriages which would cause traffic problems in the crowded streets within the city. The receipts themselves make sense only when they are presented at check-points at territory borders or important traffic junctions.

Only the main gate of Dura Europos (FIG. 13) is epigraphically related to a custum tolls beeing part of the city's fortification wall. According to a Greek graffito at this gate, one of the merchants gave thanks to the urban Tyche for a lucky passing through "τέλος πόρτα"[21], a gate for the customs clearance. Due to the private character of this inscription the graeco-latin term τέλος πόρτα should not necessarily be linked to the Palmyrene gate itself. Probably it is refering to the free standing arch 1800 m in front of the city which had been erected after the glorious campaign of Trajan against the Parthians in 115/16 AD.[22]



13. Dura Europos, Palmyrene gate. (Photo by the author).

[17] Cf. Z. Safrai, *The Economy of Roman Palestine* (1994) 36; Z. Herzog, *Das Stadttor in Israel und in den Nachbarländern* (1986) 163. 165; E. Otto, in: Meilenstein, Festschrift H. Donner, *Ägypten und Altes Testament* XXX (1995) 188 ff.

[18] Taqiaddin Ahmad b. 'Ali al-Maqrizi, *al-Mawa'iz wal-i tibar fi dikr al-Hitat wal atar*, ed. Bulaq 1270H, I 184. I owe thanks to R. Schick (Jerusalem) who drew my attention to this reference, and to C.-P. Hase (Copenhague) for the translation of this text.

[19] Nat. Hist. XII 63.

[20] A. Abou Assaf, *Annales Archéologiques Arabes Syriennes* 18, 1968, 103ff. Fig. 2.

[21] J. Johnson, in: *The Excavations at Doura Europos, Preliminary Reports* II (1931) 126 ff. Nr. 41 Figs. 12-13; SEG VII 570; cf. F. Herrenbr¸ck, Jesus und die Zöllner. Historische und neutestamentlich-exegetische Untersuchungen. Wissenschaftliche Untersuchungen zum Neuen Testament 2. Reihe XLI (1990) 177 with note 50.

[22] S. Gould and A. B. Hatch, in: *The Excavations at Doura Europos, Preliminary Reports* IV (1933) 56ff.; R. O. Fink, *The Excavations at Doura Europos* VI (1936) 480ff.

Karel J. H. Vriezen
Ute Wagner-Lux
Nicole F. Mulder
Robert L. J. J. Guinée
Faculteit der Godgeleerdheid
Universiteit Utrecht
The Netherlands

Karel J. H. Vriezen, Ute Wagner-Lux, Nicole F. Mulder and Robert L. J. J. Guinée

Umm Qays-Gadara: The Large Terrace in the First Millennium AD

Umm Qays is located in northwest Jordan. The village is built on part of an extensive archaeological site, which is identified as the site of ancient Gadara of the Decapolis. The archaeological area to be discussed in this paper was excavated in 1976-1979, in 1992 and in 1997 and is documented in the archaeological-architectural survey of 1992-1993 and 1997.[1]

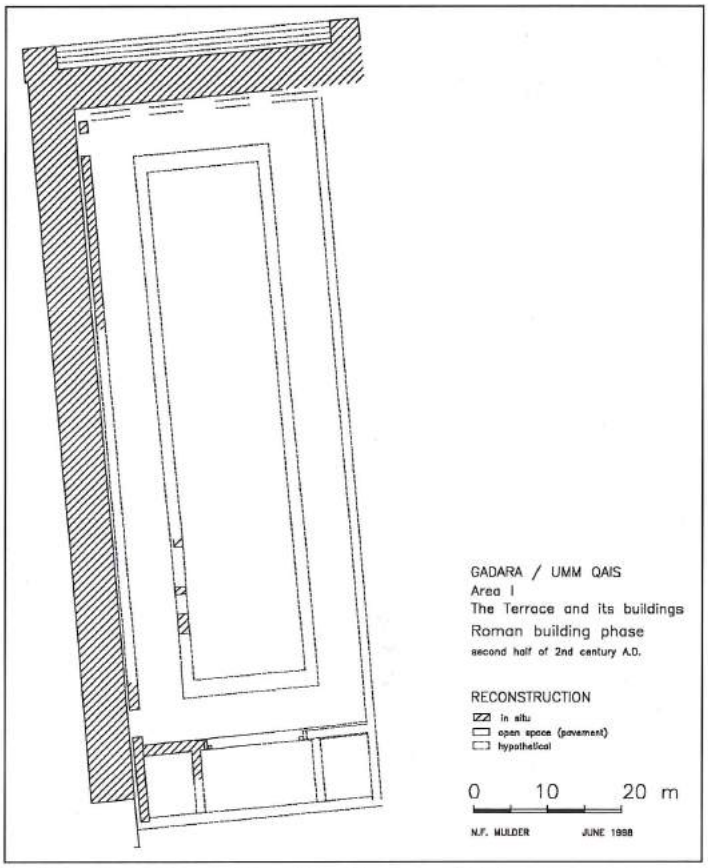
The ruins of the buildings of ancient Gadara consist of a walled city area and an extramural area. Inside the walled city (measuring ca 1100m x 450m), the eastern area is elevated, forming an *acropolis*, measuring ca 250m x 250m. The main street of the city, the *decumanus maximus*, runs from east to west and passes along the foot of the hill on which stood the acropolis on the northern side. At the bottom of the western slope of the acropolis, a large Terrace is situated, bounded on the north by the *decumanus maximus* and to the south by a Roman theatre.

The larger part of the Terrace has already been excavated and some of its buildings have been partly restored. In the following, a review of the developments of this prominent urban quarter in the course of the first millennium AD will be presented.

The Terrace was constructed in the Roman period. Some parts of the first building phase, especially on the lower level, are quite well preserved (FIG. 1).

On the north side, along the *decumanus maximus*, the lower part of the massive entrance is still visible. Here, two *res-saults* were built on either side of the façade. Probably a flight of steps between them led up to the platform of the Terrace and to the main entrance. However, the steps have not yet been excavated and the doorsill has not been preserved.

On the west side, the large retaining wall still stands to its full height. A deep trench sunk on the east side of this



1. Umm Qays. Area I. Plan of the Terrace and its buildings in the Roman building phase (reconstructed).

wall revealed that the natural slope of the bedrock had been partly cut away in order to allow the retaining wall to be built in a straight line. This wall is buttressed by a line of twenty vaulted rooms (FIG. 2). The Terrace wall, the dividing walls between the rooms and their façade

[1] U. Wagner-Lux and K. J. H. Vriezen, 'A Preliminary Report on the Excavations at Gadara (Umm Qes) in Jordan from 1976 to 1979', *ADAJ* 24 (1980), 157-161; U. Wagner-Lux, K. J. H. Vriezen, F. van den Bosch, N. F. Mulder and R. Guinée, 'Preliminary Report on the Excavations and Architectural Survey in Gadara (Umm Qeis) in Jordan, Area I (1992)', *ADAJ* 37 (1993), 385-395; U. Wagner-Lux, K. J. H. Vriezen, N. F. Mulder and R. L. J. J. Guinée, 'Vorläufiger Bericht über die Ausgrabungs- und Vermessungsarbeiten in Gadara (Umm Qes) in Jordanien im Jahre 1997', *ZDPV* 115 (1999).

bond in with each other. So the east side of the Terrace rests on the bedrock, while the westside was built using buttressing constructions. In 1997 traces of a buttressing wall on the south side of the Terrace have also been found.

All walls of the Terrace were built using the *emplecton* technique.[2] The walls have ashlar (basalt) facings while the core consists of a mass of rubble bonded with lime mortar (*opus caementicium*). The rooms on the west side were covered with barrel vaults of white fine limestone blocks resting upon the dividing walls of basalt. The space between the vaults is filled with *opus caementicium*, and so, a flat roof was achieved. The façade of this line of rooms once had collapsed, as was revealed by the excavations just west of the rooms.[3] Here the façade wall was uncovered, lying toppled over in its original order, one course next to the other. On this basis, the façade could be reconstructed, including the profiled door frames and the long horizontal cornice.[4] The height of the façade is 3.84 m and its length is 97.42 m. It appeared that the eighth and uppermost stone layer of the façade was composed of stones with a smoothed, slab-like upper side, level with the pavement on the platform of the Terrace.

Large parts of the Roman constructions on the platform of the Terrace were demolished during later building phases. Some remains, however, are still *in situ* (FIG. 3). By analysing this data and by studying comparable Roman buildings in the region, we can try to present a reconstruction of the Terrace. Here, the reconstruction will be confined to the plan of the Terrace (see FIG. 1).



2. Umm Qays. Areas I and III. Rooms buttressing the Terrace's western retaining wall. The basalt columns erected on that wall belong to the Byzantine *narthex* (looking SE).

On top of the west retaining wall, the lower course of a basalt wall has been preserved with the remains of two large entrances: one near the north and the other near the south end (FIG. 4). These two doorways connected the enclosed area of the platform with an open passage situated on top of the vaulted rooms. On the south side, on top of the southern retaining wall, the lower courses of a wall have also been discovered. The total length of the enclosed area on the Terrace between the north façade and the south wall is 84.51 m, when measured between the inner sides of the walls. Traces of several basalt walls, built perpendicularly against the south wall, together with part of a mosaic floor indicate that some rooms were located on the south side. The area of excavation did not quite reach the outer wall of these rooms. The position of the southern outer wall in the reconstruction plan of the Terrace is hypothetical.[5] This also means that it is still not yet clear how the Terrace and the theatre were connected.

Inside the enclosed area of the platform, the remains of a pavement made of large limestone slabs[6] was found together with parts of a basalt stylobate (FIGS. 3 and 5). It should also be noted that the layout of the pavement is related to the course of the stylobate. The seams between the limestone slabs are perpendicular to the stylobate, viz. east-to-west on the west side and north-to-south along the south tract of the stylobate. In the area enclosed by the stylobate, the seams between the slabs are oriented east-to-west; in the central part of the platform,[7] however, they change direction again.

In addition to the building remains *in situ*, there are traces of parts of the building that have disappeared. For instance, a robber trench in the limestone pavement on the Terrace informs us of the course of the southwest corner of the stylobate. One may obtain a provisional plan of the whole stylobate by using the N-S and the E-W axes of the platform to project a mirror-image of the tracts of the stylobate already discovered. It is difficult, however, to verify this reconstruction as the northern and eastern part of the Roman pavement are covered by later buildings.

---

2 Cf. J.-P. Adam, *Roman Building: materials and techniques.* London, 1994, 52.

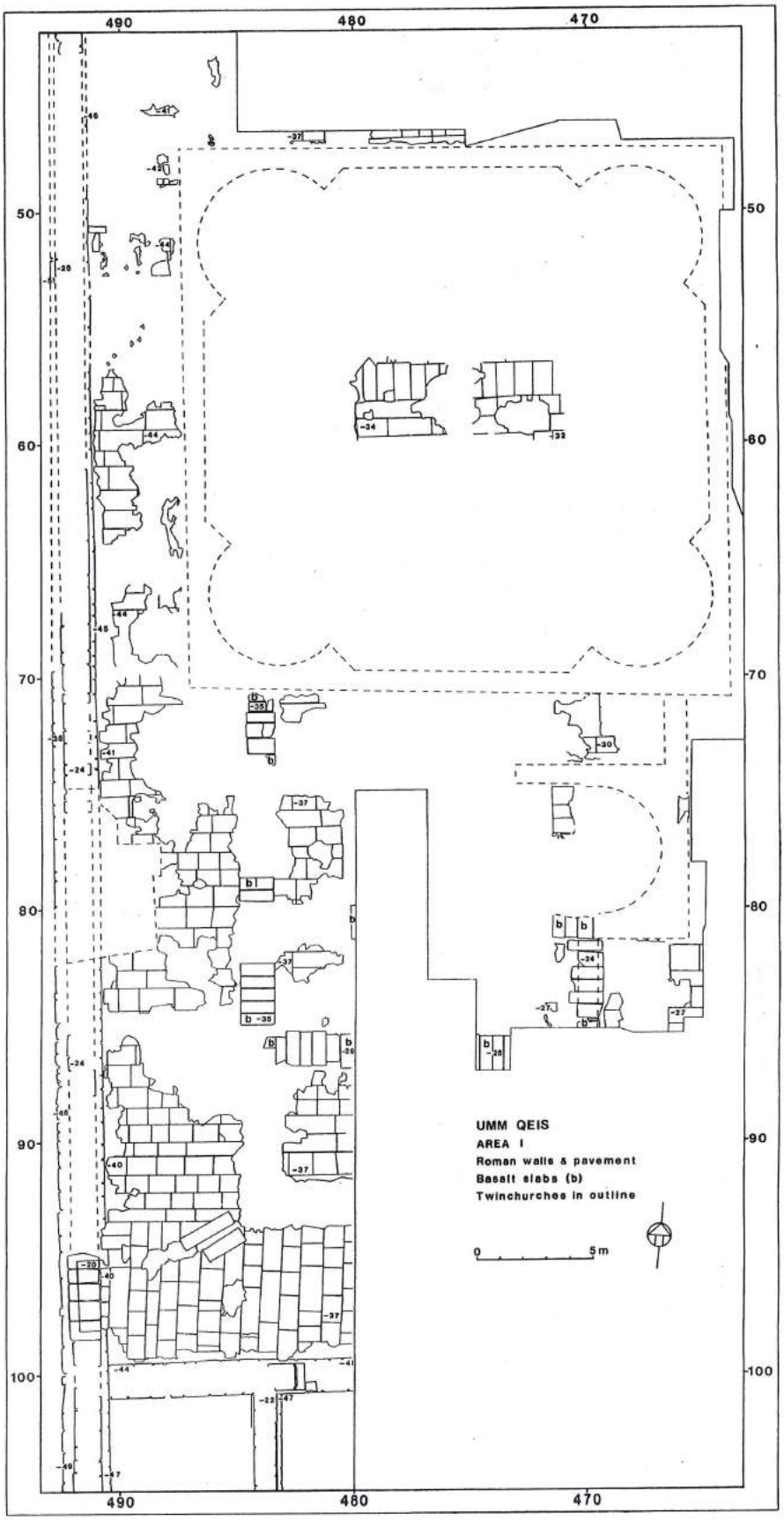
3 U. Wagner-Lux and K. J. H. Vriezen, 'Preliminary Report on the Excavations at Gadara (Umm Qês) in Jordan, 1980,' *ADAJ* 28 (1984), 87-89.

4 R. L. J. J. Guinée, N. F. Mulder and K. J. H. Vriezen, 'The Façade of the Vaulted Rooms Along the So-Called *Cardo* in Umm Qays (Ancient Gadara), Area III: Architectural design and reconstruction, *ADAJ* 40(1996), 207-215.

5 However, the hypothetical position of the southern wall of the Terrace has not been established arbitrarily, but is mainly based on metrological analysis of the plan of the Terrace (cf. N. F. Mulder, *Bouwen aan Gadara*, Leiden 1998 (unpublished thesis), 94-113). For a metrological analysis of the West Theatre of Umm Qays see R. L. J. J. Guinée and N. F. Mulder, 'Gadara. The Terrace, Theatre and Cardo Quarter in the Roman Period. Architectural design integrated in the landscape: the design of the West Theatre', in: *SHAJ* VI (1997), Amman, 317-322; (see also R. L. J. J. Guinée, *Gadara, het Westtheater*, Delft 1994 (unpublished thesis).

6 The dimensions of the limestone slabs vary between 2.60 x 0.85m and 0.90 x 078m.

7 U. Wagner-Lux and K. J. H. Vriezen, 'Vorläufiger Bericht über die Ausgrabungen in Gadara (Umm Qes) in Jordanien im Jahre 1979', *ZDPV* 96 (1980), [158-162] 159.



3. Umm Qays. Area I, central and southern part. Plan of the Roman walls and pavement.



4. Umm Qays. Area I. SW corner of the Terrace: Roman pavement, southwestern doorway, southern terrace wall (looking W).



5. Umm Qays. Area I. southwestern corner of the Terrace: Roman pavement and stylobate, western and southern terrace walls (looking NNW).

In the reconstruction of the Roman layout on the platform (see FIG. 1), the following elements are hypothesised: the location of the two side doors in the north façade, the course of the east wall and the presence of a third room on the south side.

Furthermore, in post-Roman constructions *spolia* have been used. There are indications that some of the *spolia* previously belonged to the Roman building phase of the Terrace. From the study of these elements, information about the architecture of the Roman phase of the Terrace can be obtained. It turned out, for instance, that the basalt door frames of the Byzantine centralised church built on the platform exactly match the moldings of the northwest door frame in the Roman wall built on the west retaining wall, that was razed to the lower stone course. Very probably, the southwest door in this wall had the same door frame, as the total amount of *spolia* reused in the Byzantine buildings is sufficient for two door frames. The (larger) door frame of the Byzantine main entrance at the north side of the platform was probably taken from its Roman precursor. The ornamentation of the door frames of the Roman phase on the platform is of the same type as the one used for the entrances of the vaulted rooms on the lower level of the Terrace; and for the door frames found at the Monumental Gate west of the walled city area, albeit on a different scale.

Other *spolia* used in the post-Roman constructions present a wide array of architectural elements: columns including bases and capitals; pilasters; postaments and podests; frontons; column drums; parts of cornices and friezes, etc. They are made of basalt, fine white limestone or rose breccia. It is not clear which of the *spolia* were originally used in the Roman buildings on the platform.[8]

The ceramic finds in the filling of the Terrace underneath its pavement date from the Iron Age until the first century AD. Therefore, the construction of the large Terrace had been tentatively dated to the end of the first or the second century AD. Now, comparative study of the ornamentation of the Terrace (of the door frames and the other ornamented elements) and parallel study of other Roman terraces in the region have led us to a later date: around the middle or in the second half of the second century AD.

After the analysis of these data, and based on comparative study of similar Roman buildings in other cities, an interpretation of the Terrace's function might be attempted. It has been suggested before that there was a temple on the platform;[9] but, up to now no traces of such a monumental building have been discovered. Apart from the enclosure wall, the lower course of the main entrance in the north and the rooms on the south side, on the platform only the remains of the pavement and the stylobate have been found. The area of the pavement already uncovered is rather limited; especially in the central area of the platform, where changes in the pattern of the pavement may indicate special features. Therefore, we suggest now that the Terrace, with its massive entrance (*propylaea*) from the *decumanus maximus* and located next to the Roman theatre, may have had one of two functions: it may have served as the lower terrace of a temple higher up the *acropolis*;[10] or as the site of a large public building (*basilica*).[11]

8 K. J. H. Vriezen and N. F. Mulder, 'Umm Qays: The Byzantine Buildings on the Terrace. The Building Materials of Stone and Ceramics,' *SHAJ* VI (1997), [323-330] 324-327.

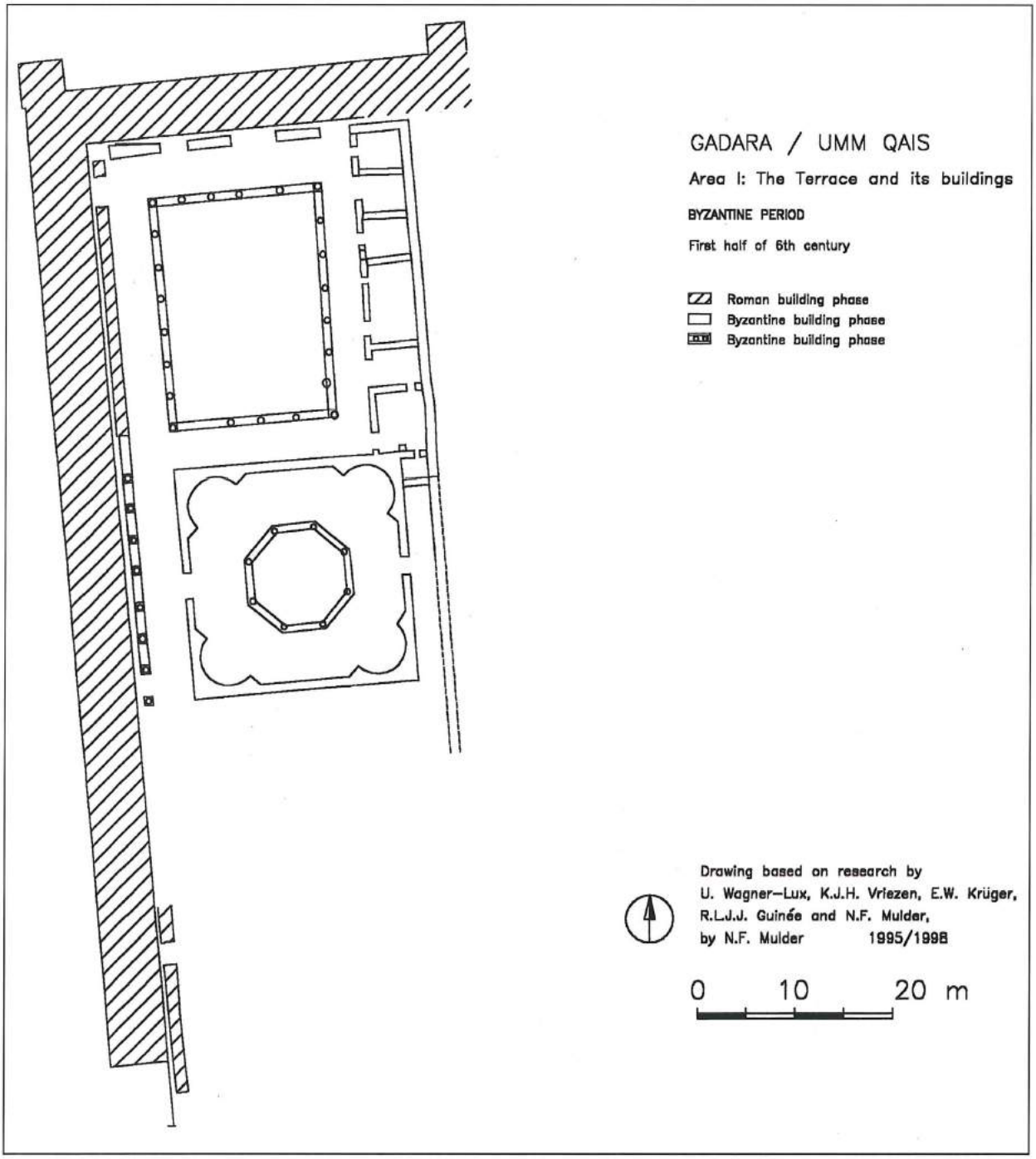
9 G. Schumacher, *Northern, Ajlon*, London 1890, 62-62.

10 Cf. the Zeus Temple and the Artemis Temple in Jarash. J. Seigne, 'Recherches sur le Sanctuaire de Zeus à Jérash'; M. V. Fontana, The Archaeological Research in the Sanctuary of Artemis. The Intermediate Terrace, in: F. Zayadine (ed.) *Jerash Archaeological Project I 1981-1983*. Amman 1986, 31-42, 58, 180-183.

11 Cf. Baysān and Samaria. G. Foerster and Y. Tsafrir, 'City Centre (North). Excavations of the Hebrew University Expedition' The Beth She'an Excavation Project (1989-1991). *Excavations and Surveys in Israel* Vol. 11, Jerusalem 1993, [3-32] 2-8; G. A. Reisner, C. S. Fisher and D. G. Lyon, *Harvard Excavations at Samaria 1908 - 1910*, Cambridge 1934, 213 - 219.

In the Byzantine period, new buildings were constructed, thereby radically changing the layout and function of the platform. The new buildings represent the second building phase. Their constructions reveal several subphases.

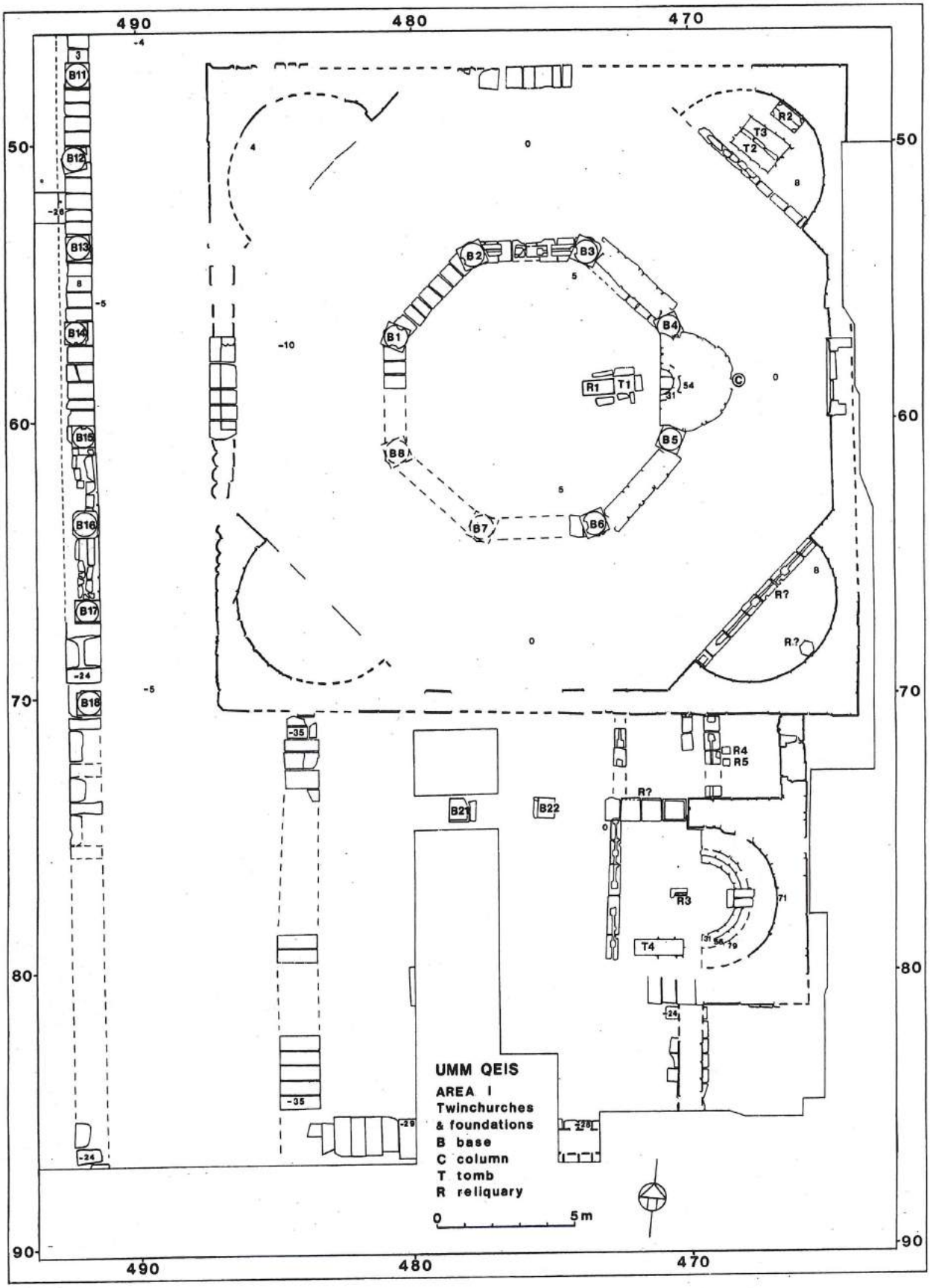
The first of these subphases has been tentatively dated to the first half of the sixth century, based on comparative study of the architecture.[12] Then, a centralised church and a colonnaded courtyard were built on the Terrace (FIGS. 6 and 7).[13] The church (ca 23m^2) was constructed almost exactly in the centre of the platform. On its west side, a *narthex* was attached, with a colonnade of eight columns, that were erected on the Roman terrace retaining wall. The main entrance to the building was situated in the west



6. Umm Qays. Area I. Plan of the Terrace and its buildings, first Byzantine building phase (first half of the sixth century).

12 Cf. the Church of St. George at Izra', the Cathedral at Buṣrā and the Church of St. John at Jarash. H. C. Butler, *Early Churches of Syria*, Princeton 1929, 122 - 125; J. W. Crowfoot, *Churches at Bosra and Samaria*, (Brit. School of Archaeol. in Jerusalem, Suppl. Paper 4, 1937); C. H. Kraeling, *Gerasa. City of the Decapolis*, New Haven 1938, 241 ff.

13 U. Wagner- Lux and K. J. H. Vriezen, *o. c.* (footnote 1).



7. Umm Qays. Area I. Plan of the Byzantine twin churches and foundations.

wall. Another door was located in the east wall; this doorway was blocked at a later date.

In the interior of the square church, semi-circular apses were introduced in the four corners, so that the hall of the church itself is octagonally shaped. An octagonal stylobate encloses the central area and is surrounded by an ambulatory, paved with *opus sectile*. On each corner of the stylobate, a column is placed. The central area was partitioned off from the ambulatory by chancel screens in the five western *intercolumnia* (B3-B6), by walls in the southeastern (B5-B6) and northeastern (B3-B4) *intercolumnia* and a semi-circular podium in the eastern *intercolumnium* (B4-B5). The area could be entered via an opening in the chancel screen in the northern *intercolumnium* (B3-B2). The floor of the central octagon was paved with large limestone slabs in the western part and with *opus sectile* in the eastern part. The central area was the *sanctuarium* of the church and beneath the floor level, in front of the semi-circular podium, a reliquary was found: a finely-worked stone chest with two compartments standing on bedrock (FIG. 7: R1). The chest contained only a fine-grained sand filling.[14] The bedrock below the chest was hewn out to form a grave (FIG. 7: T1). The finds point to an original inhumation below the centre of the church and a secondary placement of a double reliquary.

The northeastern apse was separated from the ambulatory by a partition-wall (preserved to a height of 0.69m). In the centre of the semi-circular wall, a reliquary was placed on stone blocks: a small sarcophagus, the remains of plaster covering its outside show parts of a cross (FIG. 7: R2). Two graves secondarily have been inserted into the opus sectile floor of the apse (FIG. 7: T2,T3).

The SE apse was partitioned off from the ambulatory by a chancel screen and apparently functioned as a chapel. A low hexagonal column found standing against the centre of the semi-circular wall is interpreted as a reliquary stand (FIG. 7: R?). Near the northern end of the apse, two extra sockets in the threshold and a circular depression in the *opus sectile* floor may be the traces of another piece of liturgical furniture. This was probably a reliquary stand as well (FIG. 7: R?).

The northwestern and the southwestern apses were damaged so badly that they do not reveal any traces of funiture or use.

During the same building phase in the northern part of the platform, a colonnaded courtyard was constructed. The courtyard can be entered by means of three entrances located on the lower stone courses of the northern facade of the Roman platform. The middle entrance is situated on the centre line of the original platform. The central space of the courtyard was open to the air and paved with stones of rose breccia and fine white limestone. The surrounding *porticus* was paved with basalt stones. A line of rooms along the eastern side of the platform open out into the eastern *porticus*.

In the construction of the walls of the courtyard, the same types of masonry are used as for the walls of the centralised church. The building materials consist to a large extent of *spolia* of basalt and limestone. As for the basalt *spolia*, door frames and columns, it is quite likely that they were originally used for the Roman buildings on the platform.[15]

To the south of the church already described, a second church has been uncovered: a three-aisled basilica (FIGS. 7 and 8). This church was built against the south wall of the centralised church and represents the next subphase in the Byzantine building activities.

The *sanctuarium* is situated in the eastern part of the nave, separated from the western part by a chancel screen (FIG. 9). In the threshold extra sockets are carved. Through the opening in the middle of the screen, the



8. Umm Qays. Area I. The Byzantine twin churches and columned courtyard (looking N).



9. Umm Qays. Area I. The basilica's *sanctuarium* (looking NE).

[14] Sand filling in a reliquary, cf. P. Donceel-Voûte, 'Le Role des reliquaires dans les Pélerinages', *Akten dex XII. Internalen Congresses für Christliche Archäologie. Jahrbuch für Antike und Christentum, Ergänzungsband* 20,1 Münster 1995, [184 - 205] 185f.

[15] Cf. K. J. H. Vriezen and N. F. Mulder, *o.c.* (footnote 8).

sanctuarium can be entered. A *synthronos* is located on the east side of the *sanctuarium*: remains of three lines of seats and a prominent place for a *kathedra*. The floor of the nave was once paved with marble tiles. In front of the *kathedra* and below the floor level, part of a stone reliquary container was discovered (FIG. 7: R3).[16] In the south part of the sanctuary, a grave was sunk into the floor (FIG. 7: T4).

The east part of the north aisle is fenced off by a chancel threshold with an entrance through the screen on the north side. In the centre of the threshold, an extra socket was hewn out and on the east side two marble-lined reliquary containers were sunk into the floor (FIG. 7: R4; R5). In the east wall of the aisle, the frame of a door, that once opened into a room, situated east of the basilica, is still visible. This doorway was blocked secondarily. West of the chancel threshold, a line of building stones is situated just below floor level, which may be the remains of a north-south wall. Further west in the north aisle, a second chancel threshold was found, that was in line with the threshold across the nave.

The south aisle was damaged, to a large extent, by modern building and living conditions. However, it is clear that the construction differs from that of the north aisle. The east wall of the south aisle is not a continuation of the wall of the north aisle and the nave, but instead, this wall is set 3.70 m westwards. The west wall and large parts of the south wall of the basilica have been demolished. The course of these walls, however, could be established from the course of their foundations. The Byzantine architects used a large section of the older Roman basalt stylobate as the foundation of the west wall. They created a similar foundation for the south wall, and for the other walls of the south aisle as well, using large basalt slabs, which they took from the Roman stylobate. These foundations have largely been preserved.[17]

It has been established that the remains of the basilica itself represent two distinct building phases: the *synthronos* was introduced into the basilica only secondarily. In the earlier layout of the basilica, a large apse was situated at the east end of the nave. Also the blocked doorway in the east of the north aisle is an indication that the basilica was once remodeled. This remodeling may clarify two other facts: 1) the two chancel thresholds in the north aisle and 2) the difference in length of the south aisle when compared with the two other aisles. The line of building stones immediately in front of the east threshold of the north aisle are in line with the back wall of the south aisle. Assuming that these stones are the remains of a back wall, then, originally, both aisles were equal in length and the apse of the nave protruded eastwards from the almost square hall of the church. Therefore, there was only one chancel screen across the north aisle (i.e., the west one) closing off a small chapel, where probably relics were kept on the south side (FIG. 7: R?),[18] and east of this assumed wall there was a room which could be entered from the east by a door on its east side.[19] Later, this room was turned into a second chapel by blocking the doorway, tearing down the existing back wall of the north aisle and introducing the second chancel screen. The remodeling may have been executed at the same time as the installation of the *synthronos* in the *sanctuarium* in the nave. The first layout of the building was constructed sometime after the completion of the centralised church, as the basilica is built against this church and their walls do not bond. The similarities between the two buildings[20] suggest that the interval between the construction of the two churches may have been rather limited. The construction of the centralised church can be tentatively dated to the first half of the sixth century. If the original layout of the basilica had a transversal chancel screen, starting in the north aisle and continuing across the nave (and the south aisle?), then a date at the end of the sixth century or later may be suggested for the first building phase.[21] The remodelling of the basilica may be dated in the Umayyad period, based on the pottery found below the *sanctuarium* floor.

The relation between the two churches may be studied by comparing them to other multiple churches. The separate churches in such complexes are known in some instances to have had different functions.[22] This may be evident in the case of a combination of a genuine centralised church with a basilica, for example the complex of the

16 Probably the altar of the basilica was situated above this reliquary, cf. P. Donceel-Voûte, *o. c.* (footnote 14), 198-200; M. Piccirillo and E. Alliata, *Umm al Rasas, Mayfa'ah. I. Gli Scavi del Complesso di Santo Stephano*. (PSBF, CM 28), Jerusalem 1994, 117.

17 In this way the building technique of the southern aisle differs from the one applied in the northern aisle in so far as the foundations of the walls of the southern aisle basalt slabs are laid level with the Roman limestone slabs, whereas the walls of the north aisle foundation trenches have been dug through the limestone slab pavement.

18 Between the two chancel thresholds in the northern aisle, a small area of the floor situated against the partition wall to the *sanctuarium* was raised just some centimetres to the same level as the floor around the two reliquary containers in the eastern part of the aisle. This area of raised floor was paved with opus sectile. Cf. U. Wagner-Lux, K. J. H. Vriezen, F. van den Bosch, N. Mulder and R. Guinée, *o. c.* (footnmote 1), 387: fig.2.

19 For similar rooms next to the central apse and only accessible from outside, see for instance the two eastern rooms of the Theotokos Church on Mount Gerizim; A. Ovadiah, *Corpus of the Byzantine Churches in the Holy Land* (Theophaneia 22), Bonn 1970, 140 - 141, Pl. 57.

20 Besides the correspondence between the two churches in floor levels, wall thickness, measurements of *synthronos* steps, ornamentation (*opus sectile*, marble tiles, glass tesserae tile covering), particularly the use of virtual identical *spolia* for both churches must be considered.

21 A. Ovadiah, *o. c.* (footnote) 19), 196-197.

22 Cf. for instance the Triple Church at Jarash, where each of the constitutent churches is dedicated to different saint(s-): to St. George, St. John and to SS. Cosmas and Damianus.

Holy Sepulchre in Jerusalem or the Church of the Nativity in Bethlehem; here the centralised church is built over the holy site and in the adjacent basilica the Eucharist was celebrated.

Of our two churches, the centralised one was constructed first in the centre of the Terrace. It was a *memoria* (a *martyrion*) with a *sanctuarium* in the middle of the church, where a grave was kept. This grave must have been the original focus of the *memoria*, its orientation (and consequently the orientation of the later reliquary) does not correspond to the orientation of the church, but follows the direction of the seams in the older Roman pavement. The area of the grave was distinguished in the layout of the *sanctuarium* by the use of a special pattern of *opus sectile* pavement.[23] Subsequently, a double reliquary was placed in the grave, thereby increasing the number of relics. This trend to increase the number of relics may also be observed elsewhere in the *memoria*: the reliquary in the northeastern apse and the hexagonal reliquary stand in the southeastern apse are probably placed secondarily as the areas of their emplacement are not singled out in the pattern of the floor pavement. The two graves in the northeastern apse and the traces of liturgical furniture in the southeastern apse reveal a secondary emplacement, as the floor pavement had been disturbed in order to insert them.

The church of the basilica type was constructed at a later date. Here, the same increase of relics may be observed: in the remodeling of this church an extra chapel was added in the north aisle. It is not clear, however, whether the reliquary-container and the grave in the *sanctuarium* of the nave belong to the second phase or had already been inserted in the original layout of the basilica.

It may be assumed that, with the increase of the number of relics, in addition to the graves of outstanding members of the community, these churches became more and more important.[24]

Therefore, with the constructional activities in Byzantine times, a new layout and a new function of the buildings on the massive Terrace between the *acropolis* and the Lower City to the west was started. The ecclesiastical compound commenced in the first half of the sixth century with the construction of the *memoria* (*martyrion*) in the centre of the platform. Here, before the grave (later: double reliquary) in the central *sanctuarium* the life of the martyrs was commemorated and the liturgy was celebrated, attended by people assembled in the ambulatory. Visitors could gather in the colonnaded courtyard and circulate along the chapels in the corners of the church hall. Processions might have been held. In the second half of the sixth century or later, the basilica was added; here, the Eucharist could be celebrated. It is not known whose relics were kept in this church compound.

Apart from these churches, the remains of at least four other churches have been found among the ruins of ancient Gadara. Three were discovered in 1974 and they are of the centralised type.[25] The fourth church is described in this volume by Al-Daire and that church may also be characterised as a memorial church. As the name of Gadara does not seem to figure in the historical sources dealing with pilgrimages, we may ask whether the martyr-cult in these *memoriae* (martyria) attracted many pilgrims from far away.[26] For the Christians in ancient Gadara, however, the relics and the venerated graves played a role in the liturgical calendar. And it may be assumed that these various churches had their place in an organisation of stational liturgy.[27]

During the excavations, it has been established that, on the floors of both churches, the centralised one and the basilica, a layer of white sand had accumulated (0.05-0.40 m high), before the church walls collapsed. On this sand deposit and underneath the debris of the churches, intact pottery of the Umayyad period was found. This data lead to the conclusion that apparently in the second part of the Umayyad period the churches were not maintained and the roofs collapsed, allowing a layer of sand to accumulate inside the buildings. People lived inside these ruins until the walls collapsed during an earthquake. Possibly this was the same earthquake which destroyed so many buildings in nearby cities, like Pella: the earthquake of 749.

After that, the process came to an end. The Terrace was constructed in the second century AD as a monumental complex situated on a conspicuous site in ancient Gadara, overlooking the Lower City to the west. In the Roman period, the platform housed a large public area; in the Byzantine-Umayyad period it accommodated an impressive ecclesiastical compound. After the earthquake, however, it was not used again for building until modern times.

23 Donceel-Voûte, 'L'inévitable chapelle des marturys', in: M. Lamberigts and P. van Deun (eds), *Martyrium in multidisciplinary perspective. Memorial L. Reekmans*, Louvain 1995, [179-196] 186-187.

24 Donceel-Voûte, *o. c.* (footnote 23) 189-191; Donceel-Voûte, *o. c.* (footnote 14), 192-198; M. Piccirillo and E. Alliata, *o. c.* (footnote 16). 118-119.

25 U. Wagner-Lux, E. W. Kruger, K. and T. Vriezen, Bericht über Oberflächenforschung in Gadara (Umm Qes) in Jordanien im jahre 1974, *ADAJ* 23 (1979), [31-39] 35, 37, Pl. V. 1;VII. 2.

26 P. Donceel-Voûte, *o. c.* (footnote 14), 188-193.

27 J. F. Baldovin, *The Urban Character of Christian Worship The Origins, Development, and Meaning of Stational Liturgy (Orientalia Christiana Analecta 228)*. Rome 1987. 36-37, 248-249.

Claudia Bührig
Lehrstuhl für Baugeschichte
Brandenburgische Technische Universität
Cottbus
Germany

Claudia Bührig

Some Aspects of the Monumental Gate *extra muros* of Gadara from the Late Roman Period seen in its Context of Urban Development

The Monumental Gate extra muros of Gadara has been excavated between 1987 and 1992 by a team directed by Adolf Hoffmann, and from 1992 onwards in cooperation with Claudia Bührig, on behalf of the German Archaeological Institute in Berlin.[1] It is a free-standing gate without any connecting city wall (Bol *et al.* 1990: 216-238).

The central part of the Monumental Gate corresponds to the common system of tripartite gates in the Roman Empire, with two narrow side-gateways, 2.03m wide each, as well as one large central gateway, 5.40m wide. The central structure is flanked by two annexes. Towards the city, (towards the east), these annexes form one continuous facade, while on the other side, facing the open landscape, they project out in semicircular plan. Thus, on this side they give the impression of towers which flank the central part of the building like a bulwark (see FIG. 5 below).

The upper border—the *Attika*—of the central structure is a specific Eastern element of the architecture of monumental gates. It is constructed as a structure with several storeys, in the form of a horizontally levelled attic, but without a base profile. The actual purpose of an attic as a base for statues and room for an inscription, is obsolete at Gadara where no such things could be found.

The research on the Monumental Gate *extra muros* will discuss all architectural problems, but furthermore it is particularly focusing on the context of urban development. Some aspects of the Monumental Gate, in particular its context of urban development, will be discussed here.

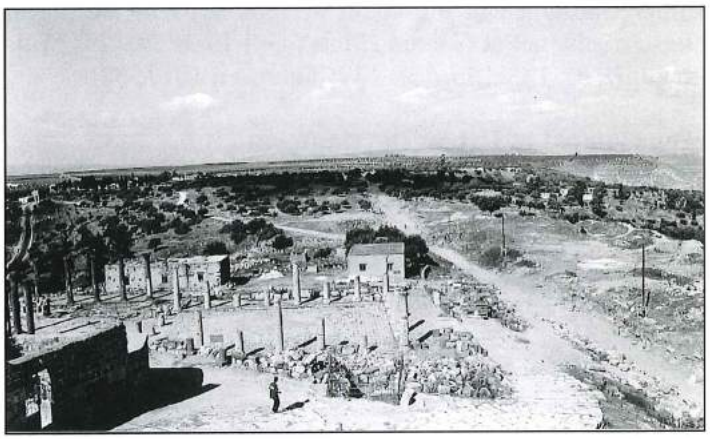
The Topographical Situation

The site of Gadara lies on the edge of a plateau, in the northwest of modern Jordan, reaching westwards into the Jordan Valley in the shape of a spur. The Hellenistic upper town, dating from the second century BC (Hoffmann 1995/96: 24-25), was built on a limestone hilltop, rising 15m above the plateau. This hill, due to its dominant and strategically important location, was a very convenient settlement site, especially since an easily accessible traffic route runs east-west along the site and across the plateau (FIG. 1).

During the Roman period, Gadara expanded along this route from the central hill site to the west, towards the fertile plain of the plateau. The Monumental Gate *extra muros* (FIG. 2 no. 1) marked the westernmost point of the settlement's extension.

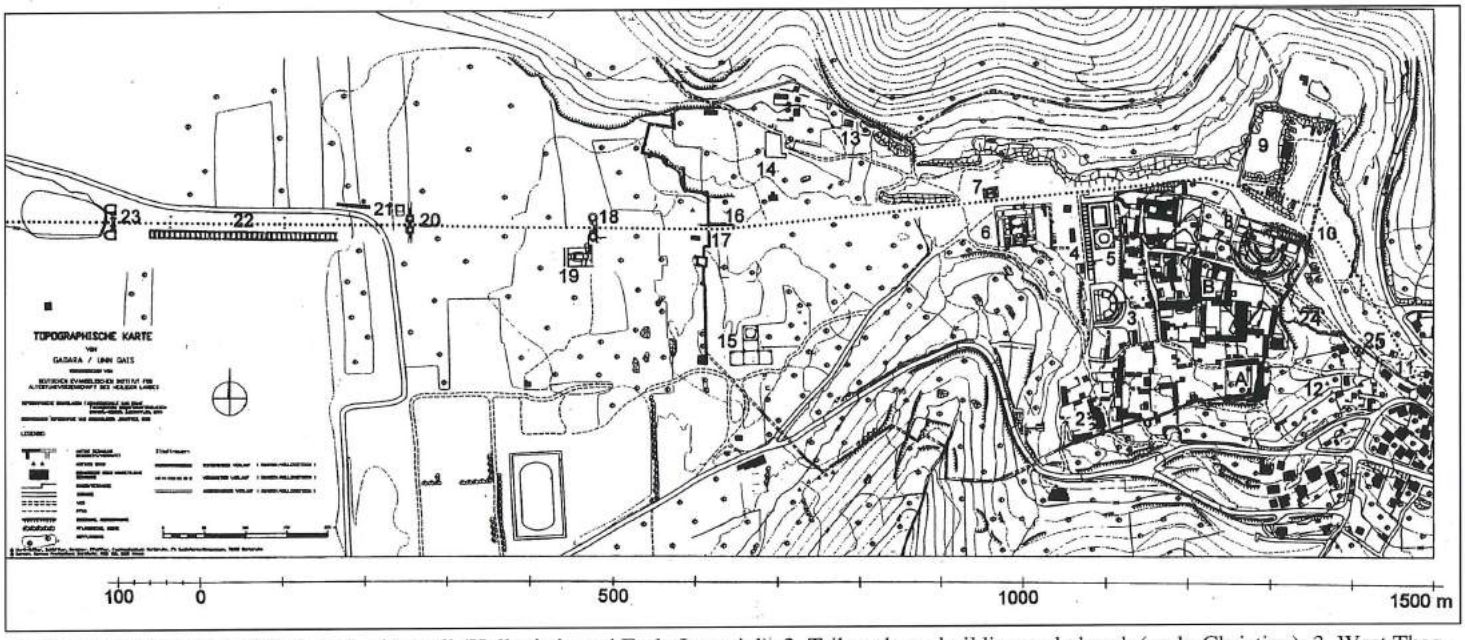
The Ancient City and its Situation Within the System of Regional Traffic Routes

The road, which only touches the original settlement to the north, runs on—straight and easily accessible—in a westerly direction, before eventually branching off in a northwesterly direction towards Tiberias. A milestone found west of the Monumental Gate could be dated by its inscription to AD 217 or 218 (Mittmann 1970: 138). It



1. View from the upper town to the west, along the east-west axis to the plateau (photo. C. Bührig).

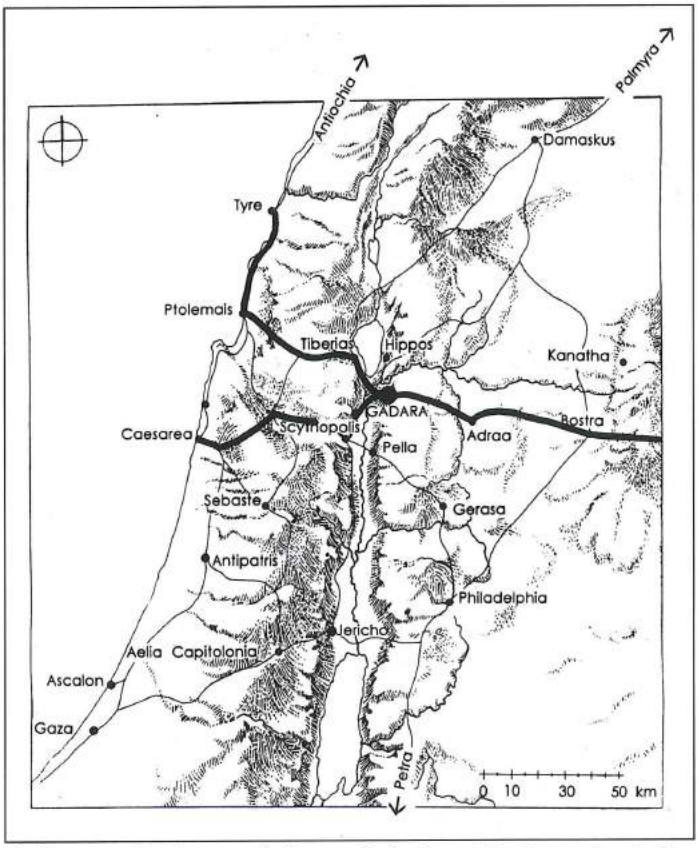
[1] The examination of the Monumental Gate *extra muros* and its context of urban development will be worked out in detail within the framework of a dissertation since 1994 at the Brandenburg Technical University of Cottbus by A. Hoffmann. Many thanks to N. Schliep-Andraschko M. A. for her support by the translation.



2. Topographical plan of Gadara: 1. city wall (Hellenistic and Early Imperial); 2. Trikonchos - building and church (early Christian); 3. West Theatre; 4. *cardo*, with street front shops (*tabernae*); 5. colonnaded courtyard and octagonal church; 6. Thermae (late antiquity); 7. so-called podium-monument or altar; 8. North Theatre; 9. Main Sanctuary on the northern terrace; 10. so-called Abila Gate; 11. Tomb of the Germani and of Lucius Sentius Modestus; 12. Tomb of Chaires; 13. North Mausoleum; 14. Thermae of Heracleides; 15. Thermae ('al-Qaṣr'); 16. colonnaded street (*decumanus maximus*); 17. Western City Gate (Early Imperial); 18. so-called Tiberias Gate; 19. western underground mausoleum and church (early Christian); 20. Western City Gate; 21. tomb; 22. Hippodrome; 23. Monumental Gate *extra muros*; 24. tunnel and channel, water supply system; 25. aqueduct. A. Bayt Melkawi (archaeological station); B. Bayt Rusan (museum) (plan: Fachhochschule Karlsruhe, C. Hartl-Reiter, D. Schäffler; drawing: C. Bühring).

gives evidence that this route already existed in Severian times.

At a fork of the road within the city, a second traffic route branched off towards Skythopolis in the southwest, on the western bank of the River Jordan (FIG. 3). During antiquity, these were the major trading routes of the region. Coming from Bostra in the south of Ḥawrān (Auranitis)—one of the termini of the caravan roads—and running on to the harbours at the Mediterranean coast of either Caesaraea in the south or Ptolomais in the north, these roads met at Gadara (MacAdam 1986: 20, 23; Mittmann 1970: 133-136, 138-139; Thomsen 1917: 32).



3. Topographical map of Roman Palestine with the major trading routes of the region during the antiquity (based on a plan by L. Lüders, drawing: C. Bühring).

The Context of Urban Development

From the Early Imperial period onwards, the east-west axis, the *decumanus*, constituted the "backbone" of the urban development of Gadara. All public buildings of major importance have been loosely lined up along this axis or they simply emphasize prominent positions. Among others, there are the town's main sanctuary on the northern terrace, the north theatre, the central octagonal church with a colonnaded courtyard on the northwest terrace, as well as the altar or so-called podium-monument (FIG. 2 no. 5, 6, 7, 8, 9). Five gates round off the picture (FIG. 2 no. 10, 17, 18, 21, 23). On the western slope of the settlement hill, a *cardo* branches off the *decumanus*, but only towards the south (FIG. 2 no. 4).

Up to the present, it has not been possible to locate a

forum at Gadara; instead, it appears as if the street would have functioned as a forum. In the course of the second and early third centuries, the street was converted gradually into a representative colonnaded street (Wagner-Lux *et al.* 1978: 136-137; Wagner-Lux and Vriezen 1982: 158-162 fig. 2; Hoffmann 1995/96: 37-38). The result of the excavation of U. Wagner-Lux at the *decumanus* was, that the street was bordered on the outer sides by a stylobat, which may have been used as a substructure for a portico running along the road (FIG. 4 and FIG. 2 no. 16). The traffic area was supplied with a podium-type structure elevated by the height of one step above road level on both sides. This so-called estrade served as a platform for a row of honorary monuments. All work was carried out very representatively in polychrome materials. Thus, the street-space gained a considerable increase in architectural value.

Outside the town, the street is lined by several cemeteries and this emphasize its importance.

Townscape - Gates along the Decumanus

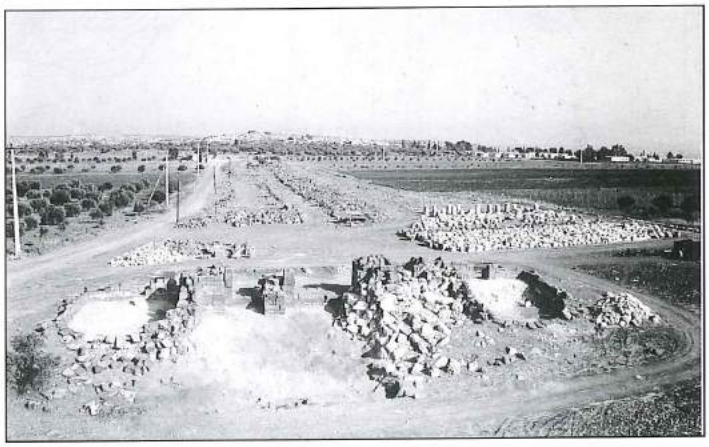
The various phases of the urban development of Gadara go parallel with two distinct phases of the city's fortification walls (Hoffmann 1995/96: 24-27, 32; 1997: 513), and they are underlined by the sequence of five gates along the *decumanus*, on a length of 1450 metres. Towards the east end of the city, there is the so-called Abila Gate (Schumacher 1890: map between p. 46 and p. 47), which has not been excavated so far (FIG. 2 no. 10). This gate can presumably be connected with the city walls of the Hellenistic and Early Imperial period. Around 720m to the west, there follows a second gate, which gave access to the town where the fortification wall of the Early Imperial period crossed the road (FIG. 2 no. 17); it was dated to the second half of the first century AD (Hoffmann 1995/96: 34). Only a short time after the erection of the city gate, one more gate was built, the so-called Tiberias Gate, approximately 140 metres to the west (FIG. 2 no. 18). It is an isolated monumental gate in an advanced position. This gate, consisting of a central structure with a gateway, flanked by circular towers, has been dated to the time of Vespasian by T. Weber (Bol *et al.* 1990: 204-205; Weber and Hoffmann 1990: 324-325 fig. 2; Weber 1992: 536), the second half of the first century AD.[2]

The Monumental Gate *extra muros* constitutes the most advanced point of the extension of the city (FIG. 5). Immediately to the east of the Monumental Gate, which was erected in the first quarter of the third century AD[3] (Bol *et al.* 1990: 236-237), the trade road is flanked to the south by the remains of a contemporary hippodrome (FIG. 2 no. 22, 23). It is most likely that the neighbouring city of Gerasa, with an almost identical situation dating from the first half of the second century AD (Detweiler 1938: 73-83. fig. 6; Müller 1938: 85-100), gave the model for Gadara (FIG. 6). In contrast to the hippodrome at Gerasa, the planned starting boxes at Gadara have been situated towards the city (Kerner and Hoffmann 1993: 360). It must be mentioned that the plan was never entirely carried out. It is conspicuous, however, that the entire area between the Monumental Gate and the western city gate, that was built later, appears to have been levelled off with great effort, which can be seen as an indication for the monumental character of this measure.

Right here, at the westernmost edge of the city, the Monumental Gate *extra muros* was erected to give a symbol of the prospering town (FIG. 5). In combination with the hippodrome, there may have been a plaza-like enlargement in front of the gate, which probably had trade functions. Like a funnel, it may have predominated the direction of the street. Furthermore, for those visitors



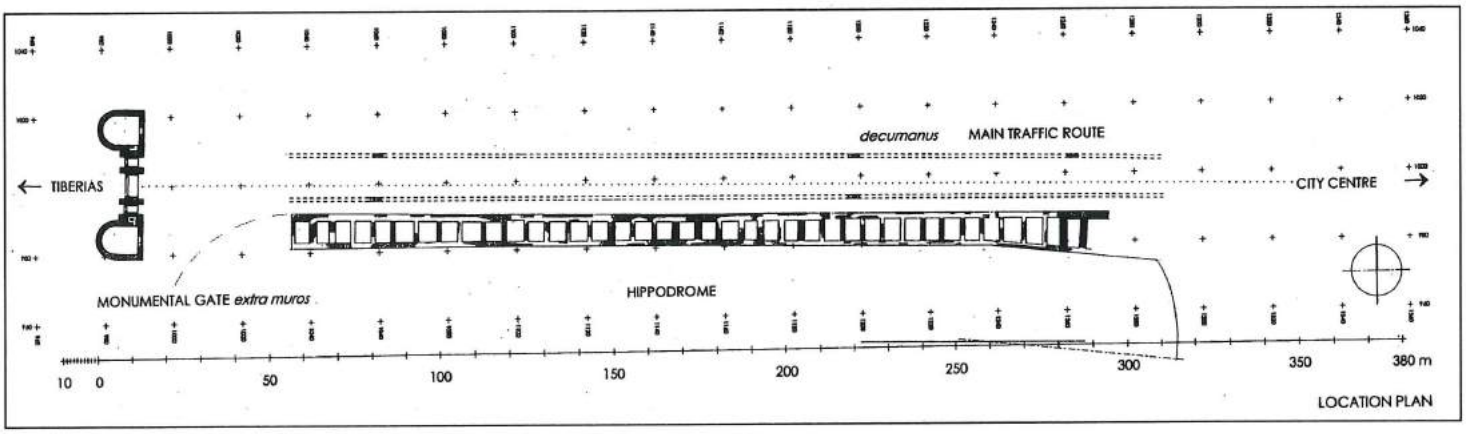
4. Colonnaded street of Gadara - *decumanus* (photo: P. Grunwald).



5. Monumental Gate *extra muros* - aerial view from the northeast (situation of the ruin in 1995) (photo: A. Hoffmann).

[2] As shown in the paper of F. Meynersen given during the Seventh International Conference on the History and Archaeology of Jordan, the Tiberias Gate has been dated to the "Herodian Period".

[3] The monument can only be dated with the help of stylistic elements in the decoration of the gate, which indicate a date around the first quarter of the third century AD.



6. Gadara, location plan of the Monumental Gate *extra muros* and the hippodrome (drawing C. Bührig).

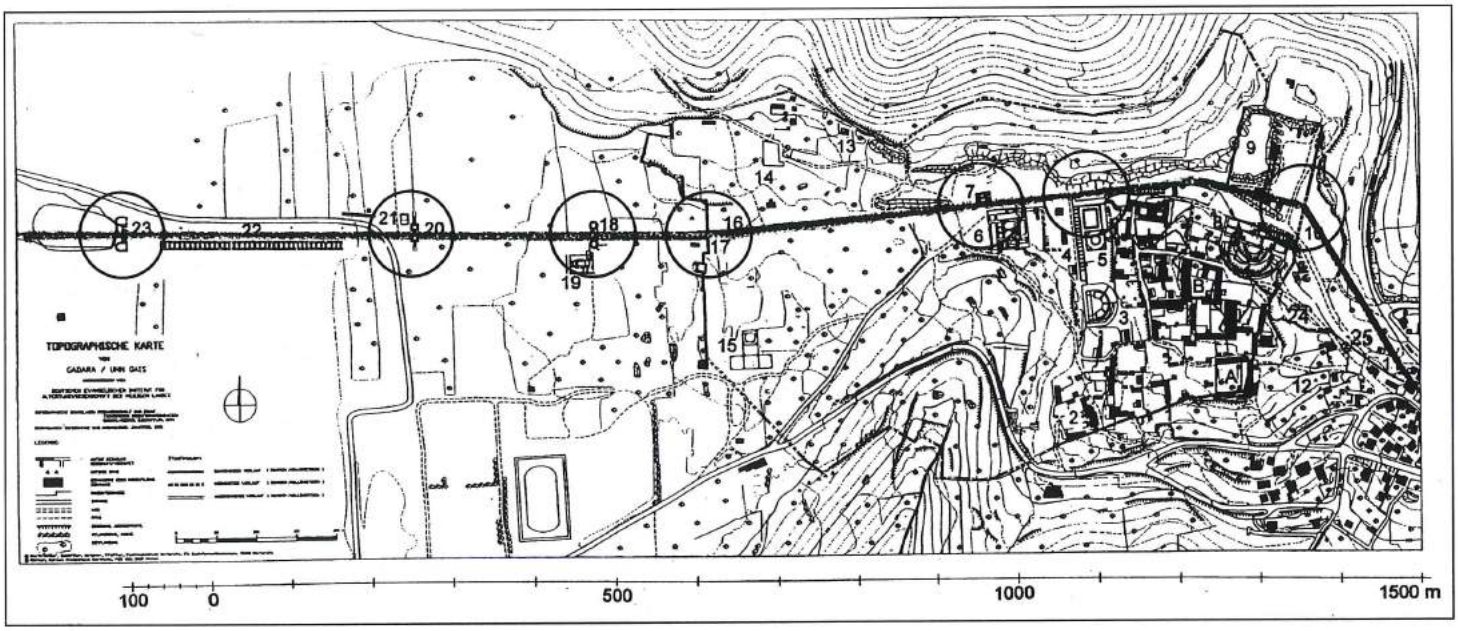
approaching Gadara from the west, from the Jordan Valley, the Monumental Gate formed one first highlight of urban architecture.

A fifth gate, which was built about eighty years later, revoked this kind of planning. In connection with some new fortification walls on the western side of the city, the so-called Western City Gate (FIG. 2 no. 20) was erected as a plain functional building of defense (Kerner and Hoffmann 1993: 360-363 fig. 2).

Town Planning in the Near East - the Bases

The purpose and erection of monumental gates in relation to urban development in the eastern provinces have to be taken into consideration, because the architectural concepts of the Romans were confronted with the Oriental traditions.

After the First Jewish Rebellion, the construction of the Via Nova Traiana in the years AD 111-114 AD improved the trading routes of this area and led to new prosperity (Kempinski and Avi-Yonah 1978: 154-155; Kuhnen 1990: 120). The Second Jewish Rebellion, in the second half of the second century AD, however, caused an economical decline, and it was only under the rule of the Severans that the province Syria Palestina experienced a kind of economical revival (Hasebroek 1921: 121; Walmsley 1996: 127). Here, in the eastern provinces, Rome pursued a policy of forced urbanisation from the end of the second century AD onwards (Kuhnen 1990: 122). Like Bostra (Freyberger 1989: 58-59) or Gerasa (Browning 1982) for instance, Gadara was one of those cities which profited from this policy and experienced some economical upswing and a new building boom. The public buildings and monuments along the east-west-axis of Gadara clearly demonstrate this (FIG. 7).



7. Topographical plan of Gadara with the public buildings and gates along the *decumanus* (see FIG. 2, drawing: C. Bührig)

A Type of Urban Planning in the Near East - Summary

Compared to the preceding settlement structures, from the beginning of the first century AD onwards under Roman presence, a change in the urban planning concepts can be noted in the Near East (Barghouti 1982: 209-229). The founding of the cities in the Seleucid and Ptolemaic periods had been adjusted with their city walls to the natural surroundings, including a major long-distance route, which is demonstrated for example by the city plan of Laodicea, Antioch and Apamea in Syria (Barghouti 1982: 213-215; Kuhnen 1990: 32-36; Peters 1983: 269-272 fig. 1-3). On the other hand the indigenous settlements founded by the Nabataeans, gave a special character for the trading stations, which extended along the major long-distance routes from the Early Imperial period onwards. Almost all the buildings erected along these routes were meant to give a representative setting to commerce, the basis of urban wealth. The oval square of Bostra is a good example for a combined location of city gate and market (Peters 1983: 273-277 fig. 5 A, B).

This type of urbanisation was closely linked up with the local requirements and developed some very specific Syrian-Palestinian urban structures out of the prerequisites mentioned above (Barghouti 1982: 209-229). Typical is the major importance of the main axis, which could be bordered by colonnades either along the entire length or at least in certain segments (Walmsley 1996: 130). It is noteworthy that the street did not necessarily run in a straight line, long-distance routes were often incorporated into the settlement, and wide and open forum-type squares in the city centre were lacking.

The road-space was divided into segments, which could be joined up by means of a square, a tetrapylon or some corresponding monument such as a gate or a nymphaeum, as can be seen in Gadara (FIG. 7). Quite clearly, these architectural features, which were referring to one another, did improve the townscape. By erecting these buildings, especially the gates, urban spaces were created, and this certainly has to be seen as a planned townscape, for example in Gerasa, Palmyra and Apamea (s. Peters 1983; Browning 1979; 1982; Barghouti 1982). Secondary transverse axes, which cross the main axis, can be found only occasionally.

The advantages of this type of planning are apparent: Apart from the adaptability to topographical facts, the opportunity is created to trade along the street (about the colonnaded streets, cf. Segal 1997: 3-53). Pillars topped with consoles, pedestals for honorary monuments provided some additional ornament for the central urban spaces. Thus, the colonnaded street forms the vital centre of the city and probably assumes the function of the forum.

The aim of creating an impressive urban visual axis often led to a competition amongst the cities with ever bigger and more magnificent building programs. At the time of the Severans, the monumentalizing of the cityscape reached a climax, see Bostra for example (Peters 1983; Freyberger 1989: 58-60).

Summary

The wish to monumentalize the townscape was a driving force behind the building measures at Gadara, which was competing with the neighbouring cities. This aspect can clearly be demonstrated by the Monumental Gate *extra muros*, which does not directly address the Emperor, since both the inscriptions and the statues are lacking. A standardized system has not been developed for monumental gates, which were erected as a deference of the cities to their own prestige and importance. Thus, they could do without inscription and relief decorations.

In this region, which was specifically shaped by ideological and cultural contrasts, the building of Roman monumental gates was a favourite architectural quotation. By means of this quotation, the cities wanted to approach the Roman system of notation of architectural symbols and demonstrate their affiliation with Rome.

References

Barghouti, A. N. 1982. Urbanization of Palestine and Jordan in Hellenistic and Roman Time. Pp. 209-229 in *SHAJ* I.

Bol, P. C., Hoffmann, A. and Weber, T. 1990. Gadara in der Dekapolis: Deutsche Ausgrabungen bei Umm Qais in Jordanien 1986 bis 1988. Vorbericht. *AA*: 193-266.

Browning, I. 1979. *Palmyra*. London: Chatto & Windus.

____1982. *Jerash and the Decapolis*. London: Chatto & Windus.

Detweiler A. H. 1938. The Triumphal Arch. Pp. 73- 83 in C. H. Kraeling (ed.), *Gerasa: City of the Decapolis*. New Haven, Connecticut: American School of Oriental Research.

Freyberger, K. S. 1989. Einige Beobachtungen zur städtebaulichen Entwicklung des römischen Bostra. *Damaszener Mitteilungen* 4: 45-60.

Hasebroek, J. 1921. *Untersuchungen zur Geschichte des Kaisers Septimius Severus*. Heidelberg: Winter.

Hoffmann, A. 1995/96. Stadtentwicklung in der Dekapolis: Neue Forschungen in Gadara. *Nürnberger Blätter zur Archäologie* 12: 21-40.

Hoffmann, A. 1997. Gadara / Umm Qais. Pp. 513-514 in P. M. Bikai and V. Egan, Archaeology in Jordan. *AJA* 101.

Kempinski, A. and Avi-Yonah, M. 1978. *Syrien und Palästina* II. München-Genf-Paris: Nagel.

Kerner, S. and Hoffmann, A. 1993. Gadara - Umm Qeis: Preliminary Report on the 1991 and 1992 seasons. *ADAJ* 37: 359-384.

Kuhnen, H. P. 1990. Palästina in griechisch-römischer Zeit. *Handbuch der Archäologie*. Vorderasien II. 2. München: Beck.

MacAdam, H. I. 1986. *Studies in the History of the Roman Province of Arabia*. Northern Sector. Oxford: BAR Int. Ser. 295.

Mittmann, S. 1970. *Beiträge zur Siedlungs- und Territorialgeschichte des nördlichen Jordanlandes. Abhandlungen des Deutschen Palästinavereins*. Wiesbaden: Harrassowitz.

Müller, E. B. 1938. The Hippodrome. Pp. 85-100 in C. H. Kraeling (ed.), *Gerasa. City of the Decapolis*. New Haven, Connecticut: American Schools of Oriental Research.

Peters, F. E. 1983. City Planning in Greco-Roman Syria: Some New Considerations. *Damaszener Mitteilungen* 1: 269-277.

Schumacher, G. 1890. *Northern 'Ajlûn. Within the Decapolis*. London: Harrison & Sons.

Segal, A. 1997. *From Function to Monument. Urban Landscapes of Roman Palestine, Syria and Provincia Arabia*. Oxford: Oxbrow Monograph 66.

Thomsen, P. 1917. Die römischen Meilensteine der Provinzen Syria, Arabia und Palästina. *ZDPV* 40: 1-103

Wagner-Lux, U., Küger, E. W. and Vriezen, K. H. J. 1978. Bericht über die Oberflächenforschung in Gadara in Jordanien im Jahre 1974. *ZDPV* 94:135-144.

Wagner-Lux, U. and Vriezen, K. J. H. 1982. Vorläufiger Bericht über die Ausgrabungen in Gadara (Umm Qes) in Jordanien im Jahre 1980. *ZDPV* 98: 151-162.

Walmsley, A. 1996. Byzantine Palestine and Arabia: Urban Prosperity in Late Antiquity. Pp. 126-158 in N. Christie and S. T. Loseby, *Towns in Transition: Urban Evolution in Late Antiquity and the Middle Ages*. Aldershot: Scholar Press.

Weber, T. 1992. Gadara/Umm Qais. Pp. 534-537 in B. De Vries, Archaeology in Jordan. *AJA* 96.

Weber, T. and Hoffmann, A. 1990. Gadara of the Decapolis Preliminary Report of the 1989 Season at Umm Qeis. *ADAJ* 34: 321-342.

Mohammad Al-Daire
Sonderforschungsbereich 295 - B3
Johannes Gutenberg University - Mainz
55099 Mainz
Germany

Mohammad Al-Daire

Umm Qays 1998: The Fourth Century AD Memorial Basilica of Gadara

In the western quarters of the lower city of ancient Gadara (FIG. 1), modern Umm Qays, a large Christian Basilica was erected on top of the Roman underground *mausoleum*[1] which was situated close to the Tibiriade gate.[2] The Byzantine structure was closely related to a sacred tomb within an apse, which was constructed in front of the older Roman complex. This crypt may be attributed to a local saint, possibly a martyr of the persecution under the reign of Diocletian. Historical sources[3] mention that the Gadarene deacon Zachaios was murdered in AD 303 during the *vicennalia* of Diocletian. It is still questionable, however, if the corpse of this saint was transported to the city of Gadara or not. This important church was partly excavated during the season of 1989 under the directorship of Thomas Weber.[4] The uncovered areas revealed traces of the ground plan including the apse, the altar zone, the colonnade, some parts of the outer walls with the western entrance, and the traces of a narthex and atrium. The proportions of the ground plan and the layout of the mosaic floor led to the conclusion that the church did not belong to the common three aisled type as previously assumed.[5] It seems more likely that the basilica originally had five aisels, such as famous church buildings in Palestine of the Constantine period. This was assumed by the unusual width of the lateral aisels. A mosaic floor later replaced the original floor of the church and dates to the early sixth century as indicated by the style of its geometrical patterns.[6]

In order to clarify the type of the church and to yield further evidence for its early Byzantine date of construction, a final season of excavations was conducted by Johannes Gutenberg University of Mainz (Germany), again under the directorship of Thomas Weber in cooperation with the Department of Antiquities of Jordan at Umm Qays from April 18th until May 31st, 1998.[7] In the course of the excavation the church was completely uncovered, additionally parts of the adjacent area were exposed.

Description of the Complex

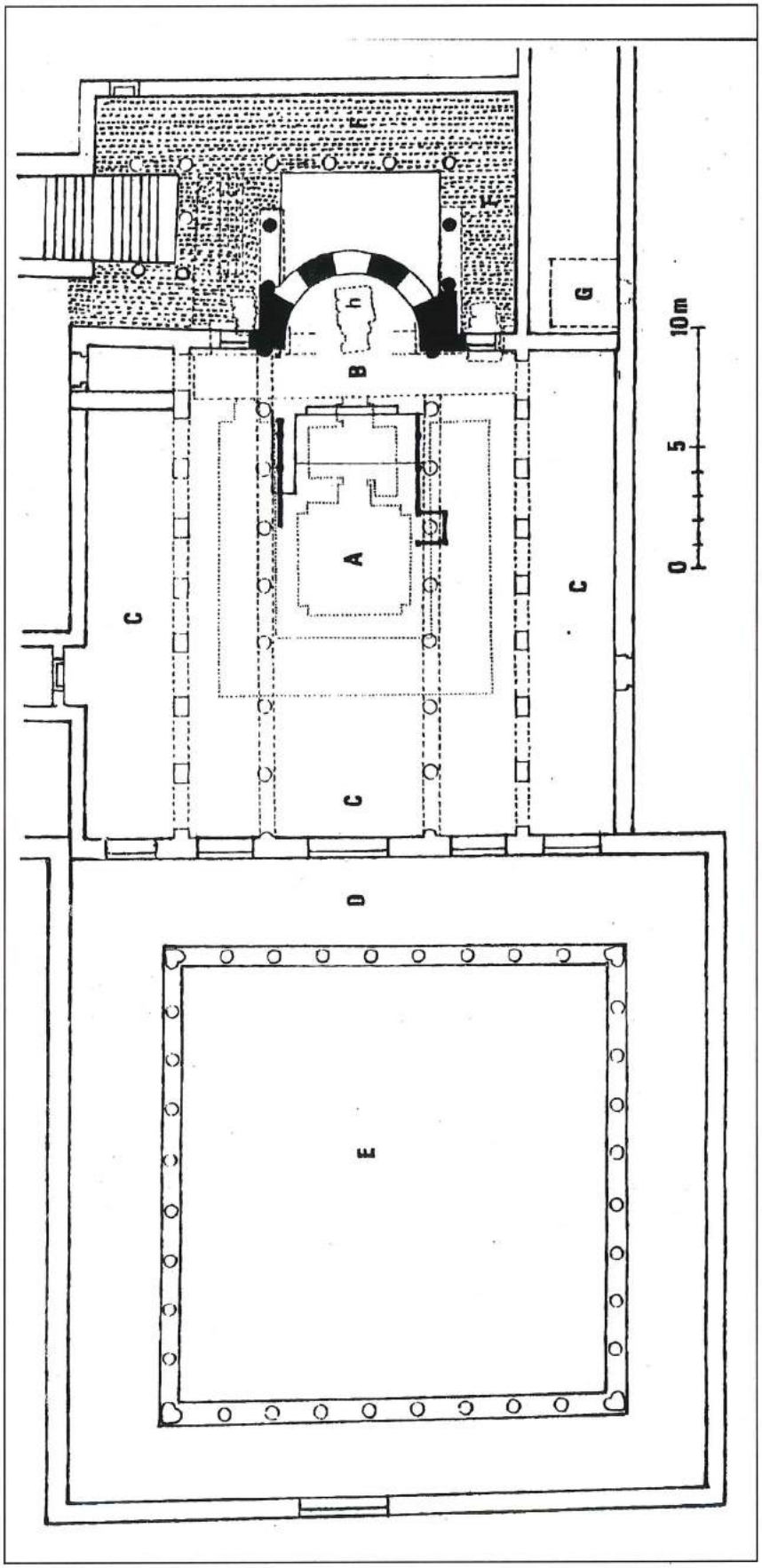
The revealed church had the common basilical plan, but it is unique due to its five aisled design (FIG. 2). The ground plan of the church is rectangular, nearly square measuring 20.10m x 21.50m. The inner lateral aisles are slightly narrower than the outer ones. The nave with the apse measure 23.18m in length and 5.85m in width. The inner sided aisles are 3.50m wide but the outer ones have a width of 3.75m. Two rows of seven columns separate the nave from the northern and the southern aisles. The space between the columns (*intercollumiums*) is 2.40 m. Two arcades consisting of seven columns each divided the northern and the southern parts of the church into two lateral aisles. The central nave ends in its eastern side with a semi circular apse, the basement of which is still preserved in the underground crypt. The diameter of the apse is 5.45m and its depth is 3.08m. In front of the apse the church had an altar zone which was accessible by two steps. It was framed by a chancel screen of which the remaining walls were found *in situ*. This consisted of eight chancel screen posts, just three of them were found as construction material for the later alteration of the church.

---

[1] Complete Documentation concerning the Roman mausoleum and the crypt in Th. Weber, *Gadara - Umm Qes IV* (forthcoming).
[2] F. S. Meynersen in: *Gadara - Umm Qes IV* and *SHAJ* VII.
[3] Eusebius von Cäsarea, *Martyrer der Frühkirche, Dokumente des Eusebius von Cäserea*. Zusammengestellt und eingeleitet von Wilhelm Schamoni (1964), 138 ff. und An. 3, 186 ff.
[4] T. Weber and A. Hoffmann, *ADAJ* 34, 1990, 324 ff.; P. C. Pol, A. Hoffmann and T. Weber, *Archäologischer Anzeiger* 1990, 193 ff.
[5] For the discussion of the type of the church see T. Weber, *Gadara Decapolitana*, Untersuchungen zur Topographie, Geschichte, Architektur und Bildenden Kunst einer "Polis Hellenis" im Ostjordanland (1995), 354 ff. (forthcoming).
[6] *Op. cit.*: 5; T. Weber, Gadara in Byzantinischer Zeit in *Akten des XII Internationalen Kongresses für Christliche Archäologie*, Bonn 22 - 28 September 1991, Teil 2, 1995, 1277.
[7] T. Weber and U. Hübner, *ADAJ* 42, 1998. Studying this monument constitutes the topic of my doctoral dissertation, supervised by the excavator (T. Weber) in Mainz University - Germany. It will be published in: *Gadara - Umm Qes IV* (forthcoming).



1. Plan of ancient Gadara showing the location of the five aisled basilica of the early fourth century AD.



2. A: Roman mausoleum; B: crypt of the fourth century; C: five aisled basilica; D: the halls of the atrium; E: the open-air courtyard of the atrium; F: balustrade (reconstructed); G: grave room underneath the floor of the church; h: the central grave within the apse of the crypt.

To the northeastern part of the bema, there are a sign that an ambo had originally existed. It is indicated by a rectangular foundation of hewn limestone with a square post in each corner. The excavation shows that the church has a square-shaped atrium flanked by colonnades in the eastern part of the main hall. The western wall of the church extends 3m to the south and turns towards the west. Also, the north end of the wall extends towards the west. The extensions of these walls form the enclosure of a huge atrium which was larger than the basilica itself (26.47m x 26.00m). The eastern aisle of the atrium is 3.88m wide and 3m longer than the width of the main hall of the church. Its floor in front of the main entrance of the church is paved with *opus-sectile* (FIG. 3) consisting of marble and limestone slaps, mainly 20 x 20cm , and other parts are paved with rectangular slabs of basalt. The western foundation of the stylobate of the atrium was uncovered at a distance of 3.80m from the western wall. During the last two days of the season, the work took place in the southeastern corner of the complex. In the opened sounding, remains of a chapel, that was possibly used as a *Baptisterium*, was found. This was clearly shown by an apsidial structure in the western side. Furthermore, a fragment of a basin of clay was found within this room during the 1989 season of excavations. The main room of the church can be entered through five doorways from its eastern side, two in the northern wall and one in the southern wall. This is shown by the pivot sockets that are still visible in the thresholds or the pedestal stones. Two other entrances are found in the eastern wall of the church. The two doors are located on both sides of the apse. They open towards a balustrade (FIG. 2: F), which once rested on two columns but today entirely vanished. This construction allowed the visitor to go around sacred space and to look down to the sacred grave through rectangular openings in the lower part of the apse.

The Mosaic Floor

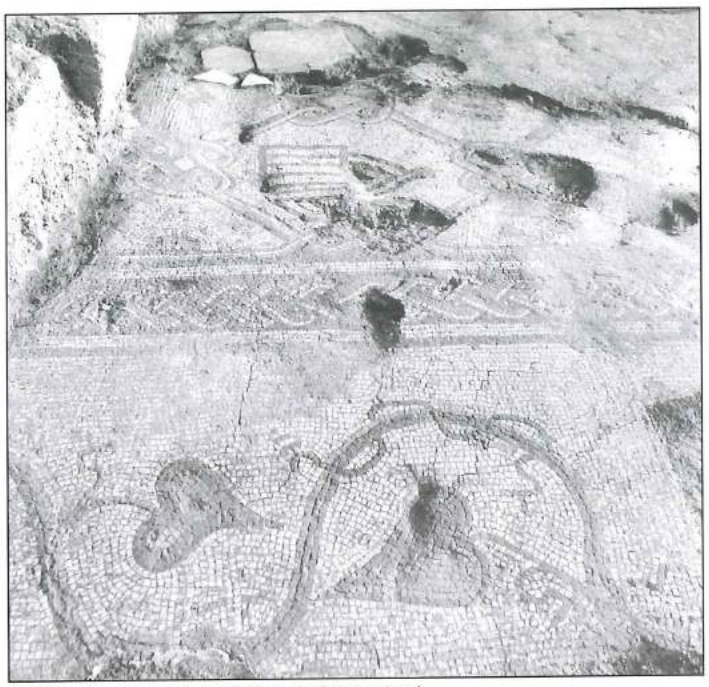
The floor of the church is paved with colored mosaic of the sixth century AD, which had been badly damaged in later times. Repairs are clearly shown by larger tesserae and marble fragments. This mosaic floor is divided into three main fields, separated by two main panels. The main field covered the central nave of the basilica and overlapped both inner aisles. It is decorated with imbrication (scale pattern) with a flower in the middle of each motive. This main field is surrounded by a band of lotus flowers. The two panels which separate both lateral fields are 80cm wide, and they are decorated with a series of flora and fauna motives. Three figures of birds can still be seen in the southern panel (FIG. 4). The two outer fields of mosaic covered the outer aisles of the church. The northern one is decorated with rhomboid vignettes framed by a cable pattern which is connected to each other by symmetrical knots (FIG. 5). At the center of each vignette, a single geometrical *floral* and *faunal* motive is represented. The southern field is decorated with interlacing circles combined with a net of crosses, each consisting of small leaves. A circle with a cross is found in the middle of the grid. The only remaining part of an inscription is found in the area of the fourth intercoluminum of the north colonnade. In this area, there is an inscription enclosed in octagonal fields, a kind of *Tabula Ansata*, but



3. Opus-sectile tiling in front of the main entrance.



4. Figure of a bird decorating the southern panel.



5. Mosaic decoration of the northern panel.

badly damaged. One word from this inscription remains, which is read to be "*prosphora*" that indicates a dedication to the basilica. This inscribed mosaic was removed in order to be exhibited at the Umm Qays Museum, and to dig underneath of it, hoping to find the earliest floor of the complex. Underneath the mosaic, slabs of limestone were found. They belong to the floor of earliest constructional phase of the church (fourth century AD, FIG. 6). In the 1998 season of excavation, we also clarified that some parts of the inner walls were originally decorated with inscribed glass mosaic (FIG. 7). More than 300 fragments of them were found in a debris pit at the southern area, outside the basilica. They were studied by experts in the university of Trier in Germany, with the hope of achieving further epigraphically information about the history of the church. However, the result of investigation unfortunately brought no further information.



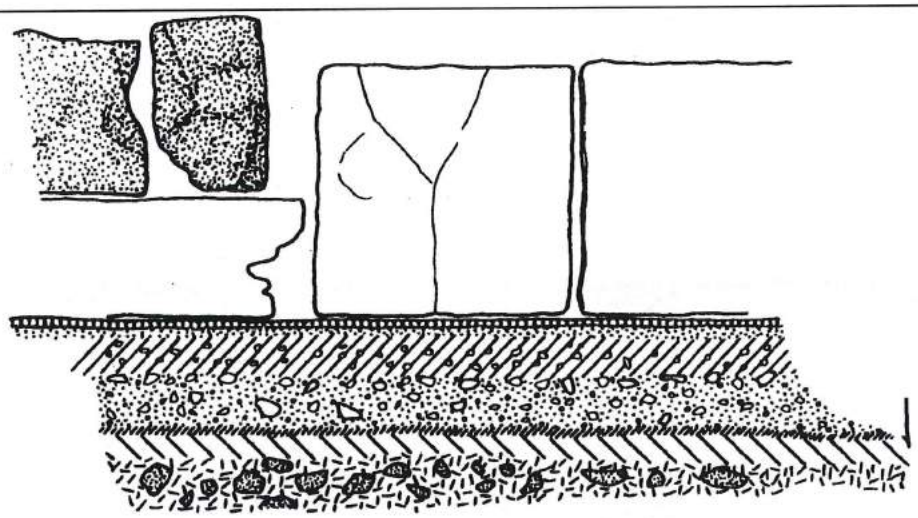
7. Glass mosaic originally decorating the inner walls.

The Construction Material

Even though most of the architectural elements of the church had been quarried away, excavated materials allow to identify them. The outer wall of the church was built of local basalt. Limestones were exclusively used in the foundation. The bases of the columns are Attic-Ionic in shape and were made of white marble, three of which are *in situ* and some others were found in secondary use. The column shafts used in the main central nave are made out of imported gray granite. A complete drum (4.20m) and other fragments were found on the floor of the church. The columns were crowned by Corinthian capitals of white marble. The atrium had colonnaded halls of basalt columns crowned by Ionic basalt capitals. This can be clearly attested by the quantity of the drums and capitals founded around the area of the basilica. The chancel screen posts were also made of marble (FIG. 8) showing carefully sculptured sides. Also,



8. Marble chancel screen posts.



Stones of basalt: reused in the later buildings on the floor of the church.

Chalky stones.

first layer of the mosaic foundation.consists of mortar.

Second layer of the mosaic foundation consists of mortar mixed with small stones.

Third layer of the mosaic foundation consists of chalky stones and mortar.

The floor level of the oldest floor of the church (early 4th century AD), it was covered with lapes of chalky stones.

First layer of the oldest floor foundation.

Second layer of the oldest floor foundation.

Mosaic (floor level of the 6th century AD).

6. The construction of the floors of the church: The mosaic floor level of the sixth century AD; the level of the stone slabs of the first half of the fourth century AD.

the panels of the chancel screen were made of marble. Their decoration consists of cross motives (FIG. 9). Some pieces of liturgical furniture, possibly from a lid of a reliquary made of marble were found in a late pavement (FIG. 10). It has a flat bowl in its center. The great amount of collected slabs of marble gives an impression that the walls were partially covered by *intrasia*. Traces of them were found still *in situ*, fixed on the western wall.



9. Marble piece from the chancel screen panel.



10. Marble piece, possibly from a lid.

The church was roofed with a wooden gable covered with roof tiles. A large number of tile fragments were collected during the excavations.

Conclusion

The excavation of the basilica at Umm Qays adds new important information concerning the cultural, social and religious history of Jordan in the early Christian period. Furthermore, it fills a gap in clearing aspects of the continuity of settlement of the land in the mentioned period. It shows that the area was not only a small scattered settlement, but also an important one in terms of economic aspects. This is clearly attested by the magnificence of the architectural features of the basilica, and by special production of elaborating materials for a newly built structure of the church. Examples are the ionic capitals and the sculptural material, that are dated to the fourth century AD.[8]

The work has revealed that Gadara was not only an administrative center, but a focus of pilgrims too. This was indicated, as previously shown, by studying the Roman underground mausoleum and the Byzantine crypt, and by the continuity of the rituals in the Islamic period with the worship of the Muslim saint called Abū an-Naml[9] in the northern part of the church. In the last season of excavation, we were also able to reconstruct the arrangements of the pilgrimages through the complex of entrances and subways that allowed the visitor to go around the sacred grave within the apse of the underground crypt.

Furthermore, the excavation shows that the church was precisely planned. For instance, the architect paid his attention to the proportions of the underground complex and put the foundations of the church rightly on the solid walls of it.

As already mentioned above, the memorial basilica of Umm Qays should be regarded as one of the most interesting existing churches ever excavated in Jordan. This is because of the scarcity of its five aisled-plan,[10] and the impressive and elaborate use of precious materials for the interior decoration. Also, the combination with a crypt makes it unique in the area. A remarkable feature of the Umm Qays basilica is the fact that the Roman *Mausoleum* occupies the central part of the Christian building. The pagan funeral monument was obviously the target of the Christian pilgrims cult. For this reason we could not exclude the possibility that the five-aisled Basilica was erected for the commemoration of the miracle of the Gadarener swine as reported in the New Testament episode, especially Matthew 8, 28.

The lack of inscriptions and the absence of historical

8 The Ionic capitals that found in the area of the basilica are similar to those found in north Syria, parallel to this type see J. Dentzer-Feydey, Les chapiteaux ioniques de Syrie méridionale in: *Syria* LXVII, 1990, 143 ff.

9 B. Mershen, in S. Kerner (ed.), *The Near East in Antiquity II* (1991), 135 ff.

10 Only one church excavated at the site of Abila (Quwailiba) shows the same type of plan. For further information see H. Mare, *ADAJ* 38, 1994, 395 ff., *ADAJ* 40, 1996, 259 ff.; *ADAJ* 41, 1997, 306 ff.

documents do not help to identify the dedication with certainty and to determine the exact date of erection. Additionally, the stratification of the layers that covered the monument has been badly destroyed. This is caused by war actions in 1967 and bulldozing in the recent times. Nevertheless, the main phases of use might be distinguished as follows:

First Phase. The five-aisled basilica possibly dates to the early fourth century AD at the same time as the building of the underground crypt. This is clearly shown by the architectural integration of the two buildings. They share the same apse, and the extension of the south wall of the church to the east direction goes together with the south wall of the crypt showing the same technique. The history of the church buildings shows that the five-aisled type was common in Palestine and in the other parts of the Byzantine Empire during the Constantine period.[11] The Nativity in Bethlehem[12] and the Sepulcher church in Jerusalem[13] in Palestine are the examples attesting this hypothesis. Other five-aisled basilicas in the region like the cathedral of Tyros[14] in Lebanon and the church of Johannes[15] in Damascus were built in the first half of the fourth century AD as well. In case the church was built in the early fourth century AD, it was probably renovated during the time of Justinian similar to other churches in Palestine and other provinces of the Byzantine Empire, for instance, the church of the Nativity in Bethlehem.

During the last season of excavation we further uncovered the oldest floor under the sixth century mosaic (FIG. 6). This was attested by revealing a part of stone pavement and the foundation of this pavement in different sounding pits. This level more likely belongs to the time when the crypt was built adjacent to the Roman hypogeum, at the same time the whole underground complex was covered by the large basilica.

Second Phase. In the early sixth century, the church witnessed new renovations in its main room when the mosaic floor was added to embellish the church interior. The geometrical motives of the mosaic like the lotus frame and the imprecation[16] were common in this period in the east Mediterranean area. Additionally, the staircase leading to the underground complex was closed and altered by a new one which is existing until today. The old staircase leading down to the sacred area was inside the main room of the church, definitely in the eastern side of the northern lateral aisles (FIG. 1).

Third Phase. After a big destruction, possibly during the Persian occupation at the first half of the seventh century or by the effect of the AD 749-50 earthquake, the church was reduced in size. To date this event is still to be studied. But the archaeological material implies a date to a period ranging from the sixth century to the Abbasid period. This means that the church was still in use during the Ummayad period and even to the Abbasid. This reduction in size is attested by secondary walls that were built on the mosaic floor of the church. A small part was reconstructed in the area of the central nave and separating the eastern part of the southern aisles by a wall to maintain the process of pilgrimage. This small church could be entered through two main doors. The main doorway lies in the middle of the northern exterior wall. The second door lies in the middle of the western wall. It seems that during the time of the second church, the southern part of the original church had been used as a courtyard.

Fourth Phase. The last phase of the church history was attested by converting the small one in a mosque. The eastern wall of the sanctuary was blocked with an additional wall, and in the middle of the south wall of the last church a small niche (*miḥrāb*) was constructed with a projection on the outer wall. By this construction, a rectangular room with a niche looking towards south (*Qiblah*) resulted. A date of this mosque is implied by the great a mount of collected pottery shards dating to the Ayyubid-Mamluk period. It suggests that this mosque may have served the ritual Islamic activities related to the grave of Abū an-Naml. Additionally it was located on the center of the Ayyubid-Mamluk settlement at that time. Within the inner room of the church, domestic houses were built in this period.

Acknowledgments

Studying this newly excavated church is the topic of my doctoral dissertation supervised by Dr. Thomas Weber at Mainz University-Germany. I would like to express my thanks to him and to the members of the excavations.

11 J. W. Crowfoot, *Early Churches in Palestine* (1941) 9 ff; J. Wilkinson, Constantinian Churches in Palestine in: Yoram Tsafrir (ed.), *Ancient Churches Revealed* (1993), 23 ff.

12 J. W. Crowfoot, *Early Churches in Palestine* (1941) 22 ff.; A. Ovadiah, *Corpus of the Byzantine Churches in the Holy Land* (1970) 33 ff.

13 A. Ovadiah, *Corpus of the Byzantine Churches in the Holy Land* (1970) 75 ff.; C. Coüasnon, O. P. *The Church of the Holy Sepulcher in Jerusalem* (1974); J. Patrich, The Church of the Holy Sepulcher in the light of Excavations and Restoration in: Y. Tsafrir (ed.) *Ancient Churches Revealed* (1993), 101 ff. Complete Bibliography see: K. Bieberstein and H. Bloedhorn, Jerusalem: Band 2 (1994), 189 ff.

14 Eusebius, *Hist.* eccles X, 4, 37 ff.; C. Mango, *Byzantine Architecture*, 61 ff.; J. Wilkinson, *Jahrbüch der Östreichen Byzantinistik* 32/4, 1988, 553 ff.

15 K. A. C. Creswell, *Early Muslim Architecture* (1932-1940), The Great Mosque of Damascus; H. Stierlin, *Islam, frühe Bauwerk von Bagdad bis Cördoba* (1996) 52 ff.

16 For the type of these patterns see: V. Tzaferis, Excavations of Kursi - Gergesa in: *Atiqot* English Series, Vol. XVI (1983), 23 ff. The patterns which appear in the Church are found at many churches in Jordan, see M. Piccirillo, *The Mosaics of Jordan* (1993), for instance see in the same book Jerash 257 ff. and Madaba 49 ff.

Manfred Lindner
Naturhistorische Gesellschaft Nürnberg
Labenwolfstr. 5
D-90409 Nürnberg
Germany

Manfred Lindner

From Edomite to Late Islamic: Settling Fluctuation on the Newly Surveyed Jabal aṣ-Ṣaffāḥa, North of Petra (Jordan)

Introduction

Jabal aṣ-Ṣaffāḥa, located ca. 15 km north of Petra is a Cretaceous massif of 8 km length and 1.5 km in width (FIG. 1). It extends in a northerly direction west of Jabal ash-Sharah to which it geologically belongs. Up to the nineties, the 'Amārīn bedouins living there were not interested in visitors, at first in order to evade taxation, later to avoid the government's displeasure at their building houses from ancient spoils. Since 1994, after the 'Amarin had (been) moved into the newly installed Bayḍā Housing, the Jabal aṣ-Ṣaffāḥa area, archaeologically "*terra incognita*" up to then, was, between 1994 and 1997, explored and surveyed by groups of the Naturhistorische Gesellschaft Nürnberg (NHG) under the author's direction.[1] Surprisingly, the ruins of no less than nine settlements at elevations ranging from 1290 to 850 m asl were discovered by prospecting, a couple of them from a helicopter (FIGS. 2-4). Always visited in September-October, the plateau gently sloping toward the east and the steeper western mountainside, superficially did not look like land especially suited for agriculture and horticulture. The ridge toward the north appeared still more barren. However, terraces and field walls everywhere, walled pens for either goats or for gardens to keep goats out, scattered ruins of houses, a few tombs, cave cisterns and, of course, the nine settlements identified and dated during the surveys, additionally stands of *Juniperus phoenicea*, *Pistacia palaestina* and atlantica and even almond trees (grown wild?) displayed another picture. Like everywhere in the Greater Petra region, people here had to work hard in order to support themselves over 2000 years, though intermittently and fluctuational.

A) The Iron II (Edomite) Period

Without traces of a previous lithic period, the eastern mountainside was first settled by Edomites of the Iron II period. Built of large ashlars, *Kutla II* displays massive walls, cave cisterns (FIG. 5) and 50 % Iron II sherds. To a lesser extent the typical Edomite pottery was also found in three other village-or estate-sized settlements indicating additional Edomite places or part-time occupation by a non-sedentary population. In the third case the place turned out to be an Iron II fortress with massive, almost "megalithic" walls, case-mates and an ingenious water collecting sys- tem. The fortress *Daraj III* (FIG. 6), as it was called, served to defend the naturally easiest access from the east. Due to the lack of chronologi- cal markers for the Edomite pottery, it can only be surmised that Edomites inhabited Jabal aṣ-Ṣaffāḥa around the seventh century BC.[2]

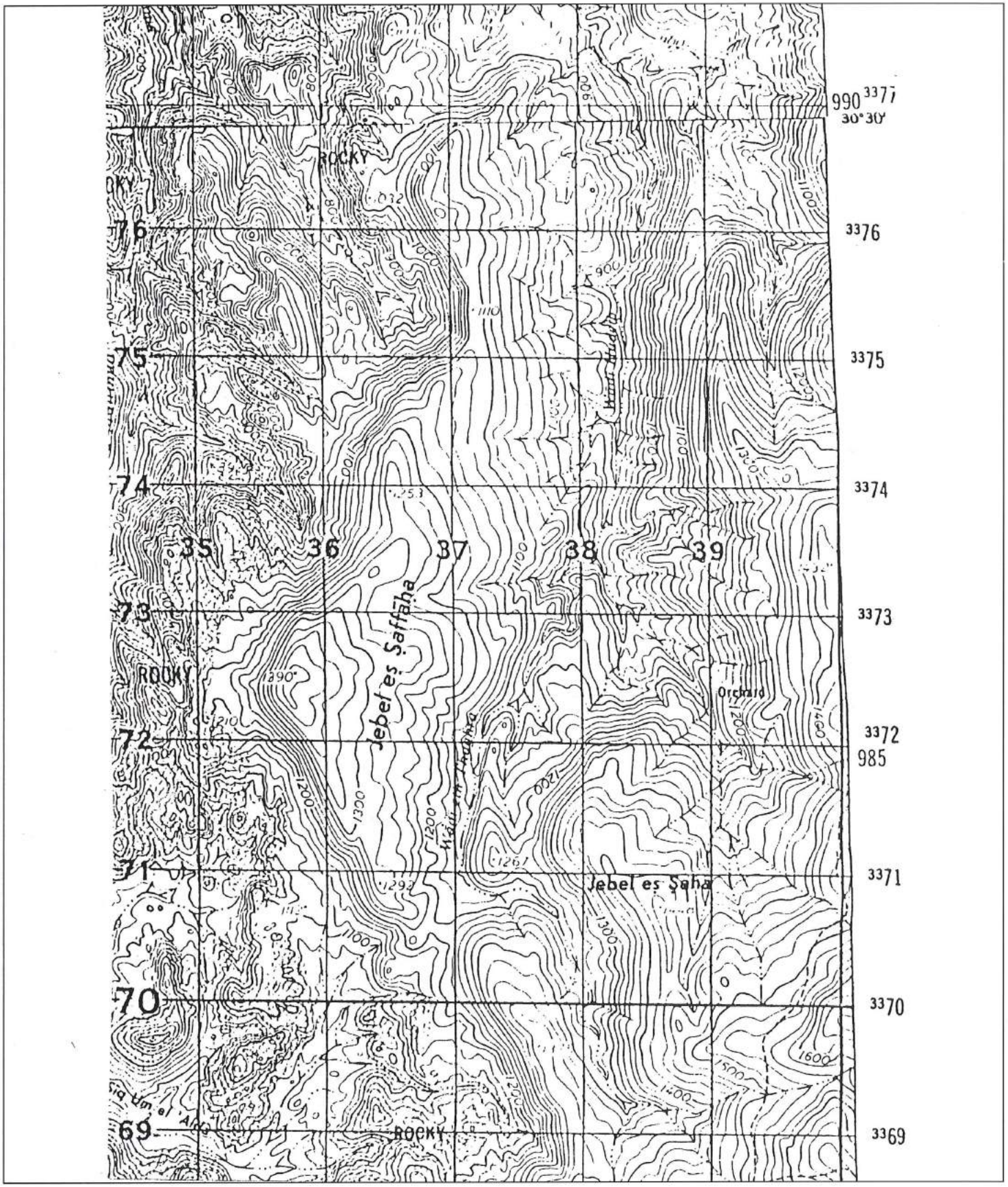
B) The Nabataean-Roman-Byzantine Period

We do not know what happened on Jabal aṣ-Ṣaffāḥa during the centuries after the Edomites' exit. According to their unmistakable pottery, the next settlers were Nabataeans of the first/second centuries AD. They must have found the remnants of terraces left by the Edomites. At *Kutla H* they started an agricultural project of respectable dimensions. A system of terraces built every 5 to 15 m, even now more than 2 m high, contained cave cisterns (FIG. 7) catching surplus and run-off water near a settlement of ca. 40 x 45 m. The whole installation reveals planning and execution by specialists, unimaginable without an either political or financial authority initiating the project and profiting from it. For geological reasons, rock-cut conduits and cisterns as in the sandstone of the Petra area could not be used on Cretaceous aṣ-Ṣaffāḥa. The Nabataeans wisely emulated the Edomites by using natural caves for catching and storing water.

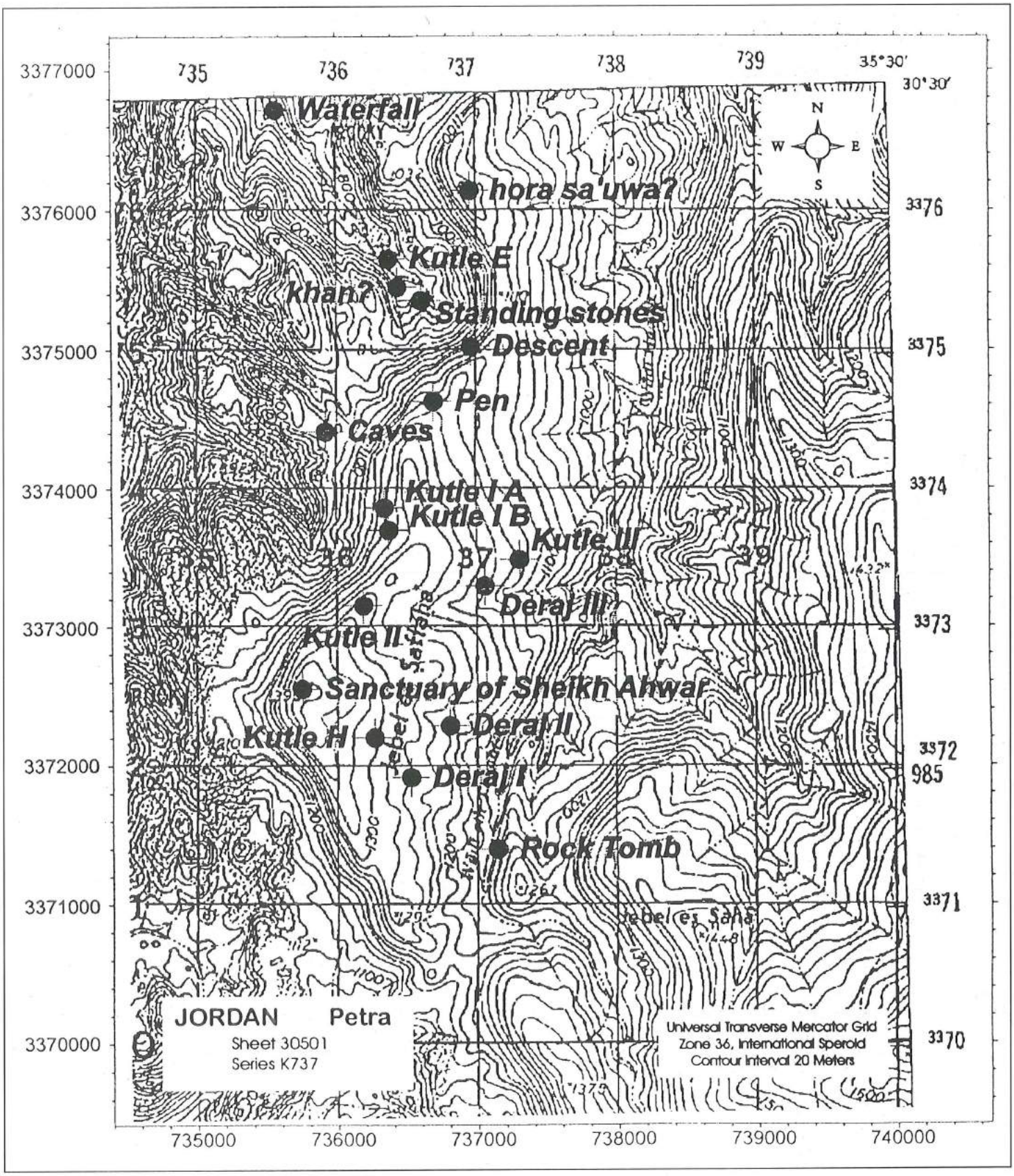
Due either to the lack of population pressure or be-

[1] The full report on the surveys of Jabal as-Saffāḥa will be published together with E. A. Knauf, U. Hübner and J. Hübl in *ADAJ*. The author has to thank Prof. Dr. W. Hütteroth (Univ. of Erlangen-Nürnberg) for reading the manuscript and for correcting small errors.

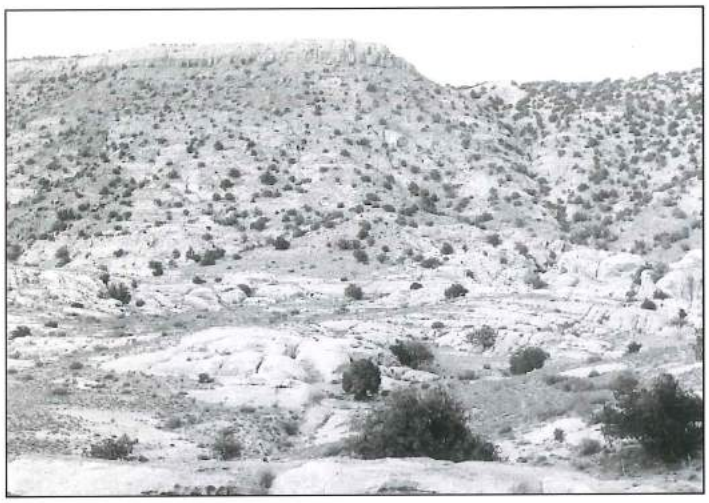
[2] About the Iron II (Edomite) pottery of the Greater Petra region cf. Lindner and Farajat (1987: 175-185); Lindner, Farajat and Zeitler (1988: 75-99); Lindner Knauf and Zeitler (1990: 193-225); Lindner (1992: 143-166); Lindner (1996: 245-278); Zeitler (1992: 167-176); Lindner, Knauf, Zeitler, Hübl (1996: 137-166).



1. Jabal aṣ-Ṣaffāḥa massif (Jebel eṣ Ṣaffāḥa) 15 km north of Petra (Palestine 1 : 50 000).



2. Jabal aṣ-Ṣaffāḥa with the localisations of 9 settlements. In addition: Sanctuary of Shayk 'Ahwar, Rock Tomb, "standing stones", descent to Kutla E, waterfall and alleged "hora sa'uwa" (J. Hübl).



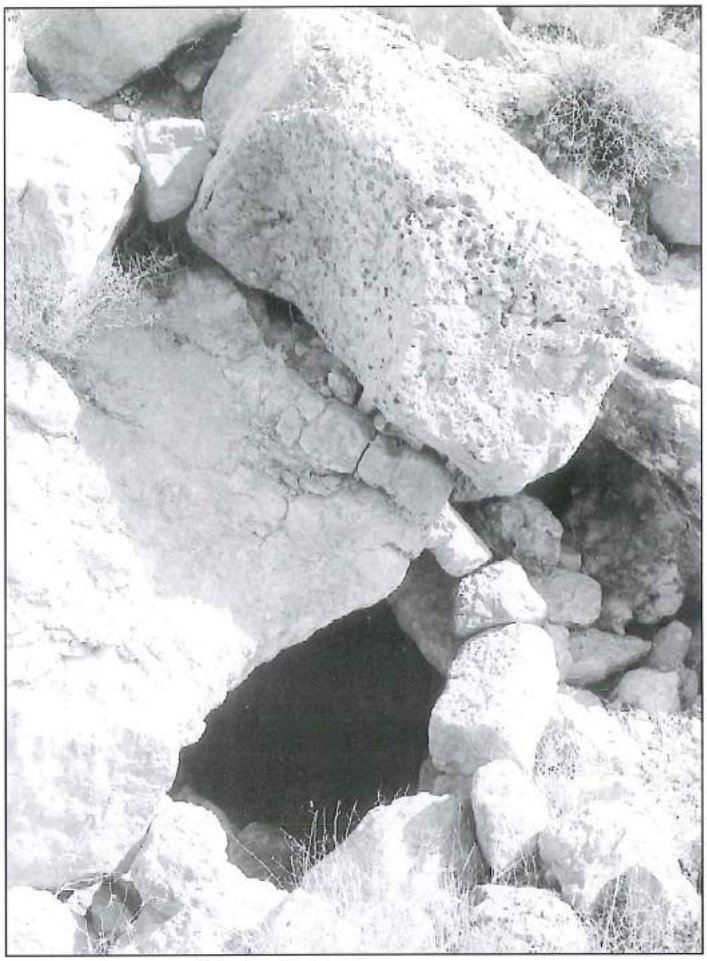
3. Jabal aṣ-Ṣaffāḥa.



4. Terraces on Jabal aṣ-Ṣaffāḥa.

cause Jabal aṣ-Ṣaffāḥa was far from highly frequented caravan routes, the Nabataean occupation started relatively late. The expansion of the agricultural realm of Petra may have been due to Rabb'el II who for several reasons had to modify the economic system of Nabataea, or to the new rulers of Palestine after 106 AD.

Almost in plain view from lower Kutla H and situated at the same wadi whose terraces and cave cisterns had supplied its inhabitants with water, another settlement, *Daraj I*, was founded around the third century AD, now definitely under Roman auspices. An outstanding, though not central, building there with three steps and a threshold was perhaps a *villa rustica*. The walls still standing to a height of 2.30 m today are of finely cut, regular and regularly laid limestone ashlars, a definite improvement on the masonry of Jabal aṣ-Ṣaffāḥa. Here, too, water was collected in cave cisterns and, for a shorter period, in basins formed by barrages within the wadi. Byzantine sherds indicate an occupation up to this period. There



5. Cave cisterns at Edomite Kutla II.



6. Surrounding area of Daraj III.

was also Iron II pottery, though without excavation no Edomite architecture can be attested.

Daraj II ca. 300 m to the north-east, originated later than Daraj I, but we do not know why it did not continue



7. Cave cistern at Kutla H.

into the Byzantine period as Daraj I did. Among 80 % Late Roman pottery sherds there was one *Terra Sigillata* rim which is due to further study. A considerable number of trees are profiting from the many terraces in the vicinity. The water supply was improved by a wadi running close to the settlement, barred with cross walls.

Kutla III seems to have been the latest foundation of the Nabataean-Roman period. Due to its location above cultivatable ground, which has been used as a pasture for a long time, the pottery is mostly crushed by goats and herdsmen (women). There were 40 % Iron II sherds but again without a trace of original or reused Edomite architecture. 40 % Byzantine sherds may indicate that Kutla III was reoccupied after a gap of more than 1000 years.

There was no single settlement on the western steep mountainside, but several "homesteads" on level places, partly with caves as habitats, cisterns or caches, and equipped with massive terrace walls. The surface pottery fitted to some Nabataean architectural traits, e.g. basins with conduits at rock walls and stone lintels inserted above doors. The area at 1030 m called "caves" on the map should definitely be surveyed again.

C) The Late Islamic Period

Nothing is known about the inhabitants on Jabal aṣ-Ṣaffāḥa, if there were any, after the end of the Byzantine empire. Apparently none of the former settlements was habitable anymore when around the twelfth century a Late Islamic population using a type of pottery which is being attributed to the Crusader-Ayyubid periods commenced to live on the mountain[3]. Directly by the rim of the western escarpment at 1200 m they built a village of 80 x 35 m. From the southern line of house walls erected on a rocky embankment they overlooked (and controlled) a well ('Ayn Kutla) which, at least nowadays, is continuously filled to the same level from a hidden spring. How this precious water supply functioned in the 12th century is not known, but it might have been the same as today. House walls were higher than 2 meters. One of the houses measures 5.0 x 3.5 m on the inside. The gap between doubled walls was filled with rubble. Between the well and the walls, a khan may have accommodated visitors. Generally, Kutla I as well as another village nearby is in the Ayyubid-Mamluk style. The surface pottery attests to an occupation of the remote place from the 12th century to the Mamluk period, though without any explicitly geometrical design. As in all other Late Islamic villages flour was produced with millstones provided with a second (excentric) hole.

The latest discovery on Jabal aṣ-Ṣaffāḥa was, in 1997, another Late Islamic settlement called *Kutla E* which had been spotted with binoculars in the previous year. Climbing 350 m down from Kutla I on an old track to the northeast, the settlement was found in the widening of a wadi at 850 m. A cross wall had to hold back flash floods before houses could safely be built. The meaning of a double row of standing stones on the way down remained a riddle. A relatively prominent building at the beginning of the settlement may have been a khan. The houses have been entirely destroyed. Remnants of walls can hardly be made out. The stone material seems to be poor and badly worked, but better worked ashlars appeared in the depth of a robber-hole. 1500 m after the lower end of the housing area the wadi ends in a small swamp with corresponding plant life. Water from an underground brook runs down in the direction to Wādī 'Arabah. There was little surface pottery of the meanwhile well-known Late Islamic ware.

Fluctuation: Causes and Consequences

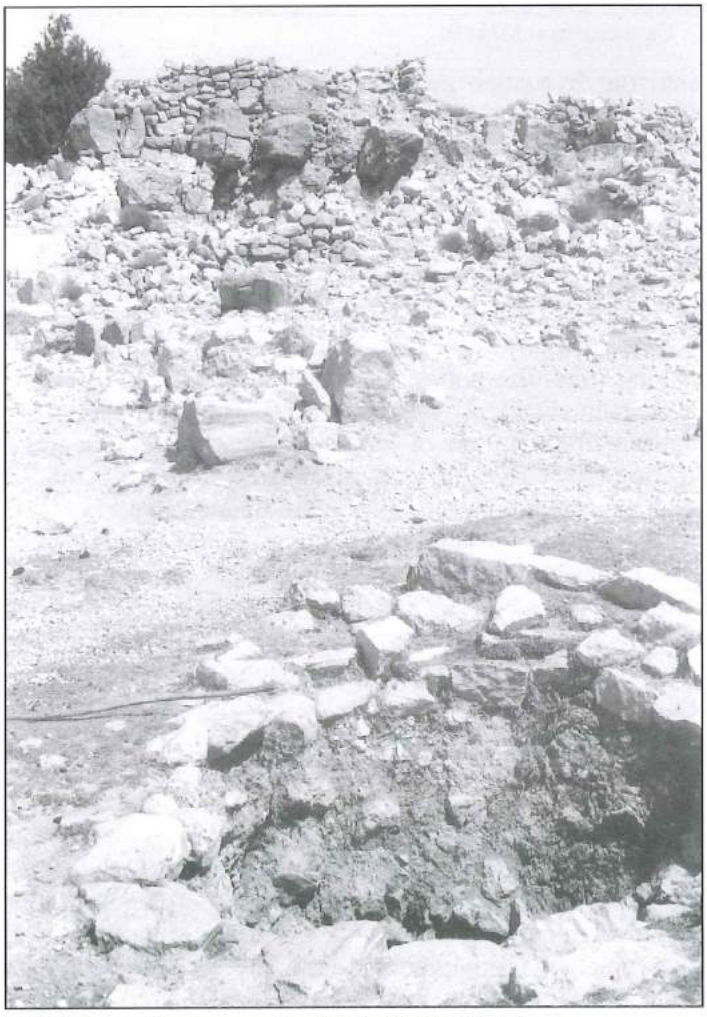
Edomites could subsist on Jabal aṣ-Ṣaffāḥa as in most parts of the Greater Petra region only on a combination of agriculture, horticulture and pastoralism, the latter also the "insurance" for dry seasons. Living on Jabal aṣ-Ṣaffāḥa was customary for pastoralists but required hard work from people who stayed on the spot in summer and winter. They had to possess or develop skills in building terraces and storing water and had to uphold traditions based on acquired experience and new teaching. The seemingly sudden appearance of agriculture, architecture and pottery surprises the surveyor as much as their sudden disappearance. The common use of similar pottery which could not all be similarly produced in every Edomite household or settlement but had to be bought or bartered,

[3] As to the Late Islamic "village pottery" cf. e.g. Brown (1987: 267-308); Brown (1989: 625-631); Vanini and Desideri (1995: 509-540); Lindner, Knauf and Zeitler (1996: 111-136).

attests to strong ties between Kutla II and other Edomite places. An example is the cooperation between strongholds "in the rocks" with agricultural "plateau settlements". The Edomite occupation of Jabal aṣ-Ṣaffāḥa reflects the increased demand for agricultural products and meat, mostly of goats, in and around the seventh century BC probably initiated by the Assyrian over-lords.[4] If there was some kind of habitation during the gap between the seventh/sixth century BC and the first/second century AD, the tribes left no archaeologically utilizable items.

In contrast to the apparently consequent and continuous Edomite occupation, the settling in the Nabataean to Byzantine periods was highly discontinuous. Again, but this time not so surprisingly as some 700 years before, the first Nabataean-Roman settlement turns up as a project fully developed in all respects: terrace-based agriculture and horticulture, architecture, water-supply and pottery. Of course, one could freely draw from the potential of the floruit of Nabataea, though the experience acquired in the sandstone area was of little avail on the limestone plateau. The use of cave cisterns had been demonstrated by the Edomites, who surely had also built the first terraces there.[5] It seems Kutla H prospered a long time, but there is no proof that it survived till the Byzantine Period. In Daraj I there was only pottery of the Roman-Byzantine periods. When it was founded, Daraj II was already a well-established settlement. Kutla III belongs entirely to the Byzantine period. According to its surface pottery it was reoccupied more than 1000 years after the last Edomite broke his pot. The Early Islamic period left no recognisable traces on Jabal aṣ-Ṣaffāḥa. The two Late Islamic settlements are surprising in their seemingly sudden appearance together with agriculture, architecture and pottery. These are found, however, around Petra in the Crusader-Ayyubid (Late Islamic) periods, when villages "hidden, remote and defensible" e.g. Anajil, Rwaysdah, Naq'a II and others, were rebuilt or reoccupied during the Crusader suzerainty.[6]

Together with deforestation, agricultural leaching of the soil and attacks from neighbouring tribes or from nomads coming out of the desert, the latter not to be attested during a prospecting survey, the people on Jabal aṣ-Ṣaffāḥa were clearly prone to suffer from catastrophies of all kinds. What the visitor can see with his own eyes is the devastation caused by earthquakes and flash floods in all settlements. Ten severe earthquakes which might have affected Jabal aṣ-Ṣaffāḥa are reported for the years 130-748 AD.[7] Just to show the earthquake frequency in the region from the eighth to the eighteenth century, al-Karak and ash-Shawbak were hit seven times, according to Russell seven times from the second century to 757 AD, including Petra the most. (Russell 1985: 37-59). More and more substantiated information about earthquakes in the Greater Petra region were recently collected by S.G. Schmid (1997: 413-420). Among the main causes of settling fluctuation, changes of the climate with continuous dry seasons have to be considered. The fifth century BC in the region was allegedly relatively humid, yet the following centuries were somewhat dryer. There was allegedly more rain in the first centuries of the Christian era, and less rain from the third to the sixth century with the seventh century even worse (Shehadeh 1985: 25-37).[8] It is easy to see how an area like the aṣ-Ṣaffāḥa



8. Well below the house walls of Late Islamic Kutla I .

[4] Cf. Lindner and Knauf (1997: 361- 364).
[5] Christopherson, Guertin and Borstadt (1996: 27).
[6] Lindner "Hidden, Remote and Defensible - Late Islamic Villages in the Petra Region" (in preparation).
[7] Amiran (1950-51: 223-226; idem 1952: 48-65); Kallner-Amiran (1959: 225-748); Hammond (1965 225-748); Hammond (1975: 5-29; idem 1980: 65-67); Ghawaneh (1985: 315; 1992: 53-60).
[8] According to Burton MacDonald (this volume), colder and more humid conditions prevailed during the Nabataean to Early Islamic periodes, as proven by studies on isotopes from wood, the occurrence of widespread silts and the level of the Dead Sea.

slopes, marginal by nature, suffered from even slight changes of the annual rainfall not to be foreseen by any means.

Dry periods were likely to be accompanied by epidemics, mostly bubonic plague. In Syria, again to show what might have happened in the aṣ-Ṣaffāḥa area between the seventh century BC and the twelfth century AD, plagues occurred from 1347 to 1491 every two or three years. Plagues of locusts were a terrible danger for crops, trees and gardens (Ghawanmeh 1985: 315).

Lastly, no settlement on Jabal aṣ-Ṣaffāḥa as in other remote places was viable without trade connections with the political and market centres of the area. Economic depressions affected life in the settlements as much as other catastrophies. The fate of Ṭawīlān and Buṣayra was surely felt in Edomite Kutla II, and prosperity or crisis at Nabataean-Roman-Byzantine Petra influenced the slope of Jabal aṣ-Ṣaffāḥa. Whether things went well or badly at ash-Shawbak or al-Karak during the Late Islamic period might have meant life or death for the settlements on the mountainside. On the other hand living in villages "remote, hidden and defensive" was sometimes and for limited periods of advantage in turbulent times. In other words: Life on Jabal aṣ-Ṣaffāḥa can be seen as a mirror reflecting natural, political and economic changes of the surrounding area of north-west Arabia over nearly 2000 years. As the chronology of the settlements is only based on prospective surveys and surface pottery, it will be a future task to precisely connect the settling fluctuation on the mountainside with over-all changes and catastrophies in the region.

Acknowledgements

The author wants to express his gratitude for the permission to survey the Jabal aṣ-Ṣaffāḥa massif by the Director-General Dr. Ghazi Bisheh of the Department of Antiquities of Jordan. His local representatives Mr. Suleiman Farajat and Mr. Hani Fallahat supported the surveys with transportation and other help. The project would not have been accomplished without my friends Prof. E.A. Knauf, Prof. U. Hübner, Dr.Ing. Johannes Hübl, Mrs. I. Künne, Mrs. E. Schreyer and Dakhlallah Qublan from Petra - Wādī Mūsā.



9. Arable land around Kutle I.

Bibliography

Amiran, D. H. K. 1950/51. A Revised Earthquake-Catalogue of Palestine. *PEQ* 1: 223-246.

——1952. A Revised Earthquake-Catalogue of Palestine. *PEQ* 2: 48-65.

Bienkowski, P. (ed.) 1992. *Early Edom and Moab - The Beginning of the Iron Age in Southern Jordan.* Sheffield, Archaeol. Monographs 7.

Brown, R. M. 1984. *Late Islamic Settlement Pattern on the Kerak Plateau, Transjordan.* M.A. Thesis New York State Univ.

——1987. A 12th Century A.D. Sequence from Southern Jordan Crusader and Ayyubid Occupation at el-Wu'eira. *ADAJ* 31: 267-308.

Christopherson, G. L., Guertin, D. P. and Borstadt, K. A. 1996. Increasing our Understanding of Ancient Jordan with ARC/Info. *ESRT ARC News* Fall : 27.

Ghawanmeh, Y. 1985. The Effect of Plague and Drought on the Environment of the Southern Levant During the Mamluk Period. Pp. 315 in *SHAJ* II. Amman.

——1992. Earthquake Effects on Bilad ash-Sham Settlements. Pp. 53-60 in *SHAJ* IV. Amman.

Hammond, P. C. 1965. *The Excavation of the Main Theatre at Petra 1961-1962. Final Report.* London

——1980 a. New Evidence for the 4th Century A.D. Destruction of Petra. *BASOR* 238: 65-69.

1980 b. A Firm Date (?) for the Fourth Century Earthquake Destruction at Petra. *BASOR* 238.

Johns, J. 1992. Islamic Settlement in Ard al-Kerak. Pp. 363-368 in *SHAJ* IV. Amman.

Lindner, M. 1992. Edom Outside the Famous Excavations: Evidence of Surveys in the Greater Petra Area. In Pp. 143-166 in Pp. 143-166 in P. Bienkowski (ed.)1992.

——1996. 9000 Jahre Siedlungs-geschichte der Ba'ja-Region in Jordanienein Forschungsgebiet der Naturhistorischen Gesellschaft Nürnberg. *Das Altertum* 41: 245-278.

——in prep. *"Hidden, Remote and Defensible" - Late Islamic Villages in the Petra Region.*

Lindner, M. and Farajat, S. 1987. An Edomite Mountain Stronghold North of Petra (Ba'ja III). *ADAJ* 31: 175-185.

Lindner, M., Farajat, S. and Zeitler, J. P. 1988. Es-Sadeh - An Important Edomite-Nabataean Site in Southern Jordan. Preliminary Report. *ADAJ* 32: 75-99.

Lindner M., Farajat, S. Knauf E. A. and Zeitler, J. P. 1990. Es-Sadeh: A Lithic, Early Bronze - Iron II (Edomite) Site in Southern Jordan. Report on the Second Exploratory Cam-

paign 1988. *ADAJ* 34: 193-225.

Lindner, M., Knauf E. A., Zeitler, J. P. and Hübl, J. 1996 Jabal al-Qseir. A Fortified Iron II (Edomite) Mountain Stronghold in Southern Jordan, its Pottery and its Historical Context. *ADAJ* 40: 137-166.

Lindner, M., Knauf, E. A. and Zeitler J. P. 1996. An Edomite Fortress and a Late Islamic Village Near Petra (Jordan). Khirbat Mu'allaq. *ADAJ* 40: 111-136.

Lindner, M. and Knauf, E. A. 1997. Between the Plateau and the Rocks - Edomite Economic and Social Structure. Pp. 261-264 in *SHAJ* VI. Amman.

Lindner, M., Knauf, E. A., Hübl, J. and Zeitler, J. P. 1997. An Iron Age (Edomite) Occupation of Jabal Al-Khubtha (Petra) and Other Discoveries on the "Mountain of Treachery and Deceit". *ADAJ* 41: 177-188.

Russell, K. W. 1985. The Earthquake Chronology of Palestine and Northwest Arabia from the 2nd through the mid-8th century A.D. *BASOR* 260: 37-59

Schmid, S. G. 1997. Nabataean Fine Ware Pottery and the Destruction of Petra in the Late First and Early Second Century A.D. Pp. 413-420 in *SHAJ* VI. Amman.

Shehadeh, N. 1985. The Climate of Jordan in the Past and Present. Pp. 25-37 in *SHAJ* II. Amman.

Vanini, G. and Desideri, A. V. 1995. Archaeological Research on Medieval Petra. A Preliminary Report. *ADAJ* 39: 509-540.

Zeitler, J. P. 1992. "Edomite" Pottery from the Petra Region. Pp. 167-176 in P. Bienkowski (ed.) 1992.

John Peter Oleson
University of Victoria
Victoria B.C.
Canada

John Peter Oleson

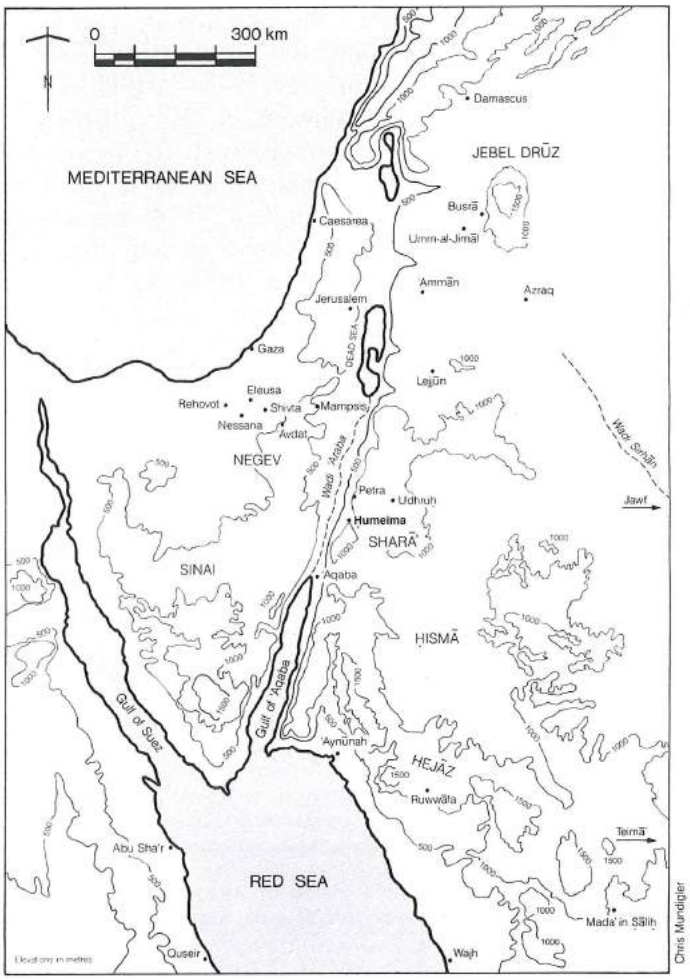
King, Emperor, Priest and Caliph: Cultural Change at Ḥawar (Ancient al-Ḥumayma) in the First Millennium AD

Introduction

Ancient Ḥawar, now called al-Ḥumayma (or Humeima), was a settlement centre in Edom, the desert region of southern Jordan (FIG. 1). According to Greek historical tradition, the Nabataean King Aretas III founded Ḥawar in the 80s BC. The historical context suggests that King Aretas hoped Ḥawar would serve as a centre for sedentarization of the nomadic Nabataean pastoralists who occupied the area. Through careful management of the meager spring water and precipitation, the resulting community was able to enjoy a settled existence based on agriculture, stock-raising, and servicing caravans. A modest prosperity continued through the Roman, Byzantine, and early Islamic periods, until the site was essentially abandoned around AD 750.[1] In deference to the conference theme of "Jordan by the Millennia," this paper examines the changes in the cultural foci of the settlement across the 800 years of its existence, as seen in the organization of the site and its structures. Since excavation of the settlement centre is incomplete, many of these observations remain tentative.

Four main cultural foci or cultural "flavours" stand out at Ḥawar during the 800 years of most intense occupation: recently and partly sedentarized Nabataean pastoralists, farmers, and traders (first century BC to first century AD), Roman military administrators (second to fourth century), Byzantine clergy and congregations (fifth to seventh century), and the farmers, traders, and revolutionaries of the Abbasid family (AD 690-750). Each group or cultural period left its own special mark on the architecture, the artifacts, and the ecofacts of al-Ḥumayma.

What does "cultural flavour" mean? The phrase is not entirely satisfactory, but I hope it may help get my point across. Obviously, the terms "Nabataean," "Roman," "Byzantine," and "Abbasid" should not be used as simple chronological indicators. Nevertheless, at certain periods the elite individuals who controlled Ḥawar belonged to these cultural groups, and their ideals and goals affected the direction of development in the settlement. To be sure,



1. Location of al-Ḥumayma.

[1] The author has directed six seasons of excavation at al-Ḥumayma since 1991. Funding has been provided by the Social Sciences and Humanities Research Council of Canada, The Taggart Foundation, the Van Berchem Foundation, and The American Schools of Oriental Research. I am very grateful to my co-directors K. 'Amr, R. Foote, and R. Schick for their assistance and advice during the project, and during the composition of this article. For recent reports, see Oleson 1995, 1996, 1997a, and Oleson *et al.* 1995, 1998.

individuals of Nabataean heritage, more or less indistinguishable from their independent ancestors, very likely continued to form the bulk of the population of Ḥawar long after the Roman conquest and the formation of the Provincia Arabia—probably until the abandonment of the site. First of all, there are no obvious major disruptions in the archaeological record across the whole site. In addition, the Nabataean ceramic tradition continued to evolve throughout the "Roman" and "Byzantine" periods at Ḥawar (personal communication: K. 'Amr). Finally, the family and place names in the sixth-century Petra papyrus archive document the continuity of the Nabataean culture around Petra, the cultural capital of the region, well into the Byzantine period (Koenen 1996). The racial background and/or the cultural education of the elite, however, changed along with the political situation. In succession, Roman or Byzantine military administrators, Orthodox or heterodox clergy, and the ambitious descendants of 'Abd-Allāh ibn al-'Abbās shaped the function and appearance of the settlement to suit their own new and very different priorities. The restrictions of the desert environment remained, although they were tempered by Nabataean and Roman hydraulic skill, but the appearance of Ḥawar and the patterns of life in it were shaped by each new cultural step.

Nabataean Ḥawar or Auara

According to a fragment of Uranios' *Arabica* preserved in Stephanus Byzantinus (s.v. Αὔαρα) the Nabataean King Aretas III (ruled 85-62 BC) founded Ḥawar in response to an oracle given to his father Obodas I: "Seek a place Αὔαρα."[2] As Uranios notes, *auara* means "white" in the "Arabian and Syrian languages." It would consequently also be possible to translate the oracle as "Seek a white place" or "Seek a place called 'White'." The original Semitic word was probably HWR (perhaps vocalized as *ḥawar*).[3] Obodas seems to have been king when the oracle was given, but it is not clear whether or not Aretas had succeeded him by the time he followed the instructions. Aretas went into the desert, followed a vision of a man clad in white riding on a white camel, and founded the town below a hill where the vision disappeared.

The emphasis on "white," still suggested by the name al-Ḥumayma that appeared in the early Islamic period, most likely refers to the pillowy hills of pure white sandstone of the Disi Formation, to the east and north of the site.[4] No pre-existing settlement is mentioned by Uranios, and indeed no sherds clearly earlier than the first century BC have appeared in six seasons of excavation.[5] Stone tools from the Upper Pleistocene through Chalcolithic periods carpet the hills around the site (see Henry 1992; Henry and Hietala 1997), and there are traces of an Iron Age Edomite tower several kilometres to the northwest (unpublished), but only wandering Bedouin—like the mysterious camel rider Aretas saw—occupied the region. The King's Highway must have passed close by or even across the site, since its successor the Via Nova Traiana passed through it too, but apparently there was nothing to attract early travelers.[6]

Why did Aretas found this settlement, and why at this lonely spot? What oracle did his father consult, and for what sort of problem? Identification of the oracular sanctuary—assuming the oracle was delivered at a sanctuary—is a difficult problem for which I have as yet no solution, but Nabataean remains have been found at many sites that are associated with oracles: Palmyra, Baalbeck,

2 Jacoby 1958: 340. West 1974 dates Uranios to the second half of the fourth century, but von Wißmann (1968: 1291) puts his work somewhere in the first century AD. On the dates of the Nabataean kings, esp. Obodas II, see now Fiema and Jones 1990. Both Aretas III and Aretas IV were preceded by kings named Obodas, but only Aretas III seems to have been the offspring of his predecessor, Obodas I. Aretas IV was a man named Aineias, who took over the kingdom from Obodas III after a struggle with Syllaeus and only then assumed the royal family name Aretas (Josephus, *Antiquities* 16.294-99). Uranios' account of the founding of Auara makes no mention of Syllaeus, who more or less ruled for the aged and weak Obodas III (Josephus, *Antiquities* 16.220, 279-80, 286-92), and no hint of the subsequent struggle with Aineias. Furthermore, the presence of significant amounts of ceramics of the mid-first century BC and some coins of Aretas II and III found at the site strongly suggest Aretas III as the founder.

3 Graf 1992a. It is also possible that the city name was vocalized as Ḥawara. Ḥawar is closer to the Arabic root, but the final "a" sound of Auara and Hauarra may indicate that a final "a" was involved. Musil (1926: 59 n. 20) notes that during his visit the Bedouin referred to the site as both al-Ḥumayma and Ḥawara. I started off transliterating the site's Arabic name as "Ḥumayma," in accordance with local practice, then switched to "Humeima" on the advice of the editorial board of *ADAJ*. The official spelling, however, has now returned to "Ḥumayma," which I have re-adopted.

4 One meaning of the Arabic root ḤMM is "white." I am grateful to R. Schick for advice on this matter. See also Bowersock 1983: 173-74.

5 Graf 1992b: 255 mentions finding a bowl rim and amphora handle of the second century BC during his survey at al-Ḥumayma in 1980, but nothing similar has turned up in the tens of thousands of excavation sherds processed since 1991. If correctly identified, these Hellenistic sherds may result from occasional loss by a traveler or travelers.

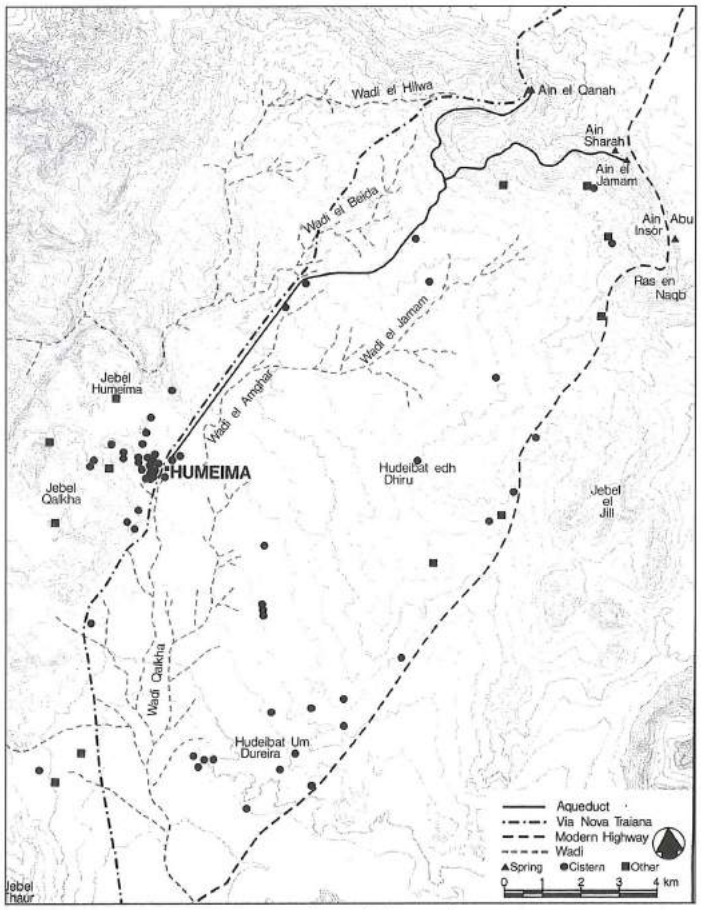
6 For a full discussion, see Graf 1992b, 1995: 250-58. The *Via Nova* follows the line of the Nabataean aqueduct for much of its route from the 'Ayn al-Qanāh spring down to the valley floor, where it cuts directly across the rolling badlands towards the settlement centre, while the aqueduct swings east to join up with the 'Ayn Jamām aqueduct branch. Surviving stretches of paving show that the road and aqueduct were reunited approximately 6 km north of Ḥawar, the road coming in from the west. No further traces of the road can be identified at present between al-Ḥumayma and al-Quwayra, other than a possible milestone on the west side of the Wādī Qalkha about halfway between the two sites (personal observation by Oleson, 1989). The *Via Nova* must have crossed over the aqueduct channel at some point just north or immediately west of the fort, allowing access to the fort and continued passage down the sloping ridge towards Ḥawar. It would not have made sense for either the *Via Nova* or its predecessor to cross the Wādī al-Qanāh east of Ḥawar on its way toward the fort at al-Quwayra, or the soft, sandy plain southeast of Ḥawar. The most stable and direct route lay and still lies along the edge of the rocky slopes that rise from the west side of the plain, immediately south of Ḥawar.

Sidon, Kos, and Delos.[7] In any case, oracular guidance is a *topos* of Greek city foundation stories (Fontenrose 1978: 137-44), and Uranios or some other source may simply have made this story up to justify the punning name. The camel rider, however, is an appropriate symbol of the fiercely independent, desert dwelling Nabataeans who supported themselves through pastoralism and the caravan trade.[8] Scholars have frequently noted the contrast between the image of the Nabataeans provided by the mid-fourth-century BC historian Hieronymos of Kardia (Diodorus 19.94.2-10) and that presented in the late first century BC by Strabo (16.4.26). The former were nomads who lived in the desert and eschewed agriculture, wine, and permanent houses. The latter were great wine-bibbers who lived in magnificent stone houses filled with local and imported luxuries (e.g. Bowersock 1983: 12-13). The foundation of Ḥawar in the first century BC was an expression of this dramatic process of sedentarization.[9]

This particular site was selected for settlement because the topography was suited to an extensive and reliable water-supply system based on local run-off, and because it forced the King's Highway to pass close by. There is also relatively easy passage westward through deep valleys into Wādī 'Arabah. In addition, the adjacent loessal plains are fertile and can readily be watered by run-off. It may not be a coincidence that the settlement is located at the most southerly point that could be reached by an aqueduct fed by springs on the ash-Sharāh escarpment—at least without very extensive engineering projects.

There is still dispute about why sedentarization of his subjects was a priority for Aretas, but the scope of his vision and the mechanism for its realization are clear.[10] If Obodas did in fact consult an oracle, he may have been seeking solutions to economic and social problems resulting from changes to Near Eastern trade routes that affected his kingdom. Additionally, this act, along with the foundation of other towns, may have been part of a strategy of state formation, an attempt to subdue the nomadic, fiercely independent Bedouin by attracting them to population centres near good agricultural land—thereby reinforcing the King's office and social control. Whatever the problem was, sedentarization and involvement in a mixed agricultural, pastoral, and commercial economy were felt to constitute the solution.

The provision of water drew wandering Nabataeans to the site, particularly an aqueduct that brought water from 'Ayn al-Qanāh, 17 km away on the ash-Sharāh escarpment (FIG. 2). Two large reservoirs were built in the settlement centre as well, positioned so they filled reliably with run-off water from the large natural catchment to the north. These hydraulic projects were regal in scale and probably somehow funded by the King. In addition, eight cisterns were soon built nearby by individuals for private use. Logic and some ethnographic parallels suggest that a water system and tents came first; stone houses later. This reconstruction has recently found support in the excavation of the Nabataean house at az-Zanṭūr at Petra.[11] In 1996 a first-century AD campground was found on the edge of Ḥawar as well, adjacent to a first-century AD or BC cistern (FIG. 3, Field C124). The evidence consists of extensive surface deposits of largely intact ceramics, mostly small bowls. There are no other structures nearby. In contrast, the nearly identical cisterns scattered through-



2. Map of the al-Ḥumayma region, with aqueduct.

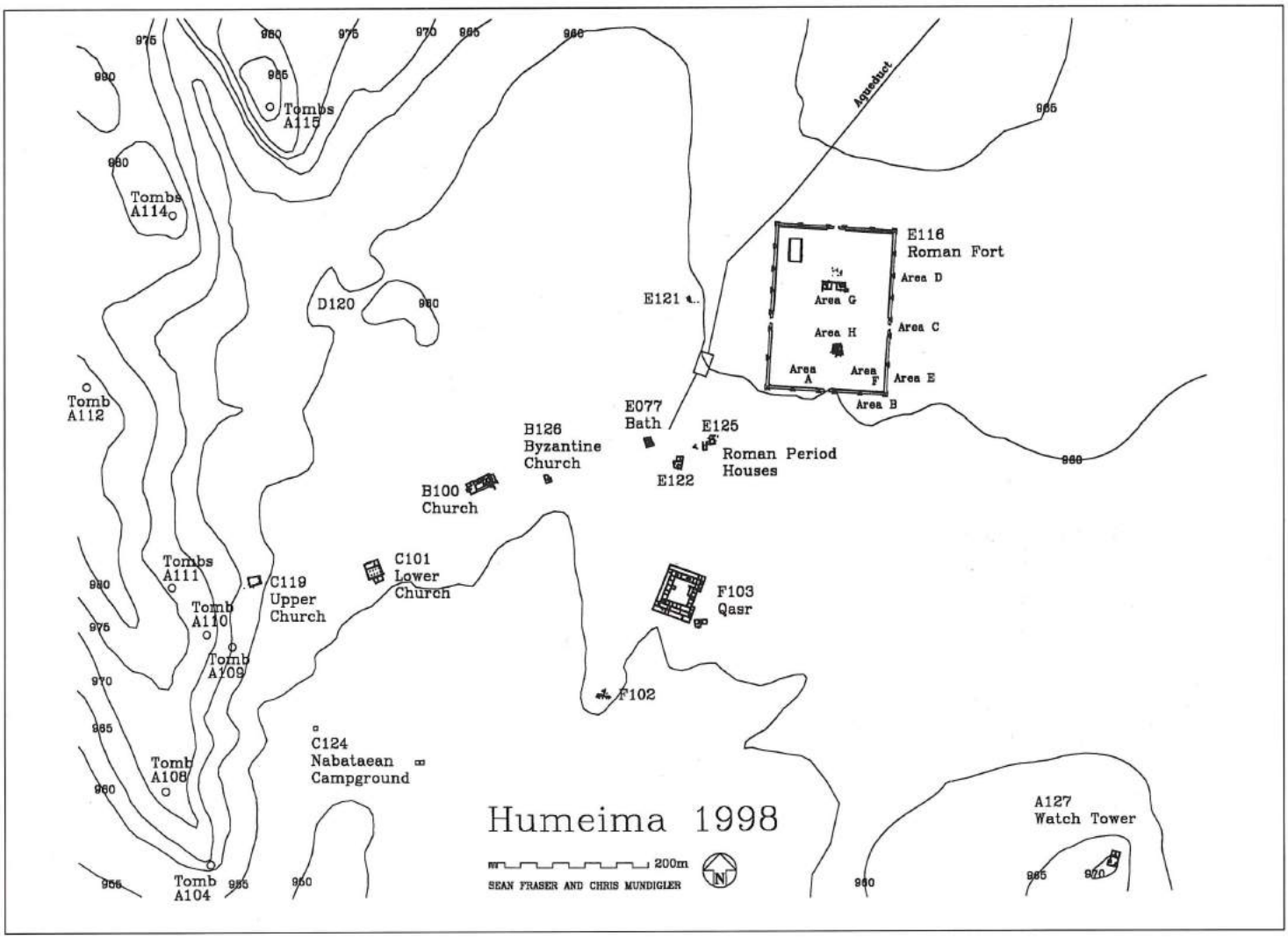
7 Wenning 1987: 22-24. The design of the traditional type of Nabataean cistern with roof slabs supported on transverse arches most likely was picked up by Nabataean visitors to Delos in the second century BC; see Oleson 1995: 717-78.

8 Note the denarius struck by Scaurus in 58 BC to commemorate his campaign against the Nabataeans in 62 BC. The coin depicts King Aretas III kneeling next to a camel, added most likely as a geographical and cultural definer. There is a full discussion in Bowersock 1983: 34-35.

9 Bowersock 1983: 64.

10 There is an excellent discussion of the processes and reasons for sedentarization in Finkelstein and Perevolotsky 1990. On first-century BC. Nabataean ceramics as an expression of an urbanizing culture, see Parr 1978, 1990; cf. Graf 1992b on Nabataean urban development in the first century BC.

11 Parr's analysis of the transition from tents to stone houses at Petra in the first century BC has now been reconfirmed by the Swiss excavations at az-Zanṭūr; Parr 1990: 15-16; Stucky *et al.* 1996.



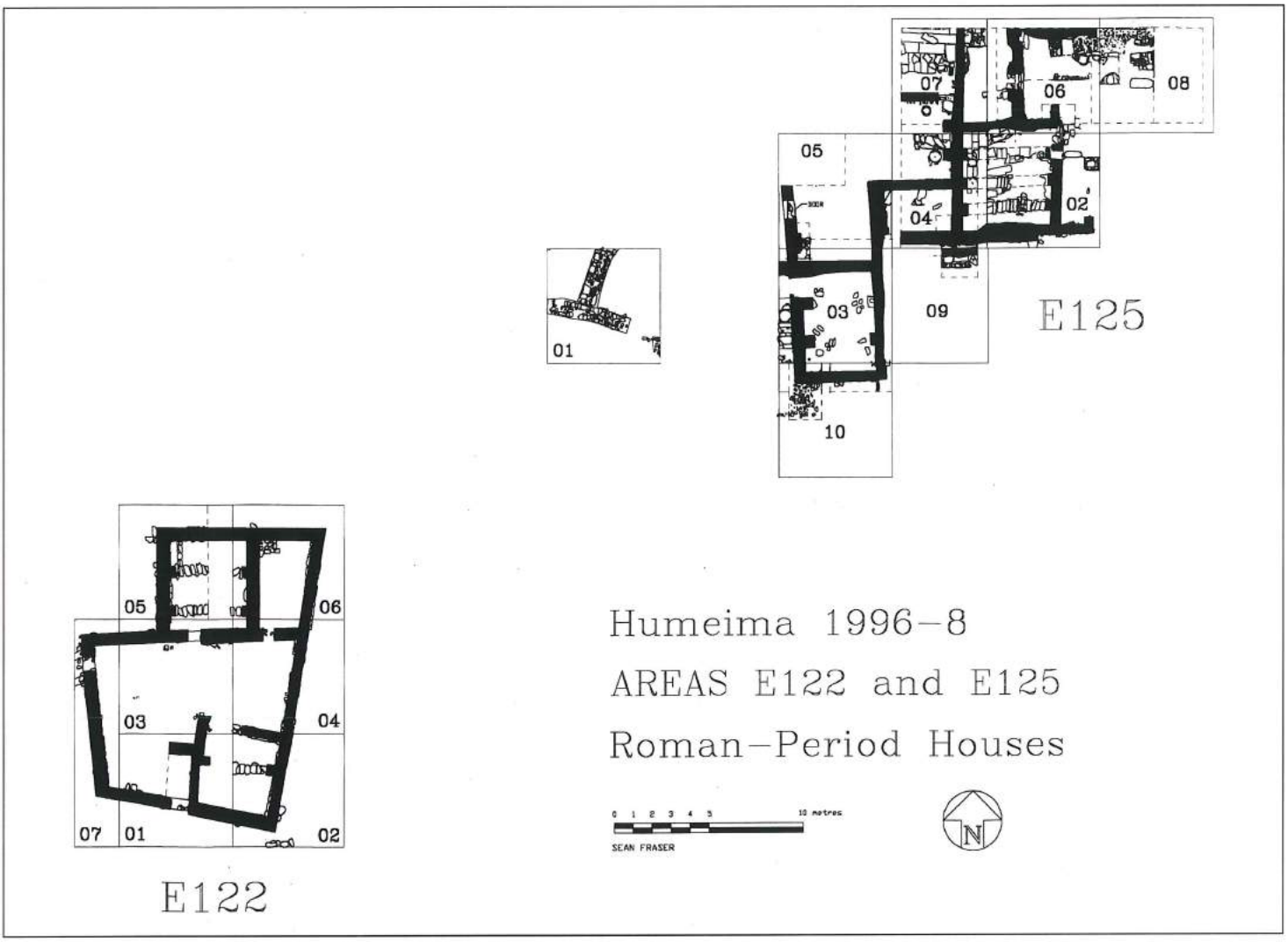
3. Al-Ḥumayma: Site plan with structures.

out the centre are always surrounded by substantial domestic structures. The campground supports our hypothesis that a public water-supply attracted semi-nomadic, tent dwellers, who then built run-off cisterns for exclusive clan or family use, which ultimately were incorporated into stone houses occupied by sedentary clan members.

After several years of searching, evidence also appeared in 1996 for Nabataean domestic architecture of the first and second century AD at Ḥawar (FIG. 3, Field E122, E125; FIG. 4). The houses were built of finely-cut stone blocks, or of mudbrick on a stone foundation, with frescoed walls and stone arches to hold up the wattle and daub roof. Although only small portions of these houses have been excavated so far, the artifacts recovered indicate the luxurious taste and the international contacts of the inhabitants. Water-supply systems and domestic architecture constitute the cultural "flavour" of Nabataean Ḥawar, quite appropriately for a pioneering settlement in the virgin desert.

Roman Ḥawar or Ḥauarra

Excavation has shown conclusively that Roman forces arrived in Ḥawar soon after the emperor Trajan annexed the Nabataean kingdom as the *Provincia Arabia* in AD 106. They built a large fort on slightly higher ground just outside the settlement centre of al-Ḥumayma—separated from the civilian activities, but close enough for surveillance of the population (FIG. 3, E116; FIG. 5). Water-supply naturally remained an important consideration, even though the Nabataeans had already solved the major problems. The topography of the ridge—selected for purposes of surveillance and defence—was not suitable for run-off water-supply systems. In consequence, the fort was placed close to the Nabataean reservoir at the end of the aqueduct, and the aqueduct itself was tapped to fill a reservoir inside the fort walls. The Romans also found new uses for the original Nabataean aqueduct system, diverting some of the water to a heated bath building outside the fort (Oleson 1990; Reeves 1996; Reeves and Ole-



4. Al-Ḥumayma: Plan of Roman period houses E122 and E125.

son 1997). Although associated with leisure rather than soldiering, this typically Roman structure was frequently found in or near Roman forts[12] (FIG. 3, E077, FIG. 6). Unlike the fort, the bath was located in the midst of some Nabataean houses.

The Roman way of life was appealing to most peoples along the frontiers of the Empire, and it was a way of life that could be learned.[13] The bath building at Ḥawar remained in use into the Byzantine and possibly into the early Islamic period, and the early fifth-century *Notitia Dignitatum* reports that (at some point in the Late Roman or Early Byzantine period) cavalry of local origin (*equites sagittarii indigenae*) were stationed in the fort—mobile archers possibly mounted on camels.[14] Although still in touch with their Arab roots, the inhabitants of Ḥawar were becoming Romanized.

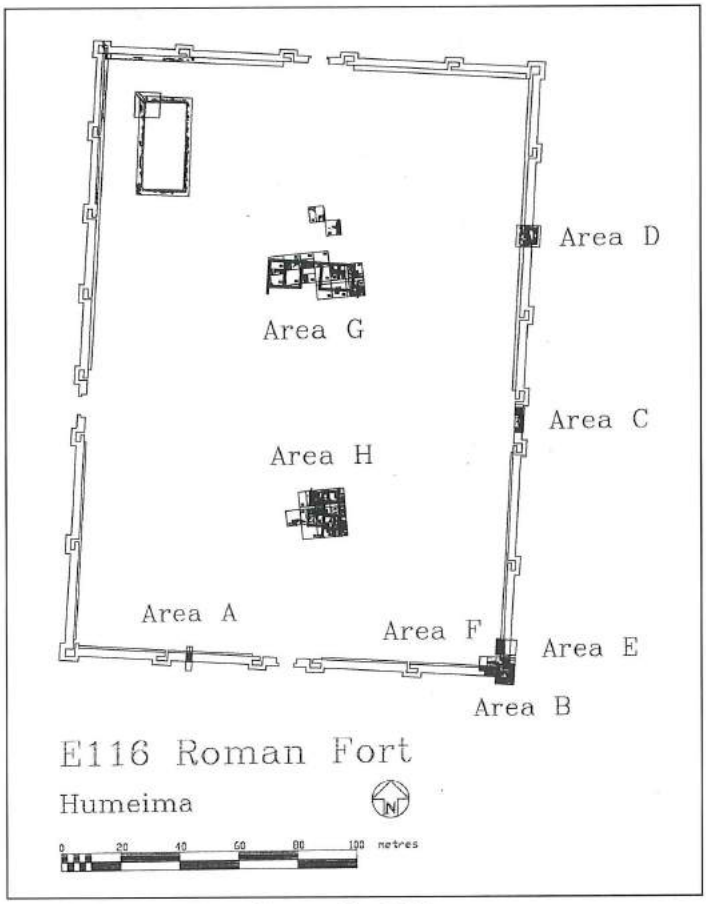
What was the purpose of the fort? Protection of an immediately adjacent frontier threatened by un-assimilated nomads? Reinforcement for a wide band of varied frontier defences? Administration and supervision of the settlement, the roads, and the surrounding desert area? Each of these objectives has been proposed, but in my opinion the administrative, supervisory function is the most logical.[15] During the first half of the second century, Roman forces

12 Reeves (1996) catalogues over 170 baths associated with Roman forts.

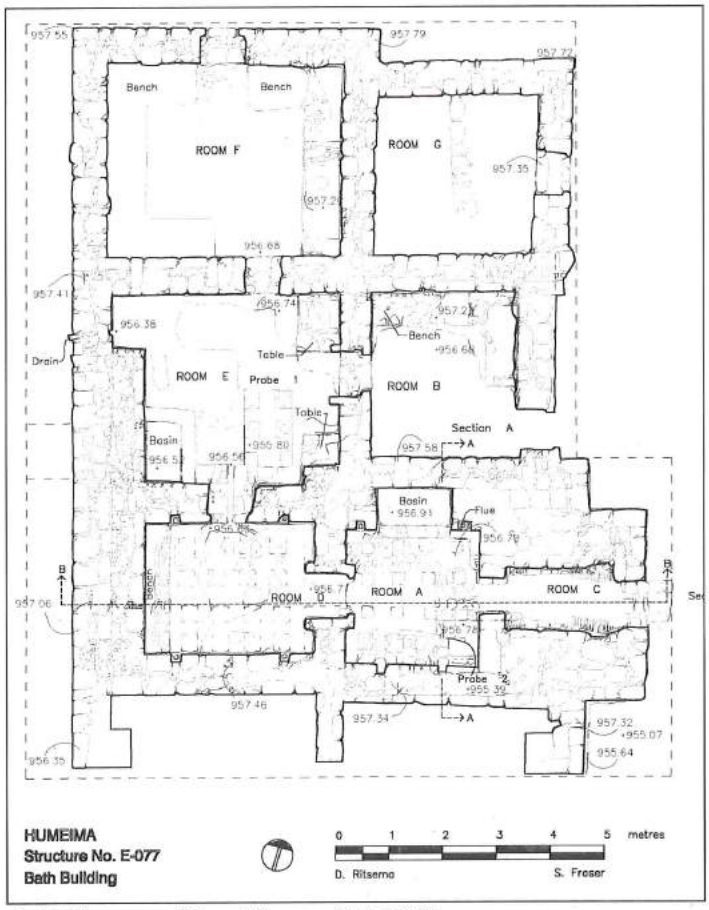
13 See Millar 1993 and Shahīd 1984a on the accomodations made between the local and Roman cultures.

14 Or 34.25. Although the *Notitia Dignitatum* appears to differentiate between *equites* and *dromedarii* (see also *CIL* III.93) no bones of horses have yet been found at al-Ḥumayma. The climate and footing would be very difficult for horses, and it is not inconceivable that the term *equites* in the *Notitia* may have been applied to cavalry mounted on camels as well as on horses. See also Dixon and Southern 1992: 32; Shahid 1989: 461, 468.

15 The bibliography concerning the controversy over the character and purpose of the limes in the *Provincia Arabia* is enormous and still growing. For a recent summary of the issues see Graf 1997 and Parker 1997. Most scholars now accept in some form the proposal (stated most fully by Isaac 1990) that the army had a largely administrative role in this region.



5. Al-Ḥumayma: Plan of Roman fort E116.



6. Al-Ḥumayma: Plan of Roman Bath E077.

occupying the Ḥismā had little reason to fear significant interference from northern Arabia, and the possible invasion routes from Persia lay farther north. Furthermore, the only source of potable water within the fort was provided by the long Nabataean aqueduct, which even a single saboteur could cut with ease. The large reservoir fed by the aqueduct was not roofed, and the water it contained consequently would have been of very poor quality—probably suitable only for the camel mounts. If security had been a major consideration, another site more suitable for a run-off water supply could have been found for the fort, or roofed cisterns built inside it to hold aqueduct water. Finally, our excavations seem to show that the fort was abandoned for a time at the end of the third century AD, just when Diocletian was building or re-building forts farther north along or close to the *Via Nova Traiana*. Diocletian's strategy can be more convincingly associated with protection against outside invasion.[16]

Why did Trajan or one of his immediate successors consider a large fort an appropriate response to the problem of administering Ḥawar, now also called Hauarra. Since the fortifications were far more extensive than necessary to fend off even large groups of marauding Bedouin, the symbolic value of the walls may have been as important as their strategic value to a Roman governor intent on avoiding trouble. As they drew water from their public reservoirs, the Nabataean shepherds could look up and see the battlements looming over the settlement, an instructive image of Roman urbanism and imperial administration. The soldiers, in turn, could supervise traffic moving along the *Via Nova* and down the steep valleys westward to Wādī 'Arabah, while maintaining a watch over a nexus of water-supply systems critical to social and economic stability in the immediate vicinity. In the early years of the new *Provincia Arabia*, it must have been particularly important to maintain a visible and impressive presence at this nomadic crossroads and watering station. In the second century, the fort seems to have been the largest structure by far along the 150 km of road from al-'Aqaba to Petra, a beacon of Romanness in a desert seemingly empty but constantly scanned by the inquisitive eyes of its inhabitants.

Another aspect of Roman culture at Ḥawar was what has been called the "epigraphic habit" (see Meyer 1990,

16 Parker 1986: 131-33. Graf 1989 makes the intriguing proposal that Zenobia's revolt caused significant disruption in Arabia in the third century.

Woolf 1996). All the inscriptions so far found at al-Ḥumayma that date prior to the fifth century and consisted originally of more than a few words or letters, have appeared in the fort: one Latin inscription on a monumental statue base, and two altars inscribed in Greek.[17] Two fragmentary Greek *dipinti* have also turned up on ceramics found in the fort. Inscriptions so far are almost non-existent in the rest of the habitation area: sections of the marble chancel screen from the fifth-century Lower Church are inscribed in Greek, and a Muse is named on a fourth-century fresco in the E125 houses. Three small grave stelai from the western necropolis carry one fragmentary Greek and two fragmentary Nabataean inscriptions.[18] This corpus is not extensive, but the absence of monumental Nabataean inscriptions or of ceramic graffiti is notable. Nabataean graffiti of undetermined date were pecked into the rock around a Dhushara relief several kilometres south of the settlement centre (see Graf 1992a), and Nabataean and Thamudic graffiti can be seen at a first or second-century dam and associated Dhushara image several kilometres further on behind the Jabal Qalkha (Oleson 1991). These graffiti, however, and the occasional Nabataean graffiti pecked on exposed bedrock elsewhere around the al-Ḥumayma catchment, consist of the laconic greeting and personal name typical of the genre. There is one exception far up the escarpment at 'Ayn Abū Insūr, 20 km to the north.[19] Although the sample is still small, literacy among the individuals in the Roman fort, or at least among the elite in the Roman fort, seems to have been more developed than elsewhere at pre-Byzantine Ḥawar. It is instructive of their social mores that Nabataean individuals in and around Ḥawar preferred rural inscriptions asserting their individuality, rather than public, collective messages. The Roman epigraphic habit is part of a society that focussed on more complex relationships and assertions (Woolf 1996).

In addition to baths and inscriptions, the Romans brought new dietary habits to Ḥawar. Frying pans are found in the fort alongside the stewpots more typical of the region, and pigs begin to appear in the faunal remains. Oyster shells are found in the fort in large quantities as well, indicating that fresh oysters were imported by fast camel from al-'Aqaba.[20] They are very rare elsewhere on the site. It is striking, however, that we have found only one sherd from a Mediterranean wine amphora anywhere around the site, from a third or fourth century Aegean type (Peacock and Williams 1986: 193, Class 47). Why fresh oysters but not wine amphoras? Both are awkward to transport. Either the wine arrived in leather wine sacks, or the soldiers and the rest of the population drank locally brewed beer or just made do with water.

The cultural flavour of Roman Ḥawar involves administrative intrusion backed by a monumental but essentially symbolic fortification, the luxurious elaboration of the act of washing embodied in a heated bath, and the introduction of two new languages and a heightened, collective role for literacy. Ḥawar was very much a provincial Roman settlement.

Byzantine al-Ḥumayma

The Arabs were early, enthusiastic adherents of Christianity, particularly in the *Provincia Arabia*, and by the mid-third century they provided what may have been Rome's first Christian emperor—Philip the Arab (244-249).[21] The population of Ḥawar was no exception to this tradition of spirituality, and at least five large churches were built in the fifth and sixth centuries, dramatically changing the appearance of the small settlement.[22] Conversely, the fort was abandoned early in the fifth century, as the Byzantine emperors turned their eyes elsewhere and changed the strategy of imperial administration and defence. At Ḥawar, religious interests supplanted military assertion.

Although none of the churches so far identified was embellished with the mosaic floors seen, for example, in the contemporary church at Petra (Peterman 1994: 549-50), even the smallest incorporated fine marble columns or chancel screens carved with crosses and tendril motifs. The marble, visually identical with that found at Petra, has been attributed by source analysis to quarries at Proconnesus and Thasos.[23] Importation through some port such as Gaza must have involved enormous effort and expense.

---

17 H95.0599.01, CΩTHP.../ΠPΩTON.../THN ANEΘHKEN... H95.0596.01, ΔΙΙ METICTΩ / KAΠETΩ[ΛINΩ] / HΛ[IO-ΠOΛITANΩ?]/... Unfortunately, the large, two-line Latin inscription was in poor condition from weathering, and only the middle portion of the second line could be partly deciphered. The legible characters seem to read]PRAESENEMP[. Another conjecture is]PRAESEDE.....RAT[. Although neither conjecture makes sense on its own, it might be that praeses lies hidden in the text, or mention of a dedication or structure (*prae sede*). The final letter should be a verb, which would accord well with]RAT..

18 The Muse is Clio (κλεώ), appropriately enough the Muse of History. One Muse implies the original presence of six more in the now fragmentary fresco.

19 This inscription was removed in 1998 in preparation for road work. Graf intends to publish it as part of his study of graffiti in the region.

20 Seafood, particularly oysters, was a favoured delicacy in the Roman military diet (Davies 1989: 193).

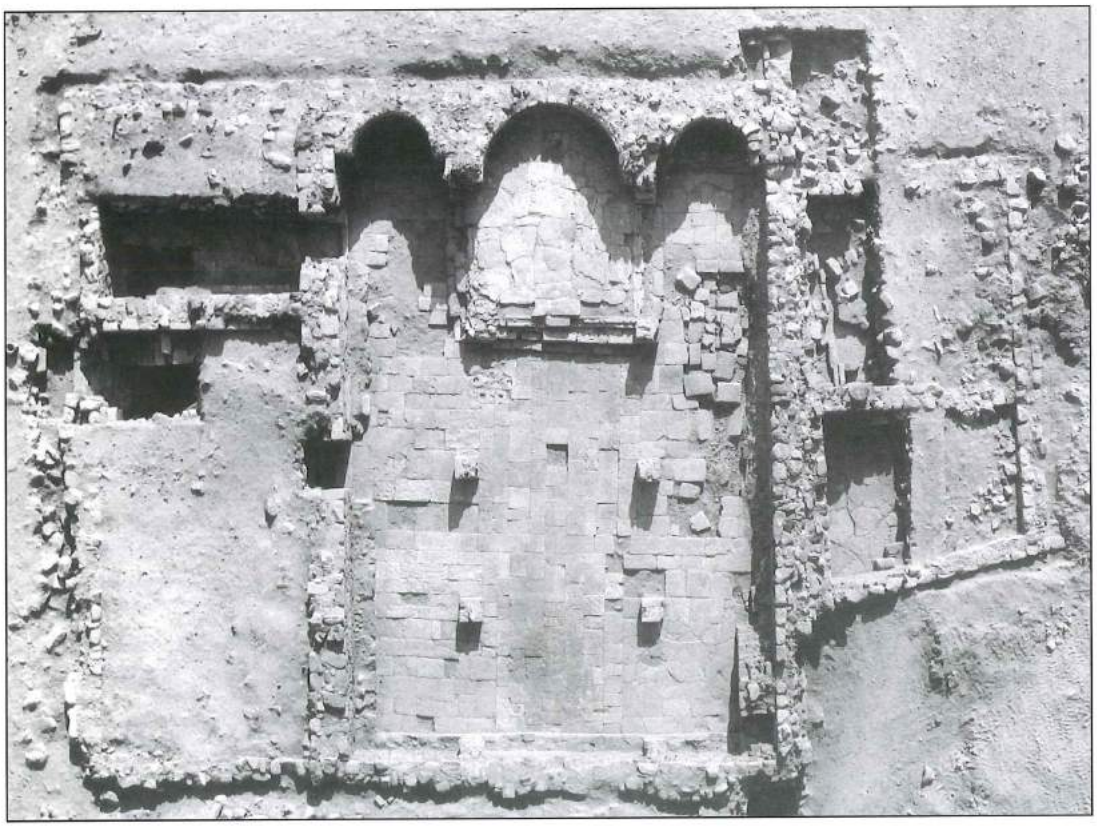
21 This is a controversial, but appealing, suggestion; for a full discussion, see Shahid 1984a: 65-93. On the pre-Islamic Arab enthusiasm for Christianity, see Shahid 1984b: 16-19 and *passim*.

22 C101 (Lower Church), C119 (Upper Church), B126, B100, and F102; the last two were reused for habitation in the early Islamic period. See Schick 1995b. Sporadic finds of marble chancel screen fragments and a block with a cross suggest that the large, unexcavated structure just north of the early Islamic Qaṣr (F103) may be a church as well (E128).

23 Marble analysis carried out by Norman Herz; CAS# 94118-94125.

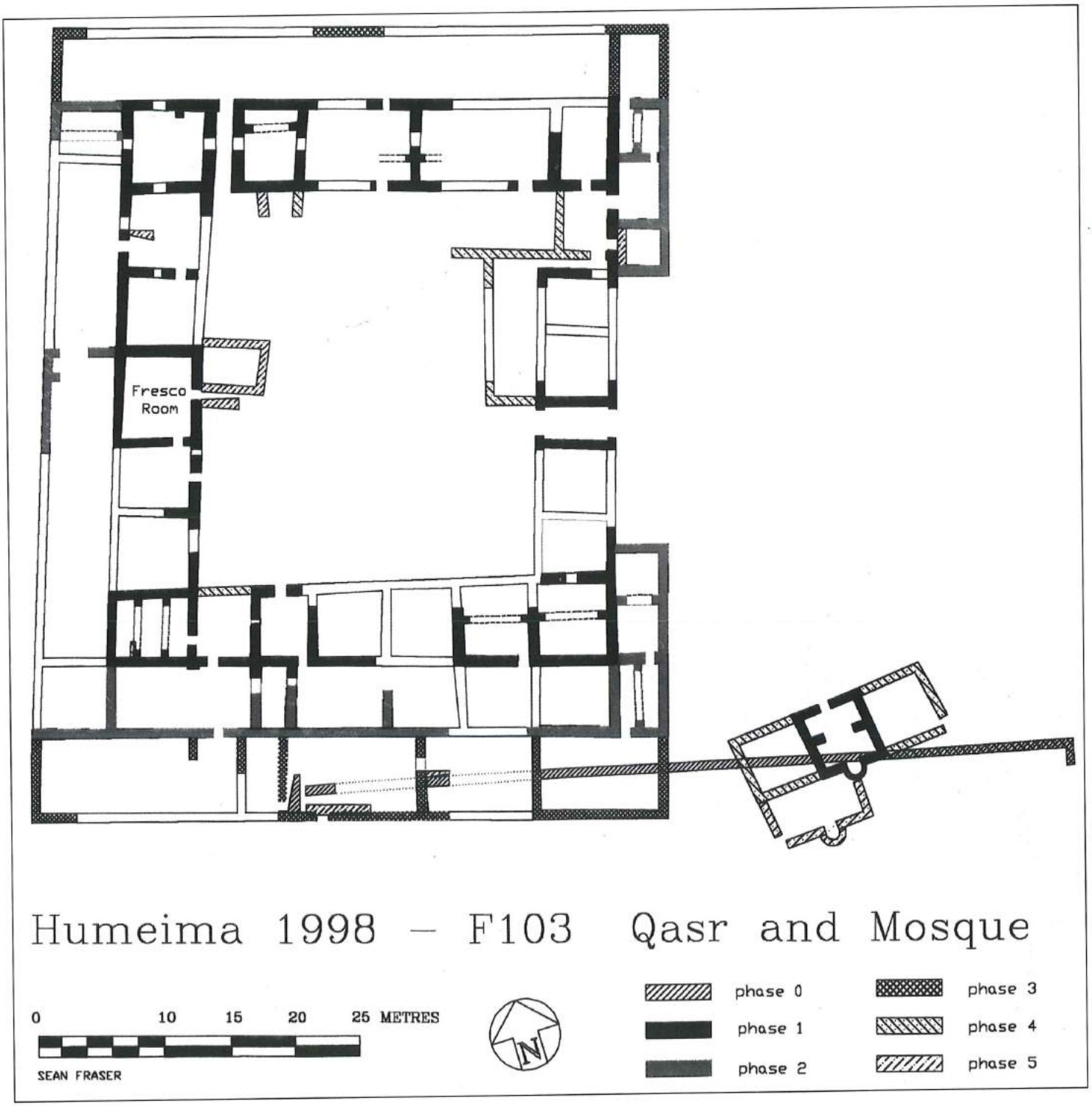
The aqueduct, cisterns, reservoirs, and houses constructed by the Nabataeans during the pre-Roman and Roman administrative periods remained in use, of course, during the Byzantine period, along with the Roman bath. The substantial, stone-built houses that spread westward up the hill, out of the original settlement centre, seem to date at least in part to this period. To judge from the enormous deposits of ceramics throughout the site, and the number of new domestic structures, the civilian population of Ḥawar expanded significantly during this period. Although the site no longer had any military significance, or at least no longer required the presence of military administrators, its inhabitants continued to flourish in a mixed pastoral, agricultural, and trading economy. The withdrawal or discharge of the soldiers in the fort may have been more or less exactly balanced by the expansion of the civilian population. It is even possible that many of the soldiers simply moved from their barracks to a town house. It is uncertain what specific effect, if any, the fourth-century re-arrangement of provincial administration had on Ḥawar, which became part of Palaestina Salutaris, then of Palaestina Tertia. In the late fifth or early sixth-century Beersheva Edict, Ḥawar (called Auaron), ranked second in the region (after Udhruḥ) in the amount of tax money due (Alt 1921: 8-10; Mayerson 1986: 143).

In social terms, the churches, which towered over the houses scattered around them and surpassed the height of the battlements around the Roman fort on the hill above, represent the first significant local investment in major structures intended for public use since the construction of the water-supply system 400 years previously (FIG.7). The people who used the churches clearly felt that the "living water" (John 4: 6-15) they drew from this source was as important as the cistern and aqueduct water that sustained their bodies. But why were so many churches necessary for such a small population? Analysis of the local and regional water resources suggests an absolute maximum population of 650 people for Ḥawar. A more realistic total would be only half that (Oleson 1997a). In general, Christians of Arab background followed Orthodox belief (Shahid 1984b *passim*). It is possible, however, that the multiplication of churches at Ḥawar resulted from competition among Orthodox and heterodox believers in the settlement.[24] It is also possible—although not



7. Al-Ḥumayma: Byzantine Church C101, aerial. (Photo: W. and E. Myers).

[24] In this regard, it is possibly significant that crosses were carved on the floor of the Lower Church (C101) to mark graves, despite the prohibition of this practice by an edict of Theodosius and Valentinian in 427: "Cum sit nobis cura diligens per omnia superni numinis religionem tueri, signum salvatoris Christi nemini licere vel in solo vel in silice vel in marmoribus humi positis insculpere vel pingere, seb quodcumque reperitur tolli." (*Codex Iustinianus* I.8). So far from Constantinople, some individuals might easily have fallen into heresy or laxity, which the Bishop at Petra (or of al-'Aqaba, or the Metropolitan of Palestina Tertia; Schick 1995b: 320-21) may have been unable or unwilling to suppress. Crosses are, however, also found on the pavements of churches in the Negev.



8. Al-Ḥumayma: Plan of Abbasid *qaṣr* and mosque.

yet suggested by the archaeological record—that some of the churches cycled into and out of use. Negev (1991: 228) suggests that the Byzantine towns in the Negev seem oversupplied with churches simply because a large portion of the population was nomadic and lived out of the town centre or in tents, which are difficult to document archaeologically. On its own small scale, Ḥawar continued to mirror developments in the larger, Mediterranean world.

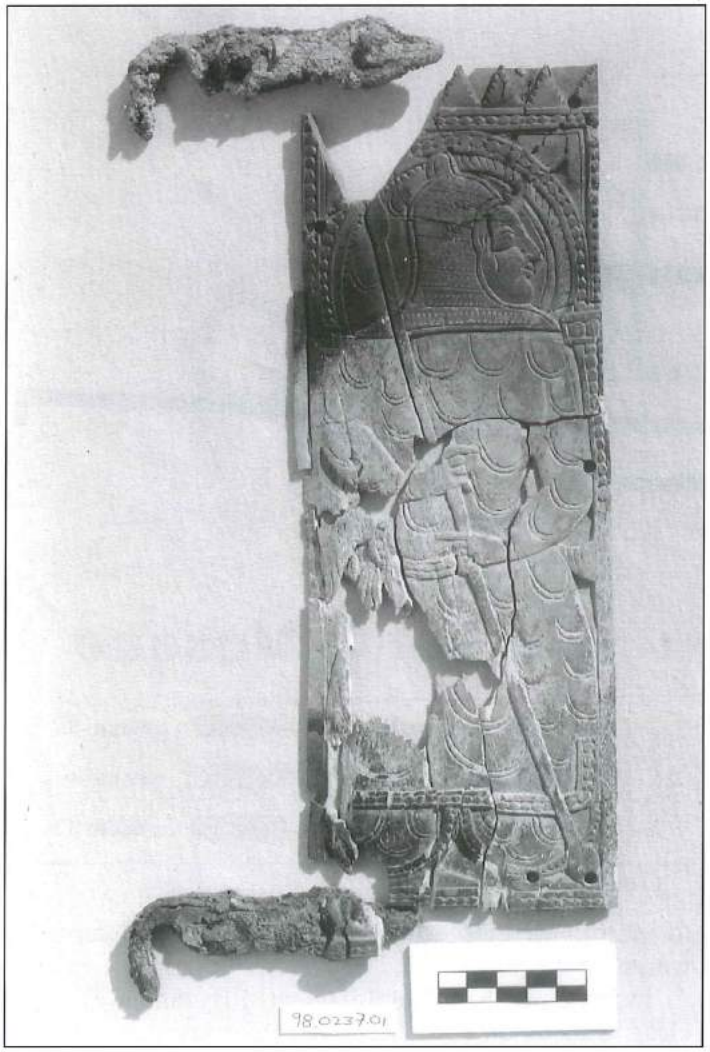
In any case, the cultural flavour of Byzantine Ḥawar is clear: a focus on and substantial investment in domestic and religious structures, and a lifting of the military occupation. Despite the departure or dismissal of the soldiers, security seems to have been adequate, until the ar-

rival of the army of Muḥammad in the seventh century.

Al-Ḥumayma of the Abbasids

A new wave of Arabism poured over and past al-Ḥumayma in the mid-seventh century, with the arrival of the armies and the religion of Islam (Schick 1992). The churches gradually were abandoned (C101, C119, E122) or renovated for housing (B100, F102) as many Christians either left or converted (Schick 1995a: 311-13). According to an early Islamic historian, 'Alī, son of 'Abd-Allāh ibn al-'Abbās, purchased al-Ḥumayma, as it was now called, soon after 687/688 (AH 68) and built a house with a mosque on the site. His son Muḥammad created a garden that included a grove of 500 olive trees.[25]

The olive trees have disappeared without trace (although a new grove was planted 15 years ago and is flourishing), but the house and mosque have been found (FIG. 3, F103; FIG. 8). The house "*qaṣr*" has a roughly square plan, approximately 61 by 50 m, with a recessed entrance facing east, and a large central court. At least one room was decorated with bright frescoes of flowers and tendrils and contained carved ivory furniture. The small family mosque was built just outside the southeast corner, adjacent to a second, outline mosque of uncertain date (Foote and Oleson 1996).



9. Al-Ḥumayma: Ivory furniture plaque with warrior. (Photo: J.P. Oleson).

The rest of the settlement seems to have flourished under Abbasid ownership. Trade and booty resulting from the conquests moved down the *Via Nova* towards Arabia. Much of the surface debris now covering the site belongs to the walls of substantial homes built of stone blocks and associated with Early Islamic ceramics.

Like King Aretas, however, some members of the Abbasid family had great political ambitions. 'Alī's son Muḥammad, who died in 741/2 (AH 12) asserted his ambition for the caliphate, and a plot was hatched against the Umayyads in the family mosque at al-Ḥumayma in the 730s (al-Duri and al-Mutallabi 1971: 107-8, 149, 154, 195; al-Tabari 1985: 84, 148-50, 158; Foote and Oleson 1996). Location of the site near the pilgrimage route allowed both some trading activity and the passing of fresh political information. The Abbasid revolt in 749 succeeded, the family moved the capital of the caliphate to Baghdad, and al-Ḥumayma withered away. A silver *dirham* struck at al-Wāsiṭ near Baghdad in 733-34 (AH 115) was found in the *qaṣr* entrance and reflects the movement of people and resources that preceded the revolt (Foote and Oleson 1996). The style of the carved ivory panels found in the fresco room, particularly the human faces, also is congruent with provenance east of the Euphrates—in Central Asia, Persia, or India (FIG. 9). Since the eastern power base for the Abbasid Revolution was located in Khurasan, the Eastern stylistic flavour and military iconography suggest that the carved ivory panels were produced in NE Iran. They may well have been brought to al-Ḥumayma, like the coin, as a by-product of the growing revolutionary conspiracy.[26]

What was the cultural flavour of Early Islamic al-Ḥumayma? As before, the water-supply system, pastoralism, and agriculture, supplemented by commerce, supported the inhabitants. The aqueduct, however, soon fell out of use—if it did not in fact cease to function in the Byzantine period—and thus the bath. 'Alī's concentration on olive cultivation, however, suggests a more sophisticated agricultural regime than the subsistence agriculture apparently typical of the earlier periods. But it is the continued political potency of the site that is particularly striking. Al-Ḥumayma was founded by one of the most active and successful of the Nabataean kings. It was quickly occupied and fortified by the dynamic Romans as they shaped a new province that dramatically altered the

[25] Schick 1995a: 312-13, 1995b: 320.

[26] I owe this information and interpretation to R. Foote.

balance of power in the Near East. Finally, al-Ḥumayma served as the springboard for the Abbasid ascent to the caliphate.

Why did such a small, isolated, and lightly populated site exert such an attraction or such influence over such a long period of time? The settlement lacks any natural strategic advantage and was never surrounded by a wall. Was it the marvel of the spring-fed Nabataean aqueduct and the durable run-off water-supply system? Was it the agricultural land? Was it simply the sheer emptiness of the desert all around, within which this one site shown like a bright planet in the desert sky at dawn? Or was there real magic in the oracle that spoke to Obodas? Whatever the causes, history came full circle with the Abbasids, following central themes of Arab culture, but in constant interplay with outside cultural influences.

Bibliography

Alt, A. 1921. *Die griechischen Inschriften der Palaestina Tertia westlich der 'Araba*. Berlin: de Gruyter.

Bowersock, G. 1983. *Roman Arabia*. Cambridge, MA: Harvard.

Davies, R. 1989. *Service in the Roman Army*. Edinburgh: Edinburgh University Press.

Dixon, K. R. and Southern, P. 1992. *Roman Cavalry*. London: Batsford.

al-Duri, Abd al-Aziz and al-Mutallabi, Abd al-Jabbar (eds.) 1971. *Akhbār ad-Dawla al-'Abbāsiya*. Beirut.

Fiema, Z. and Jones, R.N. 1990. The Nabataean King List Revised: Further Observations on the Second Nabataean Inscription from Tell esh-Shugafiya, Egypt. *ADAJ* 34: 239-48.

Finkelstein, I. and Perevolotsky, A. 1990. Processes of Sedentarization in the History of Sinai and the Negev. *BASOR* 279: 67-88.

Foote, R. and Oleson, J. P. 1996. Humeima Excavation Project, 1995-96. *Fondation Max van Berchem Bulletin* 10 (December) 1-4.

Graf, D. 1989. Zenobia and the Arabs. Pp. 143-67 in D. French and C. S. Lightfoot (eds), *The Eastern Frontier of the Roman Empire*. BAR Int. Ser. 553. Oxford: BAR.

___ 1992a. The 'God' of Humayma. Pp. 67-76 in Z. J. Kapera (ed.), *Intertestamental Essays in Honour of Józef Tadeusz Milik*. Kraków.

___ 1992b. Nabataean Settlements and Roman Occupation in Arabia Petraea. Pp. 253-60 in *SHAJ* IV. Amman: Department of Antiquities.

___ 1995. The Via Nova Traiana in Arabia Petraea. Pp. 241-67 in J. H. Humphrey (ed.), *The Roman and Byzantine Near East*. Journal of Roman Archaeology, suppl. 14. Ann Arbor: JRA.

___ 1997. The Via Militaris and the Limes Arabicus. Pp. 123-33 in W. Goernman *et al.* (eds.), *Roman Frontier Studies 1995: Proceedings of the XVIth International Congress of Roman Frontier Studies*. Oxford: Oxbow.

Henry, D. O. 1992. Seasonal Movements of Fourth Millennium Pastoral Nomads in Wādī Hisma. Pp. 137-41 in *SHAJ* IV. Amman: Department of Antiquities.

Henry, D.O. and Hietala, H. 1997. Spatial Patterns and Middle Paleolithic Behavioral Organization within the Tor Faraj Rockshelter. Pp. 201-8 in *SHAJ* VI. Amman: Department of Antiquities.

Isaac, B. 1990. *The Limits of Empire: The Roman Army in the East*. Oxford: Oxford University Press.

Jacoby, F. 1958. *Die Fragmente der griechischen Historiker*, IIIC. Leiden: Brill.

Koenen, L. 1996. The Carbonized Archive from Petra. *Journal of Roman Archaeology* 9: 177-88.

Mayerson, P. 1986. The Beersheba Edict. *Zeitschrift für Papyrologie und Epigraphik* 64: 141-48.

Meyer, C.A. 1990. Explaining the Epigraphic Habit in the Roman Empire. *Journal of Roman Studies* 80: 74-96.

Millar, F. 1993. *The Roman Near East 31 B.C.—A.D. 337*. Cambridge, MA: Harvard University Press.

Musil, A. 1926. *The Northern Hegaz*. New York: American Geographical Society.

Negev, A. 1977. The Nabataeans and the Provincia Arabia. Pp. 520-686 in H. Temporini and W. Haase (eds), *Aufsteig und Niedergang der römischen Welt*, II:8. Berlin: de Gruyter.

___ 1991. *Personal Names in the Nabataean Realm. Qedem* 32. Jerusalem: Hebrew University.

Oleson, J. P. 1990. The Humeima Hydraulic Survey: Preliminary Report of the 1989 Season. *ADAJ* 34: 285-311.

___ 1991. Eine nabatäische Talsperre in der Nähe von Humeima (das antike Auara) in Jordanien. Pp. 65-71 in G. Garbrecht (ed.), *Historische Talsperren*, 2. Stuttgart: Verlag Konrad Wittwer.

___ 1995. The Origins and Design of Nabataean Water-Supply Systems. Pp. 707-19 in *SHAJ* V. Amman: Department of Antiquities.

___ 1996. Surface Water Management at an Ancient Site in Jordan's Southern Desert. Pp. 141-56 in *Acts, 16th Congress of the International Commission on Irrigation and Drainage, Cairo, 1966*. Cairo: International Commission on Irrigation and Drainage.

___ 1997a. Landscape and Cityscape in the Hisma: The Resources of Ancient al-Ḥumayma. Pp. 175-88 in *SHAJ* VI. Amman: Department of Antiquities.

___ 1997b. Humeima. In E. Meyers (ed.), *Oxford Encyclopedia of Archaeology in the Near East*, vol. 3, pp. 121-22. Oxford: Oxford University Press.

Oleson, J. P., 'Amr, K., Schick, R., Foote, R. and Somogyi-Csizmazia, J. 1993. The Humeima Excavation Project: Preliminary Report of the 1991-92 Seasons. *ADAJ* 37: 461-502.

Oleson, J. P., 'Amr, K., Foote, R. and Schick, R. 1995. Preliminary Report of the Humeima Excavation Project, 1993. *ADAJ* 39: 317-54.

Oleson, J. P. , Corbeil, M.-C. and Foote, R. 1996. Characterization of Pigments Used on Roman and Abbasid Frescoes in Jordan. Pp. 423-29 in *ICOM Committee for Conserva-*

tion, 11th Triennial Meeting, Edinburgh, Scotland, Preprints. London: James & James.

Oleson, J. P., 'Amr, K., Foote, R. and Schick, R. 1998. Excavations at Ḥawar (Ancient Humeima, Jordan), 1996. *AJA* 102: 413-14.

Parker, S. T. 1986. *Romans and Saracens: A History of the Arabian Frontier.* Winona Lake: Eisenbrauns.

___ 1997. Geography and Strategy on the Southeastern Frontier in the Late Roman Period. Pp. 115-22 in W. Groenman-van Waaterringe *et al.* (eds.), *Roman Frontier Studies 1995. Proceedings of the XVIth International Congress of Roman Frontier Studies.* Oxford: Oxbow.

Parr, P. J. 1978. Pottery, People, and Politics. Pp. 202-9 in R. Moorey and P. Parr (eds.), *Archaeology in the Levant: Essays for Kathleen Kenyon.* Warminster: Aris & Phillips, 1978.

___ 1990. Sixty Years of Excavation in Petra: A Critical Assessment. *Aram* 2: 7-23.

Peacock, D. P. S. and Williams, D. F. 1986. *Amphorae and the Roman Economy.* London: Longman.

Peterman, G. 1994. Archaeology in Jordan. *AJA* 98: 521-59.

Reeves, B. 1996. *The Roman Bath-House at Humeima.* M.A. Thesis, Univ. of Victoria.

Reeves, B. and Oleson., J. 1997. Baths of the Hisma Desert. *Balnearia* 5.1: 2-4.

Schick, R. 1992. Jordan on the Eve of the Muslim Conquest, A.D. 602-634. Pp. 107-119 in P. Canivet and J.-P. Rey-Coquais (eds.), *La Syrie de Byzance à L'Islam VIIe-VIIIe Siècles.* Damascus: Institute Français de Damas.

___ 1995a. *The Christian Communities of Palestine from Byzantine to Islamic Rule: A Historical and Archaeological Study.* Princeton: Darwin Press.

___ 1995b. Christianity at Humeima, Jordan. *LA* 45: 319-42.

Shahid, I. 1984a. *Rome and the Arabs. A Prologomenon to the Study of Byzantium and the Arabs.* Washington D.C.: Dumbarton Oaks.

___ 1984b. *Byzantium and the Arabs in the Fourth Century.* Washington D.C.: Dumbarton Oaks.

___ 1989. *Byzantium and the Arabs in the Fifth Century.* Washington D.C.: Dumbarton Oaks.

Stucky, R. A. *et al.* 1996. *Petra—ez Zantur*, I. Mainz: von Zabern.

Al-Tabari, Abu Ja'far Muhammad bin Jarir. 1985. *History of Prophets and Kings, 27: The 'Abbasid Revolution.* Trans. J. Williams. Albany: SUNY Press.

Wenning, R. 1987. *Die Nabatäer—Denkmäler und Geschichte.* Göttingen: Vanderhoeck & Ruprecht.

West, J. M. I. 1974. "Uranius." (diss. abstract) *Harvard Studies in Classical Philology* 78: 282-84.

Wißmann, H. von. 1968. "Uranios." *Real-Encyclopädie, Supp.* XI, 1278-92.

Woolf, G. 1996. Monumental Writing and the Expansion of Roman Society in the Early Empire. *Journal of Roman Studies* 86: 22-39.

Robert Schick
W. F. Albright Institute of Archaeological Research
26 Salah al-Din Street
P.O. Box 19096
Jerusalem - Palestine

Robert Schick

Christianity in Southern Jordan in the Byzantine and Early Islamic Periods

This article is a brief summary of the archaeological evidence for Christianity in Southern Jordan in the Byzantine and Early Islamic Periods. The geographical area covered is modern-day Jordan south of Wādī al-Mūjib, the eastern half of the Byzantine province of Palaestina Tertia and the southern part of the Early Islamic *jund* of Dimashq. That is my area of responsibility for my ongoing project in collaboration with Anne Michel and Michele Piccirillo to produce a corpus of the Byzantine churches in Jordan.

The History of Investigation

The study of Christianity in southern Jordan suffers from the limited interest for the ancient historians that this marginal area had within the Byzantine empire as a whole. As a consequence, the area is mostly invisible historically throughout the period, with only a limited number of literary or historical references in Greek or Arabic sources that record events, people, or places. This problem is particularly acute for the period after the Islamic conquest. Thus the bulk of what can be known derives from archaeological evidence. Some previous scholars have examined general aspects of the area in the Byzantine period, notably Gutwein in his study of Byzantine Third Palestine (1981), the dissertation by Fiema (1991), and the studies by Schick (1992a; 1992b; 1994; 1995). Alliate and Ratti (1984) and Piccirillo (1993) provide some general information about Christianity in southern Jordan.

The earliest studies of Christianity in southern Jordan consisted of the analysis of literary sources, such as the acts of the various church councils that record the names of the bishops who participated. Le Quien (1740) gathered all of this information together; now largely replaced by the new editions of the church council acts by Schwartz (1982-1984) and Schieffer (1982-1984) and the listings of bishops by Fedalto (1988).

The investigation of the physical remains of Christianity began with the 19th century explorers. Among the numerous explorers who crossed the region prior to the First World War, Rudolf Brünnow and Alfred von Domaszewski's reports from the 1890s (1904-1909) are of particular value for Petra as well as other sites such as Udhruḥ (JADIS 2097.002) (Brünnow and von Domaszewski 1904-1909, 1: 461; Killick 1983a: 234, 241).

After the First World War, Nelson Glueck started his extensive surveys in 1933, in which he occasionally noted evidence for Christianity at the many sites he visited, such as otherwise uninvestigated church ruins at Buṣayra (JADIS 2001.013) (Glueck 1933-1934: 78); Dayr ar-Riyāshī (JADIS 2009.002) (Glueck 1933-1934: 59-60); Khirbat al-Bayḍa (JADIS 2002.003) (Glueck 1933-1934: 79-80); and Khirbat ad-Dayr (JADIS 2002.012) (Glueck 1934-1935: 99).

But the most significant study of the evidence for Christianity was produced by Reginita Canova (1954), the wife of the director of the Italian hospital in al-Karak who collected hundreds of tombstones from the neighboring villages, notably 68 from Maḥayy (JADIS - 2304.005) (1954: 341-401). She also described church ruins at a number of sites, such as at Majra (JADIS - 2104.106) (1954: 409-415), al-Muraygha (JADIS 2206.049) (1954: 263), and Umm Ḥamāṭ (JADIS - 2204.039) (1954: 322-324). Many of the tombstones she found are dated, and provide the bulk of the evidence for a number of otherwise little investigated sites.

Sylvester Saller and Bellarmino Bagatti (1949) prepared a list with bibliographic references of the known Christian sites in southern Jordan.

Within the last couple of decades a number of survey teams have surface-sherded Byzantine and Early Islamic sites and recorded evidence for Christianity. Burton MacDonald surveyed Wādī al-Ḥasā, and noted the hermitage of Ḥammām 'Afrā (JADIS - 2104.015) (1980; 1988: 242, 244, 282, 284). He later surveyed the 'Arabah Valley, where he noted a hermitage in the lower Wādī al-Ḥasā (1980: 361-362; 1992: 104).

Udo Worschech surveyed in the north Karak plateau (1985a; 1985b), noting such sites as Khirbat Qabu (Dayr

al-Maḥrūq) (JADIS - 2107.055) (1985b: 161-163 - #75), also noted by Miller (1991: 55 - Site 72).

Maxwell Miller surveyed the Karak plateau, revisiting Canova's sites (1991) and noting additional churches as at ad-Dann wa-al-Baradān (JADIS - 2208.015) (1991: 44), Maḥayy (JADIS - 2304.005) (1954: 341-401) (1991: 166), Qaṣr ar-Ruṣayfa (JADIS - 2106.008) (1991: 85 - Site 192), and Sdayr (JADIS - 2105.052) (1991: 147 - Site 394).

S. Thomas Parker also surveyed the Roman frontier (1986) and the area around al-Lajjūn (1987) and Geoffrey King surveyed in the 'Arabah Valley (King *et al.* 1987).

The Department of Antiquities of Jordan cleared much of the lower church at al-Ḥumayma (JADIS 1892.008) in 1962-1963, but nothing was ever published. The Department also cleared the church at ar-Rabba (JADIS 2207.002) in 1964, but very little was published (Zayadine 1971a; 1971b). The surveys and excavations in Petra over the past century revealed some limited amount of information about Christians, such as the Urn tomb, which was converted into a church in 446 (McKenzie 1990: 146-147; Sartre 1993: 81-84); the partially excavated building in the al-Kātūta area, which may not be a church (Khairy 1986a; 1986b); the ad-Dayr tomb and the nearby "hermitage", which were part of a cluster of Christian hermitages (Brünnow and von Domaszewski 1904: 329-330; Dalman 1908: 261-262; Sartre 1993: 109-111); and the occasional stone-carved crosses and other Christian symbols that Manfred Lindner has found (e.g. 1970 and most recently 1997).

The quantity of work devoted to the archaeology of Byzantine Christianity has jumped dramatically since the mid-1980s. The first published excavation of a church was conducted in 1985 at the early sixth century church in the Roman legionary fortress of al-Lajjūn (JADIS 2307.002) (Schick 1987).

The next site to be excavated was Dayr 'Ayn 'Abāṭa (JADIS 1905.002), the site of Lot's Cave, where the Byzantine through Early Islamic monastery has been under excavation since 1988 (Politis 1989; 1990; 1992; 1993; 1995).

The excavations of the Early Islamic site of Ayla/Aqaba since 1986 have found a few scattered Christian architectural elements originally from the Byzantine settlement (Whitcomb 1994: 14-15; Zayadine 1994).

Further projects began in the 1990s. At al-Ḥumayma (1892.008) five churches have been investigated since the 1991 season (Schick 1997); with extensive excavations of the C101 lower church, in use up to the early seventh century and the B100 and F103 churches, both built over by Early Islamic domestic houses, and smaller-scale probes of the C119 and B126 churches.

At Udhruḥ (JADIS 2097.002), the principia inside the legionary fortress, excavated in 1991, may have been converted into a church (Killick 1983b: 121, 123-125).

The main church at Petra has been under excavation since 1992 (Fiema *et al.* 1995; Schick *et al.* 1993).

The church at Nakhal (JADIS 2205.001) was excavated in 1993, but remains unpublished (Schick *et al.* 1994). Excavations at Khirbat adh-Dharīḥ (JADIS 2103.134) since 1993 have revealed that the Nabataean temple was converted into a church (Muheisen and Villeneuve 1998).

The busiest year for excavations of Byzantine churches was 1994. The church at Khirbat as-Samrā'/ Shīḥān (JADIS 2208.016) was partially excavated in 1994 (Qusus and Schick 1994; 1995).

The church at Gharandal (JADIS 2101.001) was first excavated by Jihad Darwish in 1994 and since 1997 by Alan Walmsley (1997).

The "Petra Ridge Church" has been under excavation since 1994 (Bikai 1996).

A long term project at Faynān (JADIS 1900.001) began in 1994 that so far has involved excavation of the south Byzantine cemetery (Findlater 1998) and survey (Freeman and McEwan 1998).

The excavations in the Roman-Byzantine city of 'Aqaba since 1994 have uncovered a probable church established in the pre-Constantinian period and ending in the late fourth century (Parker 1996; Mussell 1998; see Shertl 1936).

Since 1994, Politis has recovered some 300 Christian Greek tombstones from the robbed-out Byzantine cemetery of an-Naq'/Ghawr aṣ-Ṣāfī.

Excavations in the Lisan Peninsula since 1995 have exposed the Dayr al-Qaṭṭār al-Bizanṭī (JADIS 1907.007) and Qaṣr aṭ-Ṭūba monastic sites (Holmgren and Kaliff 1996; 1997; also Politis 1995b).

A project at the monastic site of Jabal Hārūn (JADIS 1896.003) started in 1998 (see Peterman and Schick 1996).

On the other hand, where there are numerous known surveyed but unexcavated church sites, as noted earlier, some other major sites remain virtually complete archaeological blanks; al-Karak, Ma'ān, and aṭ-Ṭafīla are the most striking such cases, where there obviously would have been churches in the Byzantine period. The antiquities there, as well as those at a number of smaller sites, have been all but obliterated by modern occupation, although there are any number of preserved stray architectural elements, such as lintels with crosses marked on them at various sites that could well have originally been part of now completely destroyed church buildings. Many other sites have been damaged, although less severely. Although population growth and economic development in Jordan continues to result in damage or destruction of some archaeological sites, such as the major damage to the Byzantine cemeteries at Faynān since the

1980s and at Ghawr aṣ-Ṣāfī since 1993, many sites remain largely untouched. The site of Faynān has perhaps the greatest potential for rewarding excavation.

General Observations

It is noteworthy that few places have more than one church. Faynān and al-Ḥumayma have five, Petra has four, Udhruḥ seems to have two. No place has the dozen or more churches as is the case to the north, as at Umm ar-Raṣāṣ, Umm al-Jimāl, Jarash, or Mādabā. It is odd just how few churches are yet known in Petra.

The clearly identifiable churches are all basilicas, except for ad-Dann wa-al-Baradān. The lower church at al-Ḥumayma and the churches at Nakhal and Petra have three apses on the east end.

Mosaics are not a frequent decorative motif, contrary to northern Jordan. Mosaics have been uncovered at Dayr 'Ayn 'Abāṭa, Gharandal, Petra, Dayr al-Qaṭṭār al-Bizanṭī, and Khirbat as-Samrā'/ Shīḥān, while stray cubes are visible on the surface of a few other sites. There were no mosaics at al-Ḥumayma, and the absence of any accidental discoveries of mosaics during modern building construction at such places as al-Karak, in contrast to the situation at Mādabā, indicates that few if any mosaics are to be found there.

Numerous crosses carved on stones are known, such as the lintel at the uninvestigated site of Khirbat Nuṣrāniya (JADIS 2101.011). Of particular interest are the crosses carved on paving stones that mark burials in the C101 lower church at al-Ḥumayma.

Numerous Greek Christian inscriptions are known, mostly from Canova's collection of tombstones, including 197 from al-Karak; that number is nearly doubled by the tombstones from an-Naq'/ Ghawr aṣ-Ṣāfī. Only a few of the dated ones go back to the fifth century or early sixth century, while the bulk date to the second half of the sixth century, with sustained numbers up through the early seventh century, but with only a greatly reduced number thereafter.

Bibliography

Alliate, E. and Ratti, L. 1984. Églises locales de la province Palestina Tertia. *Le Monde de la Bible* 35: 38-47.

Bikai, P. 1996. The Ridge Church at Petra. *ADAJ* 40: 481-486.

Brünnow, R. and von Domaszewski, A. 1904-1909. *Die Provincia Arabia*, 3 vols. Strassburg: K. J. Trubner.

Canova, R. 1954. *Iscrizioni e monumenti protocristiani del paese di Moab*. Sussidi allo studio delle antichita christana 4. Rome: Vatican City.

Dalman, G. 1908. *Petra und seine Felsheiligtümer*. Leipzig: J. C. Hinrich's.

Eusebius 1927. *The Ecclesiastical History and the Martyrs of Palestine*. Hugh Jackson Lawlor and John Ernest Leonard Oulton, trans. London: Society for Promoting Christian Knowledge.

Fedalto, G. 1988. *Hierarchia Ecclesiastica Orientalis*. Padova: Edizioni Messaggero.

Fiema, Z. 1990. *Economics, Administration and Demography of Late Roman and Byzantine Southern Transjordan*. Unpublished Ph.D. Dissertation, University of Utah.

Fiema, Z., Schick, R. and 'Amr, K. 1995. The Petra Church Project: Interim Report, 1992-94. *The Roman and Byzantine Near East: Some Recent Archaeological Research*. Journal of Roman Archaeology Supplementary Series 14: 293-303.

Findlater, G., el-Najjar, M., Al-Shiyab, A.-H., O'Hea, M. and Easthaughm E. 1998. The Wadi Faynan Projecct: The South Cemetery Excavation, Jordan 1996: a Preliminary Report. *Levant* 30: 69-83.

Freeman, P. and McEwan, L. 1998. The Wadi Faynan Survey, Jordan: A Preliminary Report on Survey in Area WF2 in 1997. *Levant* 30: 61-68.

Gagos, T. 1998. Petra Church Project, Petra Papyri. Pp. 601-602 in V. Egan and P. Bikai (eds.), Archaeology in Jordan. *AJA* 102: 571-606.

Glueck, N. 1933-1934. Explorations in Eastern Palestine, I. *AASOR* 14: 1-113.

____1934-1935. Explorations in Eastern Palestine, II. *AASOR* 15.

____1937-1939. Explorations in Eastern Palestine, III. *AASOR* 18-19.

Gutwein, K. 1981. *Third Palestine*. Washington: University Press of America.

Holmgren, R. and Kaliff, A. 1996. Deir el-Kattar el-Byzanti and the Search for Lost Cities. *Tidskrift för arkeologi* 28: 69-90.

____1997. The 1995-1996 Excavation of Dayr al-Qattar al-Byzanti: A Preliminary Report. *ADAJ* 41: 321-340.

Khairy, N. 1986. Nabatäischer Kultplatz und byzantinische Kirche. Pp. 58-73 in M. Lindner (ed.), *Petra: Neue Ausgrabungen und Entdeckungen*. Munich: Delp.

Killick, A. 1983a. Udruh - 1980, 1981, 1982 Seasons, A Preliminary Report. *ADAJ* 27: 231-243.

____1983b. Udruh - the Frontier of an Empire: 1980 and 1981 Seasons, a Preliminary Report. *Levant* 15: 110-131.

King, G., Lenzen, C., Newhall, A., King, J. L. and Deemer, J. 1987. Survey of Byzantine and Islamic Sites in Jordan. Third Season Preliminary Report. 1982): The Southern Ghor. *ADAJ* 31: 439- 459.

Le Quien, M. 1740. *Oriens Christianus*. Paris: ex Typographia regia.

Lindner, M. 1970a. Ein christliches Pilgerzeichen auf Umm el-Biyara. Pp. 313-315 in M. Lindner (ed.), *Petra und das Königreich der Nabatäer*. Munich: Delp.

____1970b. Die Geschichte der Nabatäer. Pp. 38-103 in M. Lindner (ed.), *Petra und das Königreich der Nabatäer*. Munich: Delp.

____1997. Beyond the Perimeter of Ancient Petra. Archaeological Activities 1992-1997. *LA* 47: 504-505.

MacDonald, B. 1980. The Hermitage of John the Abbot at Hammam 'Afra, Southern Jordan. *LA* 30: 351-364.

____1988. *The Wadi el Hasa Archaeological Survey 1979-1983, West-Central Jordan*. Waterloo, Ontario: Wilfred Laurier University.

____1992. *The Southern Ghors and Northeast 'Arabah Archaeological Survey*. Sheffield: University of Sheffield.

Miller, J. M. 1991. *Archaeological Survey of the Kerak Plateau*. Atlanta: Scholars.

al-Muheisen, Z. and Villeneuve, F. 1997. Khirbet edh-Dharih. Pp. 531-532 in P. Bikai and V. Egan (eds.), Archaeology in Jordan. *AJA* 101: 493-535.

Mussell, M.-L. 1998. Roman Aqaba Project. Pp. 600-601 in V. Egan and P. Bikai (eds.), Archaeology in Jordan. *AJA* 102: 571-606.

Palumbo, G. 1994. *The Jordan Antiquities Database and Information System: A Summary of the Data*. Amman: The Department of Antiquities of Jordan and the American Center of Oriental Research.

Parker, S. T. 1986. *Romans and Saracens: A History of the Arabian Frontier*. Winona Lake, Indiana: Eisenbrauns.

____1987. *The Roman Frontier in Central Jordan*. BAR International Series 340. Oxford: British Archaeological Reports.

____1996. The Roman 'Aqaba Project. The 1994 Campaign. *ADAJ* 40: 231-257

Peterman, G. and Schick, R. 1996. The Monastery of Saint Aaron. *ADAJ* 40: 473-480.

Piccirillo, M. 1993. *The Mosaics of Jordan*. Amman: ACOR

Politis, K. 1989. Excavations at Deir 'Ain 'Abata 1988. *ADAJ* 33: 227-233.

____1990. Excavations at Deir 'Ain 'Abata, 1990. *ADAJ* 34: 377-385.

____1992. Excavations at Deir 'Ain 'Abata 1991. *ADAJ* 36: 281-290.

____1993. The 1992 Season of Excavations and 1993 Season of Restorations at Deir 'Ain 'Abata. *ADAJ* 37: 503-20.

____1995a. Excavations and Restorations at Deir 'Ain 'Abata, 1994. *ADAJ* 39: 477-491.

____1995b. New Greek Inscriptions in the Byzantine Hermitage at Qasr at-Tuba on the Lisan. *ADAJ* 39: 556-559.

____1997. Excavations and Restorations at Dayr 'Ayn 'Abata 1995. *ADAJ* 41: 341-350

Qusus, R. and Schick, R. 1994. Shihan. *LA* 44: 636-638.

____1995. Shihan. P. 530 in P. Bikai and D. Kooring (eds.), Archaeology in Jordan. *AJA* 99: 507-533.

Saller, S. and Bagatti, B. 1949. *The Town of Nebo (Khirbet el-Mekhayyat) with a Brief Survey of Other Ancient Christian Monuments in Transjordan*. Studium Biblicum Franciscanum, Collectio Major 7. Jerusalem: Franciscan.

Sartre, M. 1993. *Inscriptions de la Jordanie. Tome IV. Pétra et la Nabatène méridionale du Wadi al-Hasa au golf de 'Aqaba*. Bibliothèque Archéologique et Historique 115. Paris: Paul Geuthner.

Schertl, P. 1936. Ela-Akaba. *Orientalia Christiana Periodica* 2: 34-77.

Schick, R. 1987The Church at el-Lejjun. Area J. Pp. 353-381 in S. T. Parker (ed.), *The Roman Frontier in Central Jordan*. BAR International Series 340. Oxford: British Archaeological Reports.

____1992a. Jordan on the Eve of the Muslim Conquest, A.D. 602-634. Pp. 107-120 in P. Canivet and J.-P. Rey-Coquais (eds.), *La Syrie de Byzance à l'Islam VIIe-VIIIe siècles*. Damascus: Institut Français de Damas.

____1992b. The Patriarchate of Jerusalem in the Early Abbasid Period, A.D. 750-813. Pp. 63-80 in A. Bakhit and R. Schick (eds.), *Proceedings of the Fifth International Conference for the History of Bilad al-Sham - Bilad al-Sham During the Abbasid Period*. Amman: University of Jordan.

____1994. The Settlement Pattern of Southern Jordan: The Nature of the Evidence. Pp. 133-154 in G. R. D. King and A. Cameron (eds.), *The Byzantine and Early Islamic Near East II: Land Use and Settlement Patterns*. Princeton: Darwin.

____1995a. *The Christian Communities of Palestine From Byzantine to Islamic Rule: An Historical and Archaeological Study*. Princeton: Darwin.

____1995b. Christianity at Humayma. *LA* 45: 319-342.

Schick, R., Fiema, Z. and 'Amr, K. 1993. The Petra Church Project, 1992-93: A Preliminary Report. *ADAJ* 37: 55-66.

Schick, R., Mahasneh, H. and Ma'ani, S. 1994. Nakhal. Pp. 553-554 in G. Peterman (ed.), Archaeology in Jordan. *AJA* 93: 521-559.

Schieffer, R. 1982-1984. *Acta Conciliorum Oecumenicorum, Index Generalis Tomorum I-III*. Berlin: Walter De Gruyter.

Schwartz, E. (ed.). 1982-1984. *Acta Conciliorum Oecumenicorum*. Berlin: Walter De Gruyter.

Walmsley, A. and Ricklefs, N. 1997. The Church at Arindela (Gharandal) of Palaestina Tertia. *LA* 47: 498-503.

Whitcomb, D. 1994. *Ayla: Art and Industry in the Islamic Port of Aqaba*. Chicago: University of Chicago.

Worschech, U. 1985a. *Northwest Ard el-Kerak 1983 and 1984: A Preliminary Report*. Biblische Notizen - Beiheft 2. München.

____1985b. Preliminary Report on the Third Survey Season in the North-West Ard el-Kerak, 1985. *ADAJ* 29: 161-173.

Zayadine, F. 1971a. Deux Inscriptions grecques de Rabbat Moab (Areopolis). *ADAJ* 16: 71-76.

____1971b. Un Séisme a Rabbat Moab (Jordanie) d'après une inscription grecque du VIe S. *Berytus* 20: 139-141.

____1994. Ayla-'Aqaba in the Light of Recent Excavations. *ADAJ* 38: 485-505.

Konstantinos D. Politis
Department of Medieval and
Later Antiquities
British Museum
London
UK

Konstantinos D. Politis

Early Byzantine Monasticism in Southern Jordan

Eastern *Palaestina Tertia*

The eastern sector of the late Roman-Byzantine province of *Palaestina Tertia* was located in the southern part of modern Jordan, from Wādī al-Mūjib (Arnon) in the north, to al-'Aqaba (*Aila*) in the south. The province was created to defend the south-eastern frontier of the Empire and to protect the fringes of the *oikoumene* (the inhabited world) from *Saracen* (nomadic-bedouin) and Sassanian attack (Graf 1978: 1-26; Mayerson 1994: 271-283). With the strategic transfer of the Tenth Legion to *Aila*, it also guarded the Empire from advancing Muslim armies in the seventh century.

As in the western sector of *Palaestina Tertia*, close communications between urban centres were maintained through a network of *castra and castella* (forts and police stations) along the *via nova Traiana*, at the southern end of the Dead Sea and along Wādī 'Arabah which also served as intermediate havens as well as military camps. The early fourth century AD *Notitia Dignitatum* lists a number of these military installations in the area which may now be identified with more certainty. Many of these were originally built during the proceeding Nabataean and Roman periods.

Cavalry units which were reportedly stationed at *Zoara,* were strategically situated above the mouth of Wādī al-Ḥasa (*?Zared*) in the fortress of Umm aṭ-Ṭawābīn (King *et al.* 1987: 449, 620; MacDonald 1992: 83-87, 104, 249) overlooking the city of *Zoara* (Khirbat ash-Shaykh 'Īsā) to protect that sizable community and its important communications route. It may have been closely interconnected with the fort at Umm Ubtulah further east along Wādī al-Ḥasa (MacDonald 1984: 183-189). These would have undoubtably communicated with other forts to the north, in Bilaydah (at the mouth of the Wādī al-Karak), Khirbat 'Ayn Sikina, Wādī 'Isāl (Jacobs 1983: 262-272) and Rujm an-Numayra (Glueck 1935: 7), and others to the south at Fayfa (*Praesidium*), Rujm Umruq, Qaṣr aṭ-Ṭilāḥ (*Toloana*), Faynān (*Phaino*) and Gharandal (*Arindela*) (King *et al.* 1989: 199-215; MacDonald 1992: 249-265; Mayerson 1994: 277) and probably other sites yet to be identified.

Although archaeological work in Wādī 'Arabah is still at a pioneering stage, other Roman-Byzantine sites (Khirbat Ḥassiya, Bi'r Madhkūr, Khirbat aṭ-Ṭayyibah and Qā' as-Sa'īdiyīn) may have been military installations protecting the southern routes to the key Tenth Legionary fort at *Aila*. However, it is possible that these forts communicated in an east-west direction, connecting with the *via nova Traiana* and avoiding the arid Wādī 'Arabah with its marauding *Saracens*, as well as north-south.

The *via nova Triana* was the lifeline of the eastern frontier in *Palaestina Tertia*, and the protection provided by the *castra* and *castella* placed along it were vital. They linked the southern port of *Aila* with the deep *Arnon* gorge in the north through a series of interconnected, fortified sites now identified al-Ḥumayma (*Auara*), Ṣadaqa (*Zodocatha*), Khirbat al-Khāldī (*Praesidio*), Udhruḥ and al-Lajjūn (Mayerson 1994: 277-8). Together they formed the basis for the "*Limes Palaestinae*", protecting the *oikoumene.*

The Spread of Asceticism

The most vulnerable members of the late Roman-Byzantine *oikoumene* were the newly established Christian ascetics who chose to live in isolated hills, cliffs and deserts. Although spiritually independent, they were physically defenceless and exposed to *Saracen* attack. There are literary accounts of them being robbed and massacred. The best known account of such an incident was at Mount Sinai and is commemorated annually on the 14th of January (Mayerson 1994: 237-8).

Some of these monastic settlements had Biblical associations which also attracted pilgrims. These were associated with urban centres which provided them with financial and human resources which protected them from Saracen threats and guaranteed their communications with the wider *oikoumene*.

As Jerusalem was the focal point of Christian pilgrimage, the adjacent Judean Desert naturally became the cen-

tre of monasticism in the Holy Land. The Holy City was simply too crowded for ascetic monks who found solitude in the desert. During the sixth century AD the Byzantine Emperor Justinian supported the construction of new churches and monastic complexes throughout the Empire and consequently the once isolated communities of the Judean Desert flourished. A detailed study of the area has identified many of these sites (Hirschfeld 1992).

More recent archaeological surveys and excavations in southern Jordan have now brought to light a number of monasteries and hermitages which strongly suggest a vibrant Christian ascetic community in this area from the fourth to seventh centuries AD. The most direct route east from the Judean Desert is across the Dead Sea via the Lisān Peninsula. It was not surprising therefore to discover a network of hermitages located across this spectacular landscape.

The Laura Monastery on the Lisān

Approximately mid-way from the western side of the Lisān Peninsula to the mouth of Wādī al-Karak lies the site of Dayr al-Qaṭṭār al-Byzanṭī (referred to as el-Qeryeh by Abel 1929: 247-248) built on a marl promontory and surrounded by eroded gullies. Recent excavations there revealed a monastery which probably served as the base for ascetic monks and pilgrims crossing al-Lisān from the Judean Desert. It is comprised of a small single-aisled church measuring about 10 x 5 metres and a number of domestic rooms (Holmgren and Kaliff 1997: 321-332). Although some of these rooms have walls preserved to over three-metres high, at least one third of the church area has been destroyed by modern bulldozer activity. The surviving mosaic floor pavement in the church is white and adorned with just one interlined chain cross in the centre of the chancel. Glass tesserae in the destruction debris is probable evidence for mosaics on the walls or dome.

Pottery dating from as early as the fourth century indicates the foundation date of the Dayr al-Qaṭṭār monastery. Later Byzantine ceramic types are evidence for a continuity of occupation at least into the seventh century. An Abbasid gold coin and a small piece of rectangular cloth inscribed in Arabic (Holmgren and Kaliff 1997: 332) date the final period of occupation. Of particular interest are some Early Bronze Age I (ca. 3,000 BC) vessels found near the bottom of a "crypt" (Holmgren and Kaliff 1997: 329). These may have been brought to the site as representing ancient holy relics in order to sanctify the church and may indicate that the early Byzantine Christians were conscious of previous occupations in the area as having an Old Testament significance.

Only 200 metres east of Dayr al-Qaṭṭār are three niches cut into the soft marl sediments which apparently served as hermits' cells (Holmgren and Kaliff 1997: 332-33). Crosses and graffiti were etched onto the walls of these cells. One had the name *Elias* inscribed in Greek on the wall, presumably the name of the ascetic which inhabited it. It is possible that this *Elias* was the Jordanian-born monk and founder of two monasteries near Jericho who in 495, according to Cyril of Scythopolis, became Patriarch of Jerusalem (Hirschfeld 1992: 241-242).

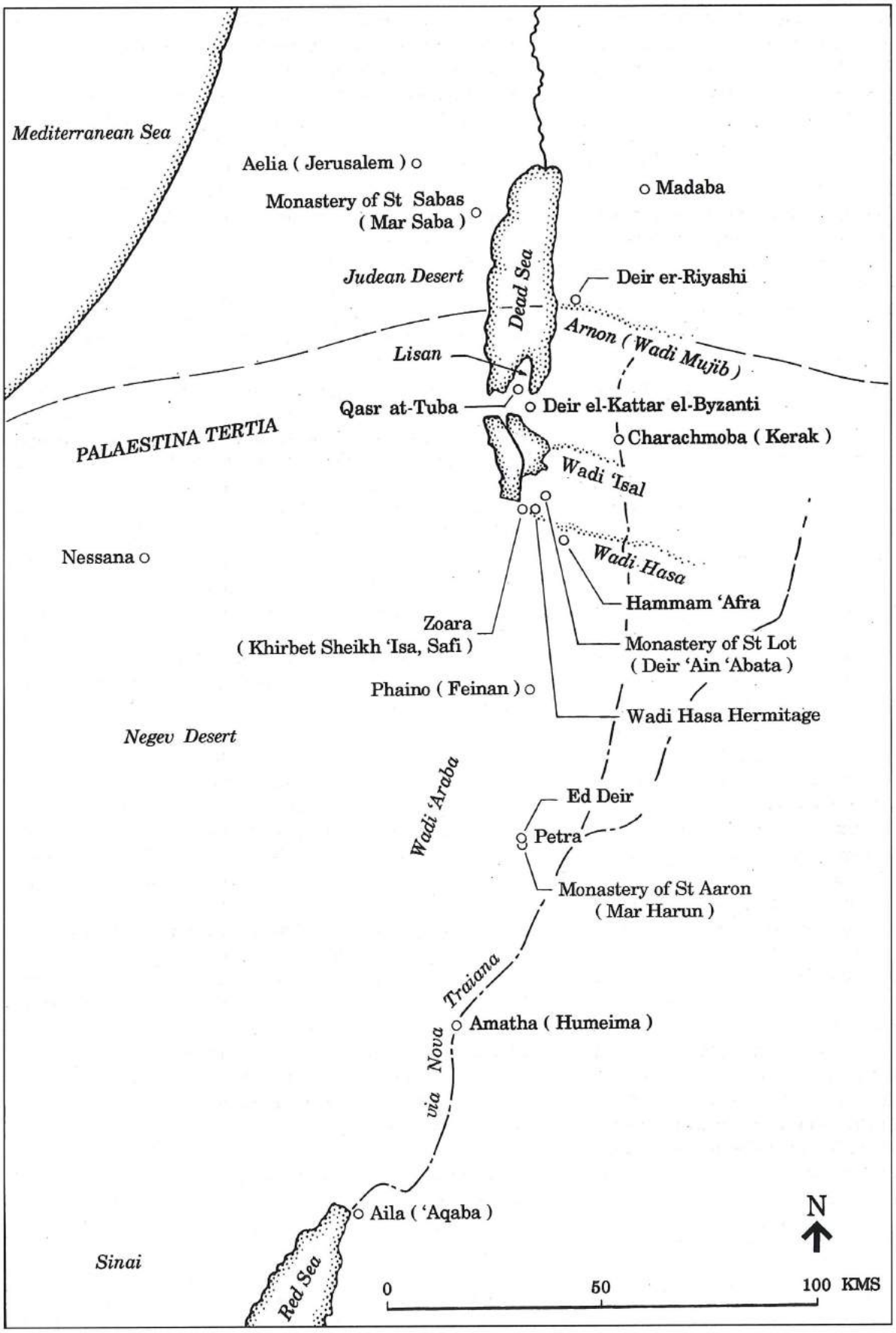
About 3 kilometres north-west of the Dayr al-Qaṭṭār lies a larger hermitage known as Qaṣr aṭ-Ṭūba which is carved out of a marl promontory and built partially of natural gypsum slabs and of adobe bricks (Abel 1929: 248-252). The structure consisted of four rooms connected by open narrow corridors which would increase wind draughts (a beneficial feature in this sweltering environment) and a paved courtyard on the south side. Again crosses and graffiti were etched on the walls along with one Greek inscription mentioning the names of four hermits, *Agapios, Konstantinos, Makarios* and *Ioannis* (Politis 1995: 556-559). A water cistern which was revealed during recent excavations at the site (Holmgren and Kaliff 1997: 335) indicates that this hermitage was more than an ephemeral ascetic cell. Considering the short distance from the eastern shore of the Judean Desert, it may have played a primary role in the pilgrimage route eastwards across the Lisān Peninsula. It is anticipated that the fragments of inscribed papyri found during these excavations will help to resolve the nature of ascetic activities on al-Lisān. Nearby caves recently reported may also be related to the Qaṣr aṭ-Ṭūba hermitage (personal communication, Volker Wrede, 1998).

The Hermitage at Dayr ar-Riyāshī

Perched high on top of a spur extending from Wādī al-Haydān into Wādī al-Mūjib lies the hermitage of Dayr ar-Riyāshī. Because of its inaccessible location few have been able to visit the site (Burkhardt 1822: 371: Glueck 1934: 59-60 and 100), and indeed that was probably the intention of those who built it. Grooves on steep eastern side of the spur were probabaly made by supplies being drawn up by rope in baskets (a practice still evidenced in ascetics' cells today). Although it has never been excavated, stone walls, an apse and surviving sections of insitu mosaic pavements embody the remnants of a small church. Adjacent to this are a cistern and a series of small cells. Two stones with engraved crosses and Byzantine pottery scattered on the ground confirm the Christian nature of the site.

The Coenobium Monastery of *St Lot*

The monastic complex at Dayr 'Ayn 'Abāṭa in Ghawr aṣ-Ṣāfī consists of an 18 x 17 metre triple-apsed basilical church flanked by a large seven-metre deep arched reservoir on the south and a refectory and hostel to the north. Several hermits cells are found above and to the south of the monastery. It is the most extensively excavated and



1. Early Byzantine Monastic Sites in Eastern Palaestina Tertia.

studied coenobitic monastery in eastern *Palaestina Tertia* (Politis 1989, 1990, 1992, 1993, 1995 and 1997).

Accurately located and depicted on the Mādabā mosaic floor map as the Sanctuary of *Agios* (=saint in Greek) *Lot*, its construction is dated by a Greek mosaic floor inscription to April 606 with a renovation date of *Xanthikos* (roughly May) 691. Pottery and other objects from the excavations indicate a fourth century AD origin of the site as a Christian place of pilgrimage. Nabataean and Roman period pottery suggest an earlier veneration of the site. The presence of Early and Middle Bronze Age finds may even allude to a belief that the site was sacred by its later inhabitants if they too had discovered such ancient relics. There is similar evidence for this ritual at Dayr al-Qaṭṭār al-Byzanṭī on al-Lisān. The final period of occupation was in the late eighth to early ninth century as evidenced by Abbasid period pottery, glass and inscriptions.

The mosaic inscriptions in Greek name several church officials including the Bishop *Iakovos*, the Abbot *Sozomenos,* the Presbyter and County Bishop *Christoforos,* the Presbyter and Oeconomos *Zenonos*, the Governor *Ioannis* son of *Ravivos, Georgios* the sacristant, the builder *Ioannis Prokopios* and *Ioannis Savinaou,* probably the mosaicist. Pilgrim's graffiti in Greek on the wall plaster and stone blocks include *Nestacia Zenobia*, *Ulpius, Sozomenos* and *Pavlos.*

A communal tomb in a disused cistern, reinterred skeletons in the cave and several single stone-lined burials account for the monks and pilgrims who lived and died at the site. At least one was of African origin which corroborates the Coptic coins and pottery found at the monastery.

Furthermore, the unusually large basilical church and reservoir, the hostel complex and an exceptionally wide range of foods including fruits, meats and fish from the Red Sea attest to the monastery being a major pilgrim destination in eastern *Palaestina Tertia* during the sixth-seventh centuries. It was visited by St Stephen from the monastery of St Sabas in the Judean Desert during the late eighth century (Garitte 1959: 365) and by the Russian Abbot Daniel in 1106-7 (Wilson 1888: 47).

The Cave Church at Ḥammām 'Afra

Near the hot springs of Ḥammām 'Afra, three kilometres south of the wadis 'Afra and al-Ḥasa, is located a cliff-side cave church. It is comprised of three caves cut into the sandstone escarpment aligned east-west and decorated with wall paintings of crosses with fish and birds and Greek inscriptions including one naming an Abbot *Ioannis* and a hermit *Theodoros* (MacDonald 1980: 351-364).

The east end of Cave 1 has three niches carved into the bedrock flanked by two pilasters and two columns resembling a basilical church plan. Similar cave churches have been found in the Judean Desert (Hirschfeld 1992: 117-129). Although the front part of all three caves has eroded away, there are remnants of what might have been a passageway which probably would have connected them.

Immediately east of the cave church is a rock-cut room with an entrance and window. To the south of this structure are the remains of steps cut into the bedrock leading up above the wadi. Although this has not been investigated it would not be surprising to find other caves and single chambers used as hermits' cells associated with the cave church at Ḥammām 'Afra.

The Cliff-Side Memorial at Wādī al-Ḥasā

On the northern cliff-side escarpment of the mouth of Wādī al-Ḥasa is another rock-cut cave with two interconnecting chambers. The northern one contains a large (unfortunately robbed-out) stone-built cist tomb. The adjacent southern chamber has a one metre-wide apse on the eastern side flanked by two half metre wide niches covered with partially painted plaster. When this was first reported, a Greek inscription etched on the plaster covering the cave wall characterised the site as a "Holy Place" (Frank 1934: 207-208; Alt 1935: 72-73). Although later scholars hypothesised that this was the Biblical site of the Sanctuary of Agios Lot depicted on the Mādabā mosaic map (Donner 1983: 1-3), the more recent discovery and excavations at Dayr 'Ayn 'Abāṭa have disproved this notion.

Stone walls and a 2.2 x 3.5 metre reservoir immediately outside the cave indicate more substantial structures once existed at the site. It is possible that a hermit/caretaker may have lived there. Early Byzantine pottery sherds and remnants of an ancient path leading up to the cave suggest that the site had frequent visitors. Taking the "Holy Place" inscription and the impressive burial chamber into account, it seems that the site was intended as a memorial to a holy man who attracted a significant number of pilgrims.

Monastery of St Aaron and Hermitages at Petra

The Byzantine city of Petra continued to flourish as it had done during the Nabataean and Roman periods, becoming a centre of Christianity in eastern *Palaestina Tertia.* It was the See of the Metropolitan until the early seventh century. The al-Kātūta and Urn Tomb were both reused as churches. Recent excavations have uncovered two large basilical churches: the "Petra" church (Fiema forthcoming) and the "Ridge" church (Pa. Bikai 1996: 481-486). A cache of carbonised papyrus rolls from the mid sixth century AD were discovered in a room adjacent to the "Petra" church which names one as the Church of the Virgin Mary and the other as the Church of the Saint High-Priest Aaron (Pi. Bikai 1996: 487).

The latter church probably refers to the Monastery of St Aaron on top of Jabal Harūn, just south of Petra. This monastic complex lies immediately below a mosque rebuilt

over a church dedicated to the traditional burial place of Moses' brother, Aaron (Peterman and Schick 1996: 473). The remains, which are currently under excavation, consist of a multi-roomed courtyard complex around a water cistern. Over a dozen 5 x 4 m to 5 x 2 m cells can be distinguished as well as a 16 x 7 m church. The monastery is listed by Eusebius in the Byzantine period, mentioned as a place of frequent pilgrimage during Lent in the mid-8th century by St Stephen the Sabaite and visited by Crusader and Medieval travellers (Peterman and Schick 1996: 477).

There is also evidence for monastic activities at the main site of Petra. In the largest rock-cut Nabataean monument, the ad-Dayr, there is testimony of four Greek Orthodox monks residing there until 1884 (Piccirillo 1992: 20; Canova 1954: 17-19). A rock-cut cave on the way to Seyl Batha bears crosses at its entrance indicating it was once occupied by a hermit (Linder 1997: 504, pl. 52).

Other Hermitages and Monasteries

Immediately west of Khirbat Faynān (ancient Phaino) are two churches. Further west is a cluster of rooms enclosed by a wall which may be a monastic complex (Frank 1934: 223; Khouri 1988: 123). In Wādī Dufalī and Wādī al-Malik near al-Karak (Byzantine *Charachmoab*), hermitages have also been reported (Canova 1954: 3-4, 17-24, 220-222, 217). An adobe-built church which was recently discovered during excavations in Byzantine Aila (al-'Aqaba) may have been part of an early monastic complex similar to those found in the Egypt (Parker 1996: 247).

Considering the eastern spread of asceticism from the Judean Desert, there is every reason to believe that the discovery of monasteries and hermitages from new surveys and excavations in southern Jordan will continue well into the next millennium.

Bibliography

Abel, F. M. 1929. Chronique: Notes Complementaires sur la Mer Mort. *Revue Biblique* 38: 237-260.

Bikai, Patricia M. 1996. The Ridge Church at Petra. *ADAJ* 40: 481-486.

Bikai, Pierre M. 1996. Petra Church Project, Petra Papyri. *ADAJ* 40: 487-489.

Burkhardt, J. L. 1822. *Travels in Syria and the Holy Land.* London: Murray.

Canova, R. 1954. *Inscrizioni e monumenti protocristiani del paese di Moab.* Citta del Vaticano, Rome.

Donner, H. 1983. First Report on the Problem of St. Lot's Church near as-Safi. Unpublished report to the Department of Antiquities.

Fiema, Z. *et al.* forthcoming. *Petra: The Byzantine Church.* ACOR Publications 5, Amman.

Frank, F. 1934. Aus der 'Araba. I. Reiseberichte. *ZDPV* 57: 191-235.

Garitte, G. 1959. Le debut de la vie de Saint Etienne le Sabaite. *Analecta Bollandiana* 77: 332-369. Facs. III-IV.

Glueck, N. 1934. Explorations in Eastern Palestine, I. *AASOR* XIV: 1-114.

Graf, D. F. 1978. The Saracens and the Defence of the Arabian Frontier. *BASOR* 229: 1-26.

Hirschfeld, Y. 1992. *The Judean Desert Monasteries in the Byzantine Period.* Yale University Press, New Haven.

Holmegren, R. and Kaliff. A. 1997. The 1995-1996 Excavation of Dayr al-Qaṭṭār al-Byzantī. A Preliminary Report. *ADAJ* 41: 321-340.

Jacobs, L. K. 1983. Survey of the South Ridge of the Wadi 'Isal,1981. *ADAJ* 27: 245-274.

Khouri, R. G. 1988. *The Antiquities of the Jordan Rift Valley.* Amman: Al Kutba.

King, G. R. D. *et al.* 1989. Survey of Byzantine and Islamic Sites in Jordan. Third Preliminary Report (1982) The Wadi 'Arabah (part 2). *ADAJ* 33:199-215.

___ 1987. Survey of Byzantine and Islamic Sites in Jordan. Third Season Preliminary Report (1982). The Southern Ghor. *ADAJ* 31: 439-59.

Lindner, M. 1997. Beyond the Perimitre of Ancient Petra. Archaeological Activities 1992-1997. *Liber Annuus* XLVII: 504-505 (1997).

MacDonald, B. 1992. *The Southern Ghors and Northern 'Arabah Archaeological Survey.* Sheffield: J.R. Collis.

___ 1980. The Hermitage of John the Abbot at Hammam 'Afra, Southern Jordan. *Liber Annuus* 30: 351-364

Mayerson, P. 1994. *Monks Martyrs, Soldiers and Saracens.* Israel Exploration Society. Jerusalem.

Parker, S. 1996. The Roman 'Aqaba Project. The 1994 Campaign. *ADAJ* 40: 231-257.

Peterman, G. and Schick R. 1996. The Monastery of Saint Aaron. *ADAJ* 40: 473-480.

Piccirillo, M. 1992. Monks and Monasteries in Jordan from the Byzantine to the Abbasid period. *Al-Liqa' Journal* I: 17-30.

Politis, K. D. 1989. Excavations at Deir 'Ain 'Abata 1988. *ADAJ* 33: 227-233, 40589589,4-406.

——1990. Excavations at Deir 'Ain 'Abata 1990. *ADAJ* 34: 377-387.

——1992. Excavations at Deir 'Ain 'Abata 1991. *ADAJ* 36: 281-290.

——1993. The 1992 Season of Excavations and the 1993 Season of Restorations at Deir 'Ain 'Abata. *ADAJ* 37: 503-520.

——1995 a Excavations and Restorations at Dayr 'Ayn 'Abata 1994. *ADAJ* 39: 477-491.

——1995 b New Greek Inscriptions in the Byzantine Hermitage at Qasr et- Tuba on the Lisan. *ADAJ* 39: 556-559.

——1997. Excavations and Restorations at Dayr 'Ayn 'Abata 1995. *ADAJ* 41: 341-350.

Wilson, C. W. (ed.) 1888. The Pilgrimage of the Russian Abbot Daniel in the Holy Land 1106-1107 A.D. *Palestine Pilgrim's Text Society* vol. IV. London.

Mohammad Waheeb
Department of Antiquities
Amman - Jordan

Mohammad Waheeb

Wādī al-Kharrār Archaeological Project (al-Maghṭas)

Introduction

Wādī al-Kharrār, is the modern name for Saphsaph, which is depicted on the Mādabā Mosaic Map. This is a dramatic site situated near the eastern part of the Jordan River, west of al-Kafrein Village and not far away from the famous site of Jericho.

The archaeological remains are located along the southern edge of Wādī al-Kharrār. The sites are scattered over small hills and barren terraces of marl and limestone, the Palestine grid coordinates for this area are 203,770 E 138,460 N. The UTM coordinates are 742,960 E 3525 N. The map for this area of Jordan is numbered 3153,4 SW 13, and the elevation approximately -335 below sea level.

The limits of the archaeological sites are still not determined, since much of the area is subject to alluvial action and is under cultivation. Prior to our survey and excavations, the only architectural features visible on the surface of the area were tumbled stones and hills of sand, which covered all the remains (FIG. 1). Occasionally Pottery shards and mosaic tesserae were found scattered on the surface.

The archaeological survey of the eastern side of the Jordan River was initiated in 1997 as part of the Jordan Cultural Resources Management (CRM) Project and was sponsored by the Department of Antiquities of Jordan. Fieldwork was done in cooperation with Saad Hadeddi, inspector of Salt office.

In addition to the survey excavations were carried out at sites of al-Maghṭas. The main goal of the DAJ team has been to study ar-Rāmah and al-Kafrayn plateaus near the Jordan River, north of the Dead Sea.

The Ministry of Tourism and Antiquities (MTA), The Ministry of Water and Irrigation (MWI) and the Jordan Valley Authority (JVA) are planning to construct tourism facilities near al-Maghṭas on the eastern side of the Jordan River. Following a series of discussions with MTA, MWI and JVA representatives, the Department of Antiquities planned to conduct an emergency survey, which was followed by excavations in the selected areas at al-Maghṭas,



1. Tall al-Kharrār before excavation (Elijah Hill).

prepared a final report with the result of the survey and excavations in addition to recommendations which would included within the master plan

For a preliminary culture resources impact assessment, the area was visited several times during March 1997 by the author and engineers of JVA staff. Several solutions were discussed and appropriate measures for the protection of the archaeological sites were adopted.

Methodology

What follows is a list of sites identified in the course of the survey.

The references, which follow the site number, are the Jordan 1:25,000 series map sheets, by sheet number grid coordinate, together with height below sea level in meter. If known, the modern Arabic site name is also given. Appended to each description in most cases is a summary of the number and period of artifacts recovered from the site.

Pottery shards are listed in chronological order, from earliest to latest. The absence either of shards or of lithics from a site means that non were found. The dating of artifacts from a site to a specific period does not necessarily imply that architectural or other features of the site may be dated accordingly.

The survey was conducted on foot, with survey members walking distance between 20-50 meters from each

other. Sample collections were taken at all sites and features were recorded.

Previous Research

The Wādī al-Kharrār Archaeological Project was by no means the first intensive survey in the area. More than a century ago, in 1881 Conder mentioned a site called (Ain al-Kharrar) or (Murmuring Spring) which is a small spring close to Jordan. He stated that the site is "in the jungle at the edge of Zor near the lower bed of the Jordan River" (Conder 1882: 9).

The site and the spring of Wādī al-Kharrār were visited several travelers, among them was Abel who identified four archaeological sites in and near the area of Wādī al-Kharrār. He believed that these sites which he numbered 2, 3, 5 and 6 were among the most important remains in the area. Regarding site No. 2 he saw foundations of a church built over an arch system near the Jordan River. At site No 3 he identified remains of a modern house built upon the foundations of an older structures. He recorded the existence of three fallen columns on the ground near this site.

He provided the following additional details:

1. At site No. 5, Tall al-Kharrār with some related cisterns located on slopes of the *tall*, he described a vault system used in building the cisterns.
2. At site No. 6, he described a church apse with well-dressed stones and columns bases among the other remains scattered over the site (Abel 1932)
3. Morton visited the area of Wādī al-Kharrār and similarly emphasized its importance stating; "The place I discovered among the tamarisk and the willows is that which has been hallowed by cisterns of pious pilgrimage" (Morton 1934: 104).

In his unpublished report, Harding described his visit to Wādī al-Kharrār as follows "there is a discernible mound, the surface of, which is, strewn with Byzantine shards, to the east of the Wādī Kharrar and close to the left bank of the Jordan is what appears to be a masonry bricks each side of which terminates in a vaulted arch". (Harding n.d.: 9). Recently three cisterns were discovered during the excavations of Tall al-Kharrār.

During their survey, Ibrahim, Sauer and Yassine visited Tall al-Kharrār, which they numbered Site 201 and dated it to the Early Roman/ Late Roman/ Early Byzantine and Late Byzantine Periods (Ibrahim *et al.* 1988: 193).

Sites Assessment

Several sites were located as result of the survey at Wādī al-Kharrār and the presence of more archaeological remains can be inferred under certain alluvial terraces which may will cover some small and medium sized sites especially south, east and west of Tall al-Kharrār. Unfortunately some of these sites have been and continue to be damaged:

* Alluvial derbies deposited by water running through the area, which covers and cuts through the cultural layers. The extent of the disturbed cultural layers cut by the water is difficult to determine.
* A bulldozer cut at the southern side of Tall al-Kharrār, separated the archaeological deposits into two parts; north and south, and exposed the cultural layers in sections up to 1 m high and over 30 m long. Several architectural remains were exposed as a result of this bulldozing.
* Modern architectural activities have dislodged ashlars from ancient buildings, revealed that well cut stones pits. Robbers have dug all over the sites. These pits, disturbed several walls and some bones were scattered on top of the *tall*.

Several factors have been considered in a work plan for al-Maghṭas:

1. The size and nature of the area are to be examined (a military area with numerous mine-fields).
2. The depth of the archaeological deposits goes down to 2 meters.
3. The fact that the site may be very important for the early history of Christianity (during the period of John the Baptist and Jesus).

The following is a preliminary report of the first season of archaeological exploration in the area of al-Kharrār (al-Maghṭas).

None of the statements contained in this report can be considered conclusive. They are rather a first assessment of the type of archaeological features found in this area and of the periods of occupation they represent. Simply stated, the aim of the project is to reconstruct phases of human occupation in the region, by identifying the relationships between man and his environment during different historical periods.

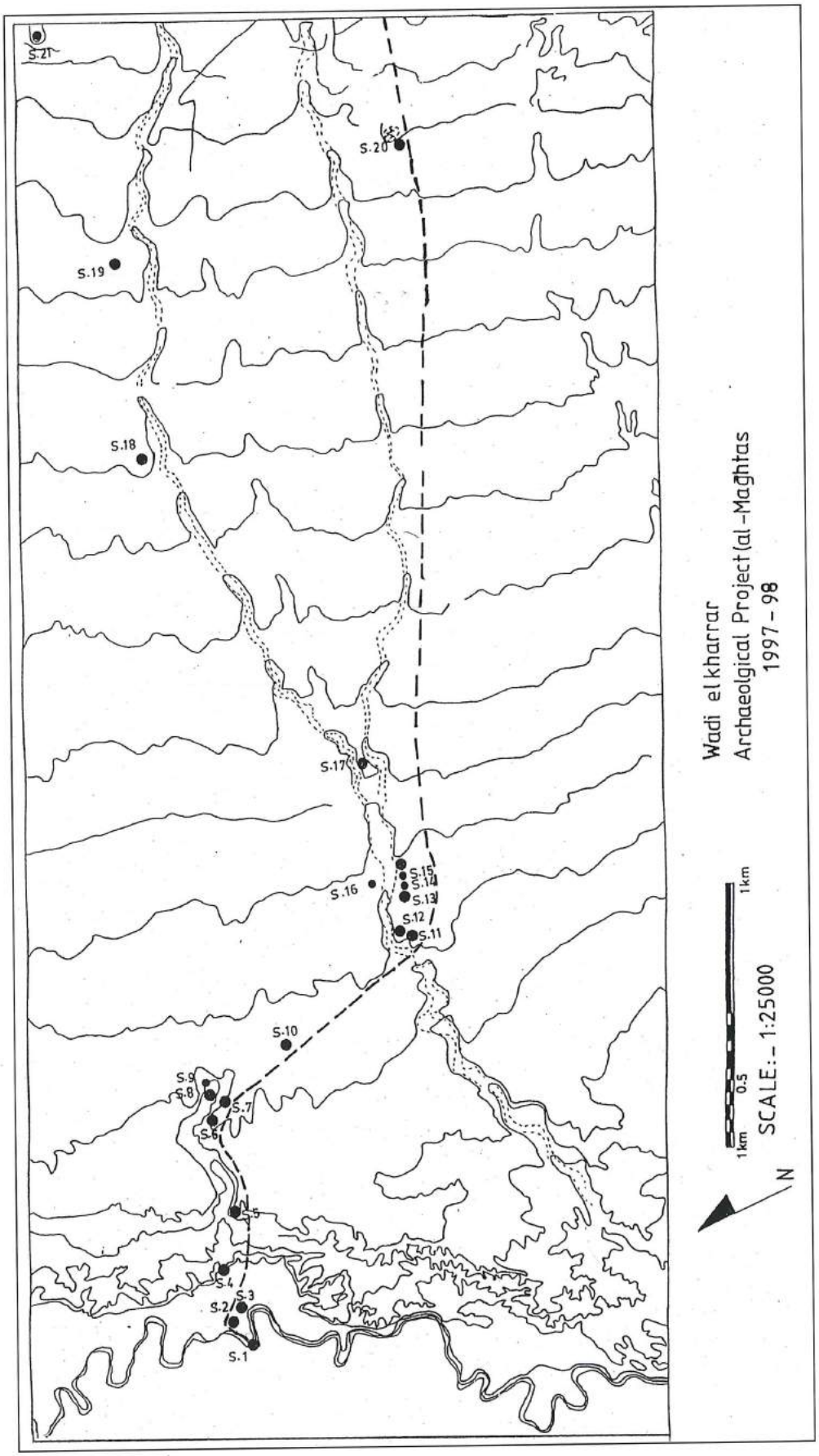
The discovered sites on both sides of Wādī al-Kharrār and its vicinity mainly belong to the following archaeological periods (FIG. 2):

1. Chalcolithic-Early Bronze Age such as site No. 17, P.G. coordinates 206.2, 137.4
2. Iron Age I-II periods such as site No. 18, P.G. coordinates 203.7, 138.4.
3. Early and Late Byzantine periods, such as site No. 3, P.G. coordinates 202.2, 138.4.
4. Islamic (Umayyad) period such as site No. 12, P.G. coordinates 205.1, 137.

Survey Results

The survey has located 21 sites.

The periods represented are the Early Bronze Age (1 site), the Iron Age I-II (1 site), Roman (2 sites), Byzantine (8 sites) and the Umayyad (1 site).



2. Archaeological sites discovered during the survey of 1997-98.

The Roman and Byzantine periods combined are represented at the two sites on the basis of this survey alone, it is not possible to speak without "gaps" in the record of human occupation, in and around Wādī al-Kharrār, because of the limited area surveyed. However, It is important to stress an almost total absence of pre-historic sites and materials, while the periods between the first century BC and the seventh AD mark the "high point" of human occupation and exploration of the limited resources of the area.

The sites go under five main categories:

1. Agricultural sites (No. 17).
2. Religious (No. 8) (FIG. 3).
3. Habitation sites (No. 20).
4. Water installation (No. 15) (FIG. 4).
5. Shards scatters (No. 16).
6. Other unspecified sites (No. 19).

An important result of the survey is the discovery of several archaeological sites in an area, which today looks totally inhospitable. As the evidence has shown, people were able to adapt the harsh environment.

Adaptation was possible by a number of factors, of which were the areas link with the plateaus in Ghawr al-Kafrayn, ar-Rāmah and the Jordan River. It seems that this links was mainly exploited during the Roman-Byzantine periods.

During our inspection of the southern side of Tall al-Kharrār in 1997, the team decided to choose this section for excavation. Four areas were established (A, B, C and D) (FIG. 5), their locations were in use over a long period and clearly have a complex construction history. In the course of excavation, structures were discovered in areas D and C, which can be described as follows:

Area D/ Structure 1

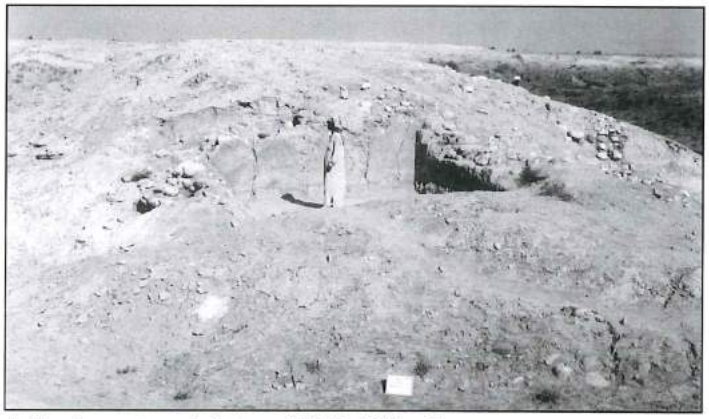
Excavations in Area D revealed the presence of a rectangular building of undressed local limestone (FIG. 6). Approximately 11.50 m EW X 7.30 m NS, it was located near the southeastern corner of Tall al-Kharrār. The floor of the structure was already in a very bad state of preservation before the latest use of building during the late Byzantine period. The ashes of the final destruction rest directly on the extant parts of the white mosaic. The structure broadly dated to the Roman period (FIG. 7).

Area C/ Structure 2

Excavations conducted in area "C" uncovered a structure built of well-dressed limestone blocks (FIG. 8). The general shape of the structure is rectangular, its dimensions are approximately 13.50 m E-W and 9 m N-S. Many parts of this building are disappeared only limited portion still preserved. What remains is a few stones resting on a lime plastered surface overlying carefully prepared rubble stone and gray to dark ashy mortar which resembled



3. Jordan River place of Baptism.



4. Southern stepped cistern of Tall al-Kharrār.

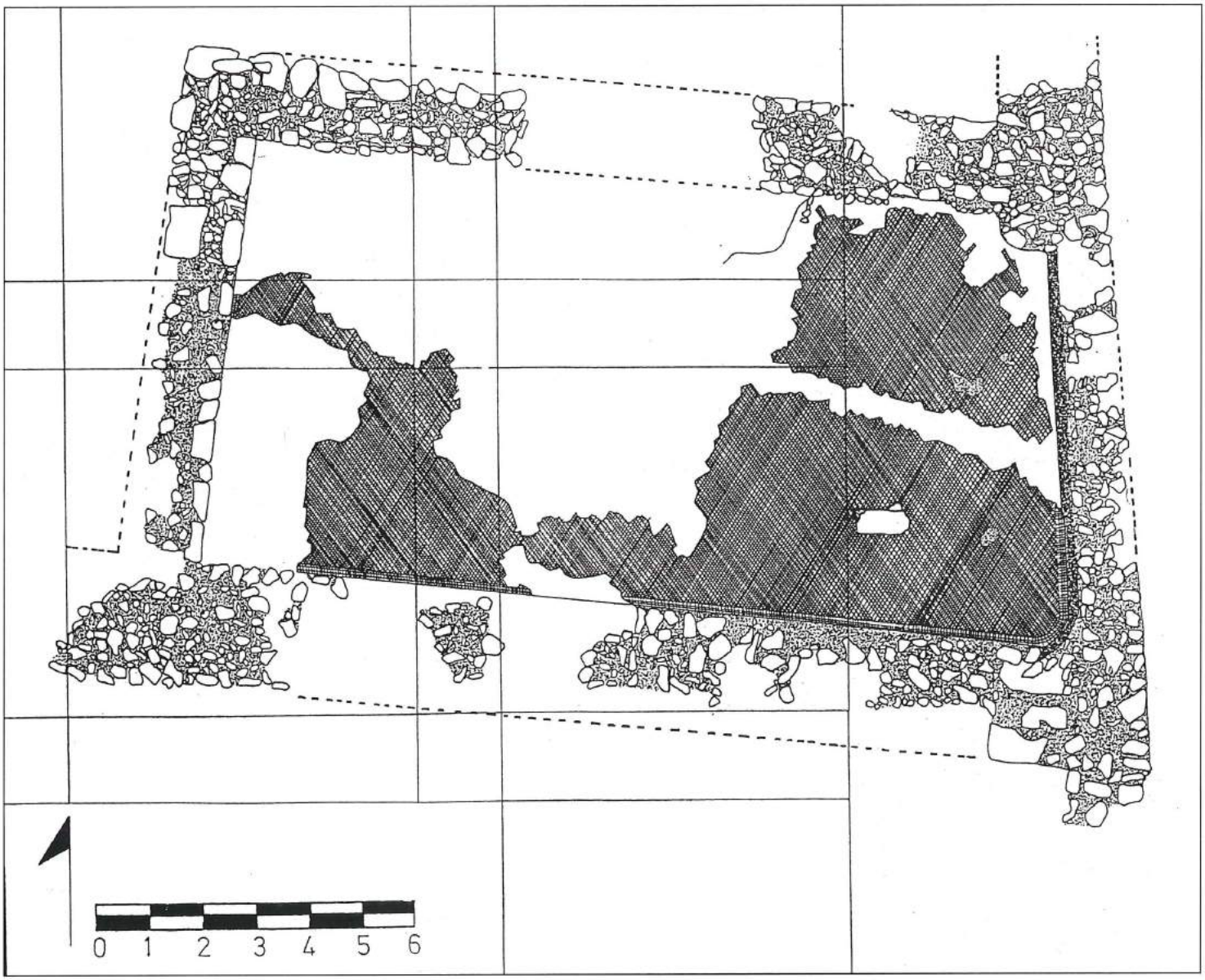


5. Part of the excavated area south of Tall al-Kharrār.

the bedding cement of the Byzantine period construction.

The colored mosaic floor of this building was largely destroyed. The fill contained fragments of lime with some mosaic tesserae still adhering to it. Impressions on the mortar bedding indicate that an arch system was used to support the roof of building. It is clear that the building was destroyed intentionally and the stones were removed, In any case, we have to be aware of possibility that the systematic removal of the stones continued even after the Byzantine period. The preserved small section of the mosaic floor shows geometrical and floral designs (FIG. 9).

In the absence of inscriptions, the date of the building can be determined, mainly, by the examination of strat-



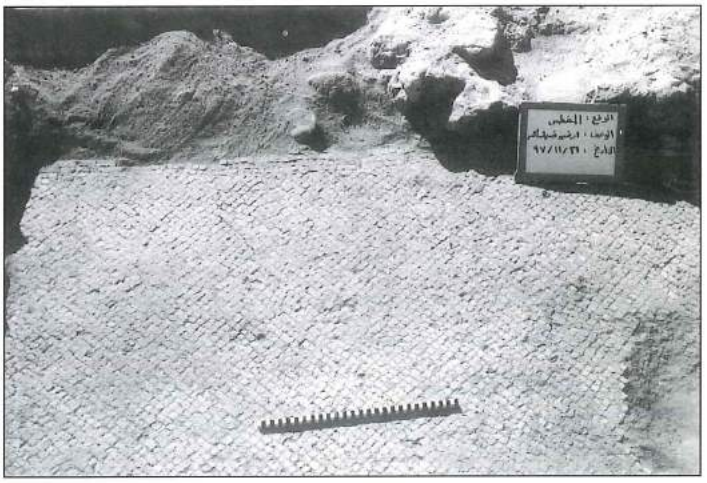
6. Structure No. 1.

igraphic evidences and stylistic criteria.

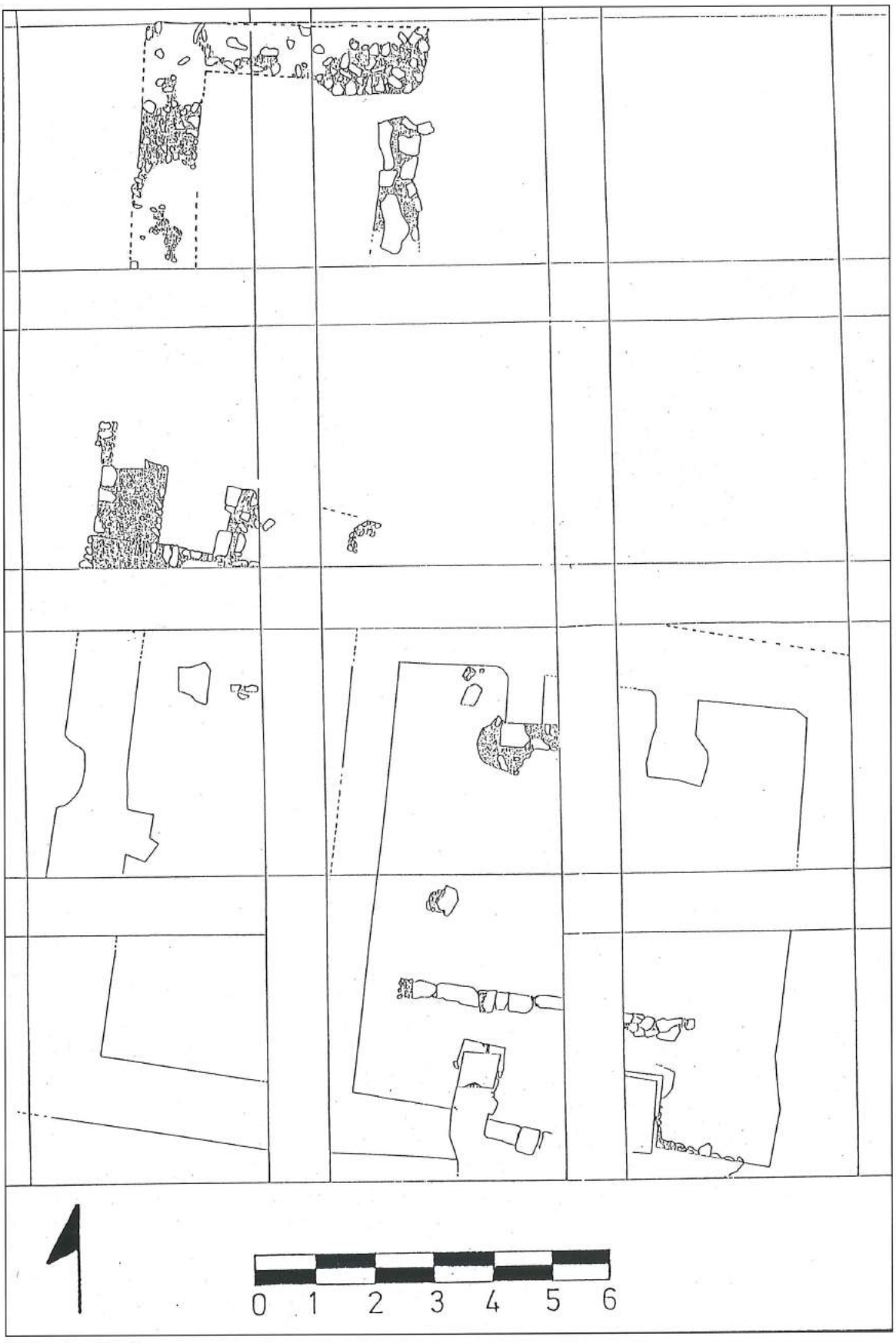
The structures built in the early phase constitute the core of the site. The medium sized structure (No. 1) and three pools with the drainage system are attributable to this phase. The buildings erected in the early phase were scattered around the *tall,* especially at the southern part; with no clear signs of an overall plan.

The preliminary assessment of the architecture and material discovered in the field suggests continued use from early Roman up to late Byzantine period.

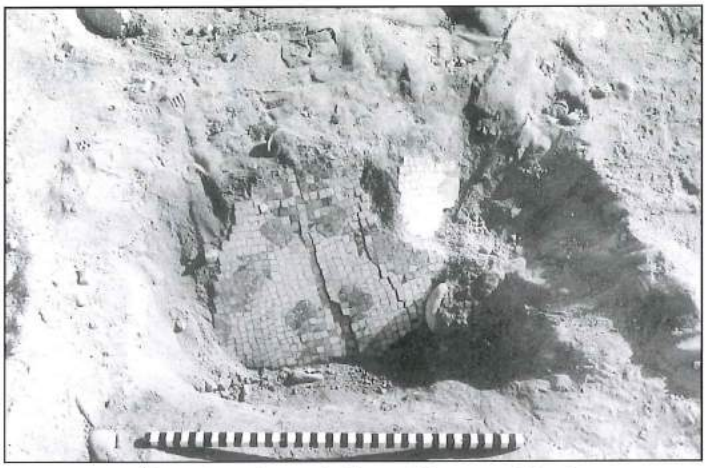
Systematic excavations continue at sites No. 3, 5, 6, 7 and 8, where numerous wall of different directions were recovered. The architectural remains in addition to the recovered material will shed light on the importance of this area.



7. Remains of a plain mosaic floor of Structure No. 1.



8. Structure No. 2



9. Fragments of a coloured mosaic floor of Structure No. 2.

The Romans often brought water over considerable distances to cities, towns and buildings. Through aqueducts from Wādī al-Kafrayn and ar-Rāmah, water was distributed to different parts of the area especially the three cisterns of Tall al-Kharrār.

It is possible now as a result of these finds to follow the pilgrim's route, which would start from Jordan River. (Baptism site No. 1), then passed beside site no. 3. Then following the southern bank of Wādī al-Kharrār near site No. 5. Reach the main site No. 8 Tall al-Kharrār and the adjacent constructions of (Bethany Beyond the Jordan). After resting in this area, the pilgrims could continue their journey to another place 2 km to the south where sites No. 11/12/13/14/15/16 were located. To the east of site No. 12 is Tall ar-Rāmah or ancient Livias. A test trench dug there revealed the remains of a colored mosaic floor with several Byzantine shards and architectural remains to the eastern side of the *tall*. An earthquake that devastated the whole of the Jordan Valley damaged the Kharrār buildings.

The buildings and the pools suffered the worst of the shock, especially on the *tall*. Following the earthquake (presumably in 31 BC), the site continued to be used as a holy place. Wādī al-Kharrār deserves not only excavation and preservation, but also some degree of aesthetic and archaeological development, so that it can become again a focal point in the whole area of the Jordan Valley.

Recent discoveries in the Southern Ghawr area will help in studying the importance of several sites related to our area, such as excavations at Tall Nimrīn (Flanagan *et al.* 1996), Tall Iktanū (Prag 1971), Tall al-Ḥammām (Prag 1990), Wādī al-Kafrayn (Waheeb 1997: 463-68), as-Suwayma ('Amr 1996), az-Zāra (Clamer 1986), Dayr al-Qaṭṭār al-Byzanṭī (Holmgren *et al.* 1997) and Dayr 'Ayn 'Abāṭa (Politis 1988).

As noted before, the area of Wādī al-Kharrār is well depicted on the Mādabā Mosaic Map (Avi-Yonah 1954). A lion, mostly damaged, chasing a gazelle and two unidentified buildings or villages. Where Betharaba and the little hill were expected to be found, an inscription was depicted reading "Aenon Now Sapsaphas". No religious buildings are shown at this site on the Mādabā Map (which symbolically depicts it with a tree and a representation on the left side, which could stand for a cave).

Both the Pilgrim from Bordeaux (AD 333) and Theodosius (AD 530) stated that the place of the baptism of Jesus had some connection with the hill from which Elijah was taken up to Heaven and located this place on the east side of the Jordan River. John Moschas writing in the seventh century, mentions Sapsaphas (Wādī al-Kharrār), also says that the Patriarch Elias of Jerusalem (AD 464-518) built a church and monastery there (Fingan 1969: 8-10).

The idea that al-Kharrār is the area described in these texts is supported by the fact that it is located at a point near the river to which the old roads came together at the Jordan River.

Conclusions

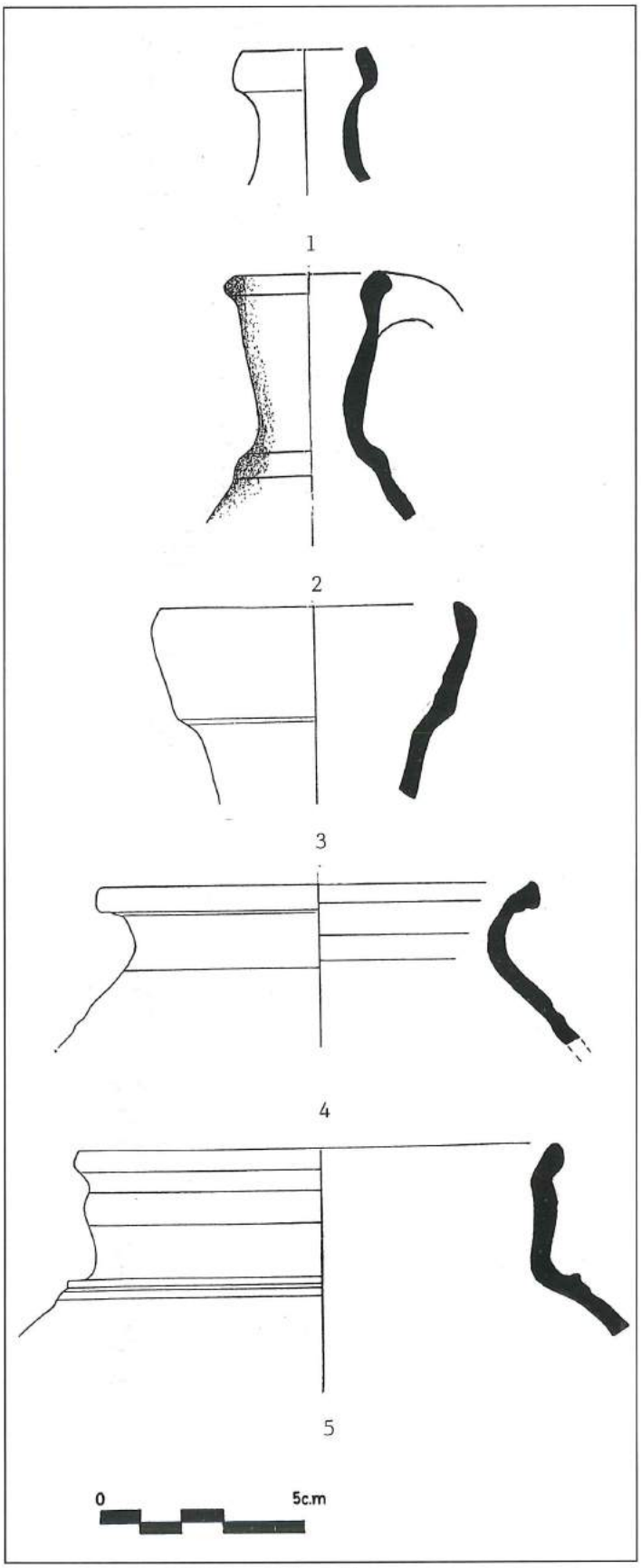
The survey fieldwork in al-Maghtas was completed by the area between Jordan River to the west and the al-Kafrayn and ar-Rāmah villages to the east this included mainly Wādī al-Kharrār and Wādī Gharaba. Only 21 sites were listed and investigated during the first season of the survey.

By examining these sites, the history of material culture and its development could be traced from the Early Bronze Age which means the early farming communities and through the major periods Iron I-II, Roman, Byzantine and Islamic.

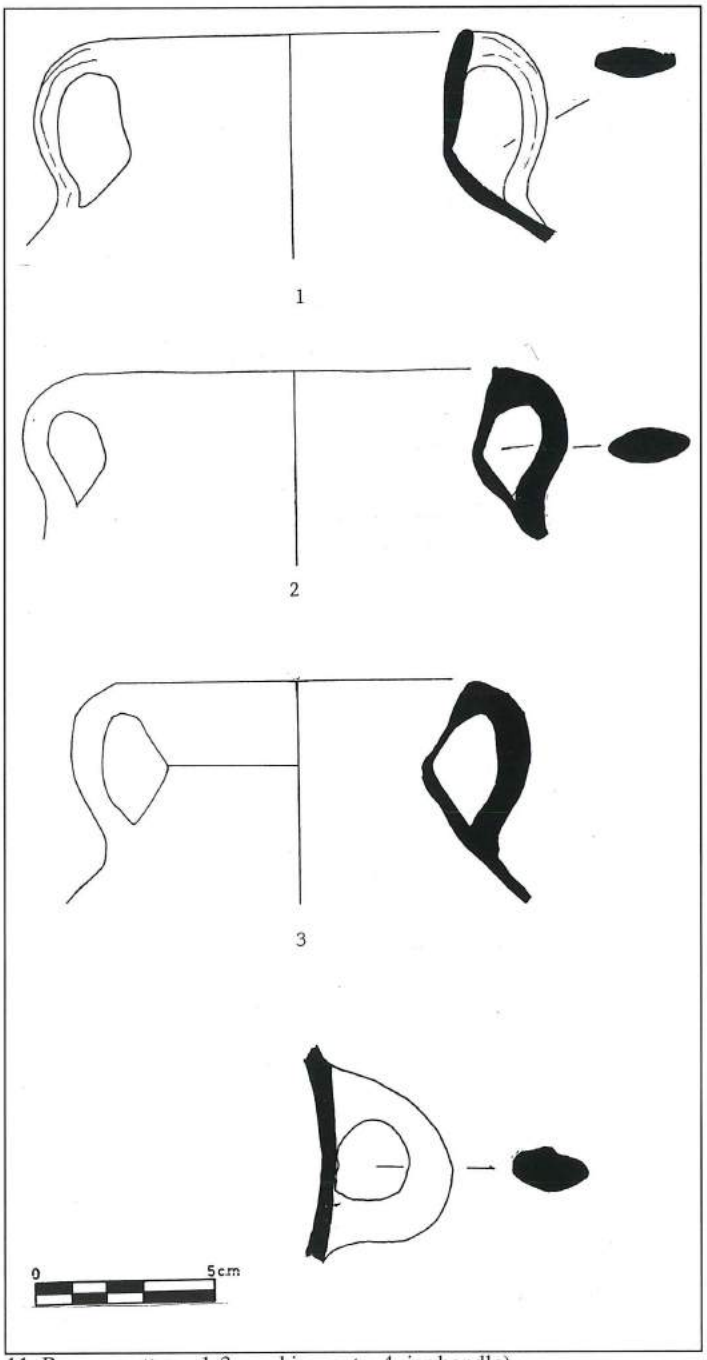
The sites were disturbed in all parts along the banks of the above mentioned wadis.

The sites were mainly constructed along primary wadis and near water sources. The Early Bronze Age site was well represented at the junction where Wādī al-Kafrayn joints Wādī ar-Rāmah and the settlement of this period were found on defined hills which have a defensive character such Tall as-Sadd west of al-Kafrayn dam. Our site here possibly a kind of seasonal camp built near the water sources. The scanty evidence for the middle and late Bronze Ages is not puzzling since the surveyed area was limited. A major site was established during the Iron I and II near the Early Bronze Age settlement .The Persian and Hellenistic periods were not existed. Roman remains were weakly represented in contrast with the strong Byzantine occupation, which reflects a considerable number of buildings and structures, located mainly near Wādī al-Kharrār, and the Jordan River (FIGS. 10-14).

During The Byzantine and Umayyad periods, the area



10. Roman pottery: 1-3. jugs; 4-5: cooking pots.

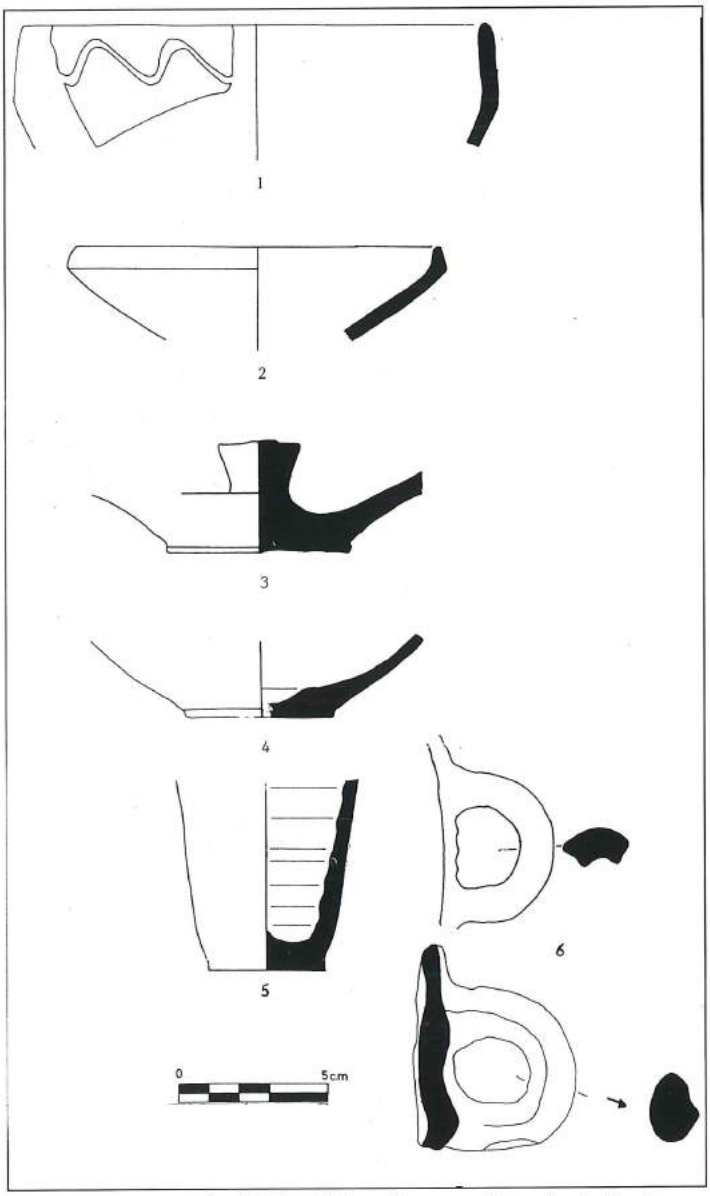


11. Roman pottery: 1-3. cooking pots; 4. jar handle)

showed more efforts in building water installations such as cistern, pools, aqueducts and pipes (FIG. 15). This reflects the reliance an water in a dry area.

The survey results revealed the importance of Wādī al-Kharrār east of the Jordan River, several sites were registered containing architectural features, mosaic floors, cisterns, pools, caves, etc.

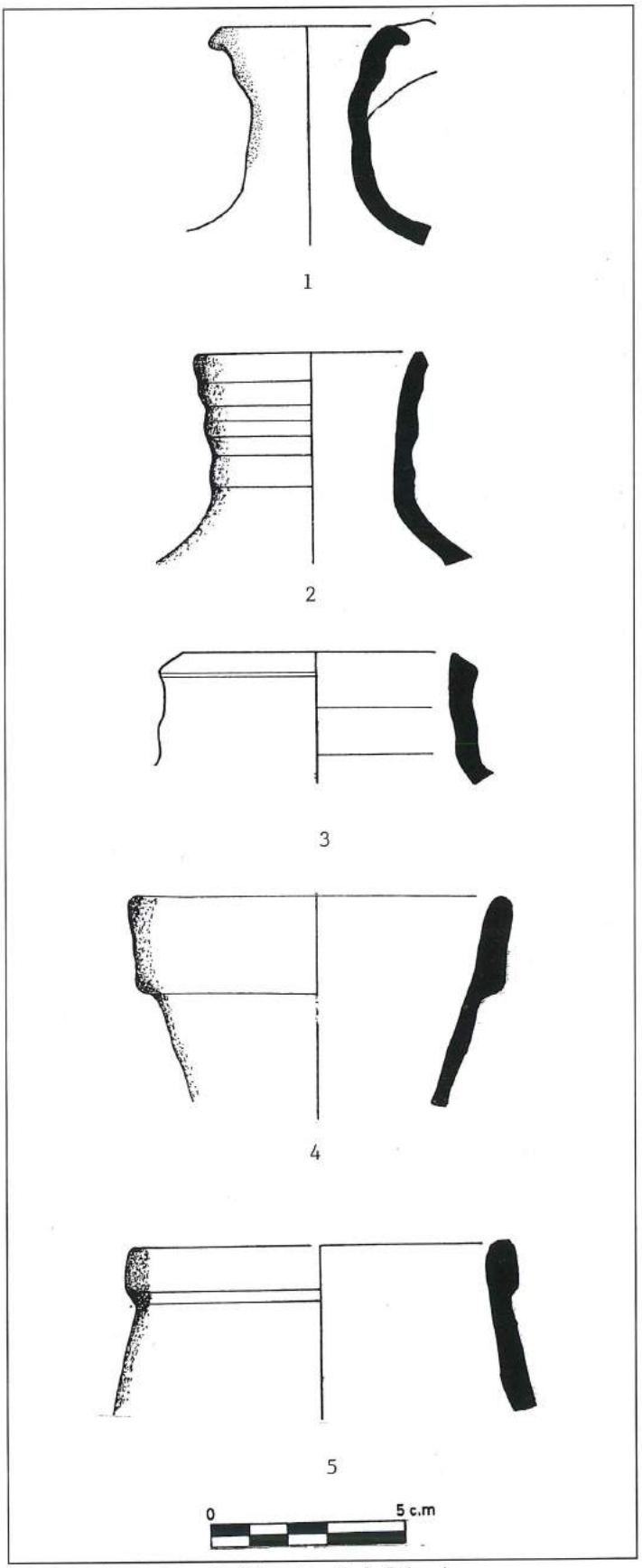
To the west of the northern part of the Dead Sea, archaeologists have identified and excavated several — supposedly monastic — settlements near the place where the scrolls were found. Among these excavated sites were



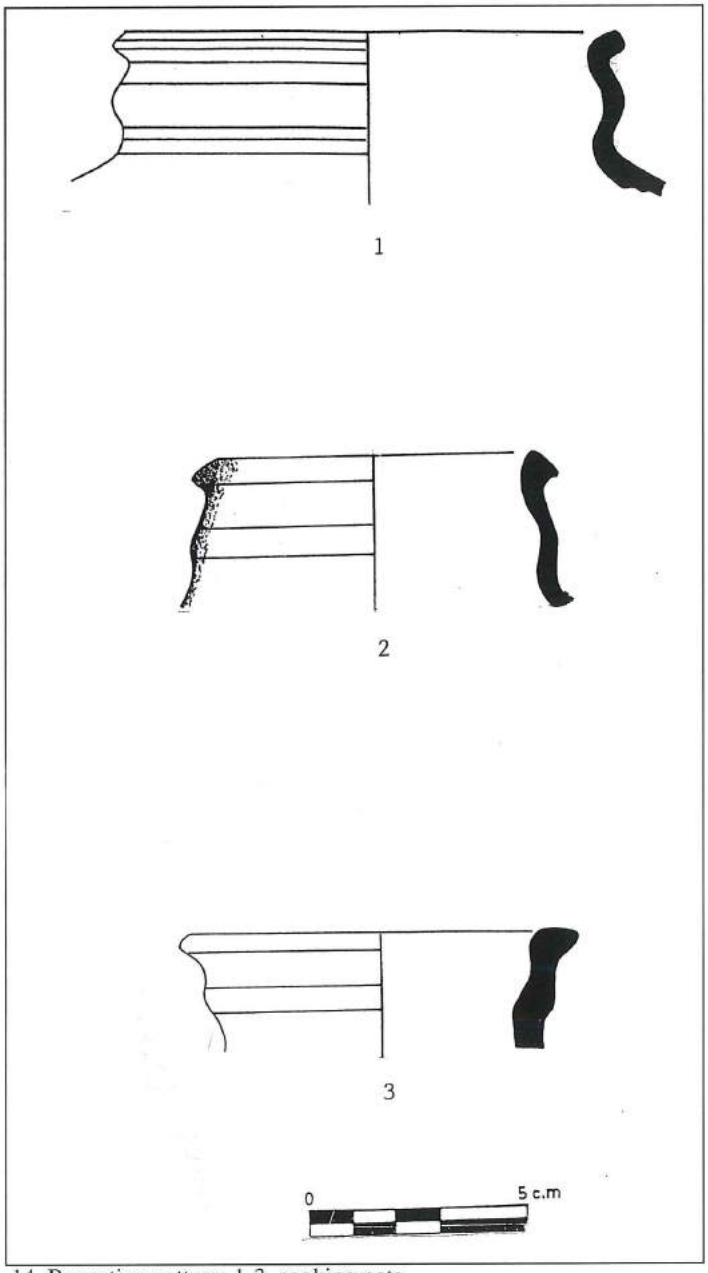
12. Byzantine pottery: 1-2. bowl rims; 3. stopper base; 5. chalice base; 6-7. jar handles.

Qumrān, 'Ayn al-Fashkhah and Mird.

The discovery of Roman and Byzantine remains at Saphasph (al-Kharrār), confirms what the pesher of gospel show, this site was an integral part of history. The buildings at al-Kharrār and its related outpost down the northern coast of the Dead Sea played a vital part in the events recorded. What supports our idea is that the area of al-Kharrār was at a point near the River to which old roads came down. What concerns us, is the road which was about four and one -half mile downstream where the monastery of St. John "stood", on a low hill, seven hundred yard west of the River. At the other side (eastern side), Wādī al-Kharrār comes in from the east. Both the circumstances of John's work and the archaeological discoveries, emphasis that his activity was in the eastern



13. Byzantine pottery: 1, 4. jug rims; 2, 3, 5. jar rims.



14. Byzantine pottery: 1-3. cooking pots.

side of the River, as well in (John 1:28 and 10:40) there is a clear reference to a specific for John's work. Where it is stated that he was baptized in Bethabara beyond the Jordan River.

Acknowledgments

This work could not have been possible without the commitment of the entire field team. I would like to thank Mr. Aqel Biltaji Minister of Tourism and Antiquities and Dr. Ghazi Bisheh Director General of the Department of Antiquities for their constant support and encouragement for the project, also thanks for S. Scham from ACOR for her help and Comments



15. The two northern cisterns of Tall al-Kharrār.

References

Abel, R. 1932. *Exploration du sud-est de la Vallée du Jordain.* (Suie et fin): 237-263

'Amr, K., Hamdan, K., Helms, S. and Mohamadieh, L. 1996. Archaeological Survey of the East Coast of the Dead Sea Phase 1: Suwayyma, az-Zara and Umm Sidra. *ADAJ* 40: 424-449.

Avi-Yonah, 1954. *Madaba Mosaic Map.* Jerusalem.

Clamer, C. 1986. Ain ez-Zara Excavations. *ADAJ* 33: 219-225.

Finigan, B. 1969. *Archaeology of the New Testament.* New Jersey.

Flanagan, W. J., McCreery, M. and Yassine, K. 1996. Tell Nimrine: Preliminary Report on the 1995 Excavations and Geological Survey. *ADAJ* 40: 271-293.

Harding, L. n.d. *Bassat el-Kharrar.* Unpublished Report, vol. B: 11-9.

Hodge, A. 1992. *Roman Aqueducts and Water Supply.* Great Britain.

Politis, K. D. 1988. Excavations at Deir Ain Abata. *ADAJ* 33: 227-233.

Prag, K. 1971. *A Study of Intermediate Early Bronze Age in Transjordan, Syria and Lebanon.* Unpublished Ph.D. Thesis. Oxford University.

——1990. Preliminary Report on the Excavations at Tell Iktanu, Jordan. *ADAJ* 34: 119-130.

Morton, H. 1934. *In the steps of the Master*, London.

Waheeb, M. 1997. Report on the Excavations at Wādī el-Kafrein Southern Ghours (Al Aghwar). *ADAJ* 41: 463-468.

Ina Kehrberg
CBRL
Amman - Jordan

Ina Kehrberg

A Critical Look at Typologies of Ceramics Produced in the Late Roman Period at Jarash

Late in the second half of the third century AD, the second century hippodrome of Gerasa became a large industrial centre, specialising in the production of masses of ceramic goods (Kehrberg and Ostrasz 1997 and bibliography) which were manufactured there until the end of the Byzantine period in the early seventh century. The evidence comes from kilns and the chambers of the *cavea* where the total of excavated pottery kiln waste dumps, representing about 25% of ceramic production, has amounted to some twelve million discarded pottery sherds and misformed vessels of all kinds.

One of the key dumps filled chamber E2 of the *cavea* and contained not only a complete range of Late Roman pottery types in large quantities but held a significant cluster of coins in the upper half of the dump. The latest coins of the 'hoard' (rather a lost purse, see also *infra*) provides a *terminus post quem* of the first quarter in the fourth century AD for the potter's workshop (Ostrasz 1993). The fact that the hoard was in the upper half of the dump allows some conjecture about its beginning being fairly late in the second half of the third century. In addition, there is no marked typological change from the first layer to the last discarded pottery which is also indicative of a fairly tight chronological sequence, not exceeding the generation of the potter at any rate (for a detailed discussion of the discarded pottery in E2, cf. Kehrberg f.c. a).

IFAPO's excavations in 1997 and 1998 at the contemporary second century Upper Temple Complex of the Sanctuary of Zeus (Braun 1998) brought also to light large quantities of ceramics, again from kiln waste dumps. The dumps should date traditionally to the later third century, according to typological parallels of profiles elsewhere (e.g. Rasson 1986) and the standard chronological typology of Late Roman pottery in Jordan, in particular from northern sites.

However, it became apparent in the preliminary study of the pottery and lamps from the Upper Temple complex excavations that the assemblages differed in many respects from the supposedly contemporary kiln waste material of the hippodrome in chamber E2.[1]

These first observations and subsequent examination brought into focus some of the problems related to orthodox typological classification systems (typological identification, succession and relative positions of variations) and to the dating of ceramic types.

The following outlines some of these basic issues whose problematics are inherent in most standard typologies. The problematics are in fact acknowledged to exist in principle, with little attempt, however, at rectifying the situation. Instead, it is still preferred to follow the 'accepted' norm of traditional comparative studies of individual types—the reasons of which shall not be gone into here. Readings of single parallels of decorative 'styles' (motifs) and profiles, mainly through literary sources, is still the commonly used method of typological identification and the basis for chronological classification of newly excavated ceramic assemblages.

Excavations in the early 20s in Jordan had little resource to quantitative local studies and means of comparisons with ceramics from other parts of the studied Classical world. Today, the situation has changed considerably and there are many sites not only excavated but their ceramics are known, if not much of the pottery is published. This should encourage us to move away from exclusive reliance on reading ceramics based on published parallels of single 'rim forms' or motifs and the 'hypothetical' typological framework established long ago for then poorly known regions and their Classical period sites with their cultural assemblages.

What appears essential to any pottery reading is to sort

[1] One has to recall that the hippodrome and the sanctuary are in close proximity to each other and potters would have been aware of each others products. Jarash was one of the few truly major northern sites of pottery manufacture from the Early Roman period on, possibly from as early as the first century BC. This must have gradually honed or regulated Gerasean standards of production and provided an overall uniformity within each cultural-historical period.

out 'relative' positions of the entire ceramic assemblages and their contexts before attempting to identify chronological groupings of types. Only after having identified a relative historical position of an artefactual assemblage can one then distinguish individual types that might be considered key types for that assemblage. And only if that key type occurs in a similar ratio to other types in another assemblage can the key type be used with some confidence as parallel for dating.

Publications of isolated diagnostic forms (rims, bases, profiles, etc.) and 'selective' citing of single parallels for dating an assemblage can be misleading. 'Foreign' parallels may point to an origin of a form or decoration but do not necessarily help in identifying the local setting, chronologically and culturally, of a locally produced ware. Inspirations and even copying are too well known a means of interchange of 'styles' and ideas to be doubted in principle but immediate equations need to be carefully examined before they are applied.

Especially in the Greek and Roman-Byzantine Classical world of archaeology with a background of international history and known foreign policies (and politics!), the temptingly easy equation of *'look alike' style of decoration equals contemporaneity* (and broader cultural-historical implications) has become the pitfall for many archaeologists reading the site pottery. Although transmissions of cultural styles, art forms, technical skills, social habits, etc. cannot be denied in 'international' worlds from as early as the Late Bronze Age, it is hardly sufficient to explain site histories and force them into an artificially dated sequence of events, denying chronological lacunae or discrepancies with other sites.

The eclectic and selective material elements of local communities shaped by their own needs, conception of the 'import' (whether object, style or idea), local ambitions and social cannons, has to be given careful attention before applying across the board equations of strict chronological and cultural contemporaneity, or indeed assimilation.

Scant artefactual finds and small scale excavations make it often very difficult, to allow for definite statements about the collective local historical conscience and the material culture of the site. Mostly, even in well-known historical periods, one has to rely on almost random finds of single or only a small number of artefacts (often found in secondary contexts like a fill of a foundation trench, etc.) to study and interpret local communities and their successive phases, be it on religious, domestic, secular or commercial grounds.

It is fortunate, therefore, that years-long permanent excavations as at Jarash have provided a generous quantity and variety of artefacts—especially pottery—to re-examine in detail the accepted chronological types. Illustrations of some known types from the Late Roman repertoire of Jarash will serve to highlight what should be two of the main concerns of any typology or their system of classification.

1. Rim Forms and Profiles and their Variations

FIG. 1 shows seven pottery forms from the same context. The site is the Upper Temple Complex of the Sanctuary of Zeus, the context an extensive homogeneous layer of pottery kiln waste covering most of the temenos and adjacent areas, in other words a potter's (or several potters') dump site. Each illustration (a-f) with multiple range of rim and body profiles per object does not show the variation of rims for each type of vessel. It shows a number of fragments which are joins of the same vessel. The caption lists the varying degrees of colours and diameters, due to misfiring.

It is important to note, that none of the fragments in themselves reveal the warped form of the vessel, nor the 'discolouring'. It has only become evident when mending that one deals, in each separate case, with the same vessel. The variations are not due to a different workshop or a different hand, nor to site or regional variations of a proto-type, nor do the variations represent a chronological evolution of a rim form.

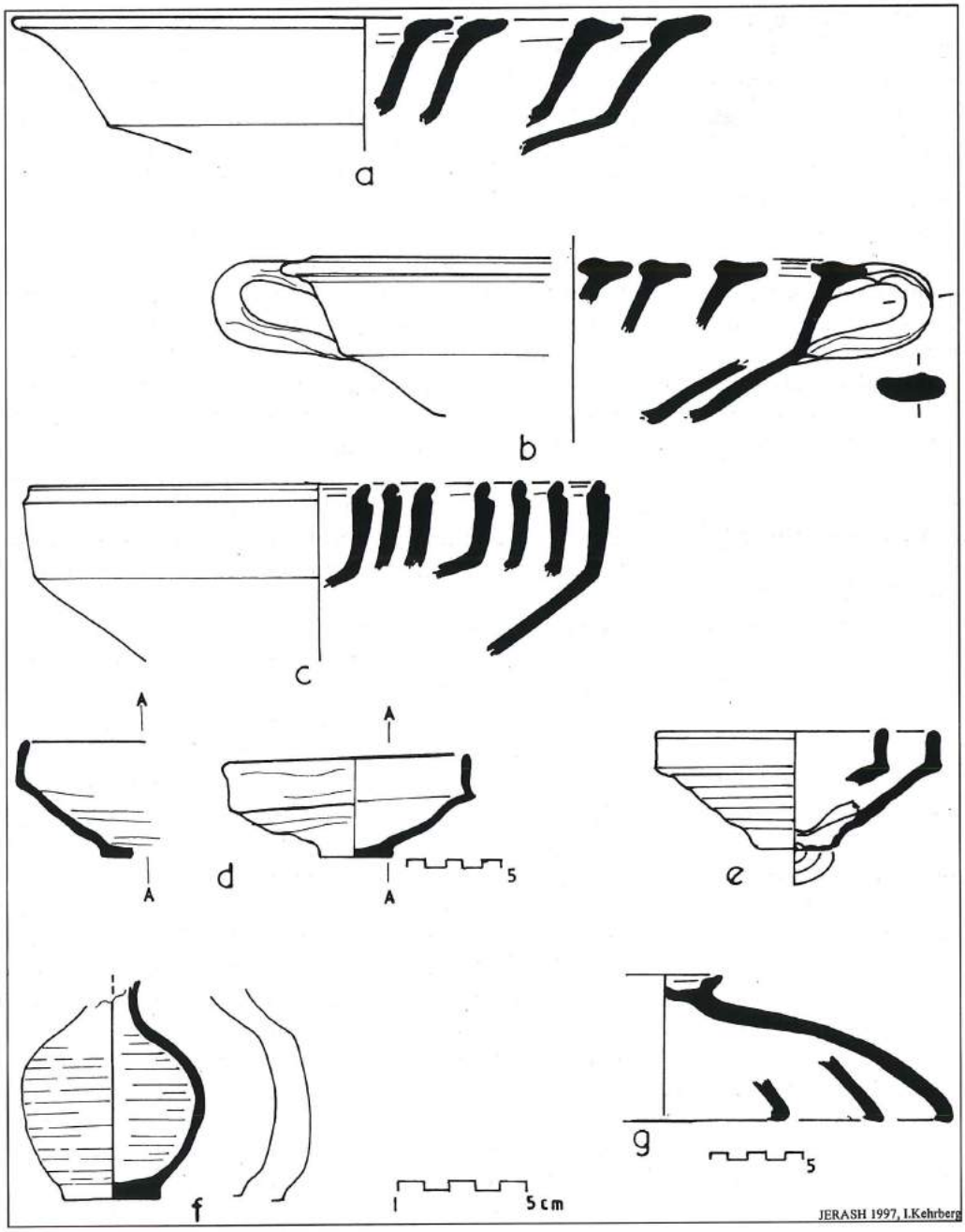
The problems are manifest here. They begin when publishing only one of the profiles because it is only one profile that has either been found or identified as belonging to that vessel. Often, time to look for joins is here a major factor, the lack being a main drawback in ceramic studies. This has led to the assumption that one profile can be 'representative' and will each time be 'replaced' for the site typology by a better, more complete, example. Variants as shown here are classed as sub-types or derivatives and explained in the manner mentioned above. Finally each is registered and given a reference number and classified.[2]

If a fragment with one of the profiles (of one vessel) was found in another context or site, which is not only possible but highly likely, this 'variant' might be classified as a 'new' subtype. The explanation would depend on the context and a variety of classifications could be offered (*supra*).

2. Quantitative Relationship of 'Types' Found in an Assemblage

As said, the vessels in FIGS. 1-3 have been found in the

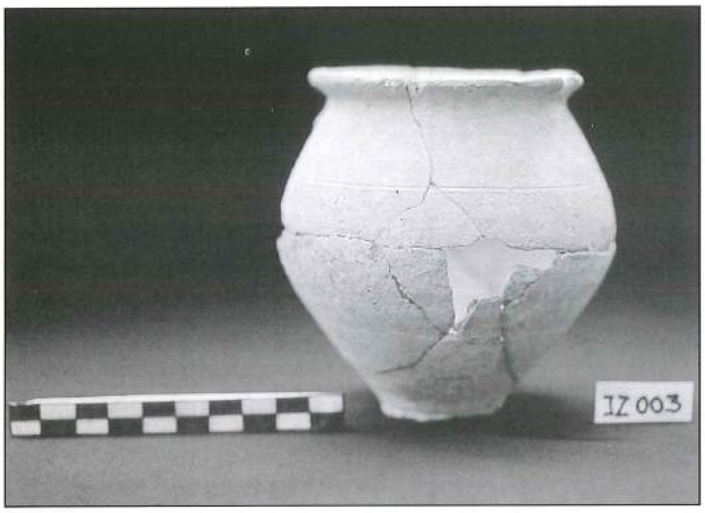
[2] It is rare that archaeological contexts provide large quantities of homogeneous artefact assemblages and rarer still to have evidence from the manufacturing site. The house floor, a cistern, a drain, multiple-periods tombs, a road fill or foundation trench are the most common urban contexts in the Classical periods and pottery fragments are often amassed from different periods and with many typological gaps in the repertoire. Households, funerary and other contexts are eclectic or selective and seldom provide the necessary material to 'correct' misread profiles.



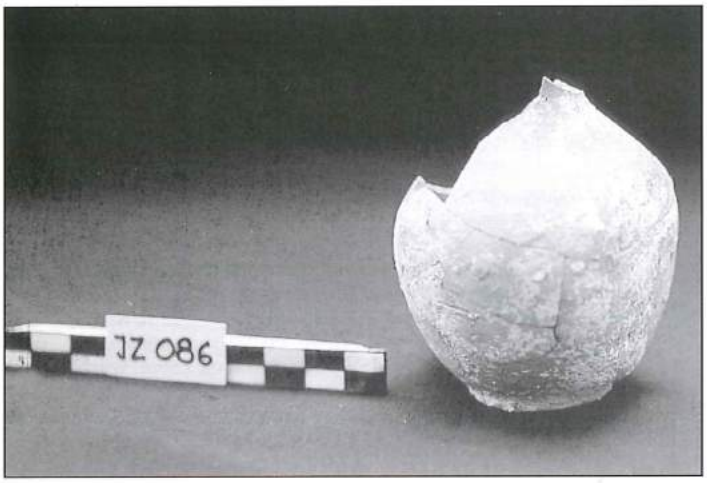
1. (JTZ97):-
   a: JZ103 (diam 28cm) and JZ104 (diam 27cm); context 2; large bowl; red ware, joins;
   b: JZ085 (diam ca 23cm, warped profiles); context 2; large bowl; buff ware fired red to brown, joins;
   c: JZ107a-g (diam 21-22cm); context 2; carinated bowl; pink to pale brown, cream slip, joins;
   d: JZ006 (diam ca 13cm, warped profiles); carinated bowl; context 2; red ware fired to grey and brown;
   e: JZ088 (diam 11cm, slightly warped profile); carinated bowl; context 2; red ware, red to pink slip;
   f : JZ086 (3 complete profiles); context 2; juglet, red ware fired orange to grey, red slip; FIG. 3;
   g: JZ025 (diam 32cm, warped profiles), A17/04-6; lid, red ware fired orange to brown, incised decorated.
Colour Charts have not been used for the description of the waste material, since none of the colours can with any certainty be regarded as the 'true' colour. The point here is the change of colours.

same context at the Upper Temple of Zeus. The same forms can be identified in the kiln dump at the Hippodrome in chamber E2. It would be easiest to date the Upper Zeus Temple material the same as that at the hippodrome, that is to the end of the third and beginning of the fourth century (*supra*). Some forms could also be compared to the pottery from the late third century olive press found at the lower sanctuary (Rasson 1986). And this is how the reading of newly excavated pottery usually proceeds, and also usually, ends there. The context—often no other data is available for dating—is dated by the ceramic parallels of single forms sighted elsewhere which in turn may have relied on data from another context, and so on.[3]

3 The writer is responsible for the study and publication of the Hippodrome industries (excavations 1985-1996 directed by A. Ostrascz and sponsored by the Department of Antiquities), the finds, in the main being ceramics, and the ceramic corpus of the Upper Temple of Zeus excavations 1996-2000, directed by J.-P. Braun - IFAPO. One of the reasons that not much has been published so far, is the huge quantity of material and the completion of comparative studies of ceramic corpuses from other sites of Jarash, which is nearing its end. It is however anticipated that Antoni Ostrascz' book on the Hippodrome of Jarash will be ready for publication by the end of 2002; the present writer's book on the Jarash ceramics, referred to above, is foreseen for 2003.



2. **JZ003**, small jar/vase; context 2; red ware.



3. **JZ086**, juglet (FIG. 1f); context 2.

Even without any 'hard' evidence for dating (both cases at the Upper Temple and the Hippodrome are fortunate in having coin hoards, see below), one can often arrive at a better classification of the assemblage and at least a relative chronological identification. The ceramic assemblage as a whole of chamber E2 (Hippodrome) and 'JUTZ' (Jarash Upper Temple of Zeus) differ in some essentially simple factors which provide the key to their relative dates. To give an example:

- The JUTZ carinated bowl type, FIG. 1c, is regarded as a typical (and therefore common) example of third century or Late Roman pottery in Jordan, its dating being favoured in the latter half of the third century in north Jordan. This form was also found at the hippodrome and its traditional dating is true for chamber E2, especially in two aspects. First, the coin hoard confirms the dating to be late third-early fourth; secondly, this particular bowl (with its true variants) occurred in large numbers *in comparison with the other forms* of the same dump, thus agreeing with the general 'consensus' of its 'type date' for the north of Jordan.
- In contrast, JUTZ carinated bowl type, FIG. 1d, seen generally as a late second to early third form, was only scarcely represented at chamber E2, its ratio to the other vessel forms being negligible. Here again as for each ratio estimate, variations of any rim forms have been taken into consideration and checked, both for JUTZ and chamber E2 assemblages, not to represent another fragment of the same pot. The relative number *in comparison with other forms* is again an affirmative of the 'typical' date for this bowl type, at Jarash.

The date of the JUTZ pottery assemblage has been proposed by the writer to be late in the second to early third century, based on the pottery reading and the numerical representation of types. The ratios of 'early types', i.e. second century origin, was far higher to the number of later types, i.e. second-third dates. For example, the type FIG. 1c was hardly represented whilst the type FIG. 1d was well represented together with other forms dated to late second-third. A proposed tentative date for the entire deposit of either end of second or transitional/ beginning of third century has since been confirmed by a coin hoard, in fact a lost purse, whose latest coin out of 155 coins dates to AD 209. The bulk of the coins, that is over 80%, consist of Gerasa Decapolis coins dating to the Hadrianic era, and some are even earlier (cf. Augé 1998).

In both cases, the dumps of JUTZ and chamber E2, there are coin hoards to substantiate the dating based initially on the quantitative interrelationship of pottery forms. The fact that there was a vast number of a complete range of types and variants (and accidents), dealing with kiln waste from one period kilns (even one generation), helped enormously in the re-examination of type classifications. It has provided the chance to revise old typologies, their dating criteria and classification methods.

However, if any one context only holds a rim form of one type and little else to relate it to other ceramics, the dating will have to be very 'flexible' because the key of the date lies in the type's quantitative position within its local assemblage. For instance, at Khirbat adh-Dharīḥ, our FIG. 1c form is dated to the second century (cf. Villeneuve 1990: 371, PL. V:1 and p. 375). Apart from the dangers of comparing profile drawings or photos in general, the pieces look so identical that one could be tempted to think of either one of them as being 'imported' from one or the other site, the dating having been sufficiently vague at that point for the adh-Dharīḥ example (including Villeneuve's southern Syria reference on p. 372). With a traditional ceramic reading by consulting published parallels elsewhere, and judging by our two dated deposits, a second century date parallel, if sought, would not seem out of place for the JUTZ assemblage. All one could really say, however, is that this form began to appear at Jarash late in the second century and was most popular in

the second half of the third century. The adh-Dharīḥ example by itself cannot be used to confirm either Jarash deposit, nor do the more precise Jarash examples help pinpoint adh-Dharīḥ's dating.

A last point to make is about the small jar or vase in FIG. 3. The base is traditionally dated to the third century and as the photo shows, was separately found from the upper fragments. The rim can be dated to either the late second or the early third: like the base, it has been found in both the JUTZ and chamber E2 assemblages, their quantitative position pointing to the florid period in the early third, not late, at Jarash.

In conclusion, one might say that none of the finer dating and variations mattered greatly, as long as one dealt within one cultural and/ or historical period. Generalities always have a ring of truth about them but, more often than not, they do not help explain the local history of the site. It seems of some importance to know that the Upper Temple of the Zeus sanctuary was littered extensively with kiln dumps before AD 209, the purse having been found, well stratified, on top of the layer of the spread waste in the north temenos, not within, nor below. This leads to questions of the use (or reuse?) of the site which cannot be answered here. The same applies to the hippodrome. The accumulated kiln waste began in the later third century, it is the only evidence that racing had ceased and the function of the building changed. Surely, whether it occurred in the third or fourth, or early or late in either century, is relevant to the history—social, political and economical—of Gerasa, and beyond its gates.

There are many gaps in our understanding and factual knowledge of the history of the town. Some may and can be remedied by correcting the date of certain cultural contexts, their 'misplacing' and 'misinterpretation' in time having led to greater misconceptions of the effects greater historical events had on a town like Jarash.

Bibliography

Augé, C. 1998. *Le Monde de la Bible; s.v.* La Jordanie/ Gerasa. December issue. Paris.

Braun, J-P. 1998. Gerasa, Sanctuary of Zeus. Pp. 597-598 in Archaeology of Jordan. *AJA* 102/3.

Kehrberg, I. f.c. a. The Waste Products of a Late Roman Kiln at the Hippodrome of Gerasa: Chamber E2 of the *cavea.*

__ f.c. b. Ceramic finds in their Context from the Upper Temple Complex of the Sanctuary of Zeus at Jerash.

Kehrberg, I. and Ostrasz, A.A. 1997. A History of Occupational Changes at the Site of the Hippodrome of Gerasa. Pp.167-174 in *SHAJ* VI. Amman: Department of Antiquities.

Ostrasz, A.A. 1993. Gerasa, Hippodrome. A summary report of excavations from 1985-1992. Pp. 498-500 in Archaeology of Jordan. *AJA* 97/3.

Rasson, A-M. 1986. Materiél céramique de la deuxième moitié du IIIeme siècle ap. J.-C. Pp. 67-70 in *JAP* I. Amman: Department of Antiquities.

Villeneuve, F. 1990. The Oil-factory at Khirbet edh-Dharih. *ARAM* 2/1 and 2: 367-384.

Alexandra Uscatescu
Departamento de Ciencias de
la Antigüedad
Proyecto PB 1995-0647
Edificio B- Universidad
Autónoma de Barcelona
E-08193 Bellaterra-Barcelona
Spain

Alexandra Uscatescu

Mid Fourth-Fifth Centuries AD Stamped Pottery from the Hippodrome of Gerasa

I. Introduction

The intention of this paper is to give an overall view of a special pottery group of Early Byzantine date, characterised by stamped motifs. This fine red slip ware was locally made at Gerasa, as evidenced by the Hippodrome excavations. In keeping with the large tradition of pottery studies, I propose the name "Jarash Red Slip" ware for this new pottery production.[1] The pottery group presented here is a selection from the large body of ceramics excavated by the late Dr A. Ostracz at the Hippodrome of Jarash.[2]

Bowls and several discarded sherds were recovered from Early Byzantine contexts in some chambers of the ancient Hippodrome. This building was constructed sometime in the mid-second century AD but it was used and modified during the Late Roman and Byzantine periods by the inclusion of several potters' shops, amongst other industrial establishments (Ostrasz 1989: 71; Kehrberg and Ostrasz 1997). The stamped ware finds come from chambers W.1 and W.2, underneath the Late Byzantine pottery dump. On the eastern side of the building, finds were recovered chambers E.8, E.27, E.40 and E.44. There is fair evidence for ceramic production in chamber E.8 and E.40, where traces of an Early Byzantine kiln fire box were detected (Kehrberg and Ostrasz 1997: 170).

Regarding the chronological framework of this ware, the stratigraphy at the Hippodrome provides valuable dating evidence. In view of their total absence in second-third century AD contexts, the early stage of the ware can be placed some time in the fourth century AD. Nevertheless, the end of the ware poses some problems. All that can be said at present is that there is not a single fragment that can be dated after the end of the third quarter of fifth century AD. This dating is supported by other pottery and objects found in the same contexts, including Jarash lamps and coin hoards.[3] The coins recovered from chambers E.8 and E.27 were minted between the mid-fourth and early fifth centuries AD. Additionally, some bronze coins of fifth century AD were found in chamber W.2 together with a stamped sherd of the later series (see below, Third Decorative Group).

II. Characteristics of the Ware

All sherds belong to a more or less uniform group. The body clay is fine with a slightly granular appearance. The most common inclusions are fine lime grits. These lime particles sometimes appear on the vessel surface, causing scratching during turning on the wheel and spalling during firing.

Most of the vessels were fired in an oxidizing atmosphere. It is difficult, however, to ascertain the regularity of this firing due to the discoloured and blackened surfaces of the discarded pieces, a typical feature of kiln dumps. The ware colours range from dull orange (Munsell 2.5YR 6/4; 5YR 6/4, 7/4; 7.5YR 7/3-7/4) to a reddish tinge (2.5YR 7/3; 10YR 6/6). Some sherds show grey cores in section (10YR 5/1; 10R 7/1) and discoloured surfaces which are obviously products of uncontrolled firing.

The bowls are wheel-made. Traces of turning marks are visible on the thin walls of vessels. Surfaces were wet-smoothed with a brush. This finishing technique was not done carefully enough, since tool marks are noticeable on the outer surfaces. Before removing the vessel from the wheel, one or more sets of circular grooves were made by a compass while the wheel was still rotating. During the drying process, the still wet bowls were laid on a rough surface, since traces of grass or straw impressions are visible on the underside. This is a distinctive feature of the

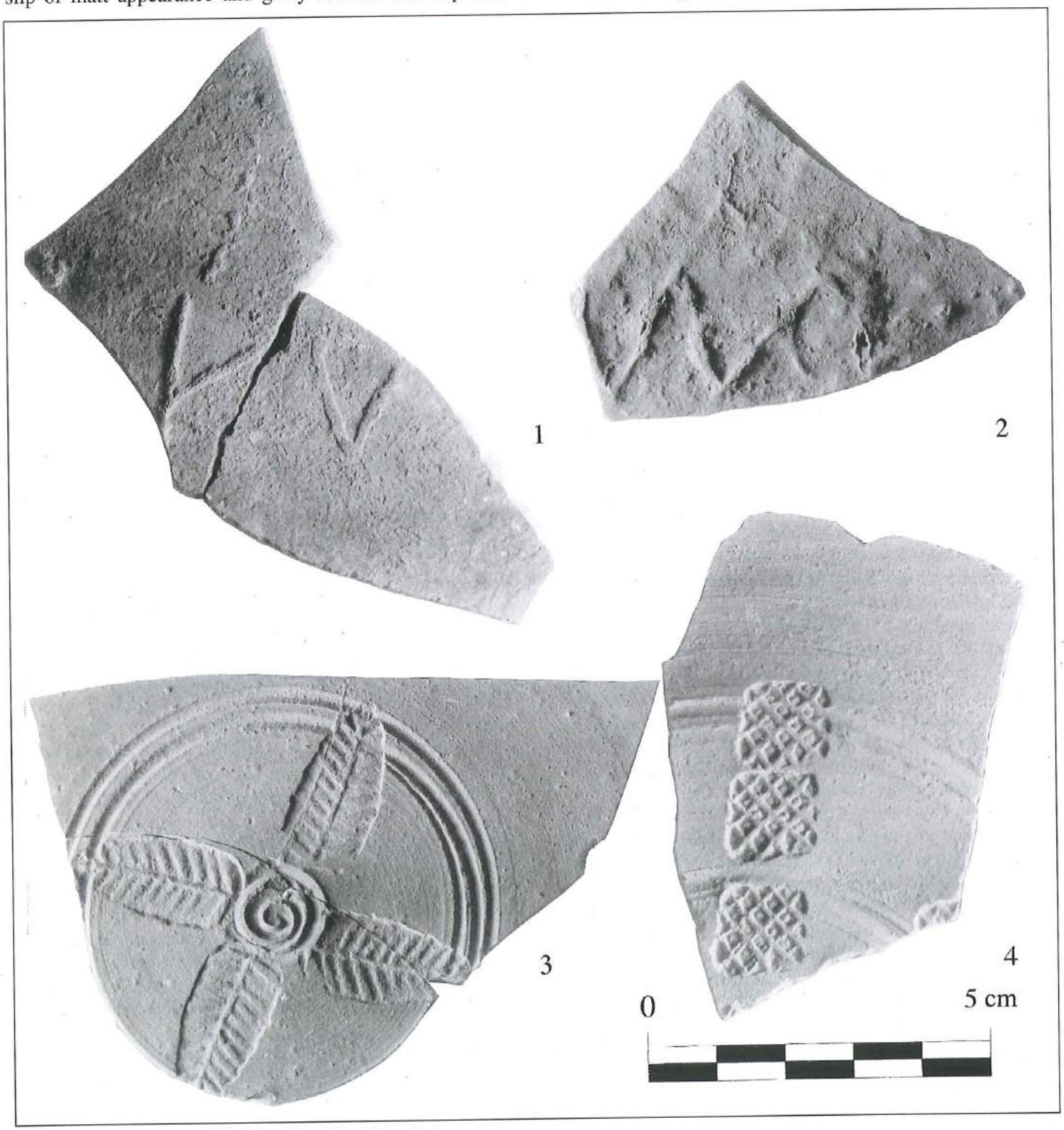
[1] Most of the Red Slip wares adopted the name of the geographical region where they sere produced, such as the African, Egyptian or Cypriot Red Slip wares. However, in the case of the Hippodrome Red Slip production there is strong evidence for its Gerasene origins. So this new fine ware deserves the name of Jarash Red Slip Ware.

[2] This study is part of the *New Jarash Hippodrome Research and Publication Project*, directed by Dr. I. Kehrberg and supported by the Department of Antiquities of Jordan.

[3] Personal communication with Dr. I. Kehrberg.

ware. The impressed decoration was then applied on the bottom, set in a circular space within grooves (FIG. 1:3). Later, the bowls were covered with an orange (7.5YR 7/3-7/4; 5YR 7/4) or reddish (10YR 5/6; 10R 5/8-6/8) thick slip of matt appearance and gritty texture. The slip was applied by immersion in a clay solution with the vessel turned upside down. Therefore the exterior is usually unslipped, although some splashes are noticeable near the rim.

Before firing, some of the bowls were marked by the



1. Jarash Hippodrome Red Slip Ware. Potter's marks and stamps.

potter. In fact, there are two fragments that bear Greek inscriptions. Due to their fragmentary state reading is difficult, and just a pair of letters have been discerned, what seems to be a *kappa*, an *epsilon*, a *lambda* or an *alfa* (FIG. 1:1-2).The originality of these potter's marks is their manufacture method, which is different from other known examples. They were made using a barbotine technique, by applying a very liquid clay solution to delineate each letter. Some drops fell while the potter was drawing the shape of a letter (FIG. 1:1).

III. The Shapes

The main type is an open bowl with straight walls and slightly convex bottom. Seven different forms have provisionally been identified among the hippodrome finds (FIG. 2):

Form 1: corresponds to a curved wall bowl with simple inturned rim.

Form 2: bowl with flaring wall and simple rim. This form bears a potter's mark on the underside (FIG. 1:1).

Form 3: similar to the previous form but walls are thicker and less open.

Form 4: bowl with a short flaring rim. Rims can be slightly curved as on variant 4A or flat and marked by a groove as on 4B.

Form 5: form with a rudimentary horizontal flange close to rim.

Form 6: the main feature is a broad flange on the exterior below the rim. Different variants have been defined on the basis of the general shape of the body and rim.

Form 7: this bowl is characterised by a moulded flaring rim.

Apart from some obvious differences, the general appearance of the forms is linked to some contemporary imported wares, namely the African Red Slip forms of the fourth and mid-fifth centuries AD. For instance, the Hippodrome Form 1 appears to be a derivative of the African form Hayes 62 dated to AD 350-425 (Hayes 1972: 109), while Form 2 resembles Hayes 50B of AD 350-400, although the tiny foot of the African prototype is absent from the Jarash vessel (Hayes 1972: 73). Form 3 is related to Hayes form 50B/64, typical of the first part of the fifth century AD (Hayes 1972: 111 and fig. 18:5). In addition, Form 4B has some typological resemblances to the African Hayes 58 dated to AD 300-375 (Hayes 1972: 96) and Form 7 may be considered as a simplified version of Hayes 60 dated to AD 350-450 (Atlante 1981: 85). More difficult to ascertain is the connection between the early examples of the African prototype Hayes 91 (ca. AD 380-530) and the local series of flanged bowls of Form 6, which are more likely a local development of the Hippodrome Form 5.

Other finds at Jarash point to the existence of other shapes imitating the African prototype Hayes 67, as evidenced by a sherd from the *macellum* excavations (Uscatescu 1996: 66 and fig. 43:95) and other examples from the South Gate (Villeneuve fc).

IV. Decorations

The resemblance between some African bowls and the Jarash Red Slip forms alone is not enough to support the suggestion that the beginning of the stamped series at Jarash is related to the intention of copying imported prototypes. But when it comes to the stamped motifs this hypothesis is ascertained, since many of the stamps proved to be perfect copies of African motifs. Some of the local stamps can hardly be distinguished from the African stamps (FIG. 3). This astonishing resemblance make difficult, even to an expert eye, to distinguish the original from the copy.[4]

Copying a stamped motif was not a difficult task. Some researchers pointed to the existence of a "punches trade" (Gauthier 1975: 33 and fig. 5). However, there are other easier techniques for copying an imported motif. The simplest way is obtaining a negative from the original imported motif, then a positive of the stamp by means of a clay or gypsum mould. African bowls can be easily found at Jarash since the early third and up till the seventh century AD. So copying an imported motif was always at hand.

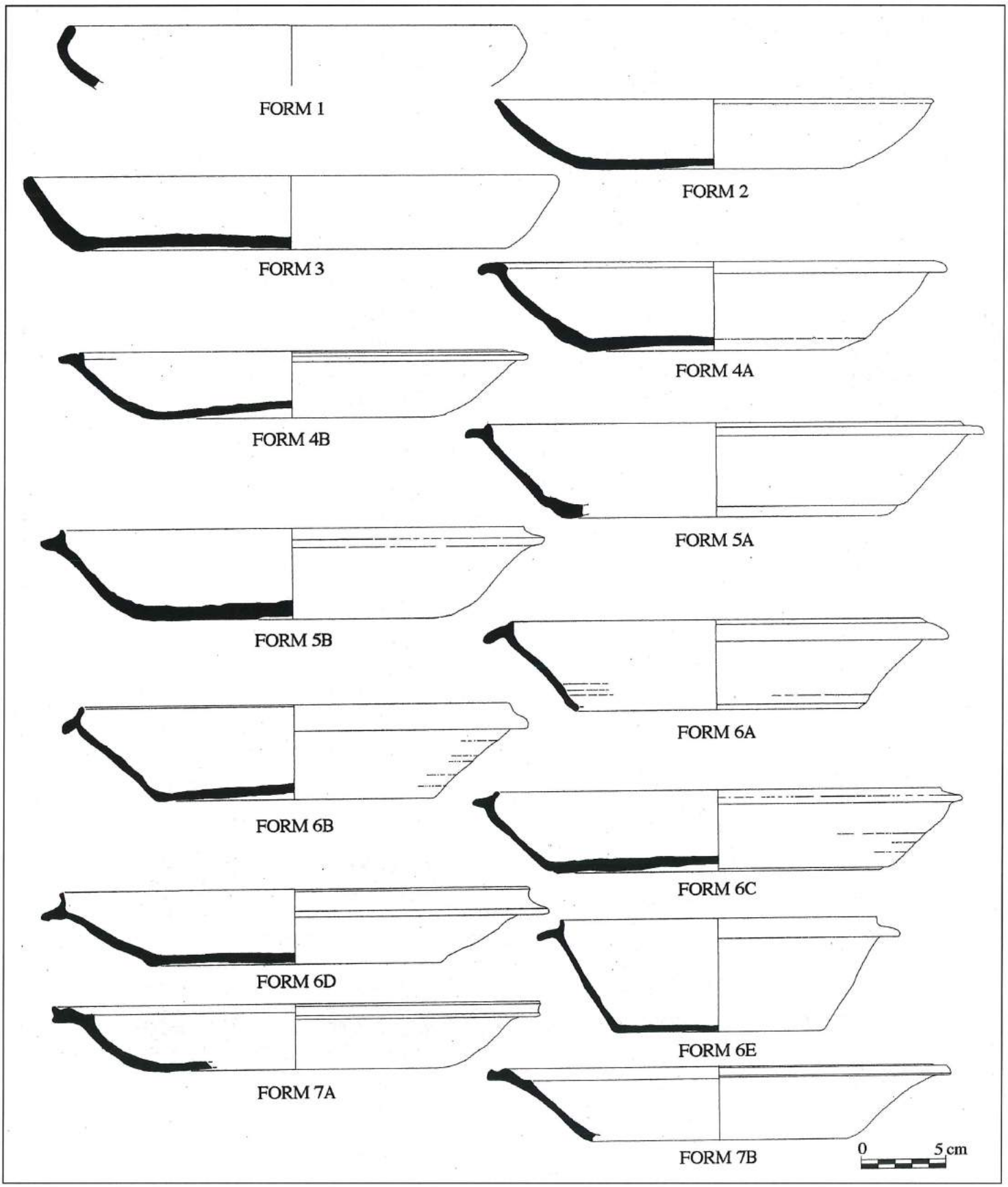
The analysis of decorative features and comparative styles points to the existence of at least four decorative groups within the hippodrome workshops. Whether this distinction has chronological differences is at present not very clear in reference to the second and fourth group (FIG. 3).

1. First Decorative Group

Stamps were directly copied from the African repertoire, exclusively from the Hayes style A(ii). Motifs include ovoid or triangular palm branches with central rib, as the Hippodrome stamps 2 and 3; rosettes of incused wedges as Hayes motif 44, which corresponds to the local stamp 4; stamps 5 and 6 are a series of small concentric circles and incused or dotted fringes as on Hayes 31 or 32. Also circular and square grillé-patterns as Hayes 70 and 71, identical to the Hippodrome stamps 8 and 9 respectively. The quality of the stamping is poor compared to that of the next groups.

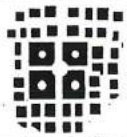
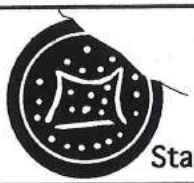
Stamps are always on the base, surrounded by a set of

[4] It is sometimes difficult to distinguish the Jarash stamps from the African prototypes using drawings and photographs alone. Nevertheless, when examining directly both the African and the Jarash stamps there are obvious differences between the imported and the local wares.



2. Jarash Red Slip Ware. Form series.

	JARASH RED SLIP	AFRICAN RED SLIP
FIRST GROUP	 Stamp 1	 Hayes 4
	 Stamp 2a	 Hayes 3
	 Stamp 3	
	 Stamp 4	 Hayes 44B
	 Stamp 5	 Hayes 31
	 Stamp 6	 Hayes 32
	 Stamp 8	 Hayes 70
	 Stamp 9	 Hayes 71

	JARASH RED SLIP	AFRICAN RED SLIP
SECOND GROUP	 Stamp 2b	
	 Stamp 11	
	 Stamp 12	
	 Stamp 13	
	 Stamp 14	
	 Stamp 15	
	 Stamp 16	
THIRD GROUP	 Stamp 18	 Hayes 60
	 Stamp 20	 Fulford fig.29.75
	 Stamp 22	 Hayes 87
	 Stamp 24	

3. Comparative stamp series: Jarash and African Red Slip wares.

circular grooves. A single repeated motif is used on each bowl (FIG. 4:1). The arrangement is somehow irregular in the case of rounded stamps, while square and palm-branch motifs display a radiating pattern (FIG. 1:4). The centre of the base is often occupied by a small spiral or lathe-turned.

For the sake of similarity with African style A(ii), dated to AD 350-420 (Hayes 1972: 218-219), this Jarash group can be dated to around the second half of the fourth century AD. Thus this group may be considered as the first on chronological grounds. This consideration is supported by the Hippodrome stratigraphy, with coins dated to AD 337-393. Not only are the stamps copies, but also the decorative pattern is linked to the African style A(ii).

2. Second Decorative Group

Within this group the African influence is less evident. No imported parallel has been found, which may indicate that this group has original local motifs. The quality of the stamping is good (FIG. 1:3).

Stamps are laid out on a radiating pattern or clustered around a central spiral. A difference between this and the first group is the circular ground, slightly smaller in the second group. The decorative pattern is a single repeated motif or two alternating motifs (FIG. 4:2). The motifs (FIG. 3) consist of oval palm branches of good quality such as stamp 2b (FIG. 1:3). Most of them develop a fine geometric decoration within square grounds, as stamps 13-15. Others can be defined as a windmill or curved radial strokes: stamp 12. This group includes the only zoomorphic stamp recorded: stamp 16, which seems to represent a dove.

As far as the forms are concerned, the only complete profiles correspond to form 6 (FIG. 4:2). This group seems to be partially contemporary with the first group as both share the same form. However, the undeniable originality of the stamps together with absence of any African influence may indicate a slightly later date, around the last quarter of fourth and first quarter of fifth century AD. In chamber E.27 this group was found together with coins, the latest dated to AD 402/408.

3. Third Decorative Group

Within this group a slight influence of contemporary African stamps has again been confirmed. Stamps by no means can be considered as merely copies. Most of them show reminiscences of Hayes style A(iii) and even of early style D (Hayes 1972: 219-221; Fulford 1984: 95).

With regard to the decorative scheme, stamps are always set within a series of incised grooves and arranged in an irregular composition (FIG. 4:3). Many stamps are circular in shape, except stamp 18, which seems to be a square ground with six small circles. Circular stamps have geometric decoration inside, such as a cross with dots between the arms, as on the Hippodrome stamp 20, similar to an African stamp (Fulford 1984: fig. 29:75). Stamp 22 is inspired by Hayes motif 87, although the African counterpart lacks of the small dots around the central motif (FIG. 3).

On the basis of the resemblance with the African decorative style Hayes A(iii), dated to AD 410-470/80, and the Hippodrome stratigraphical sequence (associated with coins dated to AD 457-475) this group seems to have been produced ca. AD 410/20-475.

4. Fourth Decorative Group

This group of bowls is defined by its lack of stamped decoration. Some bowls of form 4A and 5B just bear a spiral groove at the bottom centre (FIG. 4:4). It can be dated to late fourth and early fifth centuries AD.

V. Concluding Remarks

The identification of this pottery group contributes greatly to our understanding of the Gerasa ceramic production, dating to mid-fourth century and lasting till the last third of fifth century AD. In addition, this new evidence offers an overall picture of fine local productions from the Early to the Late Byzantine period at the site of Jarash.

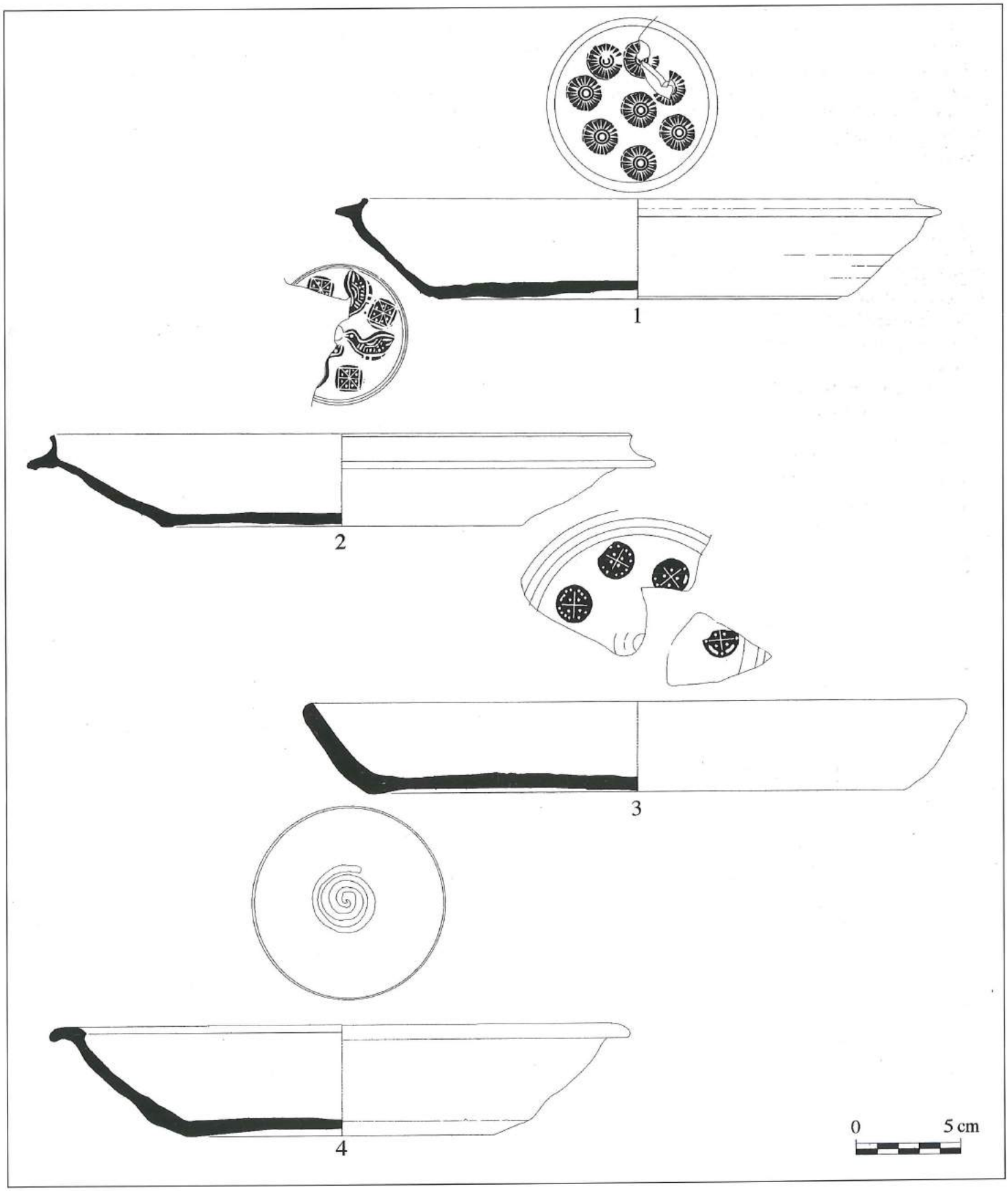
The Jarash stamped ware is a clear forerunner of the Late Byzantine Jarash Bowls.[5] Although it is true that our actual knowledge of the production has a gap in the sequence of more than 50 years between this Early Byzantine fine ware and the later Jarash Bowls, what is undeniable is that this group can be surely linked to the stamped Jarash Bowls series of the sixth century AD.

It is well known that Jarash was a producer and supplier of pottery for the near regions. There are several sites to which this local ware was exported: Mount Nebo, 'Ammān, Pella,[6] and perhaps 'Irāq al-'Amīr (Hayes 1972: 410). At Mount Nebo two different stamps have been identified,[7] both are circular in shape: a central circle surrounded by eight dots on a circular ground (Bagatti 1985: 253, fig.1:4 and photo 5:2), and a four petalled rosette with four dots between petals surrounded by small dots (Schneider 1950: 105, frontispiece no. 5). The first one was found under a narthex mosaic pavement, so it can be dated before the early fifth century AD (Bagatti 1985: 253). The Nebo finds, judging by their descriptions, photographs and the assigned chronology, fit with the Hippodrome finds and can be included in the Hippodrome

[5] Further information on Jarash Bowl of the sixth century AD can be found in Watson 1989 and Uscatescu 1995.

[6] Personal communication with Dr. P. Watson.

[7] As M. Piccirillo informed me, new stamped bowls have been recently discovered at the Nebo excavations.



4. Jarash Red Slip Ware. Decorative schemes.

third decorative group.

Another example came from 'Amman and was published as Palestinian Red Slip ware (Hayes 1972: 410, fig. 92:2). The bowl is an imitation of African form Hayes 67 and the stamps, defined as curved radial strokes, are identical to the Hippodrome motif 12 of the second decorative group (FIG. 3).

With regard to the African influences in the Jarash ceramic production, it is not surprising. Fine pottery imitations occurred in many Mediterranean sites. Pottery centres such as Asia Minor, Cyprus, Egypt, France or Spain began to produce their Late Roman fine wares under the African Red Slip influence. Thus the African production was considered then valuable goods and was the most widespread pottery production during the Late Antique period.

At Jarash, forms and decorative stamps show a stronger African influence than at the above-mentioned Mediterranean sits, spanning a long period of time till the seventh century AD. This fact evidences that the Jarash potters were not isolated. The acquisition of new decorative ideas and pottery fashions points to the close relation between the city and other Mediterranean centres. Actually, many different Red slip imports such as African, Phocaean, Cypriot and Egyptian were easily available at the Jarash markets.

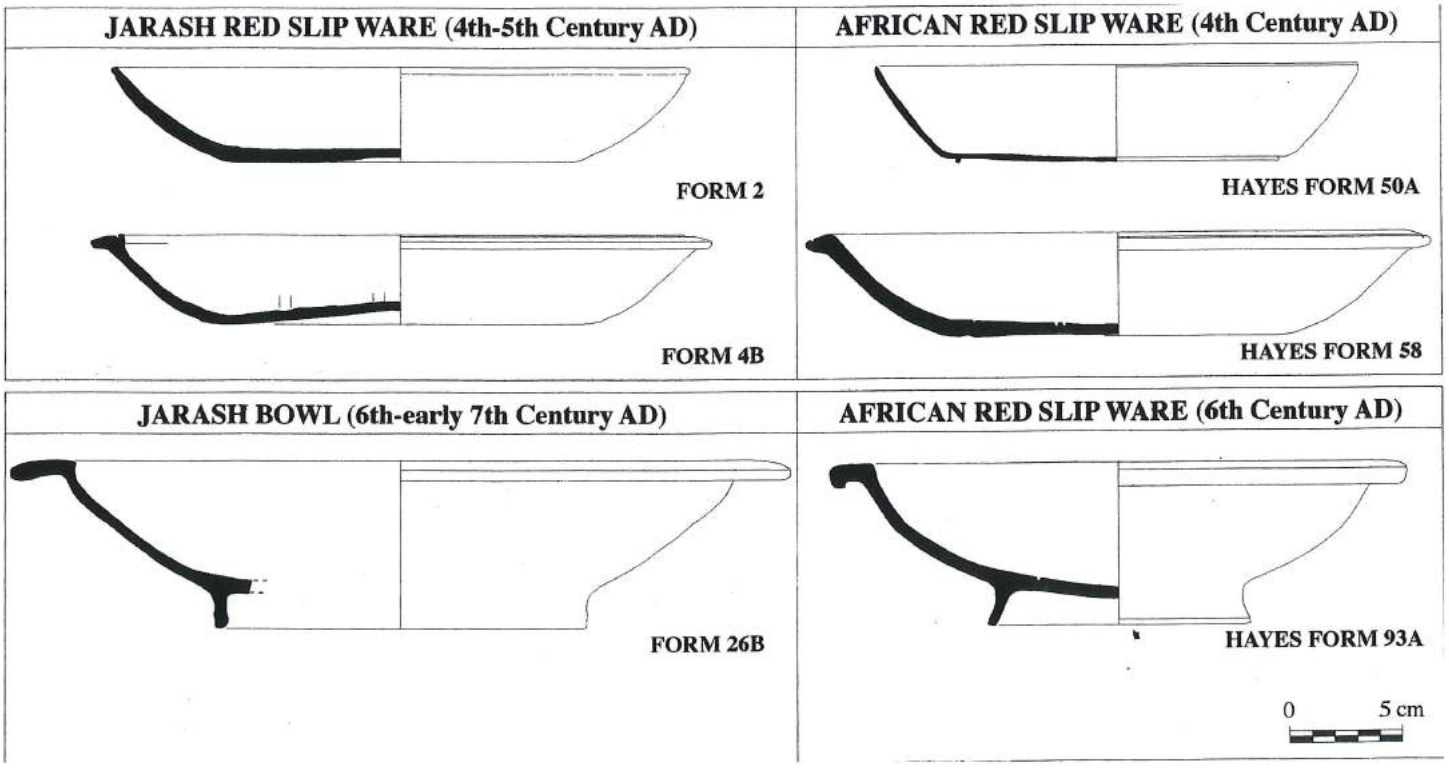
This uninterrupted contact can be seen not only by the presence of pottery imports but also in the local development of shapes. During the fourth and fifth centuries AD when in the Mediterranean the most popular form was an open bowl with a flat floor, Jarash potters made similar versions of flat based bowls (FIG. 5). When in the sixth century AD the fashionable form was a vessel with a high ring foot, the local potters started to produce the so-called "Jarash Bowl", characterised by a high ring foot (Uscatescu 1995: 384). Is it a mere coincidence? I believe that there are too many coincidences to simply deny the African influence at some stage of this local production. Reasons that may explain the creation of these local imitations must be sought in the Jarash seller's market: they were cheaper than the imported pottery and what is more important, they were always at the local customer's reach. However, the Jarash fine wares always showed their own decorative features and independent new forms developed by the local potters.

Bibliography

Atlante, I. 1981. *Atlante delle forme ceramiche I. Ceramica fine romana nel bacino mediterraneo (medio e tardo Impero).* Enciclopedia dell'Arte Antica Classica e Orientale. Rome.

Bagatti, B. 1985. Nuova ceramica del Monte Nebo (Siyagha). *LA* 35: 249-278.

Fulford, M. 1984. The Red-Slipped Wares. In M. G. Fulford and D. P. S. Peacock (eds), *Excavations at Carthage: The British Mission I.2. The Avenue du Président Habib Bourguiba, Salammbo. The Pottery and Other Ceramic Objects from the Site.* Sheffield.



5. Development of Jarash Red Slip Ware.

Gauthier, M. 1975. La céramique estampée tardive d'Aquitanie. *Revue historique de Bordeaux et du département de la Gironde* 24: 19-45.

Hayes, J. W. 1972. *Late Roman Pottery. A Catalogue of Roman Fine Wares*. London: The British School at Rome.

Kehrberg, I. and Ostrasz, A. A. 1997. A History of Occupational Changes at the Site of the Hippodrome of Gerasa. Pp. 167-173 in *SHAJ* VI. Amman: Department of Antiquities.

Munsell 1970. *Munsell Revised Standard Soil Color Charts.*

Ostrasz, A. A. 1989. The Hippodrome of Gerasa: A Report on Excavations and Research 1982-1987. Pp. 51-77 in F. Zayadine (ed.), *Jerash Archaeological Project 1984-1988, II.* Syria 66.

Schneider, H. 1950. *The Memorial of Moses on Mount Nebo. Part III. The Pottery*. Publications of The Studium Biblicum Franciscanum, 1. Jerusalem.

Uscatescu, A. 1995. Jarash Bowls and Other Related Local Wares from the Spanish Excavations at the Macellum of Gerasa (Jarash). *ADAJ* 39: 365-408.

——1996. *La cerámica del Macellum de Gerasa (Yaras, Jordania).* Informes Arqueológicos, 5. Madrid: Instituto del Patrimonio Histórico Español. Ministerio de Educación y Cultura.

Villeneuve, E. forthcoming. La céramique de Jérash au temps des églises. Un aperçu des productions et des importations. In N. Duval (ed.), *Les mosaïques de Jordanie* (Lyon 1989). Paris: Bibliothèque Archéologique et Historique.

Watson, P. 1989. Jerash Bowls: Study of a Provincial Decorated Fine Ware. Pp. 223-261 in F. Zayadine (ed.), *Jerash Archaeological Project 1984-1988, II.* Syria 66.

Lutfi Khalil
University of Jordan
Amman - Jordan

Lutfi Khalil

Pottery Candlesticks from the Byzantine Period at Yājūz

Introduction

During the 1996 excavation season at Yājūz, by the Department of Archaeology of the University of Jordan, an intact cemetery was discovered beneath the chapel in Area B.

Two types of burial systems were used: graves A1-A6 were built with dressed stones, while graves B1-B2, C1-C2 and D1-D3 were carved in the rock (FIGS. 1, 2), and about 132 skeletal remains were found. The cemetery is very rich in various types of artifacts such as oil lamps, different types of pottery, a number of glass vessels, copper bracelets, iron nails, various colour beads and other miscellaneous small finds. Thirty complete pottery candlesticks and several fragmentary ones were retrieved from the different burials.

It is noticeable that the occurrence of the candlesticks, in various loculi and graves, is irregular in comparison with the number of skeletons.[1]

Description

The "Candlestick Lamp" is a term that was first used by Macalister to describe a pointed oval-shaped carinated lamp. This lamp has a large filling hole, surrounded by two ridges, and is dated to the period between the fifth and sixth centuries AD. Its main characteristic is the decoration on the nozzle-top, which has been explained as seven-branched candlestick representing the menorah.[2]

The suggestion of the candlestick being a representation of the menorah has been refused, since technically, only the lamps with tripod bases are accurate specifications. Also, the motif element which has given rise to the term varied in the number of branches; there are seven or even five to eleven branches of decoration on nozzle-tops from various lamps.[3]

The candlestick is an open bowl lamp on a stand, and it was easily portable by its stem. It consists of the following three main parts:

1- Fuel saucer: a hemispherical bowl-like shape, furnished with flaring out walls of slightly rounded shape. The size of the saucer varies. The diameters of the different saucers measure between 8.5-14.5cms, the depth between 3.5-6cms. This reflects the storage capacity of the saucer which varies between 70-300mls.

The everted flattened rim is the common characteristic of our candlesticks' saucers, it is either plain or decorated with incisions. The rims of the saucers could be classified in three different variants as follows:

I- Simple rim of triangular cross-section with flattened plain top as in nos. 1 and 2 (FIG. 3:1, 2), while it is decorated with incised parallel strokes as in no. 3 (FIG. 3:3).

II- Everted flattened rim with internal circular pronounced ridge as in FIG. 4:6. This type of rim, usually decorated, is the dominant type, since it represents more than 50% of the Yājūz collection.

III- Everted rim with slightly rounded top, as in no. 11 (FIG. 5:11).

2- Candle or wick-socket is drawn up at the internal center of the saucer, noting that its clay must be applied by hand at a later stage of manufacture.

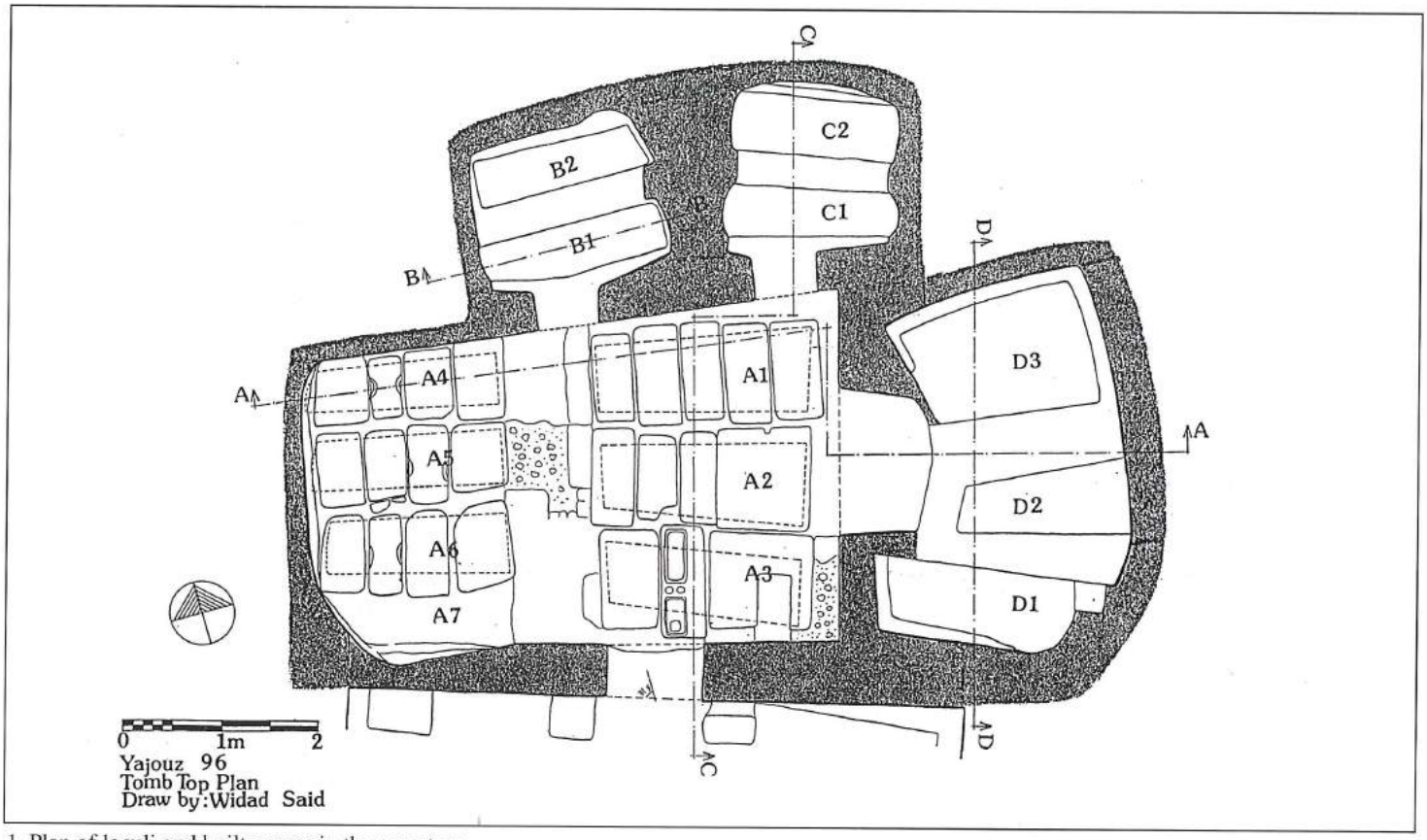
The socket is concave in section, narrowing towards its (rounded and simple) rim to be effective in holding the wick. The diameter of the socket varies between 2-3.7cm, while the heights measure between 2-4cms.

The wick-holder is supplied with three or four vents. They are alongside the socket and the level of the lower part of the vent corresponds with the lower part of the saucer, in order to for allow the drainage of the fuel, which is stored in the vessel to feed the wick. A mass of tallow or

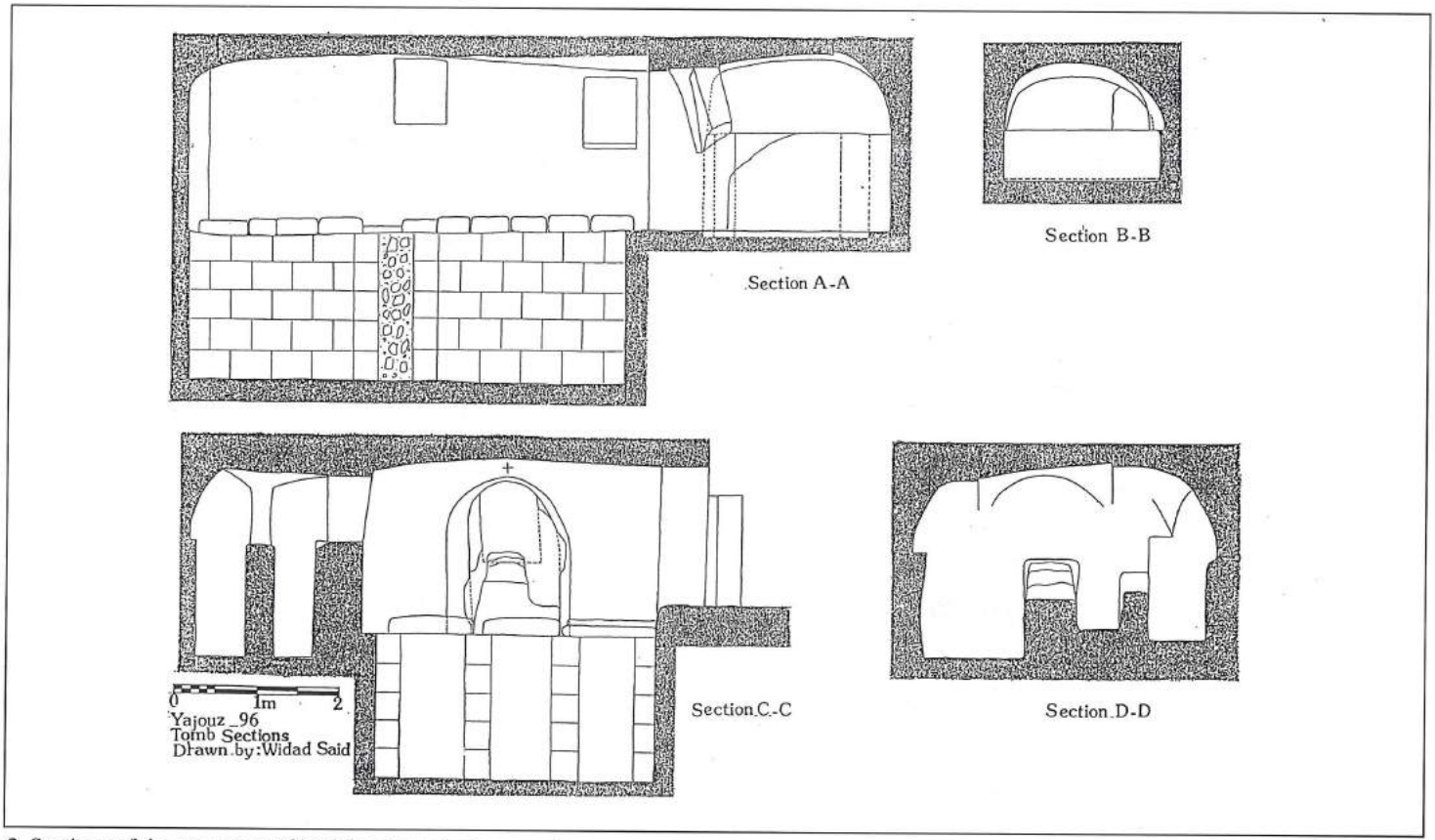
[1] L. Khalil (1998), University of Jordan Excavations at Khirbat Yajuz. *ADAJ* 42: 457-472.

[2] Macalister (1912), *The Excavations of Gezer*. London: 318; and O. R. Sellters (1951), The Candlestick Decoration on Byzantine Lamps. *BASOR* 122: 42-45.

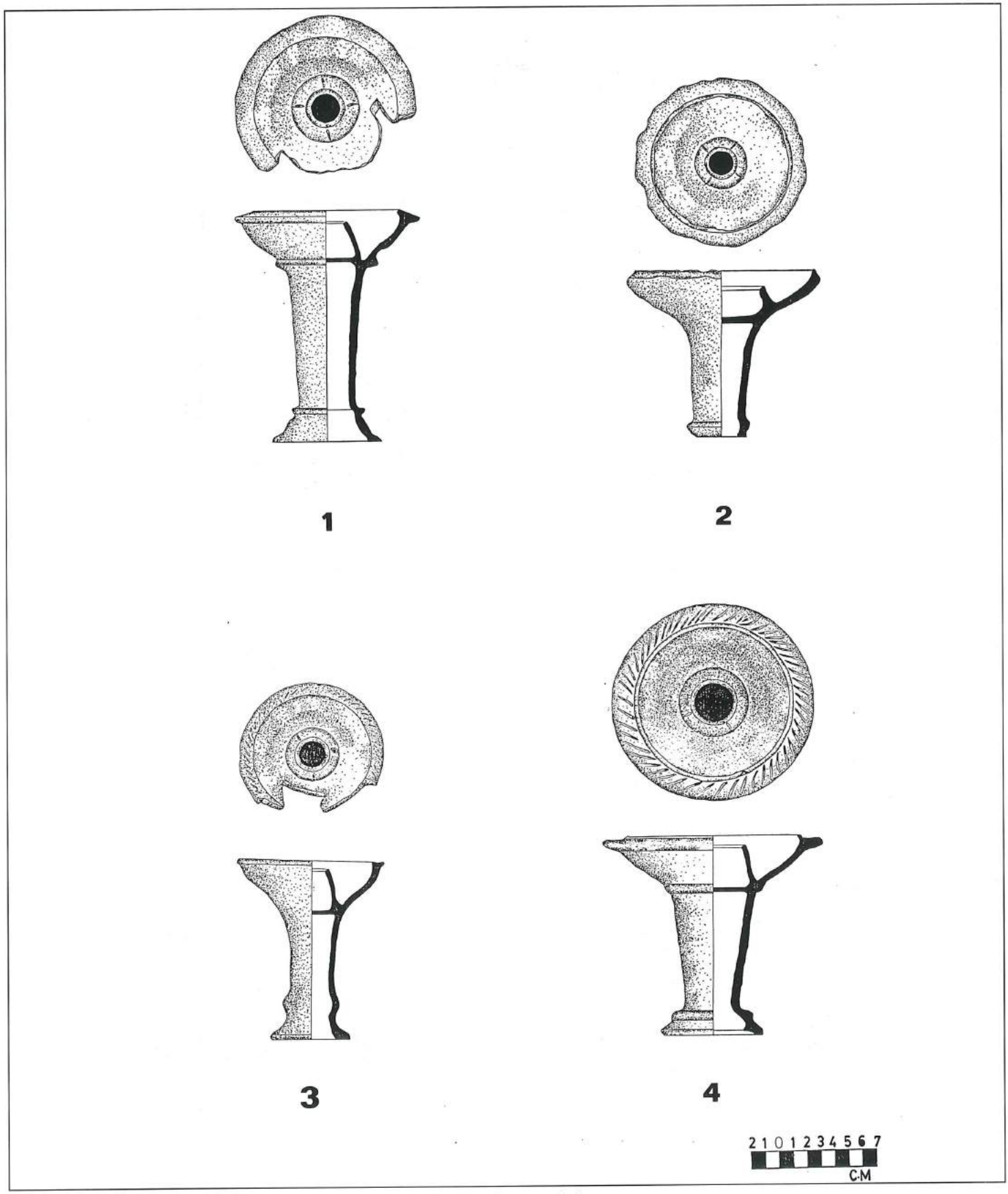
[3] R. Rosenthal and R. Sivan (1978), *Ancient Lamps in the Schloessinger Collection, Qedem* 8, Jerusalem: 116.



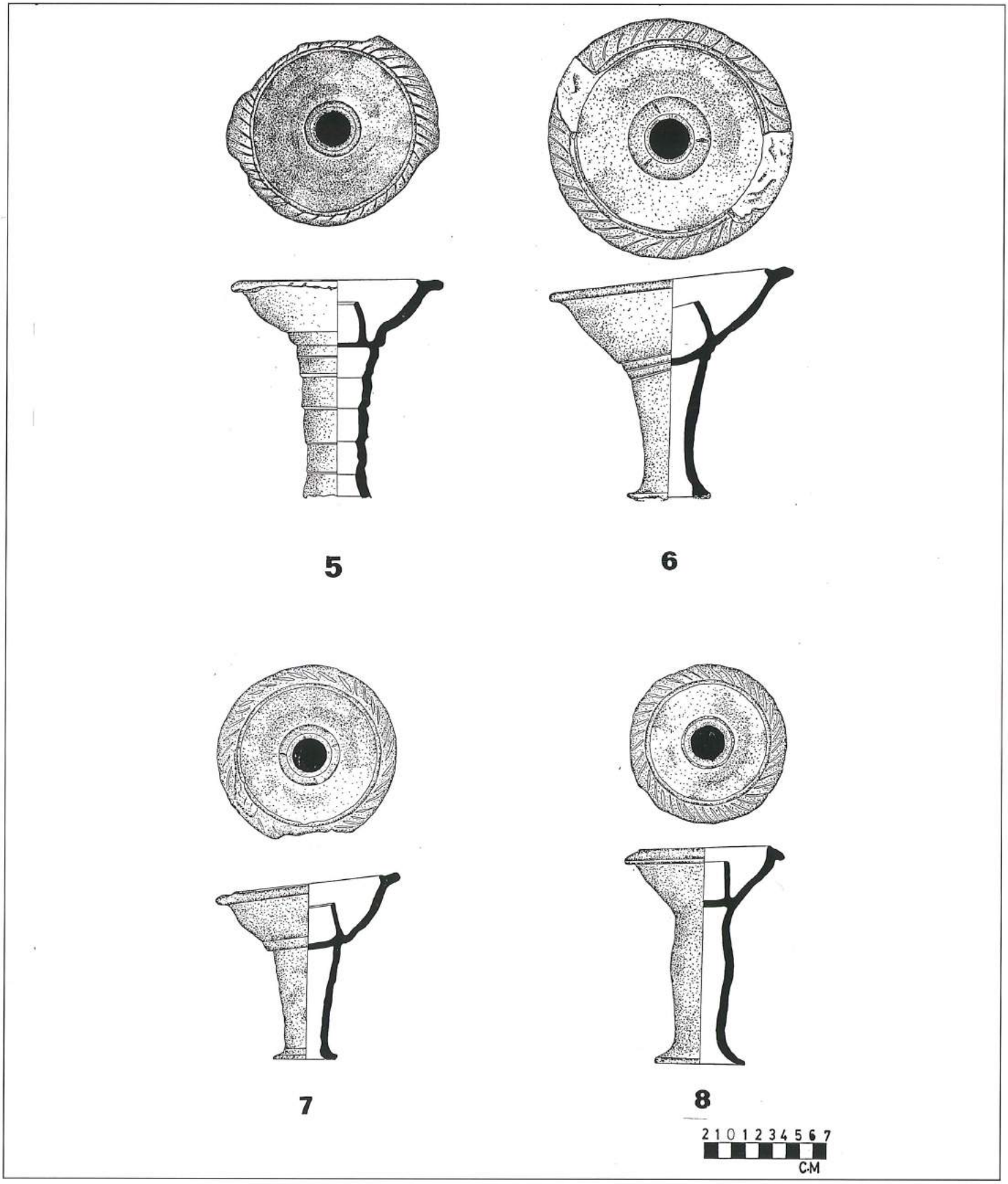
1. Plan of loculi and built graves in the cemetery.



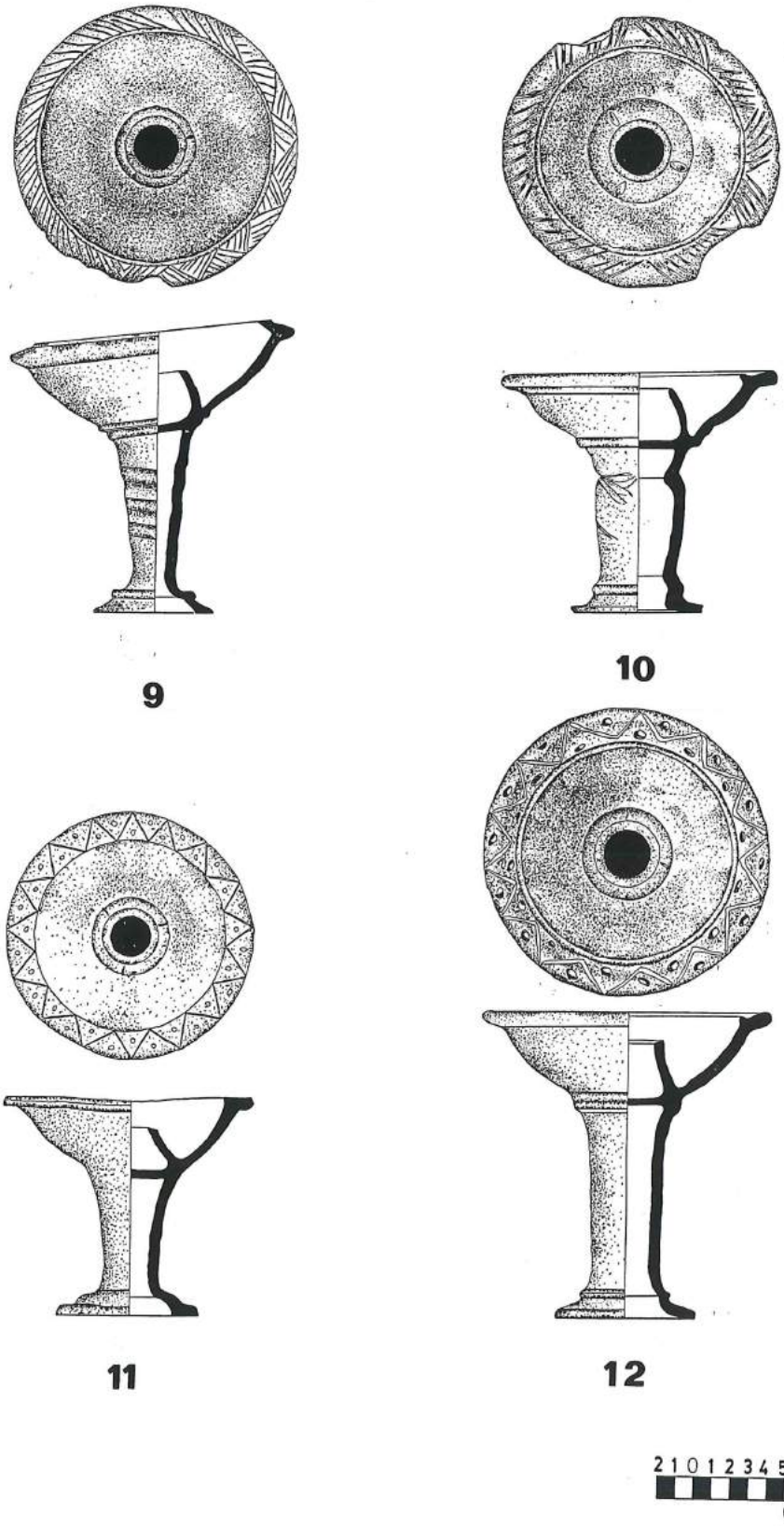
2. Sections of the two types of burial systems in the cemetery.



3. Plain flattened rims (nos. 1-2), and incised slashes in clock-wise direction (nos. 3-4).



4. Incised slashes in clock-wise direction (nos. 5-6), and in anti clock-wise direction (nos. 7-8).



5. Irregular incised slashes (nos. 9-10), and incised zig-zag pattern with notches (nos. 11-12).

olive oil could be used as fuel.

3- Stand: consists of two parts; the stem and the pedestal base.

A- The stem: hollow and circular, measure between 7.5 and 14.4 cm. A pronounced ridge indicates the join of the fuel saucer with the stem. This ridge is present in most types of the Yājūz candlestick collection. A crescent nail design is also applied to one of the ridges (no. 16, FIGS. 6:16 and 7).

Another sharp defined ridge is visible at the junction between the lower part of the stem and the pedestal base.

One could observe the following main variants of stem in the Yājūz collection:

I- Bulging stems which are heavy at the middle, and tapered upward towards the oil saucer, and downward towards the pedestal base, as in no. 8 (FIG. 8).

II- Stems which are heavy at the top and slightly tapered towards the base; this type of stem is very common in our collection, as in no. 12. Spiral patterns are sometimes present on this variant, as in nos. 7, 9.

III- Stems which consist of fine stepped cylinders, overlapping each other from top to bottom, as in no. 5 (FIG. 9).

IV- Warped stem, as a result of a faulty technique. This is well represented in no. 10 (FIG. 10).

B- The pedestal: trumped bases are furnished with all the objects. These bases are decorative except for no. 13, which is simple without any type of decoration. The decoration of the pedestal base consists of an alternation of scotia and the molding of torus directly above the base. This motive marks the junction of the cylindrical stem and the pedestal base.

The base is heavy at the bottom, to provide proper standing balance, since there is a comparatively heavy fuel saucer on top. The diameter of the base is almost half the diameter of the upper saucer, for the same function.

Such a base is accompanied with an accurately flattened lower surface, to stand firmly without any kind of tilting. This flat base is accomplished with a sharp knife-like tool. In rare cases, this flattened surface is warped, and as a result the whole object is not perfectly standing, as in no. 9.

Classification (FIGS. 3-6)

All the pottery candlesticks discovered at Yājūz share the characters of the combined three features mentioned above. It has been possible, however, to classify the candlesticks according to two main components: first, by the decoration on the flattened rim of the fuel saucer; and second, by the differences in the sizes of the candlesticks.

First: One may classify our collection according to the rim decoration as follows:

A- Candlesticks with plain rims, as in nos. 1 and 2.

B- Candlesticks with decorated flattened rims. This is the dominant type since it represents about 90% of the Yājūz collection.

The common element of decoration is the incised slashes on the rim. These slashes are cut in various shapes, numbers and directions, to fashion different patterns of decoration. Punctured notches are used in some cases in relation with the incised slashes.

Three main incised patterns of decoration are furnished on top of the rims, they are as follows:

I- Incised slashes forming a ray-like design. This is the most common type of decoration, since 21 candlesticks from Yājūz were decorated with this design. The slashes were incised, sometimes regularly in one direction, either in counter clock-wise direction as in nos. 3, 4, 5 and 6, or anti-clock wise direction as in no. 8. In some cases, the slashes were cut irregularly as in no. 9 (FIG. 10).

II- Incised zigzag pattern, alternating with punctured notches. These notches are punctured in triangular form. Five example from Yājūz are decorated with this pattern. The combination of both elements of decoration is sometimes regular as in no. 11 (FIG. 11), and sometimes the punctured notches occur irregularly as in no. 13. A candlestick from Mount Nebo (Ṣiyāgha) has a rim decorated with incised zigzag pattern, but without punctured notches.[4]

III- Incised chevron-like pattern, as in no. 14 (FIG. 12), which is the only candlestick with this type of decoration on its flattened rim. Its stem is also decorated with a unique stylized floral pattern represented (FIG. 13). This pattern may represent an inverted palm leaf. Palm trees frequently occur in the surrounding areas. The palm tree decoration is well represented on mosaic floors of the Byzantine period in Jordan.[5]

Second: The size may be considered a factor for the classification of the candlestick collection. There are differences in the measurements of the candlestick heights and of the fuel saucers. The size of the fuel saucer means its capacity to hold fuel, and this depends on the measurements of both its diameter and its depth.

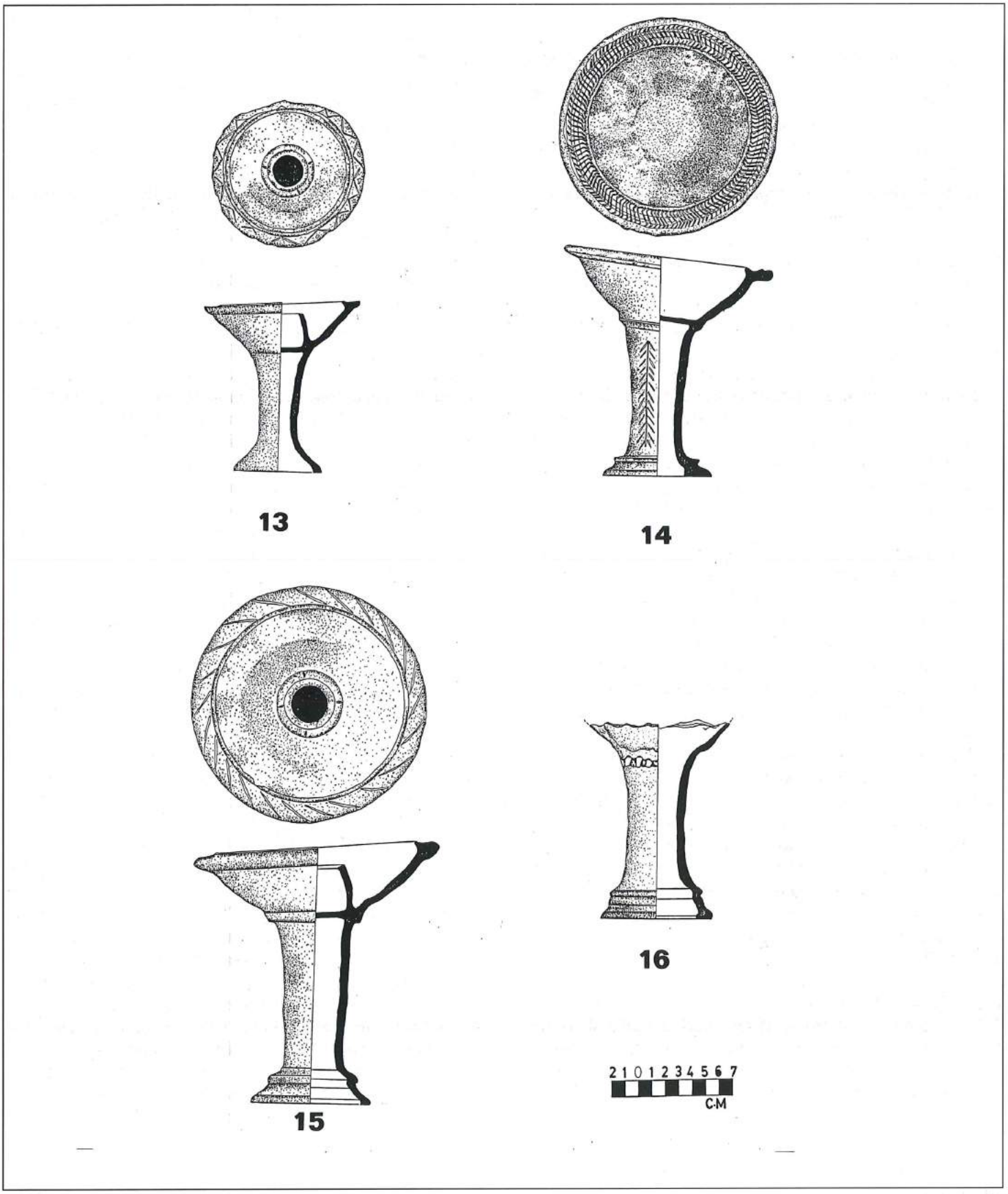
The Yājūz collection can be classified, according to size, into the following three main groups:

A- Small: The candlesticks with heights of less than 13cms are considered small in this study. Also, the diameters of the fuel saucers are relatively small, measuring between 8.2-12.2cms, and the average capacity of the fuel saucer is 70mls, as in no. 13.

B- Medium: The heights of the candlesticks in this group

[4] B. Bagatti (1985), Nuova Ceramica del Monte Nebo (Siyagha). *LA* 25: 249-279; fig. 9:4a and 4b; foto 4.

[5] M. Piccirillo (1993), *The Mosaics of Jordan*, Amman: 28, 129, 242.



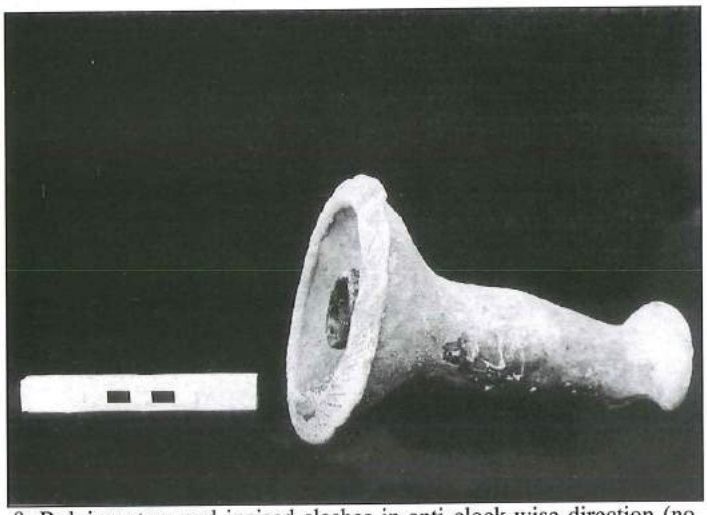
6. Irregular zig-zag (no. 13), chevron-like (no. 14), large candlestick (no. 15), and stem with crescent nail design on ridge (no. 16).



7. Stem with crescent nail design on ridge (no. 16).



10. Warped stem and irregularly incised slashes (no. 10).



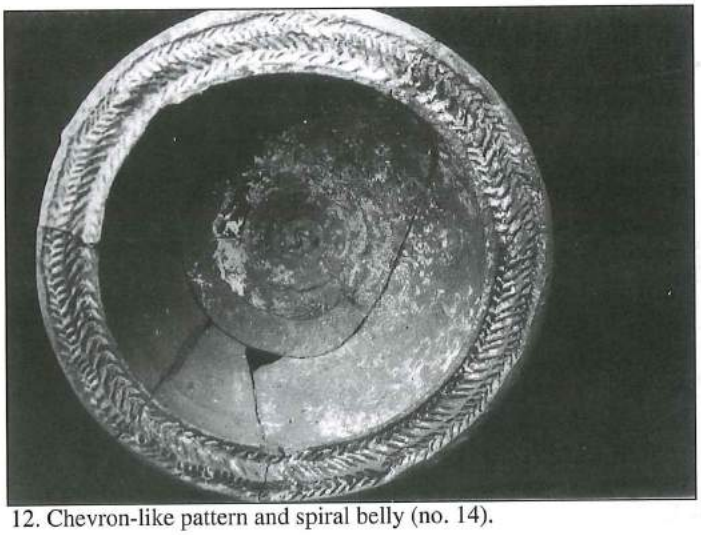
8. Bulging stem and incised slashes in anti clock-wise direction (no. 8).



11. Incised zig-zag pattern with punctured notches (no. 11).



9. Stepped cylinder stem and incised slashes in clock-wise direction (no. 5).



12. Chevron-like pattern and spiral belly (no. 14).

are between 13-15.9cms, while the measurements of the diameters of their fuel saucers are between 9.6-13.2cms and the approximate capacity of the fuel is 210mls, as in no. 5.

C- Large: The candlesticks with heights of more than 16cm are considered large. The diameters of the fuel


13. Stylised floral pattern on stem (no. 14).

saucers of this group are over 10cms, except for no. 8, where it is 9cms. The average capacity of fuel saucer is 300mls. The largest candlestick in the collection is no. 15. Its height is 19cms and the diameter of its fuel saucer is 14.4cms.

Technique of Production and Ware

As mentioned above, the candlesticks consist of three main elements: the fuel saucer, the wick-socket and the stand (stem and pedestal base).

One may notice that the three parts were made separately and then joined together at a later stage. The joining is a secondary manufacturing process, usually carried out when the clay is adequately plastic. Besides, it is necessary to be carried out when the clay has dried completely, in order to handle the parts easily, without causing any kind of distortion or tilting. Also, before the clay has completely dried out, the parts will not adhere together properly.[6]

The fuel saucer is a hemispherical bowl-like form, and riling lines of the pottery-wheel are present on the external body of many candlestick saucers from Yājūz. Also, a spiral belly is visible in the middle of the fuel saucer of no. 14, where the wick-socket is not present (FIG. 12).

The wick-socket was made by hand, a ball of clay was rolled out and added to the internal center of the saucer. The joint between the two parts was formed by pressing them together and smoothed a soft, wet cloth. The socket was stabbed with a sharp tool, like a knife, from the external surface, with coarse attachment occurring internally. This process is made to equip the socket with three or four vents, necessary for fuel drainage to the wick.

The hollow circular stem of the candlestick can be made from a lump of clay on a wheel-head. The lump can be thrown to the required shape of the stem. The grooves, running in a corkscrew spiral up the inside of the stem, are the result of bringing up the sides of the stem quickly, as in no. 9 (FIG. 14).

The potter added the upper fuel saucer to the stand at the right time. With the help of a soft soaked cloth, he smoothed the joint in order to bond the two parts together, later on, this joint was fixed with the help of potter's thumb. Consequently, a pronounced ridge has been furnished below the saucer to strengthen the joint (FIGS. 7 and 15).

The potter held the stem in a vertical position and pressed its lower part on a flat surface to furnish the pedestal base, then with his thumb, he accomplished the upper tours (ridge).

The variation in the thickness of the stand's different parts, and the clay weight of the whole candlestick caused the sagging of the stem to one side. This is well repre-


14. Grooves forming a "corkscrew spiral" on stem (no. 9).


15. Broken candlestick showing fuel saucer on top of stand (no. 2).

[6] H. Hodges (1976), *Artifacts, An Introduction to Early Materials and Technology*, London: 30.

sented in the Yājūz collection (nos.6 and 9). This situation most probably happened during the manufacturing, and especially at the end of the drying process.

One could classify the ware of our candlestick collection in three main variants:

I- Light- red ware with a small amount of limestone grits, and the occurrence of some porosity. This type of ware is the dominant one, since it represents the majority of samples.

II- Dull creamy ware, also occurring frequently. This type is considerably well-levigated since very few grits and other impurities are present.

III- Gray ware, even black in rare cases. This type contains small medium and few large white limestone grits. It is noticeable that almost every object is coated with a thick slip of a different colour. Besides, the centre engobo also occurred during the process of firing. These objects are evenly fired since the whole thickness of the ware is of the same colour.

One might observe different levels of colouring on the external surfaces of the various candlesticks. This is due to the different conditions of the firing process, which allow more oxidization on some parts of a specific object, while leaving the other parts less exposed to oxidization.[7]

Conclusion

A number of candlesticks were recovered during the course of various excavations in Jordan. They were found in burials such as at Jabal al-Jawfah ash-Sharqī (one),[8] ar-Rajīb tombs I and II (two in fragments),[9] tomb F.18 at Ḥisbān (one),[10] Ṣiyāgha (one),[11] Umm al-Ḥīrān - Mārkā (one),[12] Jil'ad tomb (thirteen)[13] and Jarash cave (one).[14] Additionally, a few candlesticks displayed in museums in Jordan were purchased.

Since all the discovered candlesticks were found in tombs, it may be confirmed that they were part of religious offerings, to enlighten the second life of the people buried in the tombs. The candlesticks from Yājūz were intensively used, since a thick coat of soot can be observed on the upper parts of the internal wick sockets.

Two burning candlesticks are illustrated on the mosaic floor of the Priest John Chapel at Mukhayyaṭ (Mount Nebo).[15]

Pottery chalices or pedestals were vessels used for cultic purposes as early as the Chalcolithic period in Palestine and Jordan. Also, chalices with inner cups are dated to the MBII.[16]

A two-storey lamp, from a tomb at 'Ayn Smiyah near Ramallah in Palestine dated to the ninth century BC, has a "ritual character". A Phoenician-Western Mediterranean origin is suggested.[17]

One wheel-made wick lamp on stand, in the Vancouver Museum, has an open bowl on a high circular stand. It is dated to the Greek-Hellenistic periods.[18] This type of lamp could be considered as a proto-type for the candlestick.

Furthermore, a number of candlesticks were found at various archaeological sites in England. They demonstrate the development in the typology of the candlesticks during the period between the second half of the first century AD, or the first half of the second century AD, to the fourth century AD.[19]

The candlesticks from various archaeological sites in Jordan, share the main characters of shape and decoration. There are slight variations in size and decoration on the flattened rims of the fuel saucers. Nevertheless, they have been dated to a large range of time, such as at Jarash (first-second century AD), ar-Rajīb (second-third century AD), Jabal al-Jawfah ash-Sharqī (late third-fourth century AD) and Jil'ad (fourth-fifth century AD). The abovementioned dates were given in correspondence to pottery oil lamps and other associated material.

The Yājūz collection is part of the pottery assemblage from the cemetery. These candlesticks were associated with types of pottery vessels which were common in the sixth and seventh centuries AD. For example, the grey kraters with comb decoration incised on the rim are well represented in the cemetery. This type is common at Jarash[20] and Pella[21] during the sixth century and early seventh centuries AD.

---

7 *Ibid*: 40.

8 G. Bisheh (1972), A Cave Burial Tomb from Jabal Jofeh El-Sharqi in Amman. *ADAJ* 17: pl. III: fig 3-4 and pl. VI: fig. 2; 81-83.

9 G. Bisheh (1973), Rock-Cut Tombs at Rajib. *ADAJ* 18: 63-67.

10 R. Boraas and S. Horn (1975), *Heshbon 1973*: pl. XV; 211.

11 B. Bagatti, *op. cit.*

12 Unpublished. It is on display at the Jordan Archaeological Museum (JAM), Amman, Reg. No. J13315, the information is from the registration card. With handle on the stand, discovered at a Roman tomb.

13 Khirbat Jil'ad is at 30kms northeast of as-Salṭ. A rescue excavation took place there between 19/5-17/6/1973, directed by H. Qandil of the Department of Antiquities. Pottery oil lamps, glass vessels and 13 candlesticks were retrieved from one tomb. The finds were dated between the fourth and fifth centuries AD. This information is from the unpublished report of the excavation (in Arabic), and is kept at the Registration Centre of the Department of Antiquities in Amman.

14 Unpublished. On display at JAM, registration no.J2434; as from Jarash cave dated to the Roman period (first-second century AD).

15 M. Piccirillo, op. cit: 35, photo 228.

16 R. Amiran (1969), *Ancient Pottery of the Holy Land*, Jerusalem.

17 S. S. Weinberg (1979), A Two-Storey Lamp from Palestine. *IEJ* 29, No. 3-4: 143-147.

18 J. Russell (1973), Ancient Lamps in Vancouver. *Levant* 5: 93.

19 D. M. Bailey (1988), *A Catalogue of Lamps in the British Museum, Vol. III; Roman Provincial Lamps*, London: 172-174.

20 J. Schaefer and R. Falkner (1986), An Umayyad Potters Complex in the North Theatre, Jerash. In F. Zayadine (ed.), *Jerash Archaeological Project 1981-1983*, Vol. I, Amman;: 427; Fig. 8:8.

21 P. Watson (1992), Change in Foreign and Regional Economic Links. In P. Canivet and J.-P. Rey-Coquais (eds.), *La Syrie de Byzance a L'Islam VII-VIII siecles*: 237, Fig. 6:45, and pers. com. with Dr. Pamela Watson.

The date suggested above is contemporary to the foundation date of the chapel (ca. AD 508). This date is obtained from the dedication inscription represented in the mosaic floor of the chapel.

Archaeological excavations at important sites of the Byzantine period in Jordan, such as Pella and Gadara, have not revealed any candlesticks. Only one object has been reported from the excavation of 1933 at Jarash. The geographical distribution of the candlesticks is mainly located in 'Ammān, Jil'ad and Mādabā. However, it is hard to accept this limitation, knowing that trade routes and communication were well established during this era. In addition, Yājūz was an important city on the main road between 'Ammān and Jarash.

Depending on the technique of production of the candlesticks, one might suggest that the potter of Yājūz was highly trained, and mastered his skill to reach such a kind of technology. Also, these utilitarian artifacts were made during the Byzantine period to fill a special need or interest, and they disappeared in later periods.

Acknowledgments

I would like to thank Prof. Dr. Nabil Khairy of the Department of Archaeology-University of Jordan for his help and assistance. Also, I must thank Mr. Mohamad Quteshat for drawing the candlesticks from Yājūz, and many thanks are due to the employees of the Archaeological Museum at the University of Jordan for their full cooperation.

Michele Piccirillo
Studium Biblicum Franciscanum

Michele Piccirillo

An Epoch of Technical and Artistic Continuity in Jordan Between the Byzantine and the Umayyad Periods

The intense archaeological activity of the last decades in the Jordanian territory, amongst the many contributions towards a better historical understanding of the Byzantine-Umayyad period, has discredited clichés regarding the epoch of passage between the two periods.[1]

In the context of the Colloquium and the subject of this paper, which I have proposed for your attention, I will limit myself to examining the mosaics and their accompanying dated inscriptions.

I do not doubt the historical conclusions based on the interpretation of results obtained through stratigraphical excavations. But I am convinced that for a historical epoch such as the Byzantine-Umayyad period, the written sources and, in their absence, the dated inscriptions are indispensable elements to further the research. Through the study of the written sources and the accompanying inscriptions in the mosaics of the epoch, we can obtain the keys which allow us to rectify the clichés, in such a way as to be able to affirm that this epoch today can be justly re-read as a period of continuity even if it had long been considered as a break point in the passage between the Byzantine and the Umayyad period. A conclusion which is confirmed by further research carried out.

The first cliché, which is seriously challenged by the discoveries of the inscriptions in the numerous churches found in the villages along the Syrian-Jordanian borders, is the wave of destruction of the ecclesiastical Christian buildings of the Syrian-Palestinian territory in 614, during the Persian invasion. A destruction, which historians and archaeologists saw as a general rehearsal of what happened after the battle of the Yarmouk in 636, so much so as to be unable to distinguish one from the other.[2]

Among the four churches initially discovered in the village of Riḥāb by the then Department of Antiquities of Transjordan, the scholars noted the inscription in the mosaic at the church of St. Stephen which showed that the church was built and mosaiced in 620, that is during the Persian occupation which lasted from 614 to 629.[3] The inscription in the mosaic rendered plausible the date, 624/25, read towards the end of the last century, by the American expedition of Butler, on the lintel of the church of St. George at Sama.[4] Shrewd historians, like Fr. Abel, concluded that it was better not to extend to other regions what the contemporary sources narrated about the city of Jerusalem and other localities on the Palestinian coast.[5] Life, at least in the village of Riḥāb, had gone on undisturbed as it had been prior to the invasion. The subsequent discoveries of three more churches, that of St. John the Baptist (dated to 619), that of St. Peter and St. Constantine (both dated to 623) were, on the contrary, witness to a certain well-being in the village during the Persian occupation.[6]

The second historical cliché is the defining of the decisive battle of the Yarmouk in 636, which caused Syria-Palestine to pass from the political control of the Byzantines to that of the Arab-Islamic powers, as being a breaking point.

I see the first archaeological denial of such an interpretation, more controversial than real, in the inscriptions within the churches in the villages of Riḥāb and Khirbat as-Samrā'. In the village of Riḥāb the churches of St. Menas and of the Prophet Isaiah are dated to the times of archbishop Theodore, in the year 634. The churches of St. John, St. Peter and St. George at Khirbat as-Samrā' be-

---

1 See *La Syrie de Byzance à l'Islam. VIIe-VIIIe Siècles*. Actes du Colloque International publiés par P. Canivet et J.-P. Rey-Coquay, Damas 1992.

2 Pentz, P., *The Invisible Conquest: The Ontogenesis of Sixth and Seventh Century Syria*, Copenhagen 1992; Schick, R., *The Christian Communities of Palestine from Byzantine to Islamic Rule. A Historical and Archaeological Study*, Princeton 1995, pp. 20-47.

3 Avi-Yonah, M., Greek Christian Inscriptions from Rihab, *QDAP*, XIII, 1947, 68-72.

4 *AAES* III, A; 2, p. 44, n. 24.

5 Abel, F. M., *Histoire de la Palestine*, Paris 1952, II, pp. 388-392.

6 Piccirillo M., *Chiese e mosaici della Giordania Settentrionale*, Jerusalem 1981, pp. 63-96. The churches of St. John the Baptist and that of St. Constantine excavated by Mr. al-Hussan are not published yet.

long to these same times of Theodore. In the church of St George, one reads the date 634/635.[7]

One has to keep in mind that the city of Bostra, the metropolitan see of the Provincia Arabia, in whose territory the two villages were, was conquered in 634. We have also to keep in mind the time required to finish such works, which seem to me to have been carried out by the same equipe of mosaicists. From the inscriptions of the five churches we must historically deduce that the populations of the two villages kept on with their day to day living as if they did not understand or were not interested in what was happening around them at the eve of the military disaster of 636.

Scholars more interested in the material culture of the period have pointed out, in line with this historic interpretation which is more in conformity with reality based on the epigraphic discoveries, the continuity in the ceramic typologies of both epochs which follow the normal evolution of similar commonly used objects.[8]

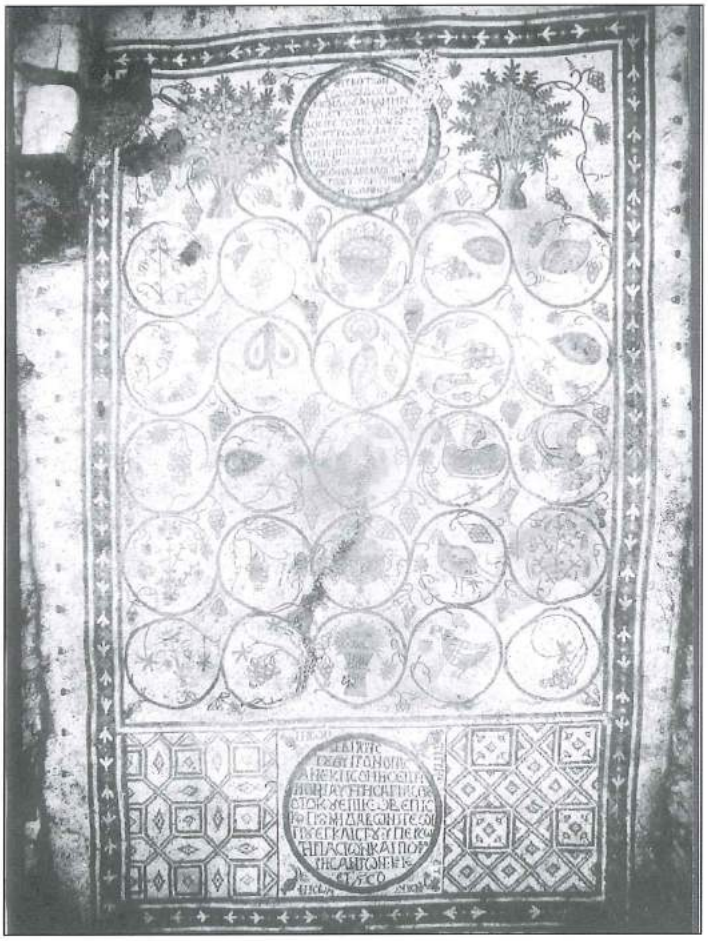
In the same framework of continuity I would like to bring to your attention the dated mosaic floors of the churches of the seventh-eighth centuries discovered to date in Jordan.

I would like to draw your attention to the fact that up to 1986, the year in which we started our excavations at Umm ar-Raṣāṣ, research was pointing to 719/720 as the most recent date read in a mosaic.[9] The discovery of the inscription in the presbytery of St. Stephen at Umm ar-Raṣāṣ opened up a new epoch moving the date limit to 756 to the time of bishop Job of Mādabā.[10] It also permitted to resolve the problem, which had remained suspended for a whole century, of the strange sign discovered in the inscription of the church of the Virgin in Mādabā.[11]

This strange sign appeared again on Mount Nebo, in an inscription in the chapel of the monastery of the Theotokos which was recently excavated by us at Wādī al-Kanīsah.[12] The date was accompanied by the name of the bishop Job of Mādabā, whom we knew was bishop in 756. The coincidence permitted us to calculate the date with the Byzantine era from the creation of the world and to recognize in the strange sign the figure 6000. According to this reading, the mosaic of the chapel of Nebo was dated to 762 at the time of bishop Job, and the mosaic of the church of the Virgin at Mādabā was dated to 767 at the time of bishop Teofanus.[13]



1. Wādī 'Ayn al-Kanīsah: the Monastery of the Theotokos with the chapel on the right.



2. Wādī 'Ayn al-Kanīsah: the Theotokos chapel-the two juxtaposed mosaics.

[7] Ibid, pp. 74 -77; Piccirillo, M., *The Mosaics of Jordan*, Amman 1993, pp. 304-313.

[8] See note 2 and Watson, P., Change in Foreign and Regional Economic Links with Pella in the Seventh Century A.D.: The Ceramic Evidence, in *La Syrie de Byzance à l'Islam. VIIe-VIIIe siècles.* Actes du Colloque International publiés par P. Canivet et J.-P. Rey-Coquay, Damas 1992, pp. 233-248; Sodini, J. P. et Villeneuve, E., Le passage de la céramique Byzantine à la céramique Omeyyade, en Syrie du nord, en Palestine et en Transjordanie, ibid. pp. 195-218.

[9] De Vaux, R., Une mosaïque byzantine à Ma'in (Transjordanie), *RB* 47, 227-58.

[10] Piccirillo, M. e Alliata, E., *Umm al-Rasas Mayfa'ah I. Gli scavi del complesso di Santo Stefano*, Jerusalem 1994, pp. 242-246.

[11] Di Segni, L., The Date of the Chruch of the Virgin in Madaba, *LA* 42, 1992, 251-257.

[12] Piccirillo, M., Le due iscrizioni della cappella della Theotokos nel Wadi 'Ayn al-Kanisah sul Monte Nebo, *LA* 44, 1994, 521-538.

[13] Di Segni, L., La data della cappella della Theotokos sul Monte Nebo. Nota epigrafica, ibid. pp. 531-533.



3. Wādī 'Ayn al-Kanīsah: the inscription near the door of the Theozokos chapel with the four rivers of Paradise in the corners.

Thanks to these discoveries, Jordan today can boast of being the richest country in church mosaics from this period. The scholar can examine 11 programmes divided into three groups: 2 floors of the seventh century, 4/5 of the first half of the eighth century and three belonging to the second half of the same century. Notwithstanding their own particular characteristics, these works are an important witness to the continuity of the art of mosaic. From a cultural aspect they represent also a later expression of the uninterrupted continuity of an art began and developed during the Roman-Hellenistic epoch.

Technical Point of View

A first examination might tackle the technical differences between this group of mosaics and the mosaics of the preceding epoch.

Technically, in the church of St. Lot at 'Ayn 'Abāṭa, had we not the dates of the two inscriptions, it would have been difficult, if not impossible, to distinguish chronologically the geometric composition of the north nave dated to 605 from the floral composition of the central nave dated to 689.[14] The difficulty is further accentuated by the precarious condition of conservation of the mosaics at the moment of discovery.

The same problem is true for the church of Khildah between the upper mosaic dated to 670 and the fragment of the lower mosaic of the sixth century of which only some insignificant traces remained.[15]

As regards mosaics of the eighth century, on the other hand, the difference is evident when comparing the lower mosaic with the upper mosaic. This is the case in the church of ash-Shūnah al-Janūbiyah, in the church of al-Quwaysmah, in the church of the Virgin at Mādabā, in the chapel of the Theotokos at Wādī 'Ayn al-Kanīsah, and in the presbytery of the church of St. Stephen at Umm ar-Raṣāṣ.[16]

The eveness in the laying of the mosaic of the sixth century obtained by the use of accurately squared tesserae and the accurate choice of shades of colours, contrasts with the irregularity of the mosaics of the later period as a result of the use of irregularly cut tesserae which was necessarily reflected in the work itself.

In the church of St Stephen, I opted to date the lower mosaic to the sixth century precisely because of this technical difference. A lower mosaic, to be placed in relation to the bases of the small altar columns, which, in turn presuppose a church of the same period lying under the present edifice.[17]

It is pretty clear that such technical differences can be explained as a progressive evolution in the methodology applied to the work rather than as a break from the past.

The Iconographic Aspect

The continuity results also in the decorative programme and in the geometric and figurative motifs.

From the mosaic of Khildah, which certainly is not one of the best works of the series which we will examine, only the decoration of the northern hall remains. The programme follows the liturgical functional differentiation of the space with the apsed presbytery decorated with a series of vine scrolls departing from an amphora, with handles, between two rams which surround the altar.[18]

The hall is surrounded and subdivided in superimposed registers by a simple band of triflids. In the superimposed registers the compositions are based on the common motif of a couple of animals facing each other over a vegetal motif. All these are very simplified in respect to the parallel examples of the preceding period. Suffice it to confront the theme of the bull facing the lion of the second register which appears with a certain frequency in the mosaics of the region.

The iconographic centrality is given in the medallion of the Earth between two small trees. The personification presents a full standing figure dressed in a long tunic with its raised hands holding two flowers. If we compare it with the personification of the Earth found at the church of the bishop Sergius at Umm ar-Raṣāṣ[19], we note first, the crown on its head made up of a garland of flow-

14 Piccirillo, M., *The Mosaics of Jordan*, Amman 1993, p. 336.
15 Najjar, M. and Sa'id, F., A New Umayyad Church at Khildah/ Amman, *LA* 44, 1994, 560; Pls. 31-40.
16 Except for the mosaic floor of Khildah (Note 15) and the two mosaics of the chapel of the Theotokos in Wādī 'Ayn al-Kanīsah (Note 12 and Piccirillo, M. and Alliata, E., *Mount Nebo. New Archaeological Excavations 1967-1997*, Jerusalem 1998, pp. 359-364), see Piccirillo, *The Mosaics of Jordan*, pp. 320-323 (Shunah al-Janubiyah), 260f (Al-Quwaysmah), p. 50, 64f (Church of the Virgin in Madaba), pp. 218-239 (Church of St. Stephen at Umm al-Rasas).
17 Piccirillo, M. and Alliata, E., *Umm al-Rasas Mayfa'ah I*, p. 91 f.
18 See Note 15.

ers and fruit. Here it becomes a series of small descending steps having lost the original classical symbolism of generosity and abundance of fruit as the characteristic of the Earth. The simplification is also evident in the two flowers held in both hands when compared with the same motif, in the left hand of Aphrodite, which we find in the Hippolytus Hall in Mādabā.[20]

The same generalised simplification can be found in the first group of mosaics of the eighth century where the new style seems to have imposed itself together with other characteristics which we have tried to highlight. The programmes are based on vine scrolls or acanthus leafs and decorated with agricultural, pastoral or hunting scenes. Other programmes are based on a rectangle of flanked or intertwined circles and squares laden with flowers and birds. One of the preferred themes was the architectural representation which we find in the churches of al-Quwaysmah, in the church on the acropolis of Mā'īn and in the church of St. Stephen at Umm ar-Raṣāṣ where the whole cycle of cities has been preserved. The pictures of benefactors, a theme dear to the preceding tradition, is greatly used in the nave of St. Stephen's.

In the last three mosaics of the series, the upper mosaic of the presbytery in the Church of St. Stephen, the chapel of the Theotokos in Wādī 'Ayn al-Kanīsah, and the church of the Virgin, which are certainly dated to 756, 762 and 767, the technical characteristics are so equal that I tend to consider them as the work of the same equipe of whom we read the names in the inscription near the altar of St. Stephen: Staurachios of Hesban and Euremios. The iconless decoration of the three programmes seems to be the result of the style which imposes itself gradually during this period with an abundance in the use of geometric interlacing, a style which becomes the characteristic of the later Islamic art.

The choice of an iconless style can be exemplified in the four rivers of Paradise added in the corners of the medallion with the inscription in the mosaic of the chapel of the Theotokos at Wādī 'Ayn al-Kanīsah.[21] The classical personification presented the genius of the river crowned with vegetal motifs holding in his hand a rod and an amphora, from which water flows, while here, in this new evocative representation we find only the amphora,[22] from which flows the water, with vegetal motifs and the name.

A possible exception to this figure-free situation might be the ducks which accompany the octagon with inscription at the centre of the Church of ash-Shūnah al-Janūbiyah. This too is characterised by a strong interwinding geometric composition. The lack of a certain date for the mosaic keeps us from inserting this mosaic in this group.

Basing ourselves on the dated mosaics we can say that the memory of the classical creativity of the Hellenistic-Roman epoch, which had nourished the artistic production of the preceding centuries, ends with the four amphorae at 'Ayn al-Kanīsah in which I see the symbol of the end of an era. At least in Jordan this is the last hint to the continuity between the two epochs, the Hellenistic-Roman and the Arab which, even if divided by about one thousand years, are unified by the same artistic taste even if each keeps its proper identity.

---

20 Ibid. p. 52 f.

21 Piccirillo, M. and Alliata, E., *Mount Nebo. New Archaeological Excavations 1967-1997*, Jerusalem 1998, p. 364.

22 As in the Chapel of St. Theodore in Mādabā (Piccirillo, *The Mosaics of Jordan*, p. 117, photos 112-115); in the Church of the Sunna' Family (*LA* 43, 1993, pls 8-9, photos 11-13); in the Church of St. Sergius at Umm ar-Raṣāṣ (Piccirillo, *The Mosaics of Jordan*, p. 241, photo 390), and in the Church of St. Paul (Piccirillo, *LA* 47, 1997, pl. 34, photos 28, a-d).

Alan Walmsley
Arab and Islamic Studies
Department of Semitic Studies
University of Sydney
NSW 2006, Australia

Alan Walmsley

Restoration or Revolution? Jordan Between the Islamic Conquest and the Crusades: Impressions of Twenty-Five Years of Archaeological Research

Confronting a "Dark Age" in Jordanian Archaeology

Historical "dark ages" are notoriously difficult to comprehend, both from the perspective of material culture and social history. By definition, supposedly "dark age" societies lack major cultural identifiers, particularly large and ordered urban centres, monumental public architecture, major works of art, flourishing long distance trade networks, a productive rural sector, and evidence for a prosperous market economy. "Dark age" societies are classified as such precisely because most, if not all, of these cultural identifiers are missing from, or missed in, the contemporary archaeological record.

Conventionally the later eighth to eleventh centuries AD have been viewed as a vacant and irrelevant "dark age" in the history of Jordan, typified by the widespread, progressive and eventually almost total abandonment of settlements, "Bedouin"-nomadic encroachment and extensive depopulation. It seemed as though the last vestiges of Classical urban civilisation that had underpinned Umayyad culture were permanently lost, precipitating a dramatic and fateful break with a millennium of Graeco-Roman culture. Jordan's resulting "medieval dark age" was not overcome until the arrival of the Crusaders (twelfth century) and the subsequent Mamluk revival of the thirteenth and fourteenth century. Having supposedly little to contribute, the archaeology of this period has become little more than a supplement to historical studies; an ancillary field of research useful only to illustrate aspects of an established political history and incapable of offering an independent analysis of socio-cultural developments in the transition from the ancient world to the modern.

In the last quarter century, the archaeology of Jordan in the earlier Islamic periods has determinedly set out to define a more dynamic relationship with historical studies on the Rashidun, Umayyad, 'Abbasid and Fatimid-Saljuq periods. In the 1980s a core group of archaeologists moved to explore a range of sites, village and town, paying special attention to, and even concentrating on, the periods of Islamic occupation. Initial results and analyses gained exposure in the Islamic session of the Fourth International Conference on the History and Archaeology of Jordan of 1989 held in Lyon.[1] With the general theme of 'Sites and Settlement Patterns in Jordan', this gathering marked a critical stage in the formation of Jordanian Islamic settlement archaeology. A series of papers forcefully questioned existing conventions on earlier Islamic, especially post-Umayyad, site occupation in Jordan, arguing for continuity of settlement although within an environment of cultural and economic change. The salient points of the papers were masterly summarised by session rapporteur Professor Heinz Gaube, but unfortunately this important commentary was not published as an adjunct to the papers in the Studies volume.

In the decade since Lyon, Islamic archaeology in Jordan has become a shining example to neighbouring countries, pioneering research into many major issues in regional studies and comparative history and culture.[2] Crucial in this development is the very positive working environment offered by the people and government institutions of Jordan to visiting scholars, with collaborative projects increasingly becoming the norm. Work in the last ten years has tackled a widening range of questions in order to forge a link with historical studies, with varying success. A few of these issues invite brief comment.

Firstly, although most archaeologists of the Islamic periods in Jordan acknowledge the use of dynastic terms is inappropriate, attempts to replace dynastic periodization notably Whitcomb's proposed chronological divisions

[1] The proceedings of the conference are published in *SHAJ* IV 1992. See especially the papers by Johns, King, Walmsley and Whitcomb.

[2] Although it is usually not appropriate to single out individuals, in this instance it is only proper to acknowledge the considerable intellectual and practical contribution of Dr. Ghazi Bisheh (whose own work on, in particular, the Badiyah sites is well known) in the gestation of Islamic archaeology in Jordan.

have not been widely adopted.[3] Generally archaeologists have opted for a neutral, non-historic chronological structure by talking in centuries, usually AD. However this can, in the early stages of excavations, force the inappropriate imposition of absolute chronologies on archaeological results, whereas a relative chronology would be wiser (and potentially less misleading) in the first years of a field project.

Secondly, there has been a particular emphasis on socio-economic and cultural studies, especially questions of "continuity" and "change" from late antiquity into the middle Islamic periods of Jordan, roughly from the sixth to eleventh centuries.[4] The objective has been to identify elements of social and cultural continuity and restoration, and periods of revolutionary change. While the quality of the work has been mixed and results diverse (and at times contradictory), at least the research objectives have shared many features.

Thirdly, socio-political questions have been rarely addressed, with political and military issues usually tackled by reference to historical references rather than by the application of archaeological source material. Admittedly a major obstacle to such analyses is the shortage of detailed archaeological data, especially reliable survey results and focused site research design. The work of Brown in the Karak area indicates that an archaeological treatment of these issues is not an impossibility.[5]

Lastly, there has been a disturbing and mystifying persistence in evaluating the Islamic periods of Jordan from a "Biblical" and "Classical" archaeological perspective, which has resulted in undue emphasis on, and search for (mostly in vain, not surprisingly), cultural indicators irrelevant to Islamic studies, and to Islamic archaeology. Betraying a Eurocentric bias, it is a criticism that can be applied equally to material culture studies and interpretative analyses of archaeological data.

How dark "Dark Age" Jordan? The Tenth and Eleventh Centuries

It would be foolish and restrictive to deny that Jordan in the late eleventh century, just before the arrival of the Crusaders, was socially, culturally and economically quite different from its early seventh century counterpart, that is during the last decades before the Islamic conquest of 633-640. Change was particularly swift in the later ninth and especially the tenth and eleventh centuries, and this change can be classified as "systemic". Initial analysis suggests an interplay of causes: economic, political and religious.[6] Many of the processes of change that marked this period had their genesis in the decades before the Islamic conquest and cannot be solely attributed to it. Equally, these changes set up a new socio-political and military environment that facilitated the twelfth century Crusader occupation of Jordan, resulting in even further change and on a major scale. Can this period of major change be adequately described and explained, and was it "revolutionary" in the social history of Jordan? Our perspective can be, and indeed should be, historical, geographical and archaeological.

Written Sources

Three Arabic geographical sources, namely al-Iṣṭakhrī, Ibn Ḥawqal and al-Maqdisī (al-Muqaddasī, d. 390/1000), provide an amiable view of the lands east of the Jordan Rift Valley in the tenth century (FIG. 1).[7] Each writer, in their own way, depicts the region as amply populated with villages and towns, the latter being the traditional power centres of 'Ammān, Maāb (Rabbah) and Adhruḥ (Udhruḥ). However the sources also reveal a growing interest in religious sites, notably Mu'tah/ al-Mazār south of al-Karak, and ar-Raqīm near 'Ammān, site of the Cave of the Sleepers (Qur'an 18: 9-26, "al-Kahf"). Specifically the map accompanying Ibn Ḥawqal's text features al-Balqā' (for 'Ammān), nearby ar-Raqīm, Ruwāth (chief town of al-Jibāl), Mu'ān (Ma'ān) and Zughar on the lake of the same name (the Dead Sea, although the town is misplaced) for the area east of the River Jordan and south of Damascus (FIG. 2). The primary economic activity in the region centred on primary industries, especially the cultivation of fruit and olives, the production of honey and the herding of sheep and goats. Al-Balqā' was noted for its many villages, fields and water mills, whereas the warmer climate of the Jordan Valley was ideal for the cultivation of dates, indigo, rice and bananas.

Consistent with these accounts are the descriptions provided by the Crusader (Frankish) sources of conditions in early twelfth century Oultrejourdain.[8] Dates grew at Zughar, while Shawbak was blessed with "fertile soil, which produces abundant supplies of grain, wine, and oil". Wādī Mūsā was "very rich in the fruits of the earth" with "luxuriant olive groves which shaded the surface of the land like a dense forest" and had mills on its streams.

---

[3] Whitcomb 1992a: 113; 1992b: 386. The difficulties with Whitcomb's archaeological periodization stem from his use of 'early', 'middle' and 'late' Islamic (it is, for instance, difficult to see the fourth/tenth century as still 'early Islamic') and the arbitrary division of periods into blocks of two centuries. As a consequence the periodization remains based on historical factors, not archaeological definitions.

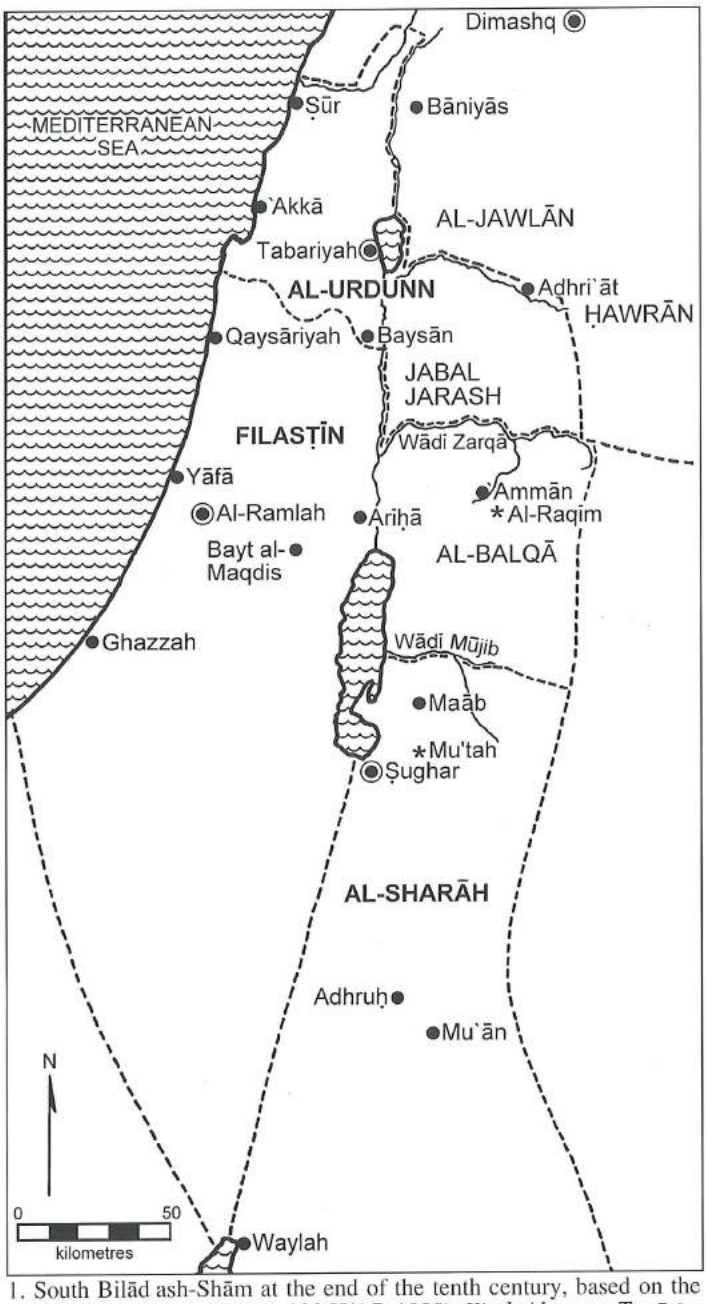
[4] See a recent joint analysis by an historian and archaeologist in Shboul and Walmsley 1998.

[5] Notably Brown 1993.

[6] A fuller (although by no means complete) consideration of the topic can be found in Walmsley 1999; see also the study by Schick 1997.

[7] Ibn Ḥawqal 1938; Iṣṭakhrī 1927; Maqdisī 1906. For a translation of Ibn Ḥawqal see: Ibn Ḥawqal 1964; and for al-Maqdisī see: Muqaddasī (al-Maqdisī) 1994.

[8] The following quotes are from Fulcher of Chartres 1969: 146-47 and William of Tyre 1976 <1941>-a: 506-8; 1976 <1941>-b: 145.



1. South Bilād ash-Shām at the end of the tenth century, based on the account of al-Maqdisī (d. 390 H/AD 1000), *Kitāb Aḥsan at-Taqāsīm fī Ma'rifat al-Aqālīm.*

In other areas were "many Christians living in villages" who left to resettle in Jerusalem with their "flocks and herds". Camels and asses were common booty from raids. Although these are only isolated references, the sources portray Jordan as having a mixed settled and nomadic population actively engaged in agricultural and pastoral pursuits.

One significant and permanent change preserved in the Arabic and Frankish sources was the progressive shift of political power in the tenth and eleventh centuries away from the traditionally powerful population centres that had dominated Jordan for much of the first millennium AD. The trend is first noticeable in south Jordan: al-Karak, the Jarrahid stronghold, supplanted Maāb (Rabbah); Wādī Mūsā returned as the chief settlement in ash-Sharāh in place of Udhruḥ; and Ruwāth replaced Gharandal in al-Jibāl. This change does not imply the abandonment of the former power centres; the excavations by the author at Gharandal have shown continuous settlement during this period.[9] Rather it would seem to reflect political shifts to new tribal leaderships located in other (and often equally ancient) settlements. The rise of these new power centres was reflected in the military campaigns of the Crusaders, with Wādī Mūsā the principal object of expedition of Baldwin I (r. 1100-18) in 1100. A similar shift also occurs in the north of the country: the settlement of Jarash was eclipsed by Jabal 'Awf (the Jabal Jarash of al-Maqdisī, now Jabal 'Ajlūn) and equipped with a stout castle in 1188-92;[10] and 'Ammān gave way to as-Salṭ, also provided with a castle, this time in 1220.[11] The political developments of the eleventh century, especially the Fatimid struggle to dominate Palestine and the rise of local tribal elites, favoured those sites with strong natural defences, such as al-Karak. This change was cemented by the events of the twelfth century, notably the Frankish occupation of south Jordan and the dispute with the atabegs of Damascus for control of the north, and inherited by the Ayyubid princes after the defeat of the Franks at Ḥaṭṭīn (1187).

In summary the Arabic and Frankish sources reveal:

- a continuing active economy, based on both agricultural and pastoral sectors;
- a mixed population, settled and nomadic;
- a major shift in settlement and political power away from the traditional centres to (re)emergent towns, characterised by a strategic location and natural defences;
- the rise of tribal shaykhdoms.

These sites and their emergent elites grew in stature in response to Fatimid ambitions in the region, and form the social and political structure in force on the eve of the arrival of the Frankish Crusaders in the Holy Land.

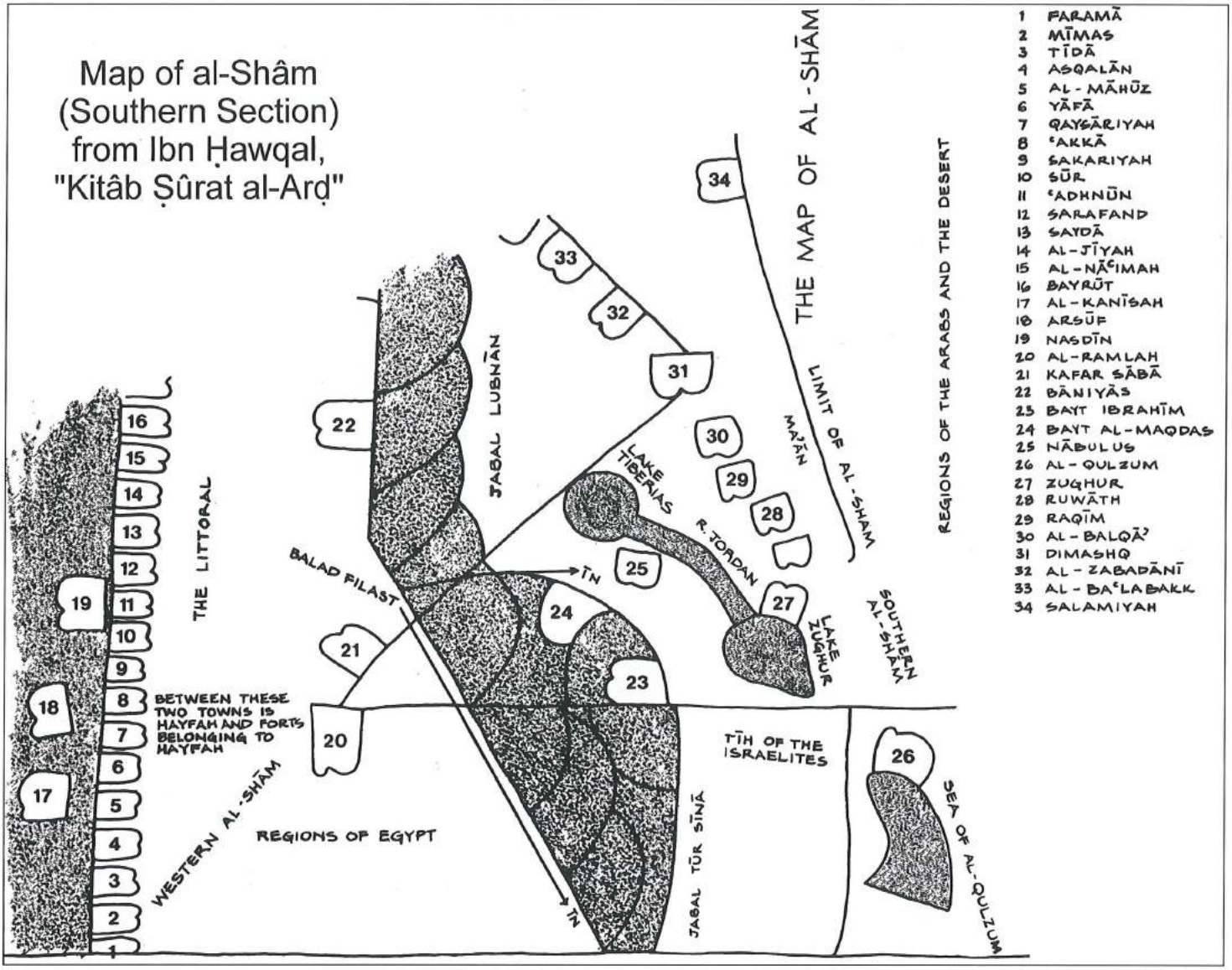
The Archaeological Evidence

As besets the archaeology of many periods, the archaeological evidence is patchy and frequently unreliable, although the situation seems especially bad for the Islamic periods. Few excavations or surveys have devoted any real energy to the tenth and eleventh centuries in particular, and this disinterest and often neglect has introduced major distortions to settlement profiles in Jordan.

9 For preliminary reports on the first season at Gharandal see: Walmsley 1998a; 1998b; also Walmsley and Ricklefs 1997.

10 On the castle at 'Ajlūn see: Humphreys 1977 for the date of 1188-1192, and the architectural report in Johns 1932.

11 The as-Salṭ castle is largely destroyed; see: Bakhit 1995; Duncan 1928.



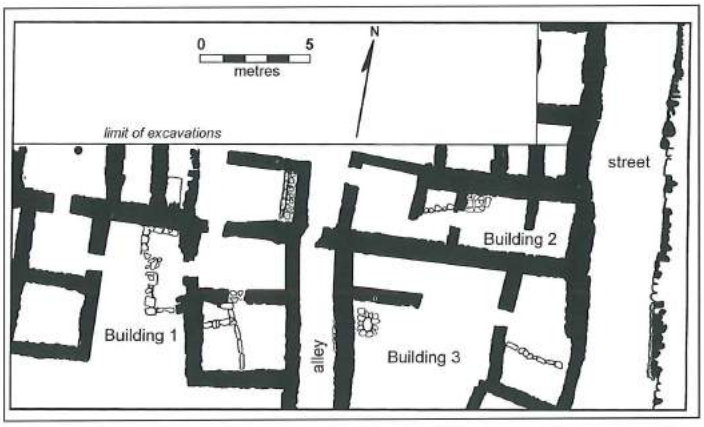
2. Translation of a map of southern Bilād ash-Shām accompanying Ibn Ḥawqal's *Kitāb Ṣūrat al-'Arḍ*, composed in AD 988. Reoriented to place north to the top.

The continuing use of stone buildings and the application of ambiguous ceramic typologies could well account for the absence of identifiable remains datable to these two centuries. Also contributing to this problem is the general lack of excavations dedicated to this period, or even the publication of work at a number of key sites, for instance Maāb (Rabbah) and Udhruḥ. In other instances the substantial redevelopment of leading eleventh century centres during and after the Frankish period would have destroyed settlement evidence from that time, for example undoubtedly at al-Karak and probably ʿAjlūn.

Nevertheless the picture is not all bleak or negative. Evidence from a selected number of sites, from district centres to village settlements, has revealed a continuing settlement history after the rise of the Fatimids and their push into Palestine (969-70) until the arrival of the Crusaders. Interestingly the archaeological evidence from the major sites, specifically ʿAmmān and Ayla (al-ʿAqaba), illuminates the politico-administrative and urban decline in the tenth and eleventh centuries as indicated in the written sources of the period.

Excavations on the ʿAmmān Citadel by C.-M. Bennett and A. Northedge on behalf of the Department of Antiquities from 1975 to 1979 uncovered clear evidence for occupation in the Umayyad Palace complex and adjacent domestic structures in the eleventh century.[12] Labelled Stratum III, the last significant period of occupation on the citadel, it represented an unbroken continuation of the previous stratum (IVb, ninth–tenth century). Revealed by the excavations were two streets and four building complexes of ʿAbbasid date but substantially modified in Fatimid times (Area C, FIG. 3). These were probably de-

[12] For the important eleventh century strata on the ʿAmmān citadel see the final report of Northedge 1992: 159.

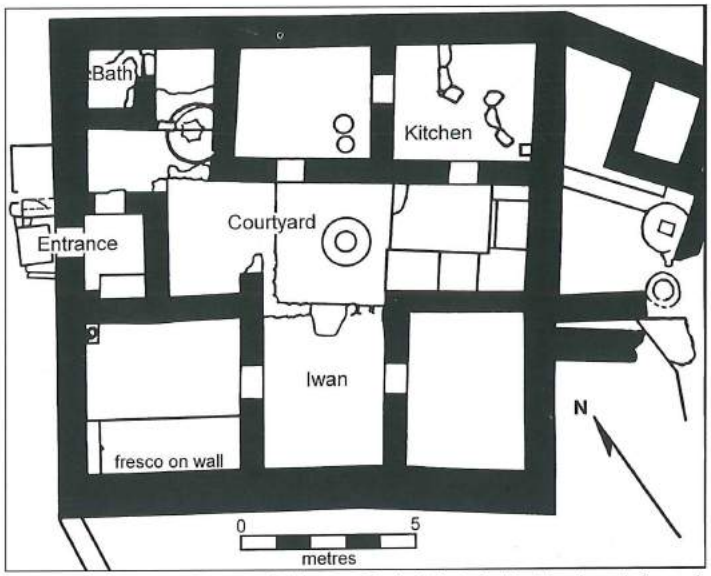


3. Stratum IVb-III houses on the 'Ammān Citadel, with occupation spanning the ninth to eleventh centuries. Adapted from Northedge 1992: fig 134.

stroyed in the earthquake of 1068. Similarly in Areas B and D Umayyad-period houses were occupied and modified until the Stratum III destruction. The Umayyad Palace was also occupied into Fatimid times but was subdivided into smaller residential units, suggesting a reduced or non-official role for the palatial complex by the eleventh century. The grand Reception Hall was roofed over, thereby converting it into a self-contained building.[13] The diminution of the citadel's official function is further indicated by the eclipse of the fortification wall of the upper terrace, for this had been built over by the 'Abbasid-Fatimid domestic structures in Areas C and D.[14]

The last phase of settlement at Islamic Ayla, which was ended by the Crusader conquest of 1116, saw continuous use of the original Umayyad and 'Abbasid structures, although modifications were of a poorer constructional standard. Excavations of the gates and wall towers, the Egyptian street, the Central Pavilion building, the congregational mosque, and the beach-side *sūq* by the south wall have revealed an uninterrupted sequence from late 'Abbasid into Fatimid times. Particularly revealing is the conversion of the Pavilion Building.[15] Originally an open public monument at the junction of Ayla's four axial streets, the structure was transformed into a well-appointed residence of eight rooms around a central courtyard, onto which opened a deep *īwān* (FIG. 4). The wall of one room was decorated with a polychrome fresco, and from this room and another an astounding collection of luxury ceramics and other objects were recovered, including a dirham of al-Ḥakīm (996–1020).

The settlement history of 'Ammān and Ayla in the sec-



4. Plan of the Pavilion Building at Fatimid Ayla/al-'Aqaba. Adapted from Whitcomb 1988: 208, fig1.

ond half of the tenth century and early eleventh century was characterised by a severe reduction, if not end, to their political and administrative functions. Significantly public buildings were usurped and converted into private dwellings, and while construction techniques were generally mediocre, levels of personal wealth were still good as indicated by the material culture.

The evidence for tenth and eleventh occupation at other major centres in Jordan is limited, but nevertheless what exists suggests a settlement profile similar to 'Ammān and Ayla. At Bayt Rās urban structures were continuously used in Phase IVb (900–1100), including a line of vaults in Area A, thought to have been a market place.[16] The 'Abbasid town centre of Fiḥl (Pella) continued to be used, perhaps into the early Fatimid period, although significantly the use appears mostly domestic.[17] Continuity of occupation throughout the Fatimid and Saljuq periods is attested at Zughar, modern Khirbat ash-Shaykh 'Īsā, based on survey results.[18]

Evidence for village settlement in the tenth and eleventh centuries is limited, although information is better for the Jordan Valley. At Tall Abū Qa'dān (Gourdan), a long sequence of courtyard surfaces separated by mudbrick collapse spanned the Islamic periods in nineteen phases labelled between A and T.[19] As the houses were of mudbrick and required frequent rebuilding a representative early to middle Islamic sequence has been preserved. However dating is a problem, as the excavations did not

13 A. Northedge 1992: 78, 81, 83-84, 88.
14 Wood in A. Northedge 1992: 124-25.
15 Informative preliminary reports in Whitcomb 1988a;, 1988b
16 Lenzen 1995: Lenzen and Knauf 1987. The continued operation of the town's marketplace indicates the importance of Bayt Ras in Fatimid times.
17 Walmsley 1995; note the comments on the end of Phase E at Tall Abū Qa'dān immediately following.
18 D. S. Whitcomb 1992a: 115-117.
19 Franken and Kalsbeek 1975.
20 Sauer 1976. A detailed review of the Tall Abū Qa'dān chronology is currently underway as part of the final report on the 'Abbasid Town centre at Pella/Fiḥl.

aim to establish an absolute chronology for the ceramics. A review by J. Sauer of Franken and Kalsbeek offered a chronological frame for the book,[20] but an improved understanding of Islamic pottery now allows the presentation of a revised chronology. The earliest phase of occupation, Phase A, is probably eighth century, either late Umayyad or very early 'Abbasid. The sequence fully begins with two phases datable to the early 'Abbasid period (Phases B–C, ninth century), and is followed by a major late 'Abbasid to early Fatimid occupation (Phases D–G, tenth–eleventh centuries). The stratigraphic and pottery evidence combine to suggest that the major "destruction" marking the end of Phase E matches the ruin of the 'Abbasid town centre at Pella, maybe early in the Fatimid period. If so Phases F and G would be firmly Fatimid, and specifically of eleventh century date. Phases H to T continue the sequence into the Ayyubid and Mamluk periods, making eight centuries of settlement that, contrary to the view of Franken and Kalsbeek,[21] would not allow for any significant gap in site occupation.

A similar picture of settlement continuity emerges from the important excavations at Tall Qudsiyah in the north Jordan Valley, located 15 km south of North ash-Shūna. As at Tall Abū Qa'dān the building material was predominantly mudbrick, and the superimposed deposits preserved an unbroken occupational sequence spanning late Antiquity to the Ottoman period.[22] The Fatimid levels, made up of ash, soil and mudbrick layers, were dated by glazed wares including lustre glazed and decorated cream wares.

On the Jordanian highlands the identification of tenth and eleventh century settlement has largely eluded archaeological surveys and site excavations. One of the few exceptions is the Khirbat Faris Project, where excavations at the stone built House 2 have revealed continuous occupation from its construction in the 1st century AD.[23] Relevant here is Stage 3, which consisted of a series of living surfaces 60–70 cm deep dated between the ninth and twelfth centuries. This time period was hardly recognised in the surface sherding survey, which further demonstrates the unreliability of regional survey results as a source of data to reconstruct settlement profiles, especially in an area where stone is the primary building material.[24] Hence the poor showing of the tenth and eleventh centuries in many regional surveys has much to do with methodological problems (e.g. recovery and identification), and to simply argue for widespread site abandonment and a major break in settlement during the Fatimid period evades a more considered approach to issues of human land-use in transitional periods.[25]

A major factor in the low representation of tenth and eleventh century settlement in Jordan is the very poor understanding of Fatimid material culture, especially ceramics. In those areas where middle Islamic pottery is better understood, survey results have been considerably more successful in identifying settlement, for instance in the north Jordan Valley.[26] The eleventh century ceramics recovered at 'Ammān and al-'Aqaba pinpoint the problems, particularly:

1. strong continuity from the preceding centuries, especially the predominance of local wheel made jars and bowls;
2. the rare appearance of glazed wares (10% at al-'Aqaba, and this is a special case where the figure could be expected to be higher);
3. the appearance of the first handmade wares, and the first showing of painted decoration on this type;
4. new styles of lamp, easily mistaken as later in date.

The 'Ammān Citadel and al-'Aqaba pottery demonstrates that wheel made wares and early handmade wares were important features of the ceramic repertoire of the eleventh century. It is to be suspected that the misallocation of these two major types to earlier and later periods respectively has been a major factor in the formation of an archaeological "dark age" in Jordan's history.

Strategies for Reinterpreting a "Dark Age" in Jordan's History

Unfortunately the application of inappropriate archaeological methodologies has created an artificial "dark age" in the history of Jordan. Imperfect ceramic typologies and unrepresentative survey data have underestimated levels of tenth and eleventh century settlement in Jordan, perhaps considerably so. Clearly there were important differences with the situation in the late sixth-early seventh century, but simply to suggest a settlement "gap" sadly hinders a full and honest assessment of social change during an important transitional period in Jordan's more recent past.

Accordingly, we must rethink the way we see tenth-eleventh century Jordan. There needs to be a positive strategy to tackle a self-created "dark age" in the country's history. Greater attention needs to be paid to sites with a high level of settlement probability in the Fatimid period. Ceramic typologies need radical improvement. Notoriously unreliable survey data must be treated with

21 H. J. Franken and J. Kalsbeek 1975: 2.
22 Kareem 1987: 92-123.
23 See the full preliminary reports in Johns, McQuitty and Falkner 1989; McQuitty and Falkner 1993.
24 Johns 1994: 3-9.
25 The repeated warnings on the limited value of survey results (e.g. Brown 1991: 229-32; J. Johns 1994; Miller 1991: 19-20) are, unbelievably, still unheeded. It is crucial to be honest about what regional site surveys can and cannot achieve if the results of archaeological research are to have historical relevance, and indeed to avoid bringing disrepute on our discipline.
26 Kareem 1987: 450-52.

suspicion. Use and adaptation of existing structures should not be scorned. A shift in emphasis is required; a shift away from "monumental" archaeology in favour of economic and population studies that take into account the dynamics of cultural continuity and change and the complexity of transitional studies.

Bibliography

Bakhit, M. A. 1995. Al-Salt. *Encyclopaedia of Islam* 8: 999-1000.

Brown, R. M. 1991. Ceramics from the Kerak Plateau. Pp. 168-279 in J. M. Miller (ed), *Archaeological Survey of the Kerak Plateau.* American Schools of Oriental Research Archaeological Reports 1. Atlanta, Ga.: Scholars Press.

——1993. *Late Islamic Ceramic Production and Distribution in the Southern Levant: a Socio-Economic and Political Interpretation.* Unpublished Ph.D. thesis, State University of New York at Binghamton.

Duncan, J. G. 1928. Es-Salt. *Palestine Exploration Fund Quarterly Statement*: 28-100.

Franken, H. J. and Kalsbeek, J. 1975. *Potters of a Medieval Village in the Jordan Valley.* Ceramic Studies in Archaeology 3. Amsterdam/Oxford: North Holland.

Fulcher of Chartres 1969. *A History of the Expedition to Jerusalem 1095-1127*, translated by Frances R. Ryan. Knoxville: University of Tennessee Press.

Humphreys, R. S. 1977. *From Saladin to the Mongols: the Ayyubids of Damascus, 1193-1260.* New York: State University of New York Press.

Ibn Ḥawqal 1938. *Kitāb Ṣūrat al-Arḍ.* Edited by J. H. Kramers. Leiden.

—— 1964. *Configuration de la Terre (Kitāb Ṣūrat al-Arḍ)*, translated by J.H. Kramers and G. Wiet. Collection UNESCO d'Oeuvres Représentatives. Série Arabe. 2 vols. Paris/ Beyrouth: Editions G.-P. Maisonneuve & Larose/ Commission Internationale pour la Traduction des Chefs-d'Oeuvre.

Iṣtakhrī 1927. *Kitāb al-Masālik wa'l-Mamālik.* Edited by M. J. De Goeje. Bibliotheca Geographicorum Arabicorum 1. Leiden.

Johns, C. N. 1932. Medieval 'Ajlun. *QDAP* 1: 21-33.

Johns, J. 1994. The Longue Durée: State and Settlement strategies in Southern Transjordan Across the Islamic Centuries. Pp. 1-31 in E. L. Rogan and T. Tell (eds), *Village, Steppe and State. The Social Origins of Modern Jordan.* London: British Academic Press.

Johns, J., McQuitty, A. and Falkner, R. K. 1989. The Faris Project: Preliminary Report upon the 1986 and 1988 Seasons. *Levant* 21: 63-95.

Kareem, J. a. M. H. 1987. *Evidence of the Umayyad Occupation in the Jordan Valley as Seen in the Jisr Sheikh Hussein Region.* Unpublished MA thesis, Yarmouk University.

Lenzen, C. J. 1995. From Public to Private Space: changes in the Urban Plan of Bayt Ras/Capitolias. Pp. 235-39 in *SHAJ* V. Amman: Department of Antiquities.

Lenzen, C. J. and Knauf, E. A. 1987. Beit Ras/Capitolias. A Preliminary Evaluation of the Archaeological and Textual Evidence. *Syria* 64(1-2): 21-46.

Maqdisī 1906. *Kitāb Aḥsan at-Taqāsīm fi Ma'rifat al-Aqālīm.* 2nd ed. Edited by M. J. De Goeje. Bibliotheca Geographicorum Arabicorum 3. Leiden.

McQuitty, A. and Falkner, R. K. 1993. The Faris Project: Preliminary Report on the 1989, 1990 and 1991 Seasons. *Levant* 25: 37-61.

Miller, J. M. (editor) 1991. *Archaeological Survey of the Kerak Plateau.* Atlanta: Scholar's Press.

Muqaddasī (al-Maqdisī) 1994. *The Best Divisions for the Knowledge of the Regions (Aḥsan at-Taqāsīm fi Ma'rifat al-Aqālīm),* translated by Basil Collins and Muhammad al-Tai. Reading: Garnet.

Northedge, A. 1992. *Studies on Roman and Islamic 'Amman.* The Excavations of Mrs C-M Bennett and Other Investigations. British Academy Monographs in Archaeology No. 3. Oxford: British Institute at Amman for Archaeology and History/Oxford University Press.

Sauer, J. A. 1976. Pottery Techniques at Tell Deir 'Alla (review article). *BASOR* 224: 91-94.

Schick, R. 1997. Southern Jordan in the Fatimid and Seljuq Periods. *BASOR* 305: 73-85.

Shboul, A. M. H. and Walmsley, A. G. 1998. Identity and Self-Image in Syria-Palestine in the Transition from Byzantine to Early Islamic Rule: Arab Christians and Muslims. In G. Clarke (ed.), *Identities in the Eastern Mediterranean in Antiquity* 11. Sydney: Mediterranean Archaeology.

Walmsley, A. 1995. Tradition, Innovation, and Imitation in the Material Culture of Islamic Jordan: the First Four Centuries. Pp. 657-68 in *SHAJ* V. Amman: Department of Antiquities.

——1998a. Archaeology in Jordan: Gharandal (Arindela). *AJA* 102(3): 605-606.

——1998b. Gharandal in Jibal: First Season Report. *ADAJ* 42: 433-41.

——1999. Fatimid, Ayyubid and Mamluk Jordan and the Crusader Interlude. In R. Adams, P. Bienkowski and B. MacDonald (eds), *The Archaeology of Jordan.* Sheffield: Sheffield Academic Press.

Walmsley, A. G. and Ricklefs, N. 1997. The Church at Arindela (Gharandal) of Palaestina Tertia. *LA* 47: 498-503.

Whitcomb, D. S. 1988a. *Aqaba "Port of Palestine on the China Sea".* Chicago: Al Kutba.

——1988b. A Fatimid Residence at Aqaba, Jordan. *ADAJ* 32: 207-23.

——1992a. The Islamic Period as Seen from Selected Sites. Pp. 113-18 in B. MacDonald (ed.), *The Southern Ghors and Northeast 'Arabah Archaeological Survey.* Sheffield Archaeological Monographs 5. Sheffield: J.R. Collis, University of Sheffield.

——1992b. Reassessing the Archaeology of Jordan of the Ab-

basid Period. Pp. 385-90 in *SHAJ* IV. Amman: Department of Antiquities of Jordan.

William of Tyre 1976 <1941>-a. *A History of Deeds Done Beyond the Sea,* Volume 1, translated by Emily A. Babcock and A. C. Krey. New York: Octagon Books.

—— 1976 <1941>-b. *A History of Deeds Done Beyond the Sea,* Volume 2, translated by Emily A. Babcock and A.C. Krey. New York: Octagon Books.

Michelle Joguin
Mission archéologique suisse de la
Fondation Max van Berchem
c/o Service cantonal d'archéologie
Rue du Puits-Saint-Pierre 4
CH-1204 Genève

Michelle Joguin

Des pots et des hommes: l'exemple d'Umm al-Walīd

La mission archéologique suisse de la Fondation Max Van Berchem a effectué des recherches dans le qaṣr oriental d'Umm al-Walid de 1988 à 1996. L'organisation du *qaṣr* se fait autour d'une cour centrale flanquée de cinq cours latérales desservant les cinq appartements. L'appartement au sud de l'entrée principale a fait l'objet de fouilles exhaustives, alors que seules quelques pièces des autres appartements ont été dégagées. Un tremblement de terre survenu au cours du IXe siècle a détruit la moitié orientale du *qaṣr* , conservant in situ les objets écrasés par l'effondrement des murs. Plusieurs dizaines d'objets ont été mis au jour, représentatifs du mobilier d'une habitation aisée et témoins des usages quotidiens de ses occupants jusque dans leur cuisine. Cette vaisselle est d'une exceptionnelle diversité et d'une rare qualité: 58 pièces complètes, 32 dont il ne manque que peu d'éléments et 19 dans un état fragmentaire mettent en évidence plus de 40 formes différentes, employées en même temps par les habitants, comprenant des récipients en céramique, en verre, en bronze et en stéatite.

Il apparaît intéressant de tenter de mettre en relation les récipients retrouvés à Umm al-Walīd avec les habitudes culinaires des premiers temps islamiques; cela principalement à travers le livre de recettes Kitāb aṭ-Ṭabīkh. On doit le génie d'en avoir récolté les recettes anciennes à Ibn Sayyār al-Warrāq, auteur du plus ancien livre culinaire arabe, datant du Xe siècle, existant encore. Il a pu avoir accès à des copies des manuscrits rédigés à Bagdad au IXe siècle, en particulier celui d'Abū Isḥāq Ibrāhīm ibn al-Mahdī, considéré comme le précurseur en matière de littérature culinaire arabe. Une centaine de recettes du début de la période abbasside nous sont parvenues rapportant la diversité de l'alimentation, mais surtout, fait particulièrement intéressant, la manière de faire et les détails techniques pour la confection des plats.

Il faut rester attentif au fait que ces recettes proviennent de la ville de Bagdad, capitale du Califat abbasside, et qu'elles ont été rédigées par des personnes proches du pouvoir, ayant donc accès à une certaine diversité alimentaire qui n'avait pas cours dans les campagnes. Néanmoins, elles sont le reflet des gestes quotidiens de tous les foyers, des techniques culinaires de préparation et de conservation qui devaient être communes à toute la population, qu'elle soit citadine ou rurale.

Ainsi, les différentes formes ont été classées en quatre catégories génériques correspondant à l'utilisation qui devait en être faite.

Les récipients de stockage

On entend par récipients de stockage, les récipients servant aux réserves alimentaires, quelles soient liquides ou solides, tels le vin, le vin aigre, l'huile, la viande, les fruits et les épices, ainsi que les marinades de viandes ou les diverses conserves de légumes, préparées en saison pour pouvoir être consommées plus tard dans l'année.

Cinq formes en céramique et une en verre ont été distinguées, qui ont probablement été utilisées pour la conservations des aliments:

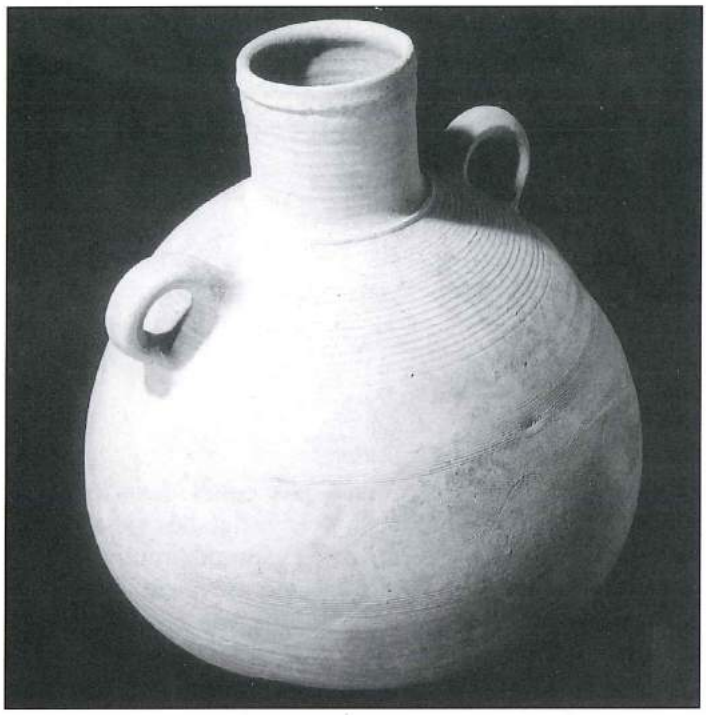
L'amphore du type bag-amphora, reconnaissable à sa forme de poire, avec ou sans décor géométrique peint, a été retrouvée en onze exemplaires.

Les jarres globulaires sont au nombre de six (FIG. 1). Elles ont été pourvues d'un engobe blanc-crème et décorées au peigne de lignes droites et ondulées.

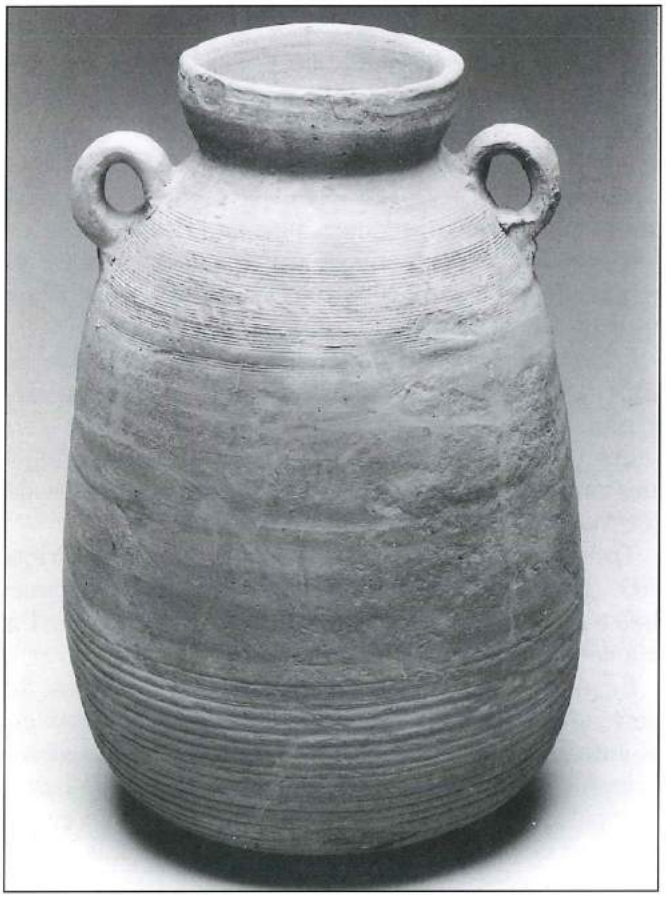
Trois jarres ont reçu l'appellation de "cylindrique" (FIG. 2), bien que deux types puissent être distingués : l'une a une panse parfaitement cylindrique, alors que l'autre a une panse légèrement cônique.

Le plus grand récipient est sans conteste le pithos, dont quatre spécimens ont été découverts. Les récipients étaient entreposés à demeure, leur volume et leur poids empêchant toute manipulation. La salle 3, au sud de l'entrée principale, a servi d'entrepôt pour le matériel de cuisine; dans l'un de ses angles, un petit muret a été mis au jour, qui devait probablement contribuer à stabiliser un pithos.

La jarre à collerette est une pièce unique. La collerette, finement décorée d'une ligne ondulée, est apposée sur



1. Umm al-Walīd, jarre globulaire à décor géométrique peigné (photo: F. Bujard-Ebener).



2. Umm al-Walīd, jarre cylindrique (photo: F. Bujard-Ebener).

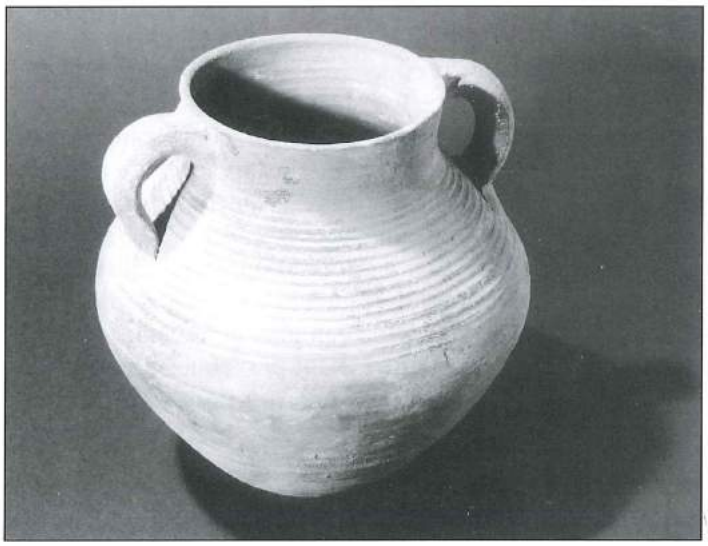
l'épaule pourvue de six trous percés régulièrement. Il est évident qu'il ne s'agit pas que d'un élément décoratif et que les trous avaient une utilité liée à la présence de la collerette. Est-ce là un système pour empêcher qu'un liquide, qui aurait débordé, ne vienne souiller la panse, comme l'huile ou un autre liquide poisseux? On peut imaginer plusieurs autres utilisations: ces trous pouvaient servir de filtre; on versait alors une préparation dont on ne voulait récupérer que le liquide ou le jus, la matière solide restant dans la gorge formée par la lèvre et la collerette ou encore, ces trous servaient d'aération pour une mixture mise à fermenter comme le *murri*,[1] dont la préparation prenait quelques semaines, la collerette évitant de répandre le liquide lorsqu'il était versé dans un autre récipient.

Les flacons de verre ont été retrouvés en onze exemplaires. Leur taille peut varier entre 3 et 15 cm et ils sont tous pourvus d'une panse globulaire aplatie et d'un col étroit. Ils devaient, pour les plus grands, être destinés à la conservation des nombreuses épices, réduites en poudre, entrant dans la composition ou l'assaisonnement des mets.

Les ustensiles de cuisine

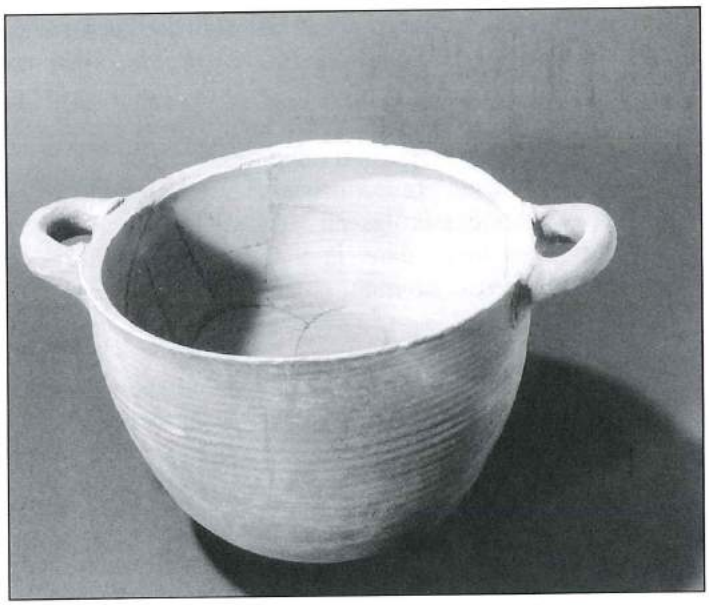
Deux formes évoquent par excellence cette catégorie : ce sont la marmite et la casserole (FIGS. 3 et 4). Sans elles, impossible d'entreprendre la préparation et la transformation de certains aliments. Au moins huit marmites ont été mises au jour associées à deux casseroles en céramique et dix en stéatite.

Tandis que la marmite devait servir aux plats bouillis ou mijotés, comme le ragoût de viande, la casserole, elle, permettait, par sa forme ouverte, de saisir et frire viandes, légumes, céréales devant être remués constamment, avant



3. Umm al-Walīd, marmite (photo: F. Bujard-Ebener).

[1] Sorte de condiment à base de céréales mises à macérer avec du pain sec, de l'huile, de l'eau et des épices (Waines 1998: 45)



4. Umm al-Walid, casserole (photo: F. Bujard-Ebener).

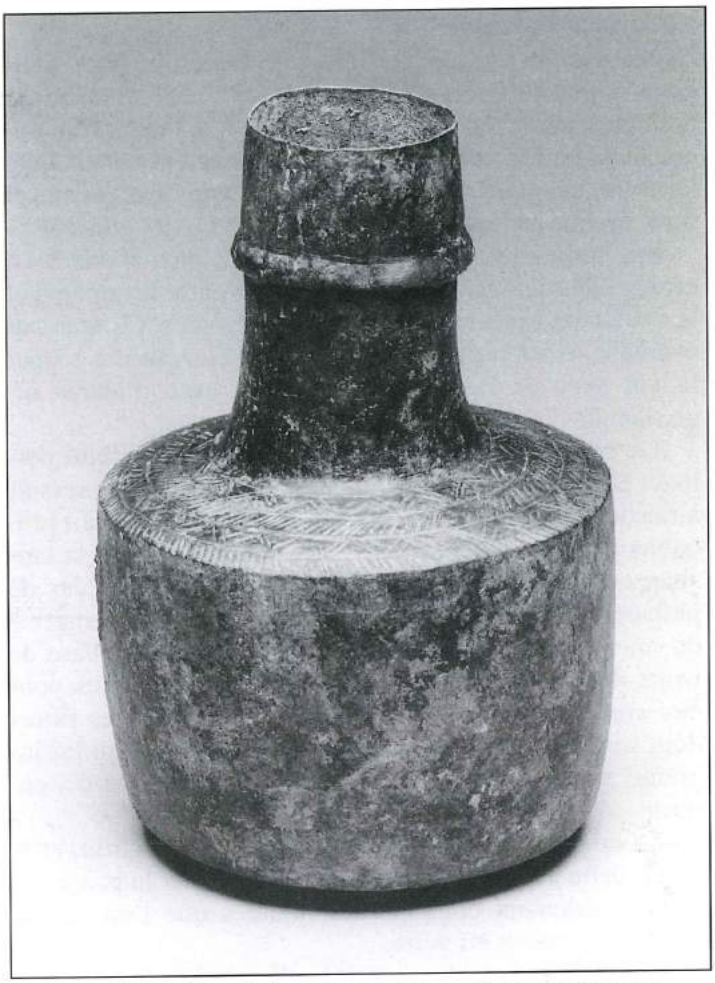
d'être le plus souvent bouillis.[2]

La casserole en stéatite semble avoir été préférée pour la bonne diffusion de la chaleur qu'elle apporte durant la cuisson, chaleur que la pierre conserve encore longtemps une fois hors du feu. Un exemplaire est réparé au moyen d'agrafes de plomb, ce qui démontre la valeur que revêtait un tel ustensile. Manifestement, les casseroles en stéatite décorées n'ont pas été en contact avec le foyer, aucun des deux exemplaires à décor géométrique incisé n'ayant de traces de suie, dues à une exposition à la chaleur. Elles auront donc plutôt servi à la présentation de plats ou sauces pour les tenir au chaud le temps du repas.

On pourrait être étonné du nombre de marmites découvertes dans la salle 3, mais aussi en général dans les fouilles. En fait, l'argile, très poreuse, est difficile à nettoyer complètement et, très souvent, il est conseillé dans les recettes d'utiliser un "pot" neuf ou très bien nettoyé, afin d'éviter que la nouvelle préparation ne soit souillée par des goûts subsistant de la précédante.

Plusieurs objets en bronze peuvent être associés à cette catégorie, dont l'analyse a prouvé leur utilisation sur un foyer. Les deux grandes bouilloires (FIG. 5) permettaient de cuire l'eau nécessaire au nettoyage des ustensiles ou même de la viande, afin de la débarrasser du sang, alors que la plus petite, zoomorphe, devait servir aux infusions.[3]

Un mortier et son pilon (FIG. 6), retrouvés dans la cour, ont une taille et un poids relatifs à leur utilisation. Ils contribuaient à écraser les herbes aromatiques et les épices, à broyer certains légumes cuits ou même à attendrir la viande.



5. Umm al-Walid, bouilloire en bronze (photo: F. Bujard-Ebener).



6. Umm al-Walid, mortier en bronze et son pilon (photo: F. Bujard-Ebener).

[2] L'utilisation de récipients en bronze pour la friture est souvent évoquée dans les recettes, ce qui expliquerait le nombre réduit de cette forme.

[3] On serait tenté de l'associer à la préparation du café, mais celui-ci n'apparaît pas avant le Xe s. Les premières mentions viennent de Perse et ce n'est que bien plus tard qu'il devient d'abord une boisson de luxe avant d'être consommé de manière courante.

Le service de "table"

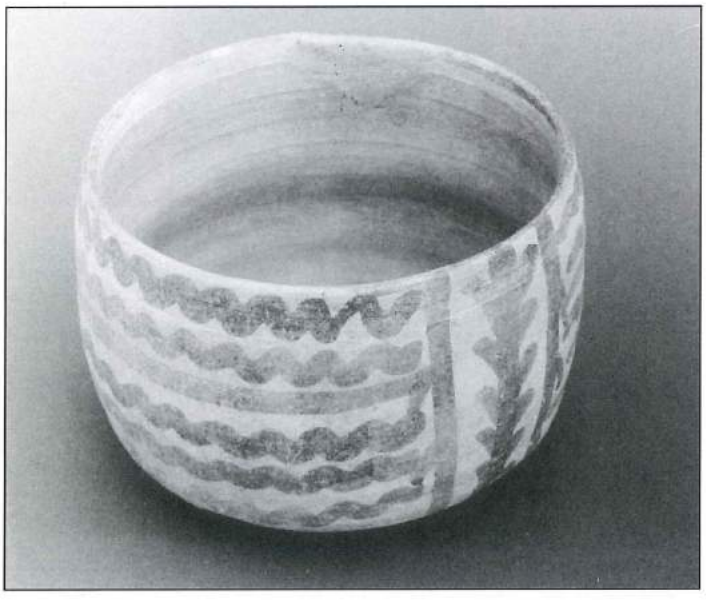
La notion de service de table est à mettre entre guillemets, puisqu'il est évident que les repas devaient se prendre à même le sol, mais ce terme à la conception occidentale permet de comprendre la distinction qui est faite ici entre les récipients réservés uniquement à la cuisine et ceux destinés à la présentation des mets ou des boissons.

Pas moins de onze formes peuvent être associées à cette catégorie, mais la relation directe entre le contenu et le contenant est plus complexe à déterminer. Comme par exemple, le pot piriforme à deux anses; servait-il à couper le vin avec de l'eau ou en mélange avec d'autres ingrédients?

La consommation du vin est attestée pour cette période; elle est certaine à Umm al-Walīd puisqu'un pressoir à raisins a été récemment découvert. On y produisait probablement tous les produits dérivés nécessaires à la cuisine, comme le vin aigre. Il existait plusieurs façons de préparer le vin et l'une d'elles consistait à le mélanger à du miel et des raisins secs. D'autres boissons, à base de fruits dont on tirait un sirop, devaient être diluées pour être consommées. Ainsi pourrait-on interpréter les filtres dont sont pourvues les cruches, ceux-ci empêchant les ingrédients composant le sirop ou même les insectes d'y entrer.

La cruche à deux anses, pourvue d'un col étroit, et la gargoulette avec son bec tubulaire apposé sur la panse devaient également contenir des liquides que l'on servait dans des gobelets en verre.

Les repas étaient composés d'assiettes froides, ancêtres des mezze actuels. L'aubergine ayant fait son apparition au début du VIIIe siècle fut largement utilisée dans l'élaboration de ces assiettes froides. Les bols peints en céramique (FIG. 7) ou en bronze, dont le diamètre est un peu grand pour qu'ils aient servi de gobelets, ainsi que l'assiette en bronze, ont peut-être été utilisés pour présenter des mets composés de purée de légumes ou encore des friandises à base de fruits ou d'amandes.



7. Umm al-Walīd, bol à décor géométrique peint (photo: F. Bujard-Ebener).

Les plats chaud, plus consistants, ont pu être servis dans les grandes casseroles en stéatite déjà mentionnées plus haut, mais aussi dans le plat à pied annulaire ou même dans la terrine carénée.

Les objets domestiques

Ce terme générique désigne les objets indispensables au confort quotidien, n'entrant pas dans la confection des repas ou de leur consommation.

L'éclairage est assuré par des lampes à huile. Une forme de lampe en verre et une en céramique à décor moulé de motifs végétaux on été mises au jour. Un fragment de lanterne a été découvert; celle-ci pouvait être suspendue grâce à une anse annulaire et diffusait la lumière émise par la lampe à huile au moyen de trous percés dans la panse. Le bol d'aisance a été retrouvé en bonne place, dans les latrines. Deux brûle-encens en bronze et un en céramique font également partie de cette catégorie. Une sorte de coupelle en verre a un profil assez épais et il pourrait s'agir là d'une mesure pour un liquide.

On ne peut clore cette description sans évoquer la découverte de sept bassins associés, pour quatre d'entre eux, à un pichet. Ils ont pu être employés au lavage des mains, mais également de la nourriture et des divers ustensiles.

Une seule pièce est difficile à classer dans une catégorie, c'est une jarre à glaçure bleue. En effet, en plus d'être un élément décoratif, la glaçure servait à imperméabiliser le récipient suivant l'utilisation qui devait en être faite, permettant ainsi d'accommoder des aliments différents sans avoir d'odeurs récurrentes des préparations précédentes. Il n'est fait aucune mention dans les recettes d'un tel récipient pour la conservation des aliments.

Conclusion

Les méthodes de cuisson appliquées dans les recettes sont souvent exécutées successivement. La viande, surtout, est d'abord frite, puis bouillie ou inversement, qu'elle soit fraîche ou qu'elle ait été bouillie dans de l'eau, du sel et du vinaigre pour être conservée. Les marmites et casseroles découvertes dans le *qaṣr* permettent donc d'exécuter les principes culinaires consignés dans les recettes. De même, les récipients de stockage sont en nombre suffisant pour assurer les réserves en vin, fruits secs, légumes au vinaigre etc. nécessaires à la maisonnée.

Si les recettes sont suffisamment explicites en ce qui concerne la marche à suivre, il n'en est pas de même pour les quantités utilisées ou pour la présentation des plats, ces livres devant s'adresser plutôt à des cuisiniers confirmés. Il est donc plus difficile de savoir qu'elles étaient les hab-

itudes de service.

Ainsi, tout le matériel retrouvé dans le *qaṣr* oriental d'Umm al-Walīd fournit les éléments nécessaires pour pouvoir affirmer qu'il correspond bien aux traditions culinaires de son époque.

Bibliographie

Amsan, M. M. 1979. *Social Life Under the Abbassids (170-289AH/786-902 AD)*. London.

Bujard, J. et Haldimann, M.-A. 1988. Fouilles de la Mission archéologique suisse (Fondation Max van Berchem) à Umm er-Rasas et Umm el-Walid. *ADAJ* 32: 101-113.

Bujard, J. et Joguin, M. 1994. La céramique d'Umm er-Rasas/ Kastron Mefaa et Umm el-Walid", *Byzantine and Early Islamic Ceramics in Syria-Jordan (IVth-VIIIth centuries)*, Amman-Royal Cultural Cente, à paraître.

Haldimann, M.-A. 1992a. Les implantations omeyyades dans la Balqa: l'apport d'Umm el-Walid". *ADAJ* 36: 307-323.

____1992b. Umm el-Walid, Prolégomènes céramologiques", *La Syrie de Byzance à l'Islam*, Actes du Colloque International Lyon-Maison de l'Orient Paris-Institut du Monde Arabe 1990, publiés par P. Canivet et J.-P. Rey-Coquais, Damas, pp. 229-232.

Rosenberg, B. 1996. La cuisine arabe et son apport à la cuisine européenne", *Histoire de l'alimentation*, sous la direction de J.-L. Flandrin et M. Montanari, Paris, pp. 345-365.

____1997 "Les pâtes dans le monde musulman", *Médiévales*, 33, 1997.

Waines, D. 1991 Al-Matbakh. *The Encyclopaedia of Islam*, new edition, VI, Leiden, 1991.

____1998. *La cuisine des Califes*. Paris.

Denis Genequand
Mission archéologique suisse de la
Fondation Max van Berchem
c/o Service de la protection des
monuments et des sites
Tivoli 1, case postale
CH-2000 Neuchâtel
Switzerland

Denis Genequand

Wādī al-Qanāṭir (Jordanie): un exemple de mise en valeur des terres sous les Omeyyades

De 1988 à 1997, la Mission archéologique suisse de la Fondation Max van Berchem a travaillé à Umm al-Walīd, village situé en bordure du désert, à une douzaine de kilomètres au sud-est de Mādabā. Les ruines de ce site, régulièrement mentionné dans la littérature archéologique depuis le début du XIXe siècle,[1] s'étendent sur près de 400 mètres sur une colline allongée à l'extrémité orientale d'un plateau; elles sont actuellement en partie recouvertes par des constructions modernes.

L'origine de l'implantation remonte au Ier siècle avant notre ère, mais son extension maximale est à placer durant le IIe ou le IIIe siècle après J.-C. De cette époque subsistent en particulier un sanctuaire, comprenant deux temples géminés sur le sommet de la colline, ainsi qu'un vaste mausolée hexagonal élevé en bordure nord-ouest du village antique. Durant l'époque byzantine, le site subit un déclin certain, qui se manifeste par l'absence d'église ou de signes chrétiens et par la raréfaction des céramiques en surface.

A la suite de la conquête islamique, Umm al-Walīd - dont on ne connait pas le nom ancien - se caractérise par un nouvel essor et voit la construction de trois qusur, de deux mosquées successives et d'importants ouvrages hydrauliques et agricoles. Les travaux de la mission suisse se sont concentrés sur ces vestiges islamiques[2] et cet article va porter principalement sur les aménagements hydrauliques et agricoles - barrages et pressoir à vin - du Wādī al-Qanāṭir, situé à 2 km d'Umm al-Walīd.

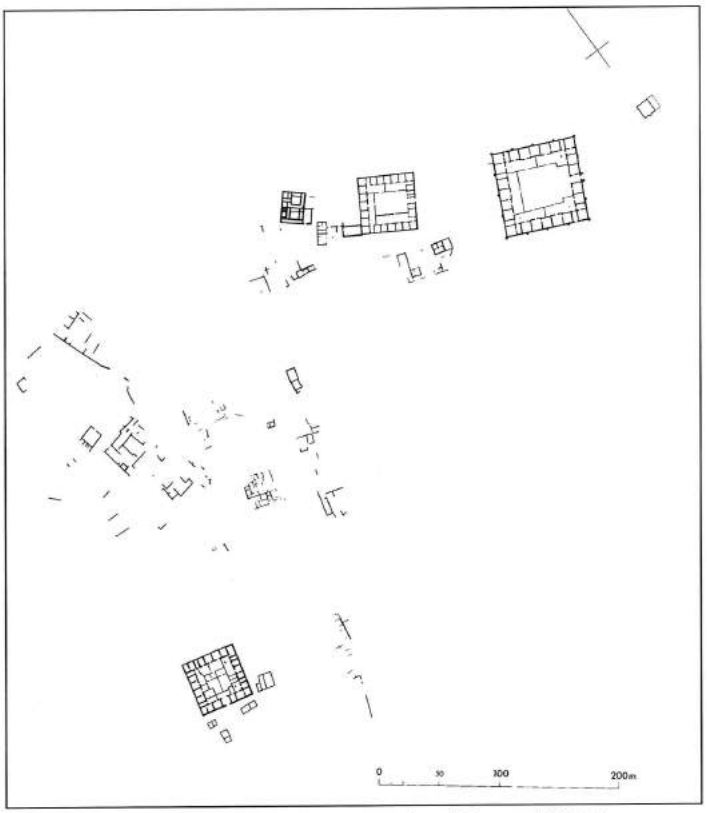
A Umm al-Walīd même (FIG. 1), les vestiges les plus impressionnants sont ceux du *qaṣr* oriental qui est délimité par une enceinte quadrangulaire de 71 m de côté, renforcée par des contreforts hémicylindriques et cylindriques aux angles. L'intérieur s'organise autour d'une vaste cour centrale, bordée par cinq cours particulières définissant cinq buyut distincts composés d'une série de pièces adossées à l'enceinte et flanqués d'un portique. Les grandes lignes de ce plan, caractéristique des châteaux omeyyades, se retrouvent dans les qusur central et occidental. Ceux-ci se distinguent toutefois par des dimensions plus petites - 48 et 46 m de côté - et par l'absence de renforcement de l'enceinte par des contreforts. La première mosquée, établie à l'est du *qaṣr* oriental, est un petit édifice rectangulaire de 10,3 m par 14 m qui ne devait être que partiellement couvert. Elle est remplacée plus tard, au même emplacement, par une mosquée hypostyle de dimension sensiblement identique et flanquée d'une cour.

Sur la base des plans de ces édifices et des détails architecturaux, l'évolution suivante du site a pu être proposée par J. Bujard.[3] La première construction est le *qaṣr* central, probablement construit en même temps que la première mosquée durant les dernières décennies du VIIe

[1] Cf., entre autres, R. E. Brünnow & A. von Domaszewski, *Die Provincia Arabia*, II. Band: Der äussere Limes und die Römerstrassen von El-Ma'an bis Bosra, Strassburg, 1905, p. 87-90.

[2] Les travaux de la Mission archéologique suisse sont soutenus par la Fondation Max van Berchem, dont le but est de promouvoir l'étude de l'archéologie, de l'histoire, de la géographie, de l'histoire de l'art, de l'épigraphie, de la religion et de la littérature islamiques et arabes. Une partie des résultats des fouilles de la mission à Umm al-Walīd a déjà été publiée, voir à ce sujet: J. Bujard et M.-A. Haldimann, sous la dir. de C. Bonnet, «Fouilles de la Mission archéologique suisse (Fondation Max van Berchem) à Umm er-Rasas et Umm el-Walid en 1988», *ADAJ*, 32, 1988, p. 101-113; M.-A. Haldimann, «Les implantations omeyyades dans la Balqa': l'apport d'Umm el-Walid», *ADAJ*, 36, 1992, p. 307-323; M.-A. Haldimann, « Umm el-Walid: prolégomènes céramologiques », *La Syrie de Byzance à l'Islam. VIIe-VIIIe siècles*, P. Canivet et J.-P. Rey-Coquais (eds.), Damas, 1992, p. 229-235; J. Bujard et F. Schweizer (eds.), *Entre Byzance et l'Islam, Umm er-Rasas et Umm el-Walid, fouilles genevoises en Jordanie*, Genève, 1992; J. Bujard, avec la collaboration de W. Trillen, « Umm al-Walid et Khan az-Zabib, cinq *qusur* omeyyades et leurs mosquées revisités », *ADAJ*, 41, 1997, p. 359-382; D. Genequand, *Le Wadi al-Qanatir. Un exemple de mise en valeur de la badiya jordanienne sous les Omeyyades*, mémoire de licence non publié, Université de Lausanne, 1998; ainsi que l'article de M. Joguin dans ce volume. Mes remerciements s'adressent à M. Jacques Bujard, directeur de la Mission archéologique suisse, qui m'a confié une part des études qui se sont déroulées sur le site d'Umm al-Walīd, ainsi qu'aux membres de la mission qui ont participé aux différentes phases du travail: Mmes Fabienne Bujard et Michelle Joguin; MM Wilfried Trillen, Cyril Eyer et Christian de Reynier. Les dessins illustrant cet article sont dûs à Wilfried Trillen.

[3] J. Bujard, « Umm al-Walid et Khan az-Zabib...», *op. cit.*, p. 372.



1. Plan des vestiges antiques et omeyyades d'Umm al-Walīd.

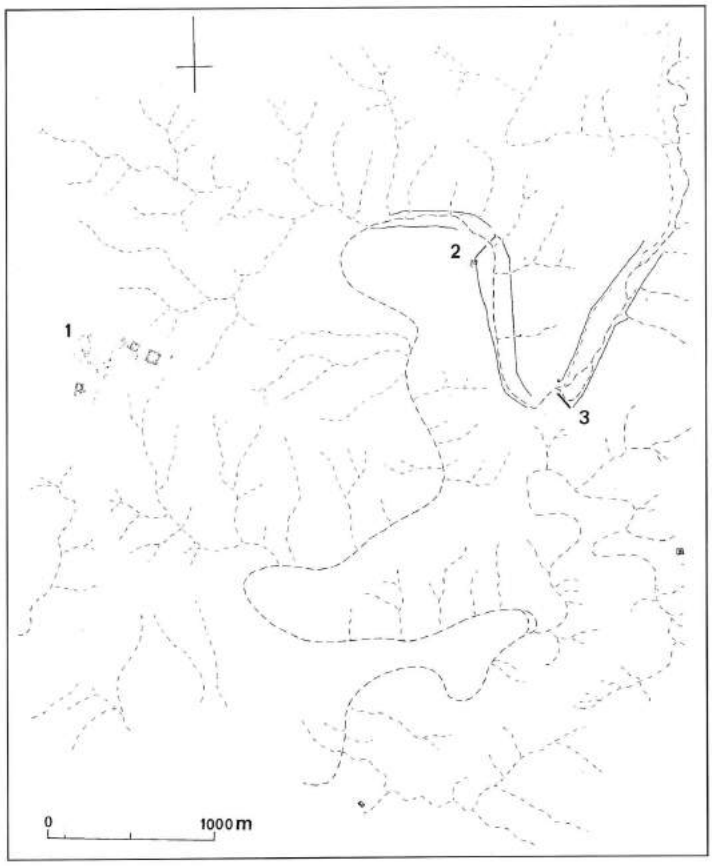
siècle ou au début du VIIIe siècle. Une deuxième étape voit l'édification du *qaṣr* oriental et de la seconde mosquée, peut-être vers 710-720.[4] Le *qaṣr* occidental est construit en dernier lieu. Il paraît vraisemblable de voir dans ce groupe d'édifices, qui ne sont pas des palais, une *madīna*, à interpréter ici comme une forme d'établissement privé et aristocratique regroupant plusieurs familles ou clans et destiné, entre autres, à la mise en valeur des terres cultivables.[5]

L'abandon du *qaṣr* oriental est consécutif à un tremblement de terre qui le détruit à moitié au cours du IXe ou Xe siècle, alors que le type d'occupation a déjà passablement perdu de sa splendeur. Il est très possible que les autres *quṣūr* soient abandonnés au même moment. Une réoccupation d'une partie du site aura lieu durant l'époque mamelouke.

Le Wādī al-Qanāṭir

Le Wādī al-Qanāṭir est une des vallées qui prennent naissance dans la partie orientale des plateaux de Jordanie centrale. D'orientation générale nord-est/sud-ouest, il prend le nom de Wādī al-Wāla après son confluent avec le Wādī ath-Thamad et est parcouru en hiver par un cours d'eau temporaire. Les vestiges sont situés à 2 km à l'est-nord-est du village d'Umm al-Walīd, dans le fond de la vallée (FIG. 2). Ils se composent de deux imposants barrages en maçonnerie, distants de 1 km, qui barrent le cours du *wādī*.[6] Dans les deux cas, ce sont des barrages-poids destinés à créer une retenue d'eau pour l'irrigation de terres cultivées. A côté de chacun d'eux subsistent les ruines de bâtiments; parmi ceux-ci, à côté du barrage aval, se trouve un pressoir à vin.

Enfin, il n'est pas sans intérêt d'ajouter que le toponyme al-Qanāṭir apparaît avec al-Qasṭal et Udhruḥ parmi les constructions attribuées au souverain ghassanide Jabala b. al-Ḥārith par Ḥamza al-Isfahānī.[7] Traditionnellement identifié depuis les travaux de Wetzstein avec



2. Plan de la région d'Umm al-Walīd et du Wādī al-Qanāṭir avec le réseau hydrographique. 1) Umm al-Walīd; 2) barrage aval; 3) barrage amont.

4 Date suggérée par le plan de la mosquée, réduction des grandes mosquées hypostyles de Damas (706-715) et al-Aqṣa à Jérusalem (vers 715).

5 O. Grabar, R. Holod, J. Knustad et W. Trousdale, *City in the Desert. Qasr al-Hayr East,* Cambridge/Ma., 1978, p. 80-81; J. Bujard «Umm al-Walid et Khan az-Zabib...», *op. cit.*, p. 373.

6 Ces vestiges ont déjà été signalés à plusieurs reprises, cf. R. E. Brünnow et A. von Domaszewski, *Die Provincia Arabia, op. cit.*, p. 90; A. Jaussen & M.-R. Savignac, *Mission archéologique en Arabie III. Les châteaux arabes de Qeseir 'Amra, Harâneh et Tûba*, Paris, 1922, p. 19-20. Plus récemment, les barrages ont été décrits de manière plus détaillée par G. Bisheh, dans un article en arabe, qui a proposé de les dater soit de l'époque byzantine, soit de l'époque omeyyade, sans toutefois les associer au site d'Umm al-Walīd encore mal connu: G. Bisheh, « Notes on some newly discovered Umayyad Remains », *ADAJ*, 30, 1986, Arabic Section, p. 7-14.

7 *Hamza al-Isfahani, Annales*, ed. I. M. E. Gottwaldt, St-Pétersbourg-Leipzig, 1844-1848, livre 7, p. 117.

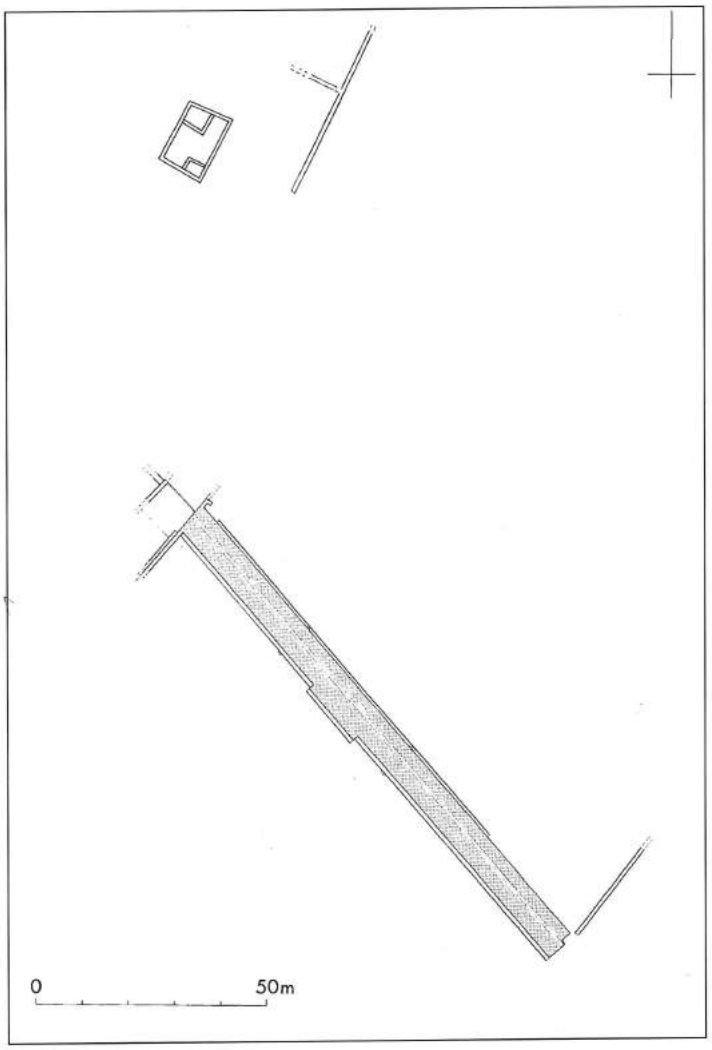
l'aqueduc—probablement romain—de Qanāṭir Fir'aun entre Izra' et Dar'a dans le Ḥawrān,[8] il peut aussi être possible d'y voir notre site, bien qu'une datation au VIe siècle ne puisse être retenue. L'ampleur des installations hydrauliques du Wādī al-Qanāṭir et la proximité de al-Qasṭal, également d'époque omeyyade et cité dans le même passage, pourraient renforcer cette hypothèse déjà proposée par G. Bisheh.[9]

Les barrages

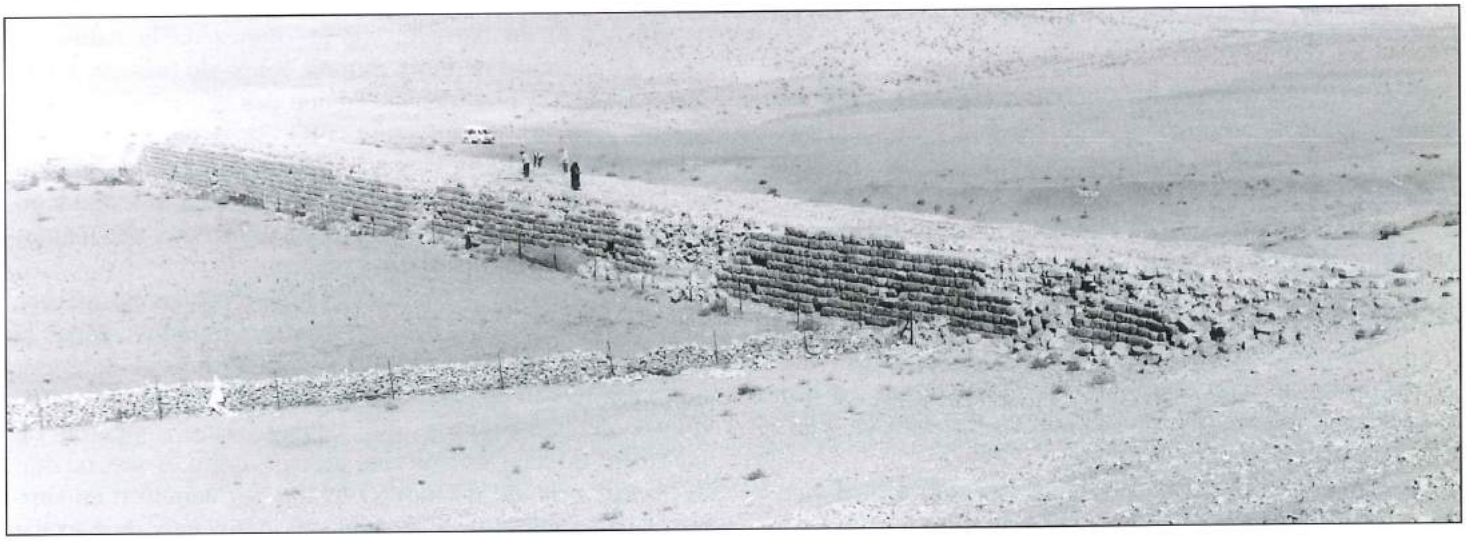
Le barrage amont

Le barrage amont (FIGS. 3 et 4), aujourd'hui contourné par le cours d'eau, est composé de deux états bien distincts. Le premier barrage construit est long de 135 m, épais à sa base de 6,10 m et haut de 9 m au maximum. Les deux parements de cet ouvrage, formés d'assises régulières de blocs rectangulaires de grand appareil en calcaire local, enserrent un blocage, également monté par assises, de moellons bruts noyés dans un abondant mortier de chaux très cendreux. Le parement amont est vertical, alors que le parement aval est échelonné, chaque assise étant en retrait d'une dizaine de centimètres de la précédente. Sur ce dernier, légèrement décalé vers la rive droite et dans l'axe du thalweg antique, se trouve un contrefort long de 15 m et épais de 1,20 m. La stabilité de l'ouvrage était encore accrue par un talus de remblai qui s'élevait jusqu'à mi-hauteur du parement aval. Le couronnement du barrage est recouvert par une chape de mortier.

Des exutoires permettant une utilisation contrôlée de l'eau traversent l'ouvrage de part en part (FIG. 5); ce sont deux petites conduites disposant d'un système de vannes



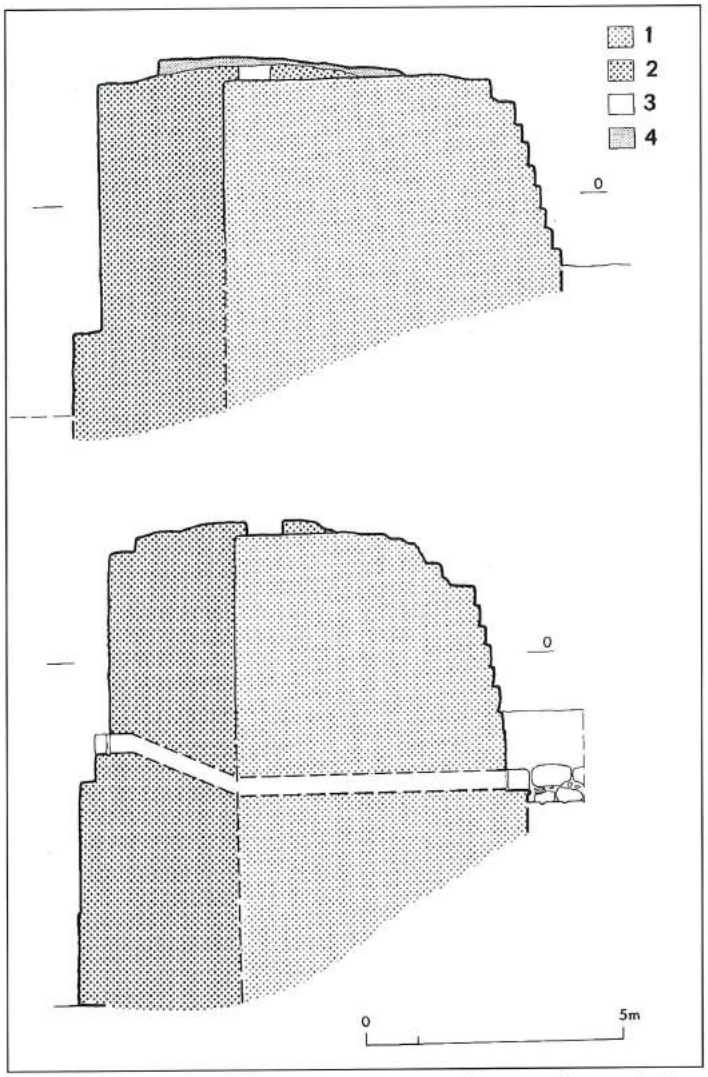
3. Plan du barrage amont.



4. Vue du barrage amont depuis la rive gauche en aval.

[8] J. G. Wetzstein, *Reisebericht über Hauran und die Trachonen*, Berlin, 1860, p. 123.

[9] G. Bisheh, « Notes... », *op. cit.*, p. 9.



5. Barrage amont. Coupes à l'emplacement du contrefort et de l'un des exutoires. 1) premier état; 2) deuxième état; 3) canalisation sur le couronnement; 4) assise de réfection.

—panneaux métalliques ou de bois coulissant dans des rainures—à leur débouché. Ces exutoires étaient prolongés par des canaux destinés à conduire l'eau en contrebas vers des surfaces cultivées (FIG. 6). Malheureusement, seul le départ de ces canaux a pu être observé et l'organisation générale de l'irrigation reste du domaine de l'hypothèse. Enfin, à l'une des extrémités, un déversoir était destiné à évacuer le surplus d'eau en cas de crue; détruit lors des travaux du deuxième état, il devait se présenter sous la forme d'un plan incliné qui échancrait sur 8 m de longueur le barrage à une altitude inférieure de 3 m à celle du couronnement.

Le barrage est ensuite fortement remanié afin d'augmenter le volume de la retenue ou, si les alluvions n'avaient pas été enlevés régulièrement, de lui redonner un volume rentable. Le déversoir est reconstruit au même emplacement et sous la même forme, mais le niveau de son seuil est surélevé de plus d'un mètre. Cette surélévation augmentant la capacité de la retenue, mais diminuant la stabilité de l'ouvrage, il faut probablement y voir la raison des autres remaniements, qui participent au renforcement du barrage. Ce dernier est épaissi de 2,45 m sur toute sa longueur par l'ajout, contre la face amont, d'un nouveau parement précédé d'un blocage (FIG. 5). Le nouvel appareil, très semblable à celui de l'enceinte du *qaṣr* oriental d'Umm al-Walīd, est composé de blocs de grande dimension grossièrement équarris et posés par assises égalisées par des déchets de taille; trois couches de mortier cendreux le rendaient parfaitement étanche. Les exutoires sont prolongés à travers ces maçonneries et leurs ouvertures, également pourvues de vannes, sont légèrement surélevées, afin d'éviter une mise hors d'usage trop rapide par l'alluvionnement. Notons encore qu'une canalisation, rapidement condamnée et dont la fonction reste obscure, est installée sur toute la longueur du couronnement du barrage.



6. Barrage amont. Débouché de l'un des exutoires, suivi par un canal.

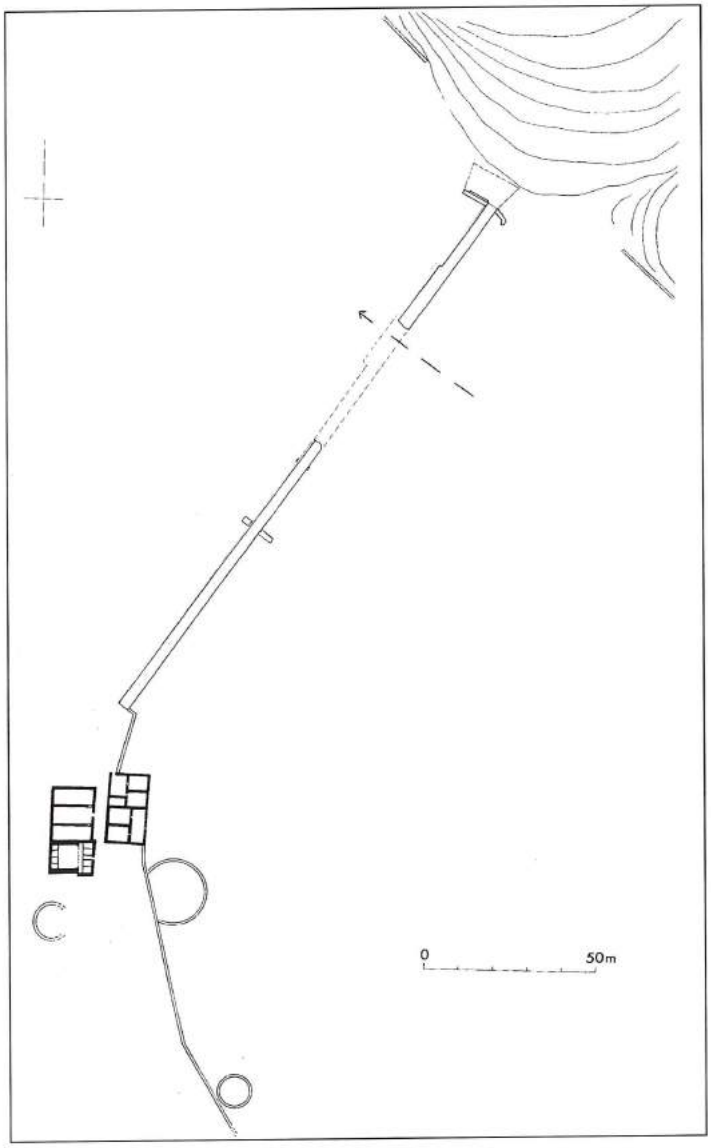
En amont du barrage, sur les flancs de la vallée, le *wādī* est ceinturé de deux murets, longs de près de 1 km, qui servaient à protéger la retenue des sédiments amenés par les eaux de ruissellement (FIG. 2). A une soixantaine de mètres au nord du barrage se trouvait en outre un petit bâtiment, peut-être l'habitation d'un gardien. Il s'agit simplement d'un enclos rectangulaire dont deux des angles étaient occupés par de petites pièces.

La datation du premier état de ce barrage est assurée par des fragments de céramique contenus dans la maçonnerie, qui empêchent d'y voir un édifice antérieur aux premiers temps islamiques. Les similitudes des techniques de construction, que ce soit dans l'appareil du parement ou dans le mortiers utilisés, entre le second état et le *qaṣr* oriental d'Umm al-Walīd permettent d'en supposer la contemporanéité. Ainsi les deux états du barrage peuvent-ils être datés de la période omeyyade.

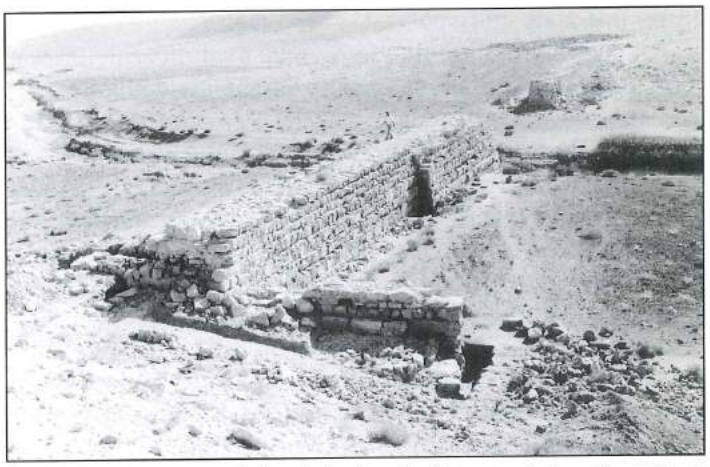
Le barrage aval

Le barrage aval est construit selon le même plan que le

barrage amont (FIGS. 7 et 8). Il est toutefois plus long (187 m), moins épais (4,2 m à sa base) et moins haut (7 m au maximum) et son contrefort est cette fois très nettement décalé vers la rive droite pour se trouver dans l'axe du thalweg antique, point le plus fragile de l'ouvrage. L'appareil des parements est semblable à celui du deuxième état du barrage précédent; le parement aval, lui-aussi échelonné, se caractérise cependant par la présence, à mi-hauteur, d'une assise principalement composée de grands blocs à bossage de remploi provenant des bâtiments antiques d'Umm al-Walīd. Les éléments décrits précédemment—deux exutoires à vannes, un déversoir, une canalisation sur le couronnement—existent aussi et sont construits de la même façon. En outre, quelques réaménagements sont effectués alors que la retenue est déjà passablement comblée par les alluvions; en effet, l'un des exutoires est condamné et l'autre voit son ouverture amont pourvue d'un canal maçonné d'amenée d'eau aménagé en tranchée dans les sédiments. Sur la face aval, le même exutoire est doté, peut-être dès l'origine, d'un petit plan incliné, qui soit servait de support à un départ de canal, soit laissait l'eau s'écouler plus ou moins librement en contrebas (FIG. 9).

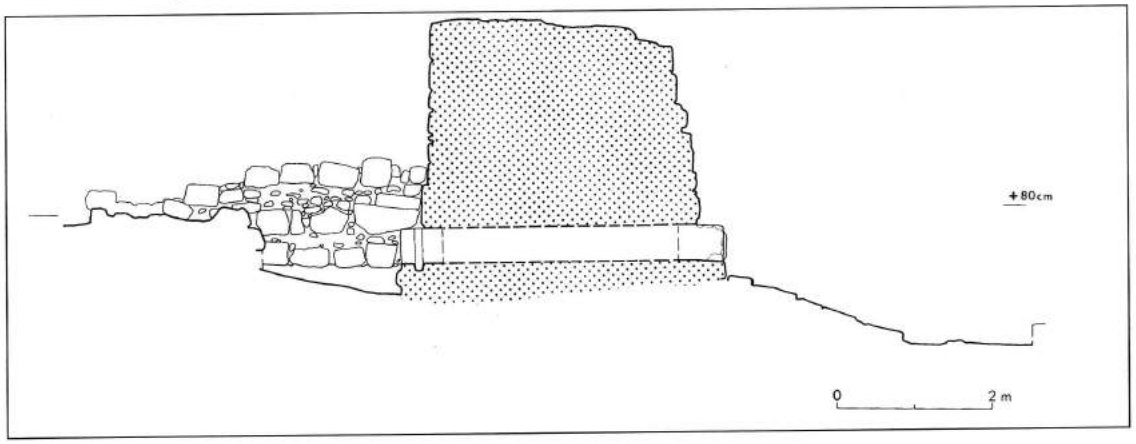


7. Plan du barrage aval et des bâtiments.



8. Vue du barrage aval depuis la rive droite en aval. Le déversoir se trouve au premier plan et les bâtiments dans le coin supérieur droit.

Des murets de protection contre un alluvionnement important de la retenue sont également construits sur les flancs de la vallée et ne sont interrompus qu'à faible distance du barrage amont. L'observation du même type d'aménagements en dessous du barrage aval se laisse moins bien expliquer. Peut-être ne servaient-ils qu'à dél-



9. Barrage aval. Coupe à l'emplacement de l'un des exutoires; en amont (à gauche) se trouvent les murs formant un canal dans les alluvions et en aval (à droite) le plan incliné pour l'écoulement de l'eau.

imiter une zone cultivée?

Il faut encore noter que le barrage aval présente en son centre une brêche, longue d'une quarantaine de mètres, attribuable à l'action conjointe de l'érosion et des infiltrations dans la maçonnerie après son abandon.

Le mobilier récolté aux alentours de ce second barrage, tant en surface que dans la fouille du pressoir adjacent, est datable exclusivement des premiers temps islamiques et assure une construction de celui-ci durant la période omeyyade, ce que son plan très proche du précédent laissait entendre. Par ailleurs, les nombreuses analogies dans les techniques de construction de ce barrage, du renforcement du précédent et du *qaṣr* oriental d'Umm al-Walīd, assurent la contemporanéité des trois chantiers.

La fonction de ces barrages, dans une région qui ne reçoit guère plus de 200 mm de pluie par année,[10] est de créer des réserves d'eau à même d'être utilisées durant la saison sèche. La présence des exutoires prolongés par des départs de canaux permet de reconnaître l'existence, immédiatement sous les barrages, de deux secteurs irrigués. De par les contraintes topographiques, les surfaces utilisables pour une irrigation directe n'ont pu dépasser respectivement 1,6 et 3,7 hectares. L'eau y était vraisemblablement répartie par des canaux en terre. A côté de cette irrigation directe, on ne peut pas exclure une utilisation de l'eau, par portage, pour des cultures placées sur les flancs de la vallée.

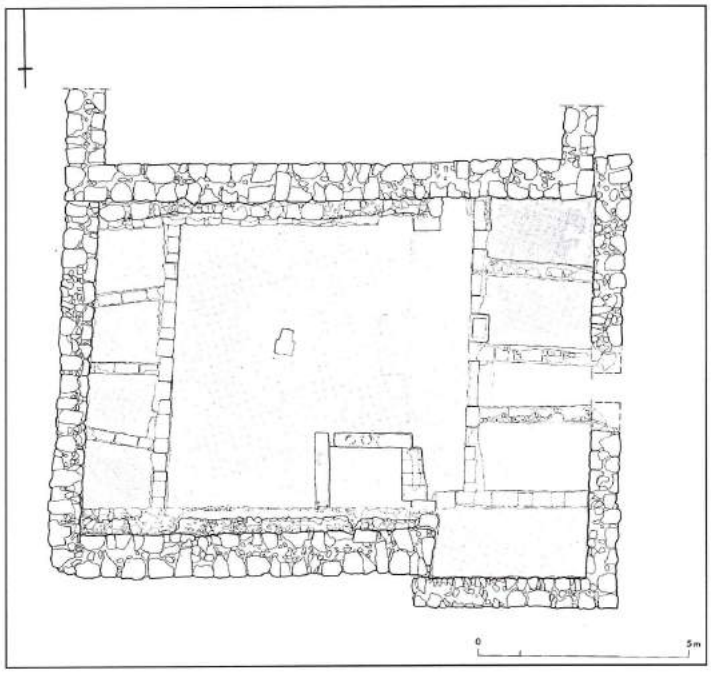
Quant à la place de ces ouvrages dans l'histoire du génie civil, on remarquera que si la mise en oeuvre des matériaux est héritée des barrages plus anciens du Proche-Orient, tel celui de Harbaqa,[11] la manière dont ils ont été conçus, avec des exutoires pour une irrigation directe à proximité, paraît nouvelle et caractérise un groupe d'ouvrages d'époque omeyyade qui comprend, en plus de ceux du Wādī al-Qanāṭir, celui de al-Qasṭal[12] et celui du jardin de Qaṣr al-Ḥayr Ouest.[13]

Le pressoir

A côté de l'une des extrémités du barrage aval et contemporain de celui-ci, se trouve un groupe de bâtiments composé de deux ensembles distincts (FIG. 7). Le premier, à l'est, s'organise autour d'un édifice primitif subdivisé en deux pièces, contre lequel sont venus successivement s'ajouter les murs fermant une cour, puis un édifice de plan identique, mais d'orientation inversée. Tous les murs sont construits en appareil à double parement, à l'aide de gros moellons juste dégrossis et jointoyés avec de la terre; les couvertures étaient assurées par des charpentes plates recouvertes de terre argileuse. En l'absence d'indice permettant d'attribuer une autre fonction à ces édifices, nous proposons d'y voir deux unités domestiques.

Le second ensemble, à l'ouest, est plus intéressant. Le premier bâtiment construit est divisé en trois parties d'égales dimensions, soit une cour flanquée de deux pièces. De construction semblable aux précédents, ce bâtiment a toutefois un aspect plus soigné car ses parois intérieures étaient recouvertes d'un enduit de mortier. C'est contre son mur sud qu'a été édifié le pressoir à vin, agrandi dans un deuxième temps.

Le pressoir, dans son premier état, est partiellement excavé et entièrement voûté en berceau. Cette vaste pièce, accessible par quelques marches et au sol recouvert d'une mosaïque de grosses tesselles blanches, était destinée au foulage, qui se faisait à même le sol, et au pressurage des raisins[14] (FIGS. 10 et 11). Au centre de la pièce, une



10. Plan du pressoir.

10 Les données pluviométriques dont nous disposons proviennent de la station de Zīzīa: D. M. al-Eisawi, «Vegetation in Jordan», *SHAJ* II, 1985, p. 47.

11 D. Schlumberger, *Qasr el-Heir el-Gharbi*, Paris, 1986, p. 2-3. Harbaqa n'est bien entendu pas le seul ouvrage que l'on peut citer comme parallèle, de nombreux autres exemples sont recensés dans: G. Garbrecht (ed.), *Historische Talsperren*, Stuttgart, t. 1, 1987; t. 2, 1991 et Y. Calvet et B. Geyer, *Barrages antiques de Syrie*, Lyon, 1992.

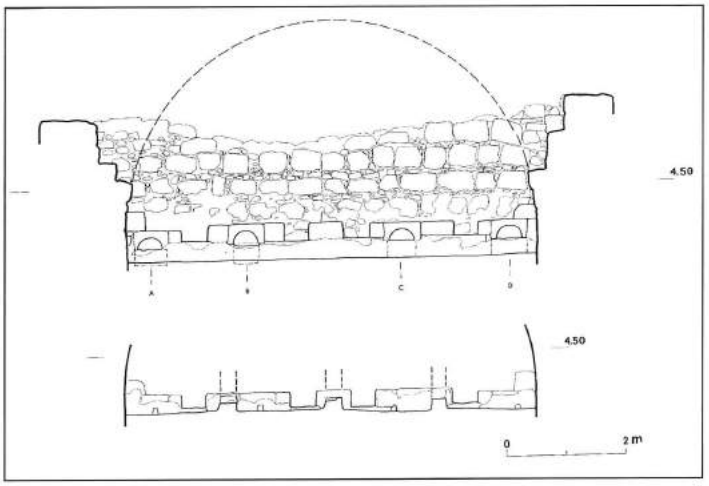
12 Observation personnelle.

13 D. Schlumberger, *op. cit.*, p. 5.

14 Sur la fabrication du vin dans l'Antiquité voir: R. Billiard, *La vigne dans l'Antiquité*, Lyon, 1913 et A. Tchernia, «La vinification des romains», *Le vin des Historiens*, G. Garrier (ed.), Suze-la-Rousse, 1990, p. 65-74.
Sur les pressoirs à vin, parmi une littérature abondante, voir en particulier: M.-C. Amouretti et J.-P. Brun (eds.), *La production du vin et de l'huile en Méditerranée. Oil and Wine Production in the Mediterranean Area*, Athènes, 1993 (BCH suppl. XXVI); sur le fonctionnement des pressoirs de l'Antiquité tardive du même type que celui du Wādī al-Qanāṭir, on se reportera, bien que nous n'admettions pas tous les détails de leur démonstration, à l'article de I. Roll et E. Ayalon, «Two Large Wine Presses in the Red Soil Regions of Israel», *PEQ*, 130, 1981, p. 111-125.



11. Vue générale du pressoir; à l'arrière plan, les entrepôts du premier état.



12. Pressoir. Coupe transversale à l'emplacement du refend séparant le fouloir des entrepôts du premier état. En haut: vu depuis le fouloir; en bas: vu depuis les entrepôts.

pierre d'ancrage dans laquelle est taillée une grande mortaise au profil en queue d'aronde servait à encastrer la base de l'axe vertical d'un pressoir à vis directe. La cuve, d'une contenance de 4500 litres, dans laquelle le moût pouvait s'écouler directement après les deux opérations est placée dans un des angles. Quatre petits locaux destinés à entreposer les grappes avant qu'elles ne soient foulées bordent le fouloir; leurs sols sont également recouverts d'un pavement de mosaïque. Chacun de ces locaux dispose d'un système de récupération de la mère goute, soit le moût issu des raisins écrasés sous leur propre poids;[15] ce sont, au bout de courtes conduites, des bassins placés sous des niches dans l'épaisseur du mur de refend (FIG. 12). Toutes les parois intérieures de l'édifice sont recouvertes par deux ou trois couches d'un enduit étanche de mortier cendreux. La seule incertitude que nous ayons quant au processus de fabrication du vin dans cette installation est le lieu de la fermentation; celle-ci a pu se faire soit à même la cuve, ce qui ne va pas sans poser des problèmes d'organisation en cas de fort rendement, soit dans des jarres à l'intérieur d'un autre local.

L'agrandissement du pressoir passe par la destruction de sa façade orientale, où se trouvait l'entrée, afin de permettre la construction de quatre entrepôts supplémentaires pour garder les raisins; à cela s'ajoute un couloir d'accès, dont le sol n'est pas recouvert par une mosaïque, mais par une chape de mortier. La couverture de ces locaux était assurée par une charpente plate, recouverte de terre argileuse, qui reposait sur les nouveaux murs et sur un arc remplaçant la façade primitive détruite (FIG. 13). L'emplacement de cette dernière est toutefois resté marqué de manière très nette sur la mosaïque du fouloir qui présente encore la bordure de trois lignes de tesselles parallèles qui longeait l'ancienne façade.

La construction de ce pressoir remonte à la première moitié du VIIIe siècle. Comme pour les barrages, cette datation est assurée par la céramique récoltée durant la fouille - datable exclusivement du début de l'ère islamique - et par les techniques de construction qui sont extrêmement proches de celles du *qaṣr* oriental d'Umm al-Walīd. L'édification du pressoir, des bâtiments adjacents et du barrage aval sont très probablement à regrouper dans un seul et même grand chantier.

D'un point de vue technique, ce pressoir s'inscrit cependant dans la tradition byzantine. De nombreuses installations du même genre ont été documentées pour les Ve, VIe et VIIe siècles, tant en Jordanie[16] qu'en Palestine.[17] Le pressoir proprement dit est du même type que ceux représentés sur les mosaïques des églises des Saints Lot et Procope et de Saint Georges à Khirbat al-Mukhayyaṭ,[18] ainsi que de l'Evêque Serge à Umm ar-Raṣāṣ,[19] toutes datées du VIe siècle. Toutefois le contexte purement islamique dans lequel il est construit nous entraîne à constater une persistance de ces installations durant la période omeyyade, ce que le site d'Umm as-

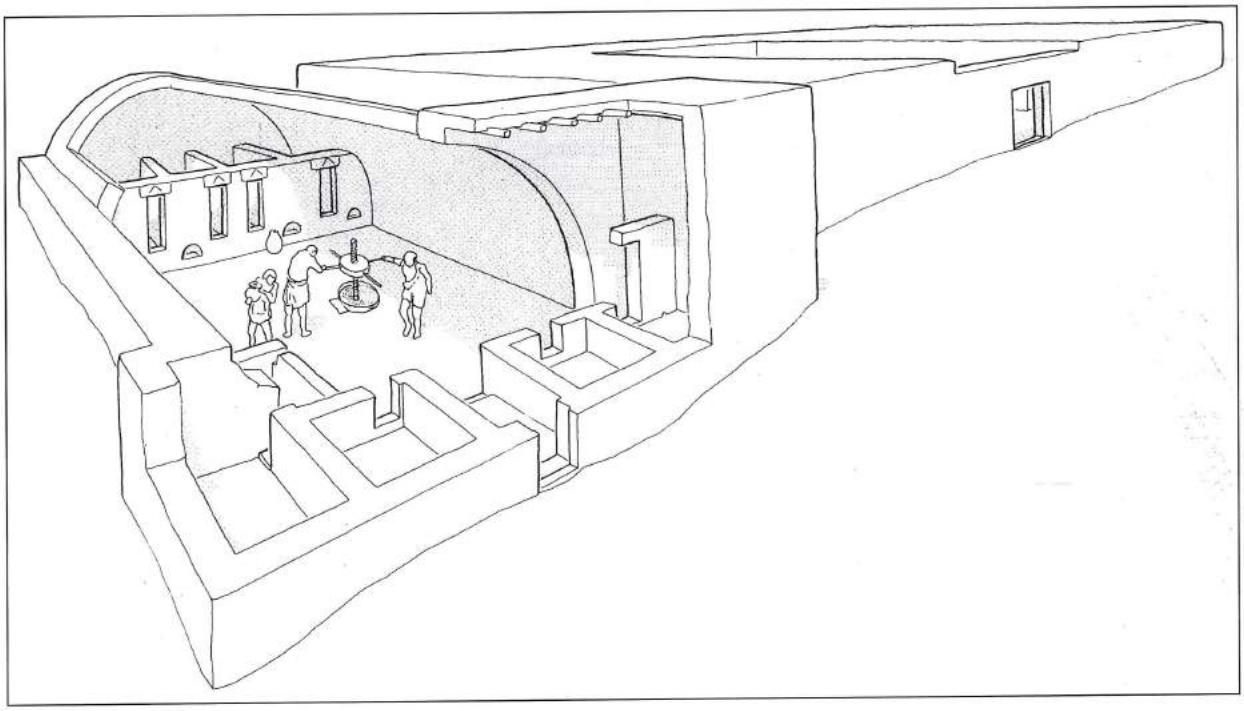
15 Pline l'Ancien (*Naturalis historia*, XIV, 85) et les Géoponiques (Florentinus, VI, 16, 1) recommandent l'emploi de la mère goutte pour la fabrication d'un vin doux; ils l'appellent respectivement *protropum* et προχυμα.

16 S. J. Saller, *The Memorial of Moses on Mount Nebo*, Jerusalem, 1941, p. 193-195; F. Zayadine, «Recent Excavations and Restorations of the Department of Antiquities (1979-1980)», *ADAJ*, 25, 1981, p. 341; H. al-Ta'ani, «A Wine Press in the Village of Qom/Irbid», *ADAJ*, 39, 1995, Arabic Section, p. 21-28.

17 I. Roll et E. Ayalon, « Two large Wine Presses... », *op. cit;* Y. Hirschfeld, « Ancient Wine Presses in the Park of Aijalon », *IEJ*, 33, 1983, p. 207-218; G. Davidson-Weinberg, *Excavations at Jalame. Site of a Glass Factory in Late Roman Palestine,* Columbia, 1988, p. 11-15; Y. Hirschfeld et R. Birger-Calderon, « Early Roman and Byzantine Estates near Caesarea », *IEJ*, 41, 1991, p. 81-111.

18 M. Piccirillo, *Mosaics of Jordan*, Amman, 1993, fig. 206, p. 158; S. J. Saller & B. Bagatti, *The Town of Nebo (Khirbet el-Mekhayyat)*, Jerusalem, 1949, pl. 24/1.

19 M. Piccirillo *op. cit.*, fig. 334, p. 208.



13. Pressoir. Reconstitution du deuxième état.

Summāq, au sud de 'Ammān, avait déjà laissé entendre.[20]

Conclusion

Le site du Wādī al-Qanāṭir, dont l'étendue des terres cultivables à proximité des réserves d'eau est de l'ordre de 150 ha, doit être interprété comme une vaste exploitation agricole vouée à la culture de la vigne, mais très certainement aussi à celle des céréales et d'autres cultures vivrières. Il paraîtrait en effet quelque peu disproportionné que vu l'ampleur des travaux réalisés dans le *wādī*, seules les petites surfaces soumises à une irrigation directe aient été mises en culture. Sa relation de dépendance avec Umm al-Walīd, seule implantation d'importance dans la région durant les débuts de l'ère islamique, est évidente et on peut même y voir une structure d'exploitation de type latifundiaire. Effectivement, la structure du site et plus particulièrement l'investissement nécessaire à l'aménagement du *wādī* ne nous autorisent guère à y voir l'initiative d'une communauté villageoise. D'autres réalisations de ce genre existent par ailleurs pour l'époque omeyyade, en particulier le "jardin" de Qaṣr al-Ḥayr Ouest[21] et, à une échelle plus petite, l'enclos agricole de Qaṣr al-Ḥallābāt;[22] les structures n'y sont pas exactement pareilles, mais l'inspiration en est la même. Enfin, les édifices d'Umm al-Walīd mis en relation avec ceux du Wādī al-Qanāṭir, surtout par le biais des analyses des maçonneries, nous permettent de mieux envisager les raisons du développement d'un site omeyyade où se côtoient plusieurs qusur ayant apparemment les même fonctions. Les liens qui peuvent être faits entre les différents bâtiments incitent à envisager une première implantation comprenant le *qaṣr* central et la première mosquée, ainsi que le barrage amont du Wādī al-Qanāṭir, soit la création d'une exploitation agricole d'une certaine importance. La construction du *qaṣr* oriental, de la seconde mosquée, du barrage aval et du pressoir, ainsi que le renforcement du barrage amont, paraissent, eux, résulter de la volonté de renforcer notablement cette exploitation en dédoublant ses structures et en installant probablement des familles ou clans supplémentaires.

20 W. Rashdan, « Um es Summaq », *Archaeology of Jordan II* 2, D. Homès-Fredericq et J. B. Hennessy (eds.), Leuven, 1989, p. 616-621.

21 D. Schlumberger, *op. cit.*, p. 4-5.

22 G. Bisheh, « The Second Season of Excavations at Hallabat 1980 », *ADAJ*, 26, 1982, p. 133-143.

Michal Gawlikowski
University of Warsaw
Poland

Michal Gawlikowski

From Decapolis to al-Urdunn: The Cities of Jordan in the Early Islamic Times

Hints of continuity of settled life in major Roman cities of Jordan can be already found in the Arabic sources of the Abbassid period. Recent excavations bring systematically new proofs of such continuity in Jordan and, less conspicuously, in Bilād ash-Shām in general. It is already clear that the transfer of the seat of government to Baghdad did not affect immediately the city life. It seems, however, that a break took place some time during the ninth century. Is this time limit just another fallacy due to our inadequate knowledge of pottery? The shrinking of Christian communities about that time could be a major factor of change in the settlement pattern.

The starting point of this paper is of course my own experience in the 'Jerash International Project' in 1981-83, which has revealed to me the importance of the Islamic phase in the history of this city and of Bilād ash-Shām in general. Ever since, this interest in a field that was before quite alien to me stays very much alive. It was a gratifying surprise to see that about the same time several other scholars, usually Islamic specialists in the first place, found parallel evidence on other sites in Jordan and elsewhere. Unexpectedly, the problems I have met in Jarash appeared to be in the mainstream of research of the last ten years or so.

The previous great excavation program in the 1930s revealed Jarash as a Byzantine site, with a dozen churches and other eloquent evidence of flourishing in Late Antiquity (J. W. Crowfoot in Kraeling 1938: 171-262). Only half a century later it became clear that ancient Gerasa continued for quite a while as Jarash under the Caliphs.

It is probably impossible for archaeologists, as for anybody else, to detach themselves entirely from the common knowledge of their own time and its prejudices. One should not blame the Kraeling team for not being able to look at what they have found with our eyes. The idea of decline attached to the then current view of the Islamic conquest and the end of the ancient world was so deeply entrenched that the archaeologists interpreted the uppermost layers as Byzantine without a shred of doubt, while expressing some surprise that these layers contained Islamic coins. I do not think this attitude should be explained merely as a reflection of contemporary political situation of the Near East, at least not directly. Our older colleagues had received a much more thorough Classical education than is generally available now and adhered very strongly to the values of this education. If the post-modernist climate of our time allows us to appreciate better other civilisations (and this is a great gain), we do pay a price for it, too.

Some excellent authorities affirm that the transformation of *polis* to *madina* is basically a phenomenon of the sixth century AD, in other words that it was mostly completed before Constantinople lost its sway over Bilād ash-Shām (Kennedy; Haldon). The decline of cities would be thus a hard fact to remain, but no more to be laid at the door of the conquering Islam. The archaeological evidence available does not seem, however, to support this view. The plague, earthquakes, and mass deportation experienced by many cities of the Near East in the sixth century did cause, of course, a serious damage, but there is no proof that the effects were long-lasting.

The city of the sixth century was naturally very different from the Early Roman one. Not only there were no more temples and there were many churches instead, but the social and political changes of the time brought about the demise of the urban upper class responsible for the local self-government and for embellishing of the city with monumental buildings. Still, the inherited urban network has largely survived, some major monuments still standing and the colonnaded streets still largely open. For quite a while after the Conquest, the majority remained Christian, and the general aspect of old cities remained as before. The Muslims settled mainly in the newly founded *amṣār* (Whitcomb 1994a; 1994b), and their interference in the existing cities, while confirmed by a few well-known cases, should have been at the beginning marginal.

The only remains conceded by the Kraeling team to

the Islamic period in Jarash were "squats" in the middle of the main street and on the Oval Plaza, removed without regret or record. Judging from recent finds in Palmyra (As'ad and Stepniowski), they were rather the remains of a *sūq* installed about the end of second/eighth century by a urban community perhaps condensed in space but prosperous enough to expand economically (FIG. 1). Shops in the middle of the main street and not only along it, meant more shops than before, even if the monumental aspect of the city was neglected because it was no longer appreciated. The Islamic city in general was dominated by the merchants and their middle-class values, and no more a landed aristocracy of Roman times. This change, with its corrolaries in the legal frame and custom, is a clear result of the Conquest and of the new civilisation taking shape in the course of the first one hundred years or so of the new regime.

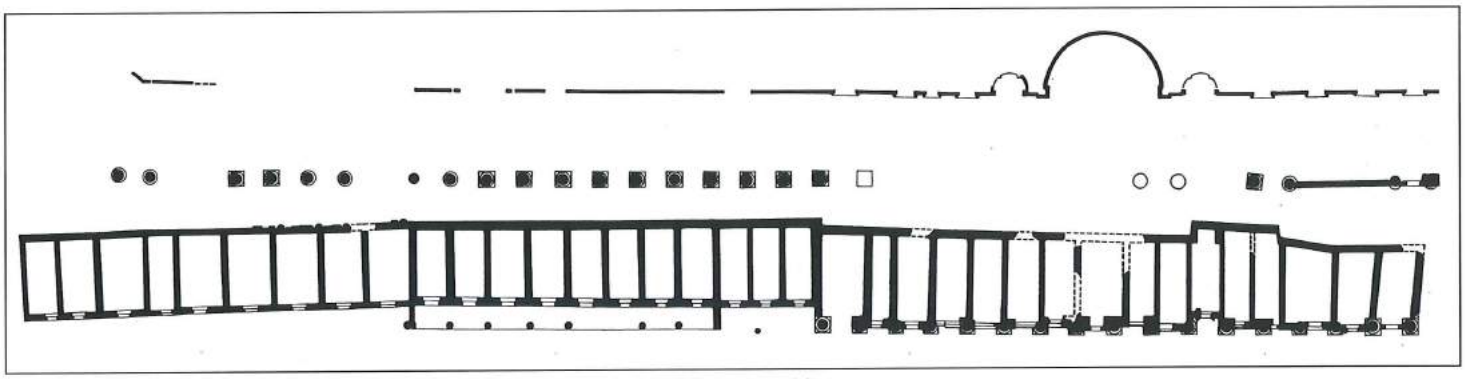
When the Jarash Project started, the commonly accepted paradigm for later pottery in Jordan was the 1973 study of Jim Sauer conceived for the dig at Ḥisbān. The great novelty of this schema was the affirmation that the latest assemblages found on major ancient sites all over Jordan should be assigned to the Umayyad period and were abandoned about the same time as this dynasty fell (Sauer 1982: 332). The obvious historical conclusion is to attribute this abandonment to the transfer of the Caliphal capital to Baghdad. In the field, the acceptance of Sauer's scheme meant that some pottery first assigned to the Byzantine period could be reassessed as Umayyad (Gawlikowski 1992: 357).

Other results from Jarash, but also from Pella, and more recently from al-'Aqaba leave no doubt about the continuity of urban settlement up to the early 200s/800s at least. Consequently, pottery described as Umayyad should sometimes be considered Abbassid. A case in point is the site of Rujm al-Kursī, rich in artefacts dated elsewhere much later, but published as Umayyad ('Amr 1986; 1990). Even the Fatimid period begins to be fairly well represented (Schick 1997). Life went on, wherever the seat of government might be. Moreover, there is no compelling reason to use dynastic names to describe pottery, and neutral labels such as proposed by Whitcomb (1992) seem definitely better, especially if refined to match recent distinctions in the archaeological material, from Pella for instance (Walmsley 1995). Even bronze coins cannot in many cases be assigned to a dynasty, as no perceptible distinctions can be observed in those post-reform *filūs* that are undated (as most of them are) until the emissions cease some time during the third/ninth century.

It is not necessary to dwell more on the Jarash pottery, after the studies already published on the so-called Jarash bowls (Watson 1989, 1997), Jarash lamps (Scholl 1986; Gawlikowski 1995), and later pottery kilns (Falkner), even if much of the material from the Jarash Project remains unpublished. With the later specimens from al-'Aqaba we should be able soon to extend the ceramic series from the early Islamic times up to the tenth century and beyond (Whitcomb).

The survival of Christian communities, as exemplified in Jarash by some of the inscibed lamps of the 130s/740s, was recently confirmed in Umm ar-Raṣāṣ, most spectacularly by a mosaic dated to AD 756, possibly repaired as late as 785 (Piccirillo 1992; Gatier 1992). The abandonment of churches in the course of the eighth century, sometimes induced by earthquake damage, did not mark however the final days of the post-Byzantine civilisation in Jordan. As late as AD 889, al-Ya'qūbī noted that Jarash and Baysān, still considered as urban, had a mixed population. The demographic tide seems to have turned in favour of Islam about that time, possibly in connection with a Christian revolt in Ḥumṣ against al-Mutawakkil in AD 855. A century later, al-Muqaddasī speaks only of a rural district known as Jabal Jarash, depending on the city of Dar'a.

It seems that the perpetuation of ancient cities remained in those parts linked with the survival of the Byzantine tradition and that the city life died out there more or less in the same time as Christianity became marginal. A similar picture seems to result from my recent research in Palmyra. A quarter of the city situated in the ancient centre was inhabited without interruption until the early



1. The late use of the main thoroughfare of Palmyra (after As'ad and Stepniowski).

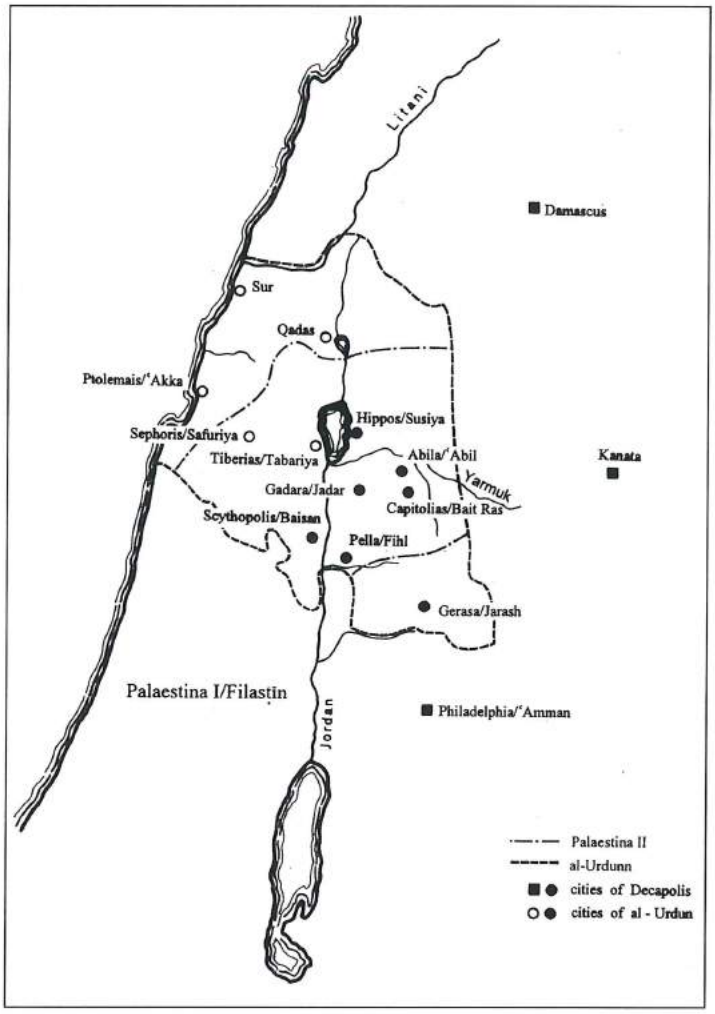
ninth century, when it was abandoned; three churches were known up to date in the area, very close to each other. The last known bishop of the place was ordained about AD 818.

Last autumn, we excavated yet another church in Palmyra (Gawlikowski 1998). It was built using a large amount of blocks scavenged from earlier buildings. Among them, one flagstone bears a Kufic inscription apparently of the later Umayyad period, which could hardly have been inscribed while already in the church. Allowing even a short time for the decay of the original structure, our church must be dated in the later eighth century, shortly before abandonment.

Needless to say, one should think twice before jumping to conclusions. Our evidence is fragmentary and scattered, and cannot be directly relevant to facts of political and religious history. It remains that whenever an ancient site surviving into the Islamic period was investigated, the occupation appears to cease, or to diminish greatly, in the early third/ninth century. It is so at Jarash, Ṭabaqat Faḥl/Pella, Bayt Rās, Umm al-Jimāl, Tadmur/Palmyra, Afāmia, and at Dāḥis in Northern Syria.

A resettlement of the population of these cities, either in a citadel on the site (Qal'at al-Maḍīq at Afāmia, the converted Bel temple at Palmyra), or throughout the countryside, could have resulted from some economic reasons we cannot really grasp (Gawlikowski 1997). However it might be that there was no sudden decline of city life immediately following the Islamic takeover. Contrary to the "Pirenne thesis" (Hodges-Whitehouse 1983), some cities of Bilād ash-Shām developed dense *aswāq* on their ancient thoroughfares, reflecting a vitality of trade perhaps even greater than before. It is only to be expected that the prosperity was shared by the inhabitants of the entirely Muslim *amṣār*. However, there is not much evidence for the ninth century from these new sites, to say nothing of the great centres prospering to this day, such as Damascus, Ḥumṣ or Aleppo.

In fact, the perpetuation of the city life ran parallel with the maintenance of the Byzantine administrative frame. The *jund* of al-Urdunn, for instance, represents an extension of the Late Roman province of Palaestina Secunda (FIG. 2), adding to it Jarash, 'Akka/Acco and Ṣūr/Tyre, but possibly covering more closely a hypothetical short-lived theme introduced by Heraclius (Shahid 1997). Of the thirteen cities quoted by Ibn Khurdadhbih in 846/847 as belonging to al-Urdunn, five were already listed by Plinius the Elder eight centuries earlier as belonging to the Decapolis, and two more appear as being part of the Decapolis in the second century. Other cities of the Decapolis were beyond the limits of the *jund*, while other cities of al-Urdunn were already famous in Antiquity as well: Tyre, Acco, Tiberias, Sephoris. Even the obscure Qadas appears in Josephus as "Kadasa of the Tyrians".



2. The relation of al-Urdunn to Palaestina Secunda.

In the first half of the third/ninth century, then, the urban frame of the northern Jordan remained the same as it used to be in Roman times. *Byzance après Byzance*, as Irfan Shahid (1997) has called the administrative organisation of Bilād ash-Shām in the first/seventh century, modelled according to him after a recent Byzantine innovation, seems to me to have been more flesh-and-blood. The Christian society of Late Antiquity continued to live on for two centuries, slowly shrinking and adapting, before it merged into the Islamic civilisation of later ages.

Bibliography

'Amr, A.-J. 1986. Umayyad Painted Pottery Bowls from Rujm al-Kursi. *Berytus* 34: 145-160.

——1988. Shallow Umayyad Painted Pottery Bowls from Rujm el-Kursi Excavations. *ADAJ* 32: 247-254.

——1990. Handmade Umayyad Bowls with Excises Decorations from Rujm al-Kursi. *Berytus* 38: 171-177.

As'ad, K. and Stepniowski, F. 1989. The Umayyad Suq in Pal-

myra. *DaM* 4: 205-223.

Barnish, S. 1989. The Transformation of Classical Cities and the Pirenne Debate. *JRA* 2: 385-400.

Gatier, P.-L. 1992. Les inscriptions grecques d'époque islamique (VIIe-VIIIe siècles) en Syrie du Sud. Pp. 145-157 in P. Canivet and J.-P. Rey-Coquais (éds.), *La Syrie de Byzance à l'Islam. VIIe-VIIIe siècles.* Damas: Institut français.

Gawlikowski, M. 1995. Arab Lamp-Makers in Jarash, Christian and Muslim. Pp. 669-672 in *SHAJ* V. Amman: Dept. of Antiquities.

——1997. The Oriental City and the Advent of Islam. Pp. 339-350 in G. Wilhelm (ed.), *Die orientalische Stadt.* Kontinuität, Wandel, Bruch, Saarbrücken.

——1998. Palmyra 1997. *Polish Archaeology in the Mediterranean* 9: 197-211.

Haldon, J. F. 1990. *Byzantium in the Seventh Century.* Cambridge.

Hodges, R. and Whitehouse, D. 1983. *Mohammed, Charlemagne & the Origins of Europe.* Ithaca: Cornell University.

Kennedy, H. 1985. From Polis to Medina: urban change in late antique and early Islamic Syria. *Past and Present* 106: 3-27.

Kraeling, C. H. 1938. *Gerasa City of the Decapolis.* New Haven, Conn.: ASOR.

Northedge, A. 1994. Archaeology and New Urban Settlement in Early Islamic Syria and Iraq. Pp. 231-247 in G. R. D. King and A. Cameron (eds.), *The Byzantine and Early Islamic Near East*, II. Princeton.

Piccirillo, M. 1992. Les problèmes résolus et les questions posées par les trois premières campagnes de fouilles à Umm er-Resas- Kastron Mefaa. La fin de la civilisation urbaine en Jordanie. Pp. 343-346 in *SHAJ* IV. Amman and Lyon: Dept. of Antiquities and Maison de l'Orient.

Sauer, J. A. 1982. The Pottery of Jordan in the Early Islamic Times. Pp. 329-337 in *SHAJ* I. Amman: Dept. of Antiquities.

Schick, R. 1997. Southern Jordan in the Fatimid and Seljuq Periods. *BASOR* 305: 73-85.

Scholl, T. 1986. The Chronology of Jerash Lamps. A preliminary Report. Pp. 163-166 in F. Zayadine (ed.), *Jerash Archaeological Project* I. Amman: Dept. of Antiquities.

Shahid, I. 1994. The Umayyad Ajnād. Byzance après Byzance. *ARAM* 6: 1-11.

Walmsley, A. 1992. Fihl (Pella) and the Cities of North Jordan during the Umayyad and Abbassid Periods. Pp. 377-384 in *SHAJ* IV. Amman and Lyon: Dept. of Antiquities and Maison de l'Orient.

Watson, P. M. 1989. Jerash Bowls: Study of a Provincial Group of Byzantine Decorated Fine Ware. Pp. 223-261 in *Jerash Archaeological Project* II. Paris: Dept. of Antiquities and IFAPO.

——1994. Pictorial Painting on Pottery and its Demise in the mid-7th century AD: The Case of the Jerash Bowls. *ARAM* 6: 311-332.

Whitcomb, D. 1989. Mahesh Ware: Evidence of Early Abbasid Occupation from Southern Jordan. *ADAJ* 33: 269-286.

——1992. Reassessing the Archaeology of Jordan of the Abbassid Period. Pp. 385-390 in *SHAJ* IV. Amman and Lyon: Dept. of Antiquities and Maison de l'Orient.

——1994a. The *Miṣr* of Ayla: Settlement at al-'Aqaba in the Early Islamic Period. Pp. 155-170 in G. R. D. King and A. Cameron (eds.), *The Byzantine and Early Islamic Near East.* Princeton.

——1994b. Amṣār in Syria? Syrian Cities after the Conquest. *ARAM* 6: 13-33.

Falkner, R. 1994. Jordan in the Early Islamic Period. The Use and Abuse of Pottery. *Berytus* 41: 39-52.

Antonio Almagro
Escuela de Estudios Arabes, CSIC.
Granada - Spain

Ignacio Arce
Spanish Archaeological Mission
Amman - Jordan

Antonio Almagro and Ignacio Arce

The Umayyad Town Planning of the Citadel of 'Ammān

The City Walls and Gates of the Citadel

Our current knowledge regarding the citadel of 'Ammān during the Umayyad period has considerably increased thanks to the recent excavations and investigations carried out, which despite the fact that they were not excessively extended, have allowed us to increase, in particular, our knowledge concerning its town planning organization.

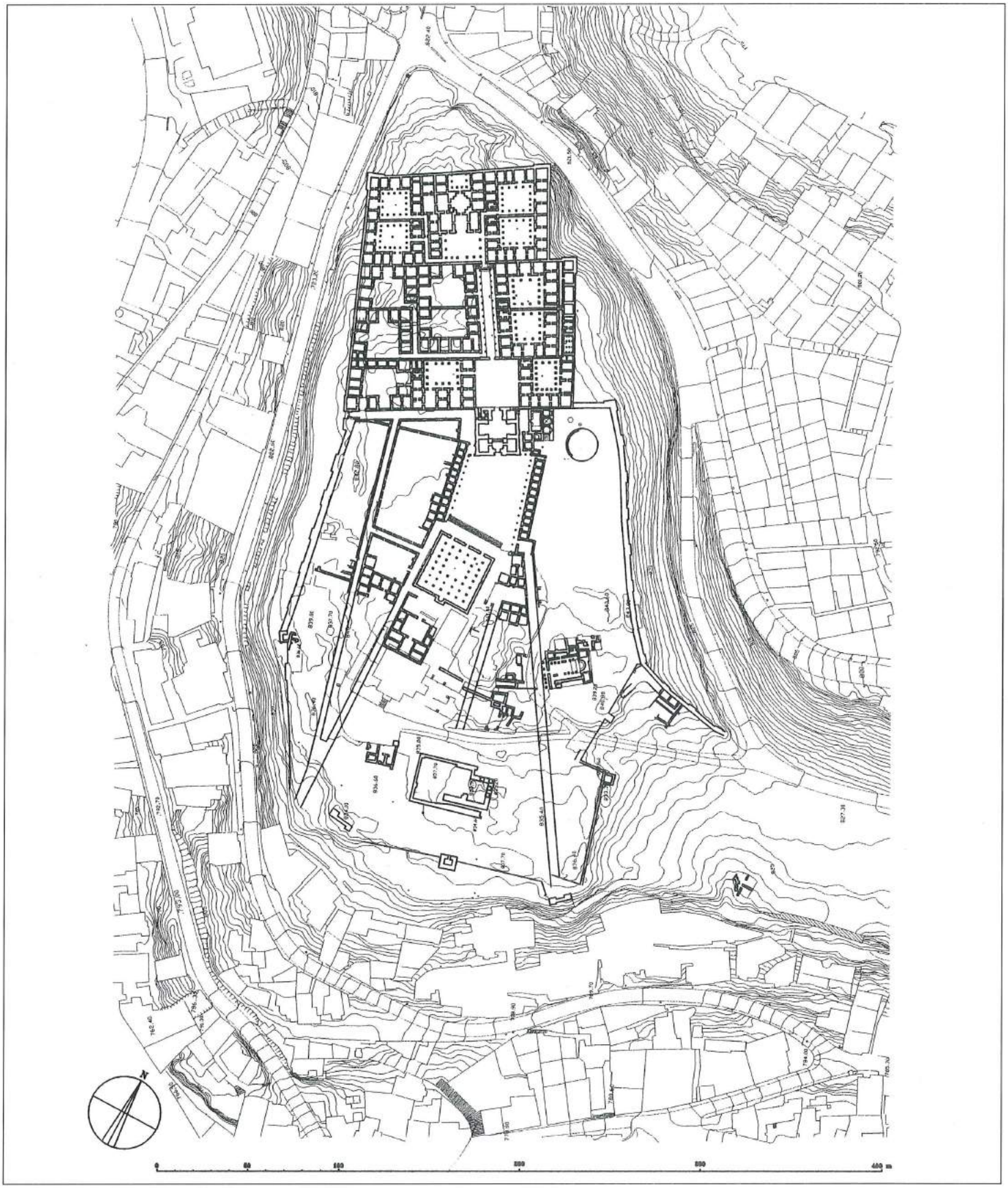
The excavations and studies carried out by C. Bennett and A. Northedge in the 1970s (Northedge 1992), revealed important information on the citadel's defense system and on some of the residential areas inside. In his monograph on 'Ammān in Islamic times, Northedge outlines some features of the street structure that the excavations he had carried out with C. Bennett had brought to light. All this information has currently been far surpassed both in terms of the city wall system and the street structure of at least the upper terrace of the citadel (FIG. 1).

The soil removal carried out at the eastern and western slopes of the citadel during the last two years by the Department of Antiquities has allowed the identification of the perimeter of the citadel in the Umayyad period, while showing that those limits certainly remained like in Roman times at least in the north extreme, although the Ammonite city spread out over a considerably bigger area and reached lower levels of the hill. The Umayyad citadel, which was inhabited by a Muslim elite and undoubtedly coexisted with a lower city that kept on being center of many activities, was defined by a clear perimeter set by the walls and by a town plan which, in spite of its reliance upon earlier structures, was radically transformed.

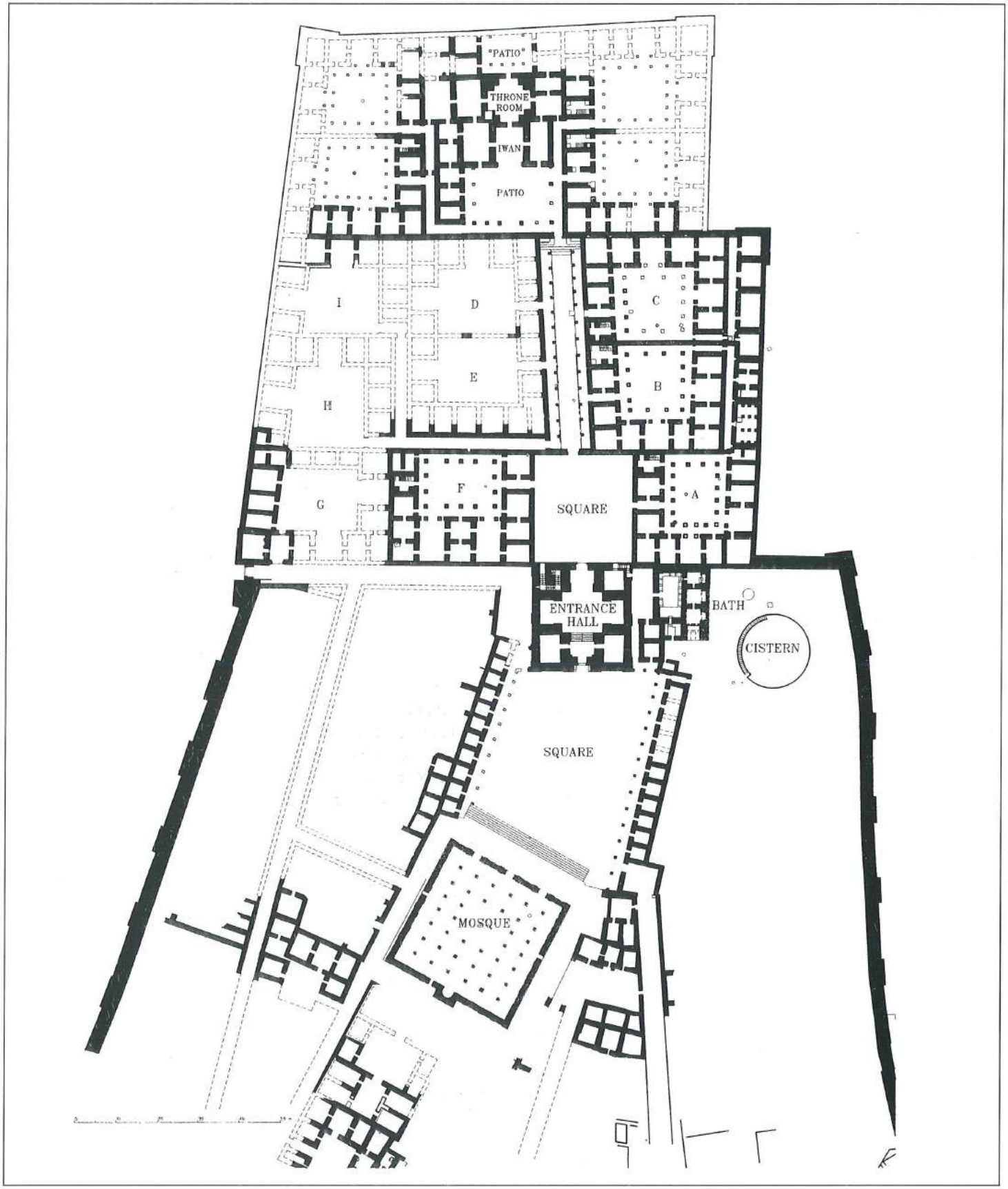
At the north extreme of Jabal al-Qal'a, the large structure of the Roman temenos served as the perimeter for the new *qaṣr* and suffered only slight modifications, in order to rebuild part of those structures which certainly were almost in a state of ruin at the beginning of the eighth century. At the rest of the citadel, an important defense system was built, composed of an enclosing wall with solid towers which had very little exterior projection. This wall, although it has later important reinforcements, is to be dated to the Umayyad period. The western gate, which is situated exactly on the southern edge of the Roman temenos (FIG. 2), is undoubtedly contemporary to the wall, despite the fact that the northern flank of the gate is the Roman tower on the southwest corner of the temenos. However, the south side of the gate is similar to those on the wall leading towards the south and therefore they must be contemporary.

In Umayyad times, the citadel had another gate which permitted access to the temenos of the Temple of Hercules, on the southeastern corner of the upper terrace. Through the today disappeared propylaeus, documented by Conder and Butler (Conder 1889: 37; Butler 1907: 44), and through a large staircase, access was gained to a gate built in Roman times and later transformed by the Umayyads, who made it narrower (Northedge 1983: 453; Wood 1992: 114). At this gate, which was probably the main connection with the lower city, started one of the main streets of the citadel, as we will see later on.

According to the topography and the inner streets structure, we believe that another gate existed on the southwest corner of the upper terrace, although there is no evidence for it because its location has not been excavated yet (Northedge 1983: fig. 13). These three gates and the inner architectural elements are the basic features used to organize the urban structure. The two last mentioned gates appear to be pre-existing gates. The one possessing the propylaeus is clearly a preserved and reused Roman gate. A street starts at this gate and leads to the North, towards the northern Roman temenos and more exactly to the pre-Umayyad building, which was located where the entrance hall of the *qaṣr* is placed today. According to its layout, this street seems to be of the Byzantine period at least, because it passed by the church placed on the east side of the citadel, and the facade of which opened to the street.



1. The citadel of 'Ammān with its Umayyad urban layout.



2. The central and north area of the citadel in Umayyad times.

The Square and its Elements

The principal nucleus of the urban reform of the citadel was the layout of a large square located at the center of the upper terrace of Jabal al-Qal'a. This square, which presents a somewhat irregular trapezoidal plan, is laid out as an element of town planning that breaks with pre-existing structures and, at the same time, as an organizing element that defines the new function of the citadel. Its layout and form are due to the decisions adopted according to the organization of the newly created architectural elements and to the reuse of pre-existing features.

Three basic elements are laid out around this public space: the palace, the *sūq* and the mosque (FIGS. 2-6). These three elements, characteristic of any Islamic city, present an absolutely original layout regarding our current knowledge about the early Islamic cities. The mosque is located at the most important place, practically at the highest point in the citadel. In order to build it up, an over elevated artificial platform, which rested upon former structures, was made. The palace is placed opposite the mosque and the remains of a Byzantine building were reused to organize its access (Almagro 1994); this Byzantine building could have had a similar function as propylaeum of a praetorium, which might have been where the temenos of a pagan temple was. The reuse of a pre-existing building and the canonical need to turn the mosque towards south (towards Makka) established a certain unavoidable basis for the shape of the square that, in spite of this determining factors, was masterfully designed.

The *sūq* was situated on the two sides of the square which were not occupied by the above-mentioned buildings. The treatment of its structure is very simple. The most elemental and common form of construction of the commercial organization was the building of small rooms in a row, with a doorway in the front, and protected by a simple portico. This arrangement, typical since the Hellenistic and Roman periods, can be found in the first urban patterns of Islam. 'Anjar (Cresswell 1969: 478) Tadmur/ Palmyra (As'ad 1988-89) and Baysān (Bugod 1997: 80) have similar series of shops. In these cases, however, the shops are placed on streets, but not at large public spaces. 'Ammān's *sūq* shows a big contrast with well known cases such as 'Anjar, where the two main streets, flanked by porticos and shops, do not have a square. Even the small open space surrounded by shops, situated near the mosque and the main palace, is almost independently located from these buildings, and we can consider it a building with a commercial use rather than a public open area. In the cases of Baysān and Tadmur, commercial streets were organized by narrowing the ancient urban paths of the respective Roman cities. The narrowing of these paths caused them to lose of part of their splendor. At 'Ammān, as well as at 'Anjar, we can see a new town plan which, although it takes advantage of former elements and shapes, is destined to solve new concepts and urban needs.

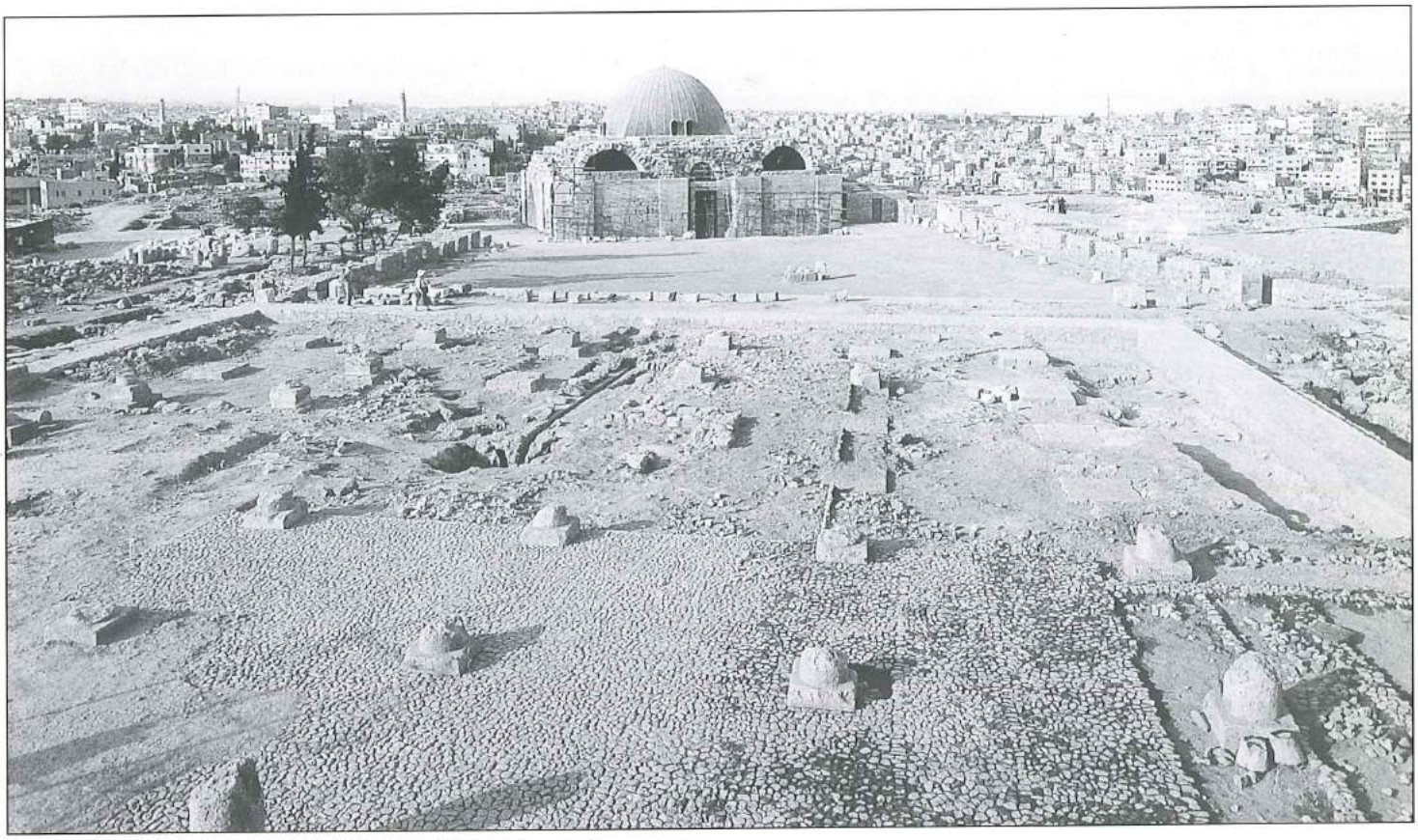
The new layout of the square makes it not only a commercial area but also and essentially the organizational nucleus of the new city. Not only were the two most important buildings or complexes situated on this square: the mosque and the palace, but also the principal streets which connected the outer wall gateways lead to the square. In this way, the new urban space plays a leading role as the center of the street network and the most outstanding feature in the urban functions of the new Muslim society.

Streets

The Umayyad city was surely constructed by taking advantage of the former street network. The main street, which starts at the south gate permitting access to the temenos of the Jupiter Temple and leading to the northern temenos, must have been constructed in Roman times or at least in the Byzantine period, because the church facade on the eastern side of the upper terrace opened onto this street. The excavations carried out by C. Bennett and A. Northedge in Area B brought to light the existence of this Byzantine street whose layout was preserved (Northedge 1992: 145). It appears probable that at that time this street lead to a building that existed prior to the Umayyad vestibule. We lack information to enable us to know the function of this Byzantine building. It may have been a monumental gate to gain access to an area intended for a praetorium or main residence, emulating the Chalke of the imperial Palace of Constantinople (Almagro 1994).

From this building, another street or avenue lead towards one of the gates of the northern wall of the supposed Roman temenos (Almagro 1983: 133). This street or avenue was paved with large slabs and had a protrusion on the sides of the path, which was later covered by an Umayyad earth floor. However, with a slight rectification of the course, this street was preserved in the Umayyad organization of the palace. There is no evidence of a pre-Umayyad layout of the street that goes along the edge of the mosque on the west side and seems to connect a supposed doorway situated at the southwestern corner of the citadel, although there is no evidence against this hypothesis either.

The pre-existence and reuse of the street network presented no obstacle to the Umayyad creation of a new urban concept, obtained by the layout of a big public space, which was the framework of the principal architectural elements of the citadel and organizational nucleus of the street network at the same time. This big space, skillfully laid out to make pre-existing elements compatible with the new layout of the buildings, inherits former architectural and urban traditions and innovates for later tran-



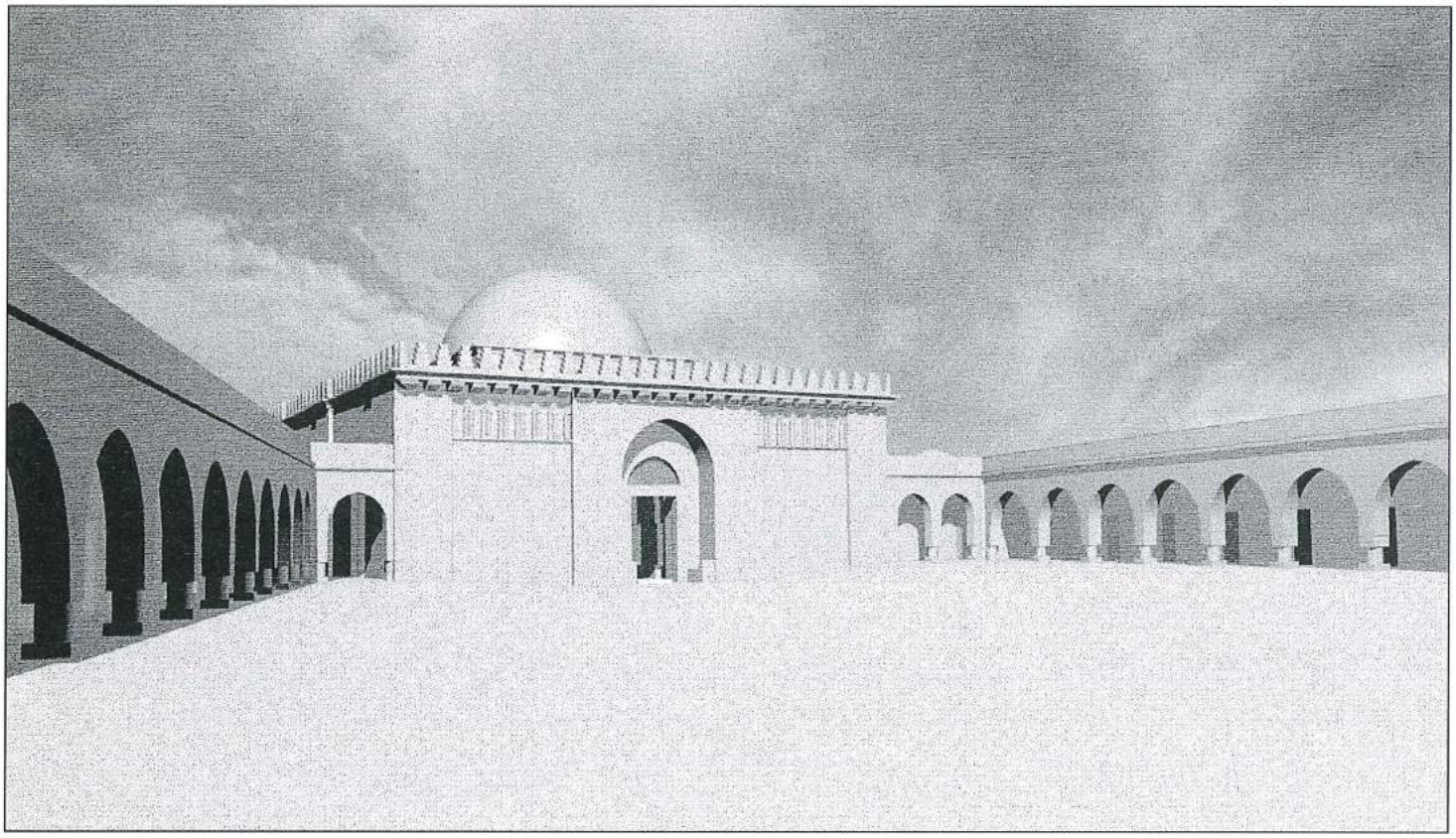
3. The mosque, the square and the entrance hall from the south.



4. The square and the mosque from the terrace of the palace entrance hall.



5. The entrance hall from the south.



6. Virtual reality reconstruction of the entrance hall and the square (image by J. A. Fernandez).

scendental architecture at the same time.

We do not know if it was intentional or rather because of the existing determining factors, but the square presents a lack of axial layouts and breaks in a sense with the Roman urban guidelines. Its systems of tangential connections with the paths leading to the square recalls the Hellenistic town planning features, even though they show evident innovations such as the bent entrance, without perspectives, not even visuals, of the square space from the streets. This concept of urban space, which is very different from the examples of new town planning such as the layouts of the newly created Umayyad cities (like 'Anjar) or the Abbasid town planning at Baghdād (Cresswell 1940: 1-18) or at the palaces of Sāmarrā' (Northedge 1993), will become very successful in Western Islam, as demonstrated in Madīnat az-Zahrā' (Almagro *et al.* 1996: 211-216), where the approaches to the large areas preceding the *qaṣr* and the big reception halls are always corner-shaped and with a bent entrance, such feature assumed by later residential architecture. On the other hand, the free movement permitted on the streets is interrupted on arriving at the square, since everything appears to indicate that there were doors to close the access, thus starting a typical layout of the Islamic *sūq*.

Functionality and Symbolism

The organization and layout of this square deserves a more detailed reflection because of its originality in comparison with other known cases of the early Islamic town planning. The layout thus far considered normal for a mosque and the Dār al-Imāra, and the examples of al-Kūfa (Cresswell 1969: 26), Damascus (Cresswell 1969: 41), 'Anjar (Cresswell 1969: fig. 540) and Baghdād (Cresswell 1940: fig. 2), is contradicted in this case. At 'Ammān the square serves as a general framework for the mosque and palace, but it is clearly separated and even situated as an arrangement rivalry. According to all traces, the *qaṣr* had a more monumental appearance thanks to its huge gate-vestibule with its splendid dome, which must have attracted great attention. In order to lessen the difference between this more splendid building and the mosque, the latter was laid out on the highest place and was highlighted by a platform with a large staircase of seven steps. The simple shapes and simple spacial concept of the mosque, were balanced by a more dominant position.

This layout establishes a clear distinction between palatine area and religious area, even though there is a large square with trading functions between them, that could share other functions or even contend for them. In moments of a great influx of believers, the square could also be used also pray when there was not enough space in the mosque. It is also very probable that the square was used to hold audiences, where the *amīr* might have used the vestibule terrace as a tribune. That would explain the existence of a large staircase at the building which could also have a ceremonial use. The square is conceived as a multi-functional space, which is also closed to increase the control of all the activities taking place: trade at the *sūq*, religious activities at the mosque and political functions regarding the *qaṣr* . At the same time, this layout establishes a clear relationship between the political, religious and economic aspects of life, and it bears a resemblance to later patterns of both utopian or even real examples of Renaissance cities, where the palace, the church and the market were laid out in urban spaces beautifully designed through the formal control of its imagery (Murray 1972: 72 figs. 89-94). In this case the building style of these two large complexes, *qaṣr* and mosque, which is clearly Oriental-Sasanian inspired, is laid out through an urban conception which is more integrated in the classic Western tradition.

References

Almagro, A. 1983. *El palacio omeya de Amman. I La Arquitectura*. Madrid.

____1994. A Byzantine Building with a Cruciform Plan in the Citadel of Amman. *ADAJ* 38: 417-427.

Almagro, A. *et alli*. 1996. Jardín n con plantas (y alzados) de papel. *Arquitectura en Al-Andalus, Documentos para el siglo XXI*. Barcelona.

As'ad, K. 1988-89. Iktishaf suq min al-'ahd al-umawi fi Tadmur. *AAAS* 38 & 39: 121-140.

Bugod, P. 1997 Escitopolis-Beit Shean. Capital de lña Decápolis helenística. *Loggia* 3: 74-81.

Butler, H. C. 1907. *Publication of the Princeton University Archaeological Expedition to Syria in 1904-1905, Div. II, Ancient Architecture in Syria*. Section A. Southern Syria. Leyden.

Conder, C. R. 1889. *The Survey of Eastern Palestine*. London.

Cresswell, K. A. C. 1940. *Early Muslim Architecture, vol. II, Early Abbasids, Umayyads of Cordova, Aghlabids, Tulunuds and Samanids, A.D. 751-905*. Oxford.

____1969. *Early Muslim Architecture, vol. I, Umayyads A.D. 622-750* (part. 1 & 2). Oxford.

Northedge, A. 1983. The Fortifications of Qal'at 'Amman (Amman Citadel): Preliminary Report. *ADAJ* 27: 437-459.

____1992. *Studies on Roman and Islamic 'Amman, Vol I: History, Site and Architecture*. Oxford.

____1993. An Interpretation of the Palace of the Caliph at Samarra (Dar al-Khalifa or Jawsaq al Khaqani). *Ars Orientalis* 23.

Murray, P. 1972. *Arquitectura del Renacimiento*. Madrid.

Wood, J. The Fortifications. In A. Northedge, *Studies on Roman and Islamic 'Amman, Vol I: History, Site and Architecture*. Oxford.

Antonio Almagro
School of Arab Studies
CSIC
Granada - Spain

Ignacio Arce
Spanish Archaeological Mission
in Jordan

Antonio Almagro and Ignacio Arce

The Umayyad Palace of 'Ammān: Stratigraphy and Restoration*

The Use of the Stratigraphic Method of Analysis in the Integrated Process of Research, Excavation, Restoration and Presentation

The use of the stratigraphic method of analysis not only to the buried deposits but also to the whole architectural remains of the Umayyad Palace of 'Ammān and its surroundings has been the key of our work during the present campaign of excavation and restoration. The use of this method, has led us to a new and complete research with outstanding results.

On the one hand, regarding the architectural level, different aspects and elements of the buildings have been clarified, overcoming some discussions based up to now on philological points of view, typical of the history of art approaches. With this research we have now the material evidences to support doubtlessly several solutions adopted in the restoration, as well as new paths have been opened to study and understand the Umayyad architecture.

On the other hand, the use of this same method at urban level, has allowed us to discover the center of the Umayyad city that once existed on the 'Ammān Citadel, and to planify its excavation. The urbanistic values and significance of this city are analyzed in another paper in this volume (Almagro and Arce, "The Umayyad Town Planning of Citadel of 'Ammān").

Our aim is to present some of the results of this methodological approach, whose validity has been proved by the above mentioned discoveries themselves, as well as the related interventions carried out in order to consolidate and restore them.

The intervention on such a big site, with so many different situations has led us to different levels of intervention: from the mere consolidation of the archaeological remains, to the anastylosis of the monumental vestibule. In this case the remaining original pieces have been put back in place. Where necessary, new pieces reproducing the volume of the missing ones have been added. No attempt has been done to imitate the decoration. On the contrary, the aim has been to treat the architectural lacunae so that the structural stability and visual unity of the monument will be recovered, being easily recognizeable by the new elements. Regarding this, it is also important to mention that all the original elements and surfaces have been carefully preserved. Wherever it was not possible to carry out the material anastylosis, the "virtual" one will guarantee the thorough understanding of the structure by the visitor (Almagro, Arce and Fernández 1997).

The significance of the whole intervention (research, excavation, restoration and presentation to the visitor) especially due to the close relationship and articulation between the different stages, could be seen nowadays on the 'Ammān Citadel, where a complete palatine Umayyad city is emerging from the mist of the past.

Now we will examine some samples of our intervention that, because of their significance, deserve a more detailed attention.

The Entrance to the Vestibule

It was already known that the Umayyad building was built over the remains of a previous Byzantine one (Almagro 1983; 1994). The first courses had been used as a foundation for the new one, giving as a result almost the same plan. Little changes took place, for instance, the south door was narrowed and the foundations of the new jambs were built over the Byzantine steps (Almagro 1983: Lams 17.c, 17.d). It was thought that these same

* The process and final results of this research will be the core of the Ph.D. thesis entitled "*The Archaeology of Architecture and the Restoration Project*" that will be presented by arch. Ignacio Arce in the Madrid School of Architecture (Madrid Polytechnic University). The Thesis is co-directed by Prof. Antonio Almagro (EEA-CSIC), and Prof. Roberto Parenti (Univ. di Siena).

For more details and especially about the methodological approach, see I. Arce, *Conocimiento y finalidad: Del fragmento a la unidad (Planificar la excavación, proyectar la restauración, intervenir en la obra)*, in *Progettare il Restauro*, proceedings of *Scienza e Beni Culturali XIV* Bressanone 1998. Edizione Arcadia Ricerche. Venezia 1998.

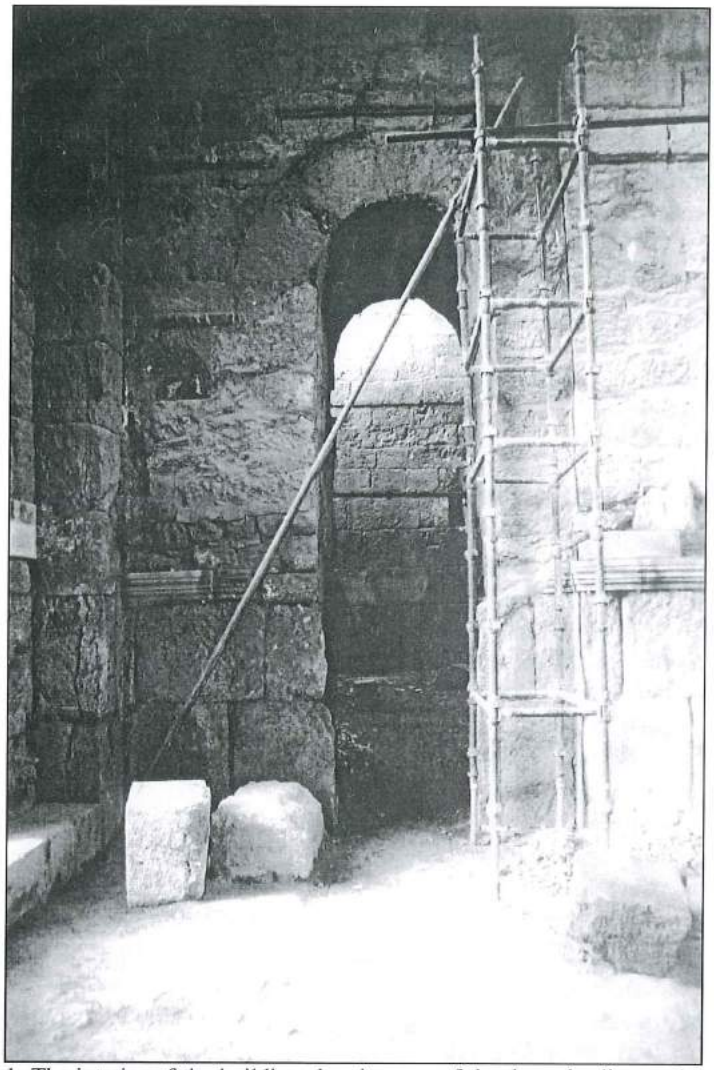
steps had been kept in use during the Umayyad period, or that the Umayyad steps were placed in the same place, over the Byzantine ones (Northedge 1992: Figs. 38, 40; Almagro 1983: Figs. 8, 11, 13). But when studied in detail these hypotheses, there were some doubts that have led to reconsider them and to propose a new solution:

- If the Byzantine steps would have been kept in use, the rubble core of the foundation of the jambs of the new southern door would have been seen, something that does not make sense. If they had been placed over them (in order to hide that rubble stone foundation), the lower steps would have interrupted the access to the lateral rooms. Furthermore, the upper steps would have had, in both cases, an odd ending against the inner side of the south wall.
- The different degrees of erosion of the jambs of the lateral doors, below and over the level corresponding to the jamb of the entrance to the building, indicates that for a long period of time, the first course (below the mentioned level and belonging to the Byzantine building) had been protected against erosion (because it was buried, for instance).
- The proportions of the doors leading to the lateral rooms, resulting from the initial hypotesis, were really odd: very narrow and high (FIGS. 1, 2a). It must be taken into account, that all the doors in the building have a proportion 1:2, being surmounted by a lintel and a relieving arch. Furthermore, in this case the existence in the past of wooden doors makes necessary a lintel. The existence of these doors, is deduced from the protrusions (the frame) in the stone jambs for fixing them (not being present in the intrados of the relieving arches).

All these questions led to the conclusion that in the south arm of this cross plan building, there was a sort of platform at the same height of the entrance. The difference of level with the rest of the building was solved by means of a flight of steps placed under the arch that opens to the central space. This allows the lateral doors to recover their logical proportions (1:2) placing the required lintel at the height of the frieze of niches that run all along the interior of the building. Consequently the lateral rooms had this same level. It gives also a more logical and comfortable access to the building (see FIG. 2a, b).

The South Façade of the Building

Related to the above mentioned analysis of the proportions of the doors of the building, it has been also corrected the first proposal for the main door of the south façade (with a 2:3 proportion, and an arrangement similar to the one at Qaṣr al-Ḥayr ash-Sharqī, see Almagro 1983: Figs. 9, 10, 12, 13). The above mentioned 1:2 proportions with a lintel and a relieving arch have been taken into account in the restoration (FIG. 3). New wooden doors lined with iron have been placed, in order to reuse the building.

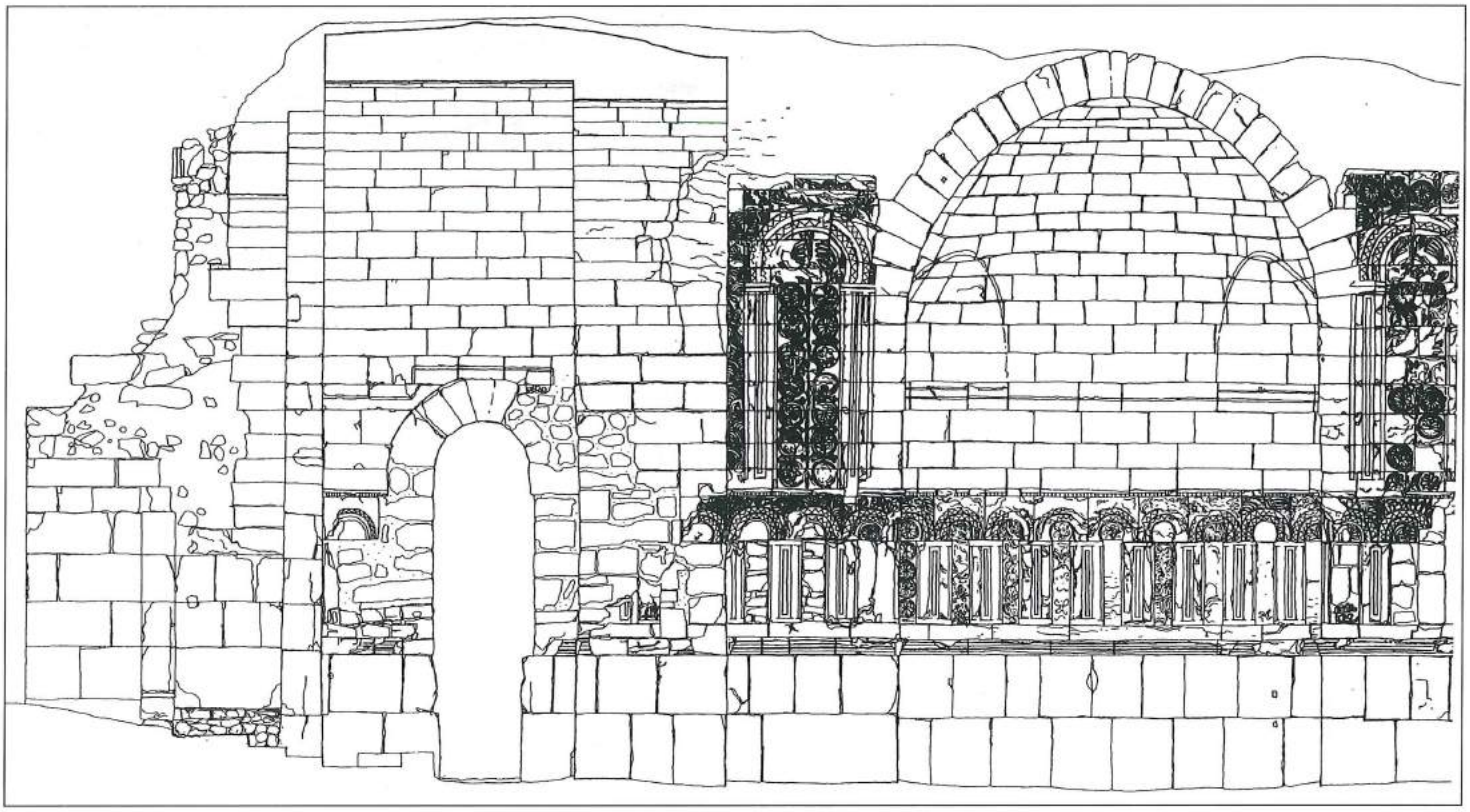


1. The interior of the building showing one of the doors leading to the side room.

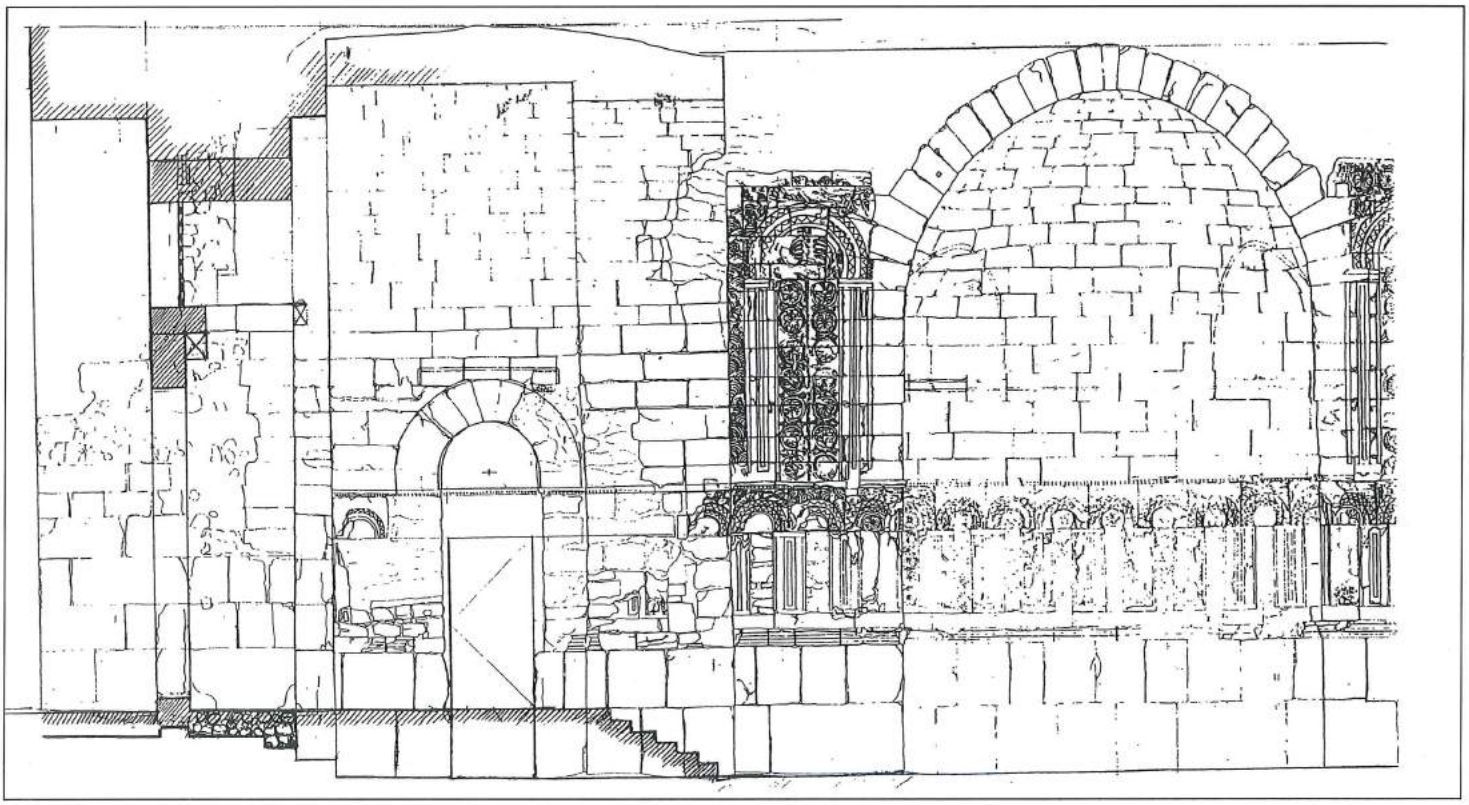
Regarding the main features of the composition of the southern façade, two main proposals had been presented (Almagro 1983: Figs. 9, 10; Northedge 1992: Fig. 41). In none of them was taken into account the problem of lighting the rooms behind the façade. Northedge proposes a solution with a frieze of small blind niches, following a philological approach, taking as a reference Sassanian models, but without taking into account the mentioned problem of the illumination of the internal rooms.

It seems logical that those rooms, due to their position and orientation, were illuminated through the southern façade. The question is how the windows were placed and what was their shape.

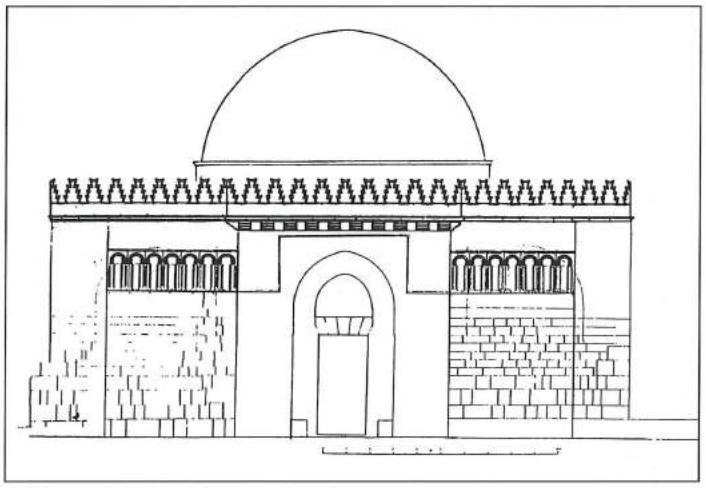
The south façade is articulated by means of buttresses and recessed stretches of wall in between. Although the alignment of the buttresses apparently matches the rooms behind, there is actually a shifting. As a result of this, if a window is placed along the axis of the room, it will not be in the middle between the buttresses, and viceversa. Be-



2a. A section showing the interior of the building.



2b. A reconstruction of how the interior might have looked like with the proportions of the door.



3. Reconstruction of the original façade.



4. View from the top with evidence for sills of two windows.

sides this, there is the issue of the shape of the window. The thorough study of the openings in the vestibule directed our attention to the window that connects the staircase with the west arm. This connection is achieved by piercing one of the niches of the decorative frieze of blind niches that runs alongside the central cruciform space. This allows to have the opening placed along the axes of the staircase, meanwhile, inside the central space, due to this crafty solution, the compositive rythm of the frieze is not disturbed (it is not even noticeable that one of the niches is opened). This would be the only solution to the problem of the south façade: a frieze of blind niches between the butresses, being one or two of them pierced, corresponding to the axis of the inner rooms. Furthermore, there is the fact of the existence of some blind niches that do not belong to the inner areas of the building, and among them, one fragment corresponding to a pierced niche. Similar solutions of pierced niches placed at the top axes of a pointed-arch-section vaulted room could be seen at al-Ukhaidir (Creswell 1940: Figs. 48, 49).

The Problem of Roofing of the Central Space and the Evidences for the Existence of a Dome

This has been one of the most relevant discoveries, as it solves finally the controversy about the roofing of the central space of the vestibule. For a long time there have been two different positions about this issue based on philological approaches, due to the fact that there was no definitive material evidence. The stratigraphic analysis of the material remains allow us to affirm doubtlessly the existence of a dome over this central space, overcoming the mentioned discussion. When the cleaning of the roof started, a stratigraphic analysis was conducted on the walls that were on top of the building.

The most relevant fact was the discovery of some recesses carved on the top side surface of these walls, that nobody had noticed before: on the one hand there were, in the outer wall of the east side of the building, traces of a carved channel correspondening to the drainpipe, placed in the east façade (still *in situ* also). On the other hand, there were, in the inner part of the south side (in the other sides the inner wall had disappeard), the sills of two windows connecting the central space with the exterior (FIG. 4). The top side of these stones correspond to the upper level of the internal cornice, this explains why it was not seen in the old pictures from the interior. Nevertheless, these sills could be appreciated easily from the top of the building (as well as in aerial pictures), but the slight change of level (not more that 2 cm) did not allow them to be noticed before. These windows would be open through the drum belonging to the dome structure and would illuminate the internal space. The solution would be similar to that already proposed in the past (Almagro 1983) on the base of the two semi-domes existing in the lateral arms of the same building: a stone dome placed over a drum where the corner squinches are carved, offering the transition from the square plan to the circular one, with two windows (instead of three) in each side to illuminate the interior.

The need to protect the carved decoration on the one hand, and to give a new use to the building that will guarantee its mainteinance, on the other one, led us to propose to cover the central space. The evidence of the existence in the past of a dome led to put forward the project of a laminated wooden dome that is not intended to be a replica of the one that existed in the past. On the contrary, the material, the building technique, and the way it has been placed over the building, makes it easily recognizeable as a new structure and guarantees its absolute reversibility (FIGS. 5-7).

The Application of the Analysis to Urban Scale: The Discovery of the Sūq, the Square and the Mosque

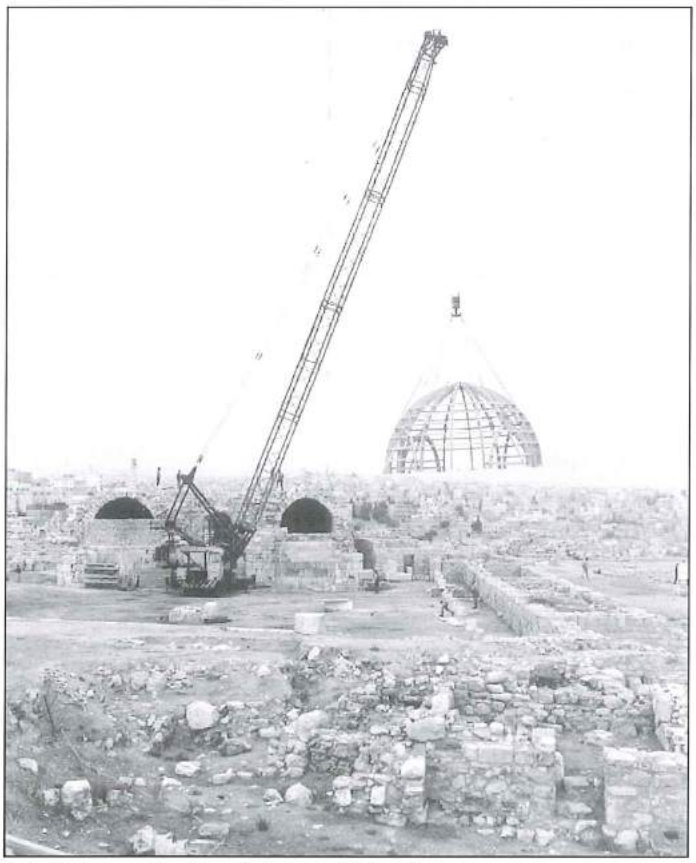
This case study shows how the correct stratigraphic interpretation of structures partially excavated a long time



5. The building structure before the dome was built (photo by I. Arce).



6. The building with the dome structure (photo by I. Arce).



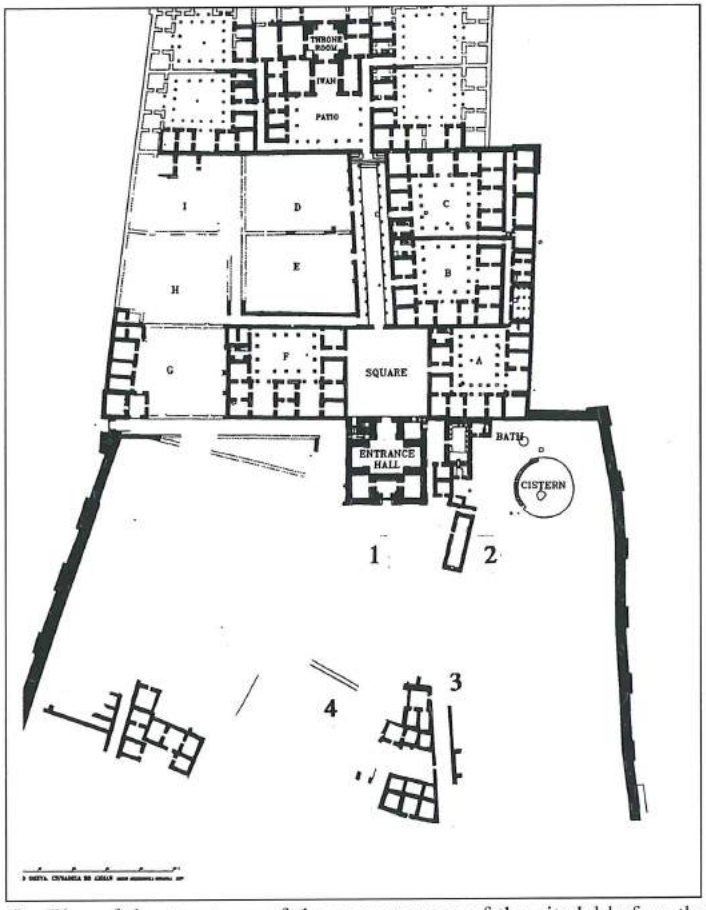
7. Building up the dome (photo by I. Arce).

ago, led to a hypothesis and a strategy of excavation that gave as a result the discovery of the nucleus of the Umayyad *madīna*: the *sūq* square and the mosque. The evidences present were (FIGS. 8a and b):

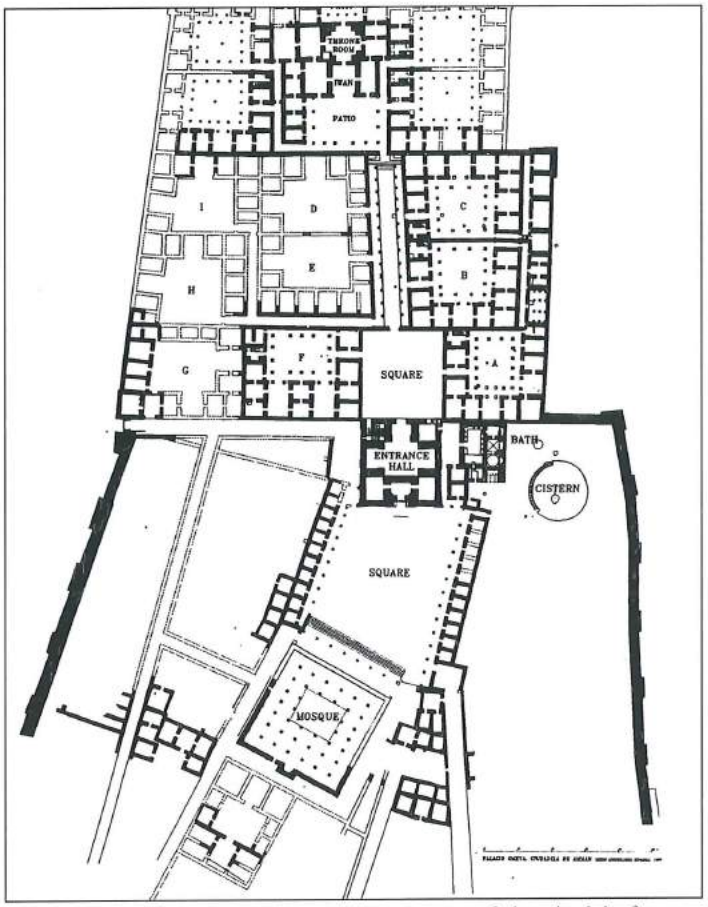
1. The existence of an open area in front of the vestibule of which the shape and use were unknown.
2. The existence of a structure (a Fatimid mosque, built reusing a previous structure) connected in an awkward way to the bath area.
3. The structures excavated by the British Mission (BIAAH), especially the ones inside trench B-62).
4. The traces of a thick wall oriented E-W far away (60 m) from the vestibule.

The analysis was supported, firstly, by the correct interpretation of the stratigraphic relationships between some significant elements in trench B-62: a semicolumn that was not placed against the wall but built linked to it, showing their contemporaneity (evenmore: in the wall, over the column, was noticeable a demolition interface). This led to raise an hypothesis that gives architectural and structural sense to another element that the British Mission did not interpretate properly: a block of masonry 1.8 m square that according to them "serves no purpose" (Northedge 1992: 146), placed behind the semi-column (FIG. 9). Our hypothesis considered that this point was the end of a portico, the semi-column being the last element of it, and the square block of masonry a sort of buttress to support the thrust of the arches of the portico (Arce 1997). The apparent alignment of this porticated structure with the structure transformed into a mosque in the Fatimid period, and the same building technique used, led us to suppose that both were part of the same structure. The confirmation of this hypothesis by the soundings carried out, led to redefine the excavation strategy, and to discover two rows of porticoed shops that configure the *sūq*, and limit eastwards and westwards a great square.

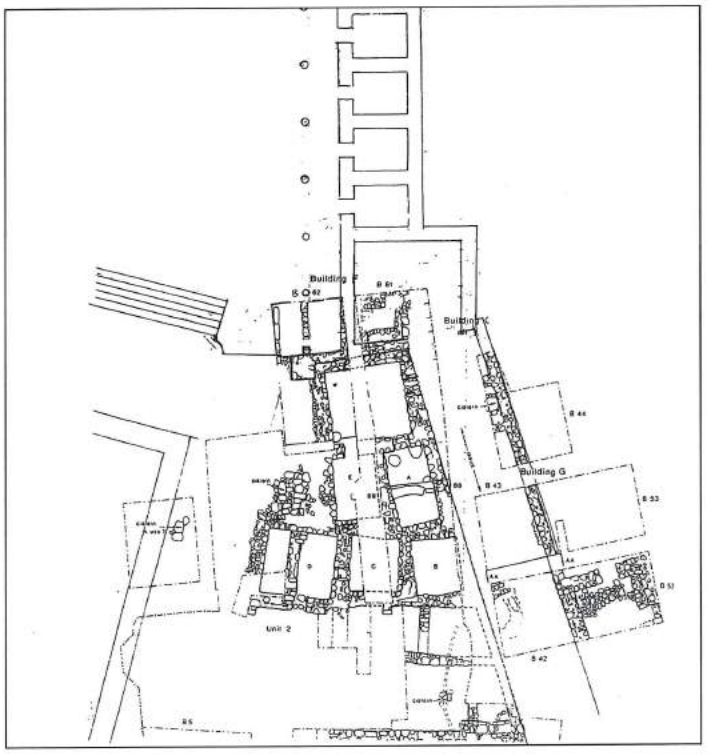
Finally the discovery of the flight of steps in the South side of the square, led to an ulterior hypothesis: that the structure placed over the steps (to which belongs the above mentioned thick wall), due to its outstanding position and orientation (towards Mekka) was the congregational mosque of this palatine *madīna* (Arce 1997). This hypothesis was also confirmed by the excavations carried out at the site. Giving as a result a unique urban fabric in the early Muslim period, that we have recovered from oblivion.



8a. Plan of the structures of the upper terrace of the citadel before the restoration work.



8b. Plan of the structures of the upper terrace of the citadel after research.



9. Plan taken from Northedge 1992, showing trenches excavated by the British Mission.

Bibliography

Almagro, A. 1994. A Byzantine Building with a Cruciform Plan in the Citadel of Amman. *ADAJ* 38: 417-427.

—— 1983. *El Palacio Omeya de Amman I. La arquitectura.* Madrid.

Almagro, A., Arce, I. and Fernández, J. 1997. Reintegración y anastylosis en el proyecto de restauración. Dos ejemplos en Jordania (De la reintegración constructiva a la anastylosis virtual). In *Lacune in architettura, proceedings of Scienza e Beni Culturali XIII* Bressanone 1997. Edizione Arcadia Ricerche. Venezia.

Arce, I. 1997. Preliminary Report on the Research and Related Excavations Carried Out in the Area South of the Vestibule of the Umayyad Palace. Unpublished report on file at the Departament of Antiquities, Amman.

——1998. Conocimiento y finalidad: Del fragmento a la unidad (Planificar la excavación, proyectar la restauración, intervenir en la obra). In *Progettare il Restauro, proceedings of Scienza e Beni Culturali XIV* Bressanone 1998. Edizione Arcadia Ricerche. Venezia.

Creswell, K. A. C. 1940. *Early Muslim Architecture*. Vol. 2. Oxford.

Northedge, A. 1992. *Studies on Roman and Islamic Amman*. Vol.1: History, Site and Architecture. Oxford.

Khaled Suleman Al-Jbour
Department of Antiquities
Al-Mafraq Office
Jordan

Khaled Suleman Al-Jbour

Arabic Inscriptions from Wādī Salma

Wādī Salma is situated 30km northeast of aṣ-Ṣafāwī, formally called H5. It is about 13km long and not more than 60 to 150m wide(Atallah and Al-Jbour 1997: 459). This was the meeting place of the Arabian tribes in winter and spring times for pasturing. Trade and pilgrims caravans passed by this valley heading to Wādī as-Sirḥān and to the Arabian Peninsula. The city of Ṣalkhad, 60km northwest of Wādī Salma, is known as a pilgrimage station (الجزيري 1983: 1233-34). No doubt the road system varied through the ages according to the political circumstances, but Wādī Salma was frequently used as a route by the caravans. The discovery of hundreds of Arabic inscriptions in *Kufic* and *Naskhi* scripts, which cover the Umayyad to the Mamluk periods, is good evidence that this area was heavily and continuously occupied by Arab tribes who not only left many inscriptions but built several mosques in the wadi (العبادي 1997: 79). Unfortunately, in the past the inscriptions and monuments of Wādī Salma did not attract the attention of scholars and it is for this reason that I undertook three survey seasons to document this area.

The Name of the Wādī

The local people call it Wādī Salma. Some old people informed me that Salma is the contraction of *Sayl al-Mā'*, which is very plausible since the wadi is famous for the many ponds, water reservoirs and cisterns. There are also other legends referring to a young maiden called Salma who was murdered and buried in the wadi. The ancient name of the wadi is recorded in one Safaitic inscriptions as follows: "Ṣahim bin Rajūl, who went east with his camels from the Ḥawrān because of the drought and he found Ḥarrat Khabthāt". It is possible, if we trust this inscription, that the original name of the wadi was Ḥarrat Khabthāt meaning "evil". This was changed in the Islamic periods to Wādī Raḥmān or Raḥmīn which is the opposite of Khabthāt, meaning "the blessed". The changing of pejorative names into more acceptable ones is still common in Jordan: Wādī al-Yābis (the dry valley) was converted into Wādī ar-Rayyān (the fertile valley) and Khanzīra (the pork) into Ṭayyiba (good).

Comparative Documents

D. Baramki published 105 inscriptions from Jāwa and Tall al-'Abd, near Wādī Salma (برامكي 1964). They date to the same period as ours and the script and the themes of the inscriptions are very similar. However, the names are different.

In the Negev, a group of mosques and inscriptions were recorded by Avni (1994), which date to the mid eighth century AD (Avni 1994: 83). They are of the same type of script. Similar mosques were also discovered in Wādī ash-Sharāh (Wādī Ramm) by the late Bill Jobling (1989: 254). The inscriptions of Jabal Usays in the Ḥawrān are characterized by short invocations and by a special type of script in the later periods. In addition, they provide us with four princes, the sons of al-Walīd ibn 'Abd al-Malik (العش 1964: 228-303). The inscriptions of Ruwawa, south of al-Madīna in Saudi Arabia, date to the same period, except for two which contain different invocations of mercy of Allah, of Confidence in Allah and asking for pardon. They are very similar to our collection. The publisher described those inscriptions as "Hijazi" (الراشد 1993: 106).

The Inscriptions

The inscriptions were incised on basalt blocks or smooth rock surfaces on the mosques' façades or on cairns. Max van Berchem was the first epigraphist to draw the attention of scholars to the importance of the Arabic epigraphic material (Zayadine 1984: 103).

The most important subjects of Wādī Salma's inscriptions are: Koranic verses, religious invocations, epitaphs and wisdom sayings, together with personal names and their tribal genealogies. It is known that the Holy Koran was the source of religious piety in Islam. Although these inscriptions do not mention historical events, they shed some light on the Islamic Arabic personal names.

They also provide some linguistic information on the development of the Arabic paleography with the help of several dated inscriptions. There is also mention of topographical names such as al-Ḥarisa, Busan and Hawiya in the Ḥawrān, which are still used in the present day.

Inscription No. 1 (FIG. 1)

The name of this wadi appeared in an Islamic-Arabic inscription that probably goes back to the Ayyubid or Mamluk period. The name that was mentioned is رحمين، رحمن (merciful) which is the opposite of the word خبث (evil). Most probably the name was changed during the Islamic period(s) which is a common practice in this Islamic tradition. For example Wādī al-Yābis (dry) to Wādī ar-Rayyān (fertile).

Inscription No. 2 (FIG. 2)

اللهم غافر الذنب

1) O' God forgiver of sin

وقابل التوبة شديد العقاب

2) Who accepts repentance, who punishes severely

ذو الطول لا إله إلا أنت أغفر

3) with power no God but You forgive his sin

لثوابه بن عثمان الصرمي ذنبه

4) to Thuwābah son of 'Uthmān aṣ-Ṣarmi

ما تقدم منه وما تأخر

5) what was in the past and present

واجعل الجنة مآبه والمؤمنين

6) and make paradise his home with the believers

أصحابه إنك أنت السميع العليم

7) his companions, You are most hearer and knowledgeable

غفر الله لمن قرأ

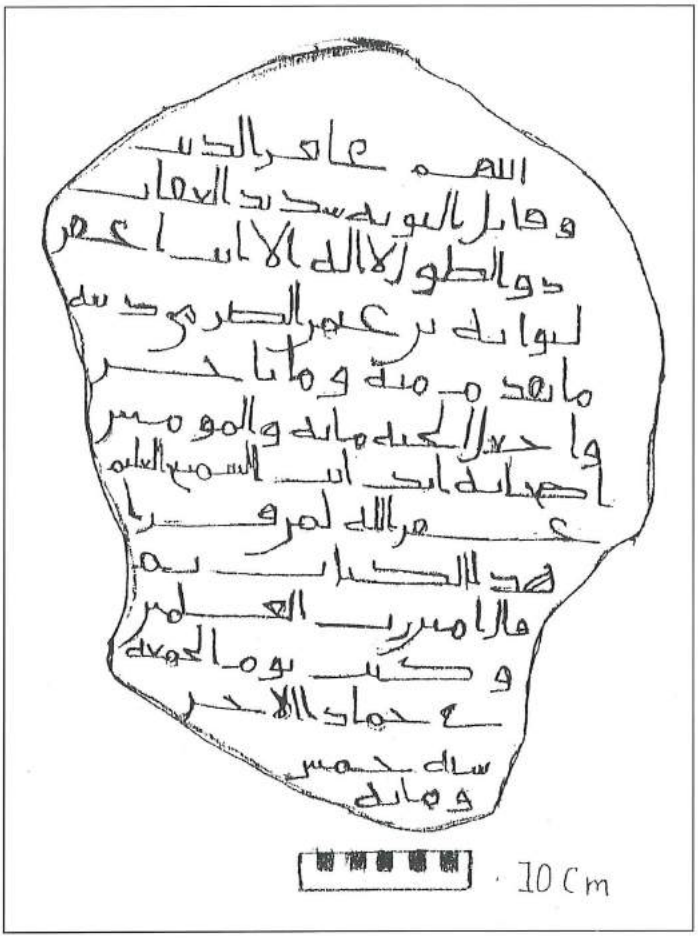
8) may Allah forgive who reads

هذا الكتاب ثم

9) this inscription then



1. Inscription no. 1.



2. Inscription no. 2.

قال آمين رب العالمين

10) say Amen Lord of Universes

وكتب يوم الجمعة

11) and he wrote on Friday

في جمادي الآخر

12) in Jumāda al-Ākhar

سنة خمسة

13) year five

ومايه

14) and one hundred

This inscription, dated by the day, month and year 105 H, contains a saying invocation from Muḥammad to Thuwābah or Tuwābah or Bawābah. The good design of the letters and beautifully incised regular lines characterize inscriptions in the Umayyad period.

Inscription No. 3 (FIG. 3)

الله كلم موسى تكليما

Allah spoke to Moses by words

واتخذ إبراهيم خليلا

He took Abraham as a friend

إذ قال موسى رب أرني

then Moses said Lord show me



3. Inscription no. 3.

كيف تحيي الموتى وكتب

how do you raise the dead. Wrote

دجاجة ابن أسلم يوم

Dujāja son of Aslam day

الجمعة

Friday

I believe that this inscription is one of the oldest that have been found by the survey, because of the shape of its letters that were written in the Naskhi script. However, the inscription has a mistake in the quotation of a verse of the Holy Quran. The one who asked God to show him how he raised the dead was Abraham not Moses. The writer did not write the date of the inscription.

Inscription No. 4 (FIG. 4)

اللهم اغفر لجامع بن عصمه ا

1) O' God forgive Jāmi' son of 'Aṣmah al

لصرمي عبدك ....

Ṣarmī your servant / slave

.... آجره من عذاب أليم اللهم اغفر للمؤ

2) save him from painful torture, O' God forgive the

منين والمؤمنات وامح حسنات من محا هذا الكتاب

3) faithful and erase the good deeds of the one who erase this writing

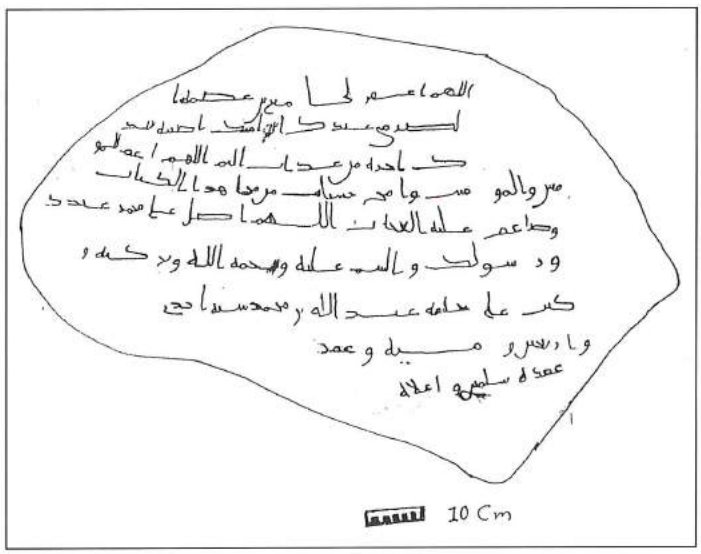
وضاعف عليه العذاب اللهم أصل على محمد عبدك

4) and increase the punishment, O' God give peace/ praise to Muḥammad your messenger

ورسولك والسلام عليه ورحمة الله وبركاته و

5) and servant. Peace be upon him and blessings of Allah and

كتب على .... عبد الله بن محمد سنة إحدى



4. Inscription no. 4.

6) wrote on ..... 'Abdullah bin Muḥammad year one

وأربعين وميه وغفر

7) and forty and a hundred

غفر .... واعلى له

8) and forgive

The date of this inscription was fixed to the year 141 H, during the reign of the Caliph al-Manṣūr. Some spelling mistakes appeared in this inscription such as "السلام عليك", and also some words are not clear. The import point is that in the Safaitic inscriptions there are similar invocations such as may Allah blind the one who erases this inscription.

Inscription No. 5 (FIG. 5)

توجد عدة كتابات في هذا النقش

There are several writings on this inscription.

الكتابة الرئيسة:

The main writing:

اللهم اغفر لعصمه

1) O' God forgive 'Iṣma

بن جامع الصرمي

2) son of Jāmi' aṣ-Ṣarmī

اللهم من محا هذا الكتاب

3) O' God who erases this book/ writing

فامح ما في صدره من القرآن

4) erase from his chest the Quran

آمين رب العالمين

5) Amen Lord of the worlds

رب موسى وهارون وكتب سنة ست

6) God of Moses and Aron, and wrote year six

وثمانين وميه

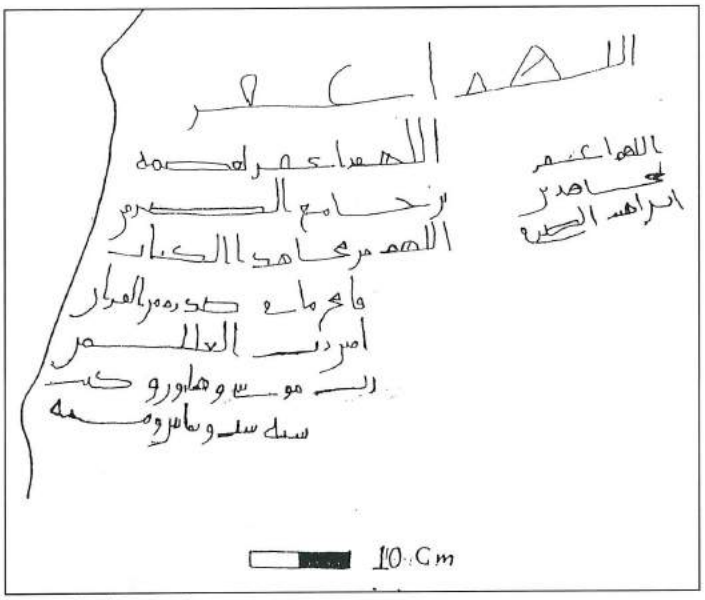
7) and one hundred and eighty

الكتابة الثانية:

Second writing:

اللهم اغفر

1) O' God forgive



5. Inscription no. 5.

لزياد بن

2) to Ziyād son of

يزيد

3) Yazīd

الكتابة الثالثة:

Third writing:

اللهم اغفر

1) O' God forgive

لمجاهد بن

2) Mujāhid son of

ابراهيم الصرمي

3) Ibrāhīm aṣ-Ṣarmī

We have here three inscriptions belonging to different periods, but the main one is dated to 186 H. This inscription was written 45 years after the inscription of the writers' father, who appeared in Inscription No. 4.

Inscription No. 6 (FIG. 6)

اللهم اغفر

1) O' God forgive

لواسط بن

2) to Wāsiṭ bin

دلك

3. Dlk

الصرمي

4) aṣ-Ṣarmī

وكتب سنة

5) and wrote year

سبعين

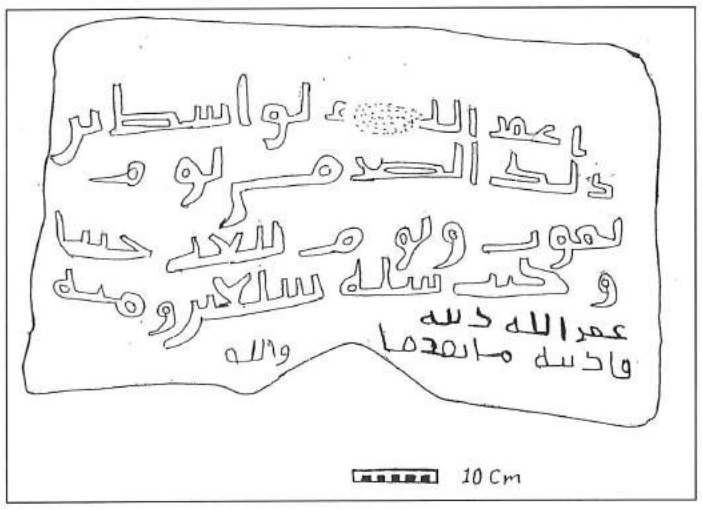
6) seventy

وميه

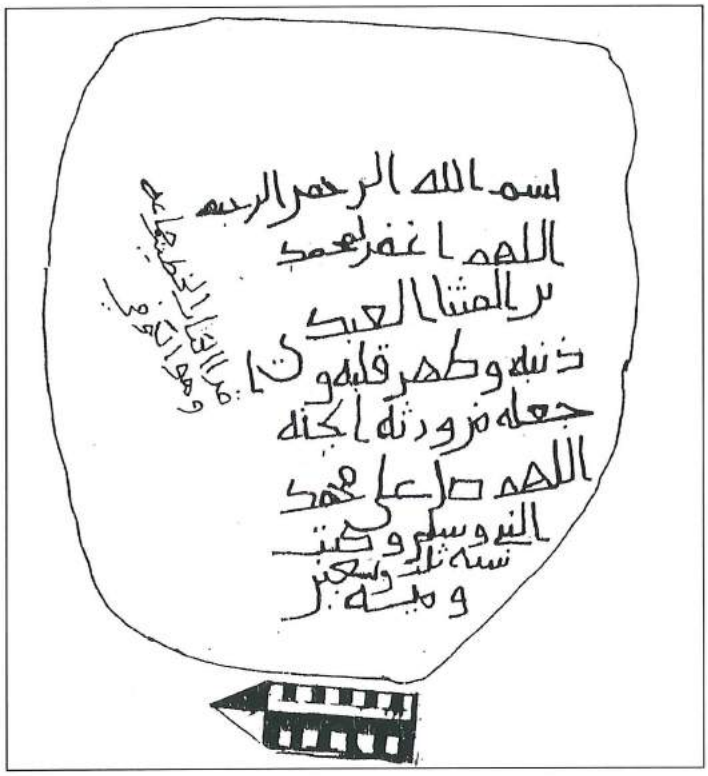
7) and a hundred

Inscription No. 7 (FIG. 7)

بسم الله الرحمن الرحيم



6. Inscription no. 6.



7. Inscription no. 7.

1) Basmallah

اللهم اغفر لمحمد

2) O' God forgive Muḥammad

بن المثنى العبدي

3) son of al-Muthana al-'Abdī

ذنبه وطهر قلبه وا

4) his sin, and purify his heart and

جعله من ورثة الجنة

5) make him an inheritor of Paradise

اللهم صل على محمد

6) O' God pray on Muḥammad

النبي وسلم وكتب

7) the prophet and give peace [to him] and wrote

سنة ثلاث وتسعين

8) year ninety three

وميه

9) and one hundred

Al-Khaṭīb Bin Jumā'ah read this inscription and he put diacritical points on the text, but did not put any dots on the *Basmalah*. The name of Jumā'ah was mentioned several times during the Ayyubid-Mumluk periods. Some scholars have pointed out that he may represent the personality of a leader or trader. However, here he appears as a preacher of the mosque of jurisprudence.

Inscription No. 8 (FIG. 8)

أ- اللهم اغفر لمفضل

A. 1) O' God forgive to Mufaḍal

بن زياد الأسدي ثم المالكي

2) bin Ziyād al-Asdī and al-Malkī

انك على كل شيء قدير

3) You are capable of all

اللهم اغفر لخليفة بن

4) O' God forgive to Khalīfah son

عصمة الصرمي

5) of 'Iṣmat aṣ-Ṣarmi

ب- اللهم اغفر

B. 1) O' God forgive

لمدرك بن عصمة الصرمي ولمن قراه

2) to Mudrik son of 'Iṣmat aṣ-Ṣarmi and to who read

ثم قال آمين رب العالمين

3) then he said Amen Lord

ج- الا يا كاتب

C. 1) O' You who wrote

الحساب

2) the accountability

دعني مع أصحابي

3) leave me with my companions/ friends

بجنة أو بناري

4) in his paradise or in my hell/ fell fire

وكتب هارون بن

5) and wrote Hārūn son of

جماعة الجشمي غفر

6) al-Jashmī Jamā'h forgive

الله عنه وعن جميع

7) God for him and for all

المسلمين

8) the Muslims

We have many inscriptions, dated to different periods, that contain tribal genealogies like Asad, Ṣurum, Jushm and Mālkī. However, one of these inscriptions contains a poem that shows loyalty to a friend even in the hereafter, while mentioning the name of the writer who goes back in his lineage to the tribe of Jasham or bin Jasham.

Inscription No. 9 (FIG. 9)

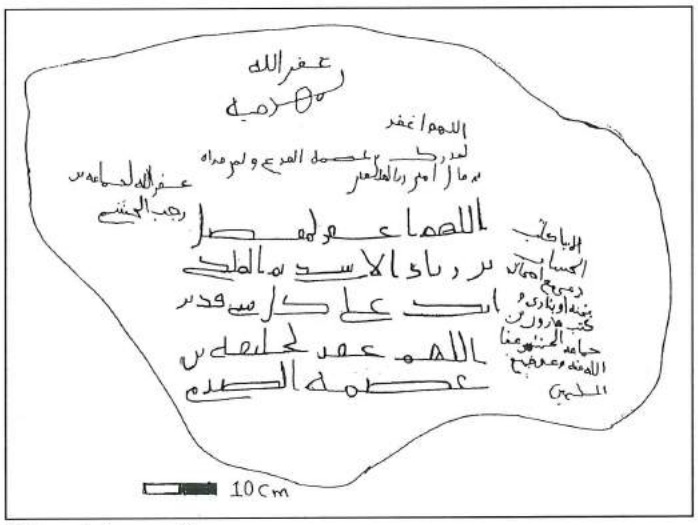
بسم الله الرحمن الرحيم

1) Basmallah

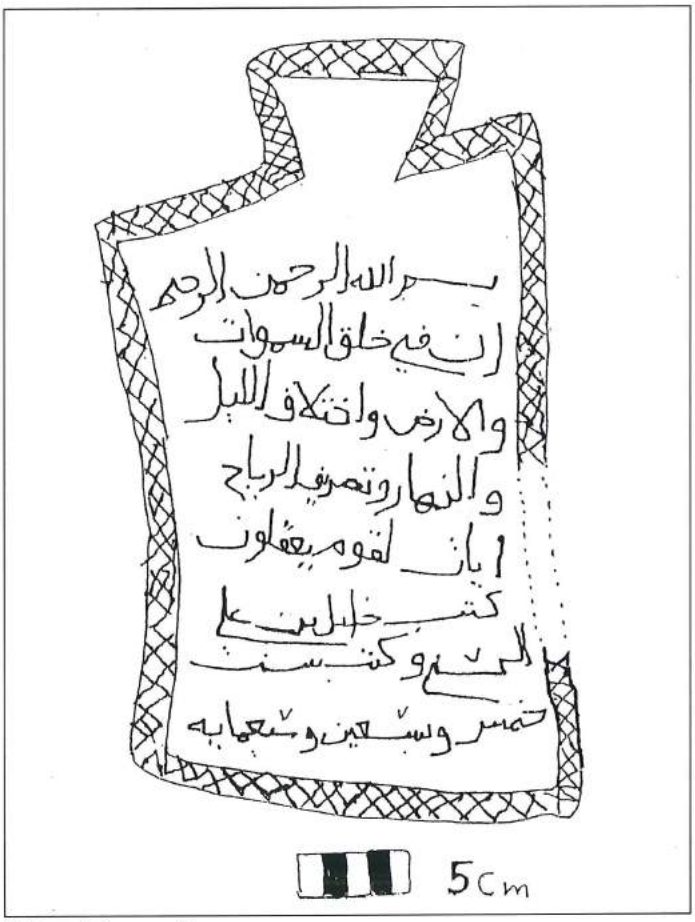
ان في خلق السموات

2) The creation of heavens

والأرض واختلاف الليل



8. Inscription no. 8.



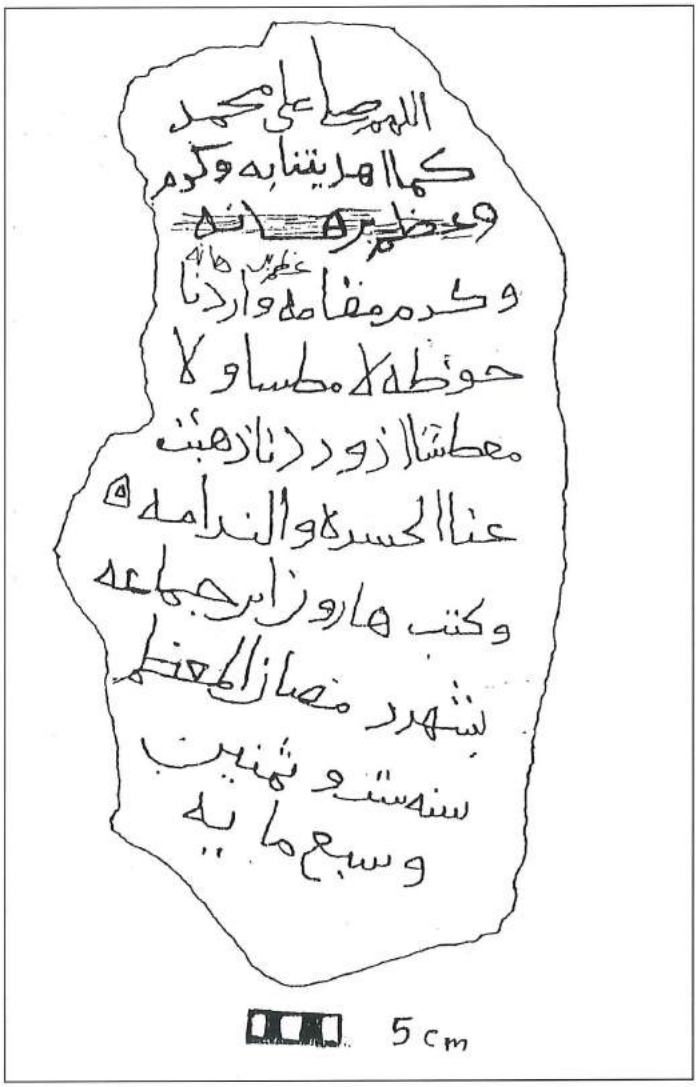
9. Inscription no. 9.

3) and earth and the cycling/ change of night
والنهار وتصريف الرياح
4) and day and direction of winds
لآيات لقوم يعقلون
5) are signs/ miracles to reasoned people
كتب .... بن علي
6) wrote ..... son of 'Alī
الجشمي وكتب سنة
7) al-Jushmī and wrote year
خمس وتسعين وسبعماية
8) 795

This inscription was set in the wall of one of the mosques and was possibly covered in the plan of a mosque, where the top resembles the *miḥrāb*.

Inscription No. 10 (FIG. 10)

اللهم صلي على محمد
1) O' God pray on Muḥammad
كما أهديتنا به وكرّم



10. Inscription no. 10.

2) as we have been well guided by him
وكرم مقامه وأردنا
3) and raise his position and give us
حوضه لا مكسا ولا
4) his fountain of less and not
معطشاً إذ وردنا ذهبت
5) thirsty if we attained that, had gone
عنا الحسرة والندامة
6) from us sorrow and remorse
وكتب هارون ابن جماعة
7) and wrote, Hārīn son of Jamā'a
بشهر رمضان المعظم
8) in the month of Ramaḍān the Great
سنة ست وثمانين
9) year eighty six
وسبع مايه
10) and seven hundred

Dated to the Mamluk period. Two overlapping triangles are shown beside the inscription.

Conclusions

The newly discovered inscriptions are characterized by the following:

1. They are incised in the *Kufic* and *Naskhi* scripts. They are similar to the Hijazi, Sinaitic and Negevite inscriptions.
2. The basalt of the Ḥarra provided good inscription material because of its hardiness.
3. Some of the inscriptions were dated by the year, the month and the day. This is evidence of the precision of the writers and the importance of dating for the Arabs. They span the period from 105 to 795 H.
4. Most of the inscriptions are carefully and beautifully incised with regular lines. There are no decorative elements added to the inscriptions.
5. The Ayyubid-Mamluk graffiti are characterized by the decline of the script and the use of colloquial Arabic. They contain some very primitive decorative elements.
6. These later inscriptions begin with the verb: *ḥaḍar*, which was translated as: "to arrive", "to attend". But I understand it as: "passed away", especially when the inscription contains invocations of salvation and wishes to enter Paradise.

Acknowledgments

I would like to extend my warm thanks to H. R. H. Prince al-Hassan, patron of the Centre for the Badiya Research and Development Program, to Sharifa Zayn bint Nasser and to Engineer Mohammed Shahbaz for their support. Without their continued interest and their encouragement the accomplishment of our research work would not be possible.

Bibliography

برامكي، ديمتري، ١٩٦٤. النقوش العربية في البادية السورية. **الأبحاث**،

Atallah, N. and Al-Jbour, K. 1997. Inscriptions Grecques de Wadi Salma. *Le Muséon* 110, Fasc. 3-4: 459-466.

Avni, G. 1994. Early Mosques in the Negev Highlands: New Archaeological Evidence on Islamic Penetration of Southern Palestine. *BASOR* 294: 83-100.

Jobling, B. 1989. Report of the Eighth Season of the 'Aqaba Maan Archaeological and Epigraphic Survey 1988. *LA* 39: 253-255.

Zayadine, F. 1984. Islamic Art and Archaeology in the Publications of Marguerite Gautier-Van Berchem. *ADAJ* 28: 203-210.

ج٣: ٣١٧-٤٧.

الجزيري، عبد القادر بن محمد (ت: ٩٧٧هـ/١٥٦٩م)، ١٩٨٣. **درر الفرائد المنظمة في أخبار الحاج وطريق مكة المعظمة**. تحقيق حمد الجاسر. الرياض: دار اليمامة للبحث والنشر.

الراشد، سعد بن عبد العزيز، ١٩٩٣. **كتابات إسلامية غير منشورة من (رواوه) المدينة المنورة**. الرياض: دار الوطن للنشر والإعلام.

العبادي، صبري، ١٩٩٧. نقوش صفوية جديدة من متحف آثار المفرق. **مجلة أبحاث اليرموك** (سلسلة العلوم الإنسانية والاجتماعية)، م١٣، ع٢أ: ٧٩-٩٠.

العش، محمد أبو الفرج، ١٩٦٤. كتابات عربية غير منشورة في جبل أسيس. **الأبحاث**، ج٣: ٢٢٧-٣١٦.

Flemming Aalund
Roadvad 40
DK - 2800 Lyngby
Denmark

Flemming Aalund

The Stone Building Tradition in the Ḥawrān with a Special View to the Development of the Plan of Buildings

The Stone Building Tradition

Anonymous houses of great age has been remarkably well preserved in the Ḥawrān because of the exclusive use of the durable, local basalt stone for construction. The Roman era in particular has made a major impact on the architecture through the construction of a large number of truly remarkable monuments and urban structures, which still dominate the cultural landscape. Style and methods of construction were modified and changed during the succeeding Byzantine era, until the major sites gradually declined in the wake of the Muslim conquest. A recovery took place during the Mediaeval ages, when Great Mosques and strongholds were constructed in major sites as Izra', Buṣrā and Ṣalkhad.

Preserved buildings and archaeological investigations surely demonstrate the different architecture and construction methods, which characterise the imperial architecture of these historic polities. Whereas the classical Roman and Byzantine impact on the architecture often becomes immediately visible at the facades or from the architectural decoration, the plan and construction often remain concealed, requiring more detailed investigation and surveys. These structural and functional features may be rooted in a local and regional architecture that has continued to determine the local way of building quite independent of architectural styles and fashions of different historic periods.

Presenting examples of vernacular architecture, this paper demonstrates the *al-Bayt* as the basic housing unit in the vernacular architecture of the Ḥawrān. The plan and construction can be traced to an eastern influence of Parthian and Sasanian architecture, but only few monumental buildings are known from these early historic periods, not to speak of the vernacular housing, which have all disappeared due to the use of more fragile building materials. In the Ḥawrān, anonymous structures are preserved in a fairly good condition up to the present day, providing a unique possibility to study examples of a regional architecture in continuous use up to Umayyad and well into the Abbasid period.[1]

Having survived during centuries, the preservation of these structures are now endangered during a period of rapid urban development and therefore need special attention and protection (FIGS. 1-2).

The geographical area is well defined within the southern part of Syria extending southwest to Umm al-Jimāl across the border to Jordan. The system of roads converging in Buṣrā, formulated in antiquity, remains till today one of the basic features of the region. The extant building structures, still standing two or three stories high, represent a unique possibility to study houses more than 1500 years of age. The most authentic setting of Ḥawrān architecture is perhaps best preserved at Umm-al-Jimāl. This site is truly one of the great archaeological monu-



1. Destroyed portal of gateway leading to the compound of the historic mansion at Inkhil, Syria (photo: F. Aalund, 1988).

[1] The paper is based on the material presented in: Flemming Aalund, *Vernacular Tradition and the Islamic Architecture of Boṣra*, Ph.D. dissertation, The Royal Academy of Fine Arts, School of Architecture, 1991 (distribution: BSA, Peder Skramsgade 2D, DK-1054 Copenhagen K). The study has been concluded as part of a cooperation project between the Buṣrā Directorate of Antiquities and the German Archaeological Institute in Damascus during the period 1981-1990 under direction by the late, Dr Michael Meinecke.



2. Destroyed stone houses and gateway to the historic mansion at Inkhil, Syria (photo: F. Aalund, 1988)

ments of Jordan in line with Petra and Jarash, although its immediate appearance of the solid, stone built houses is less spectacular.[2] Totally dominated by the basalt stone as the sole building material used for all purposes, the construction methods relate to the traditional building methods used all over the Ḥawrān (FIG. 3). The isolated location has the advantage that this site may attract visitors genuinely interested in history and archaeology and thus preserve the calm and unspoiled setting, which otherwise is so difficult to maintain with an increasing international tourism. This paper is not, however, dealing with preservation policies related to this important archaeological site, but presents examples of vernacular architecture elsewhere in the Ḥawrān, and discusses how the exclusive use of stone influence on the plan of the buildings.

The Classical Architecture

The Roman era in particular has made a major impact on the architecture through the construction of a large number of truly remarkable monuments and urban structures, which still dominate the cultural landscape. Style and methods of construction were modified and changed during the succeeding Byzantine era, until the major sites gradually declined in the wake of the Muslim conquest. A recovery took place during the Mediaeval ages, when Great Mosques and strongholds were constructed in major sites as Izra', Buṣrā and Ṣalkhad.



3. Two storied main facade with corbelled staircase to second floor. Umm al-Jimāl, Jordan (Photo: F. Aalund 1985).

The large Roman civic buildings were generally roofed by vaults constructed of light vulcanic scorcia firmly set in Roman cement as can be seen at the partly preserved vaults of the bath buildings at Buṣrā. Vaults and domes were likewise constructed by use of cut stones as demonstrated in the most elaborate fashion in the Roman theatre or the large Byzantine cathedrals of Buṣrā.

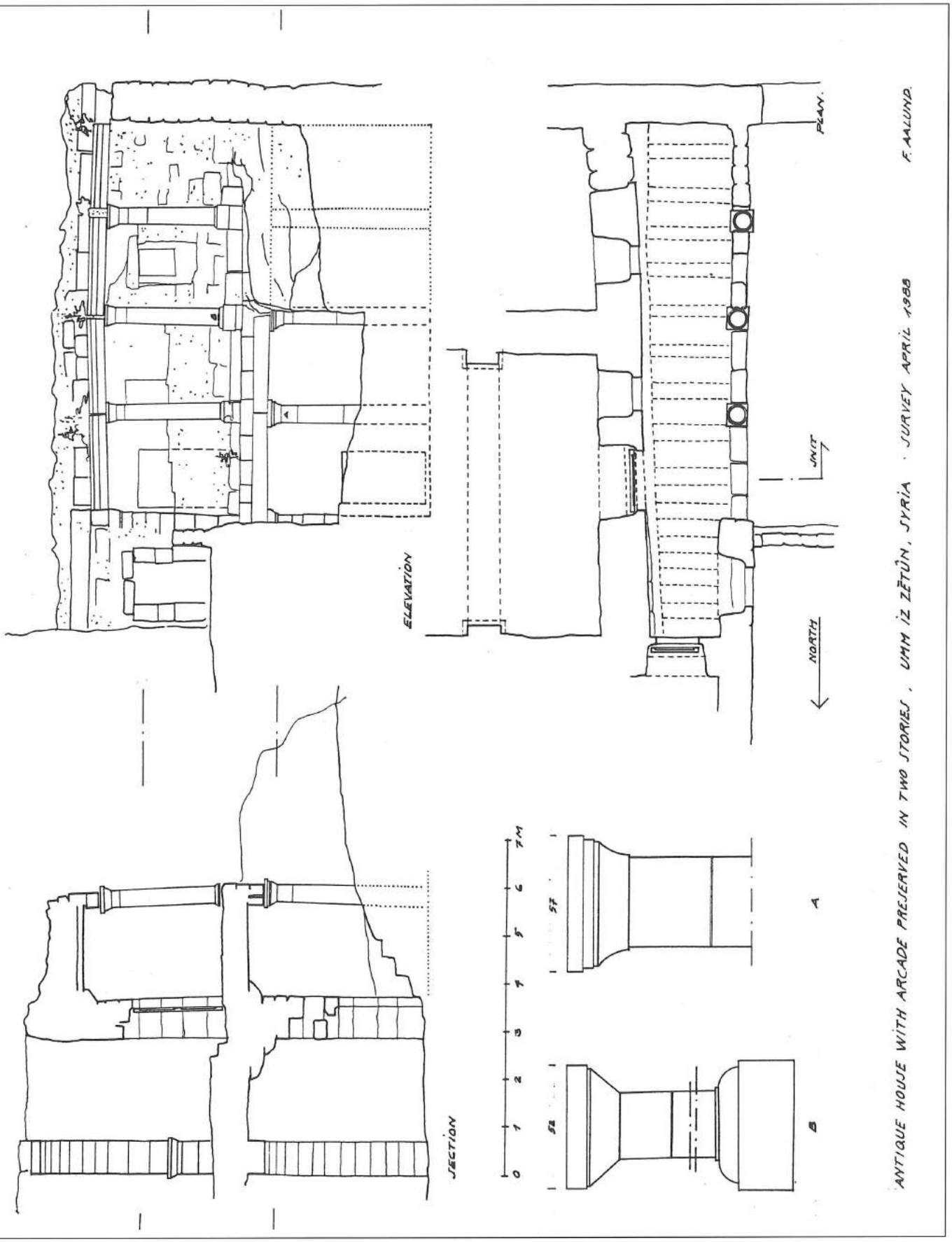
Whereas the classical impact on the architecture often becomes immediately visible at the facades or from the architectural decoration, the plan and construction of the vernacular buildings are rooted in a local and regional architecture, that continued to determine the local way of building quite independent of the imperial style and fashion of different historic periods (FIG. 4).

The Stone Building Construction

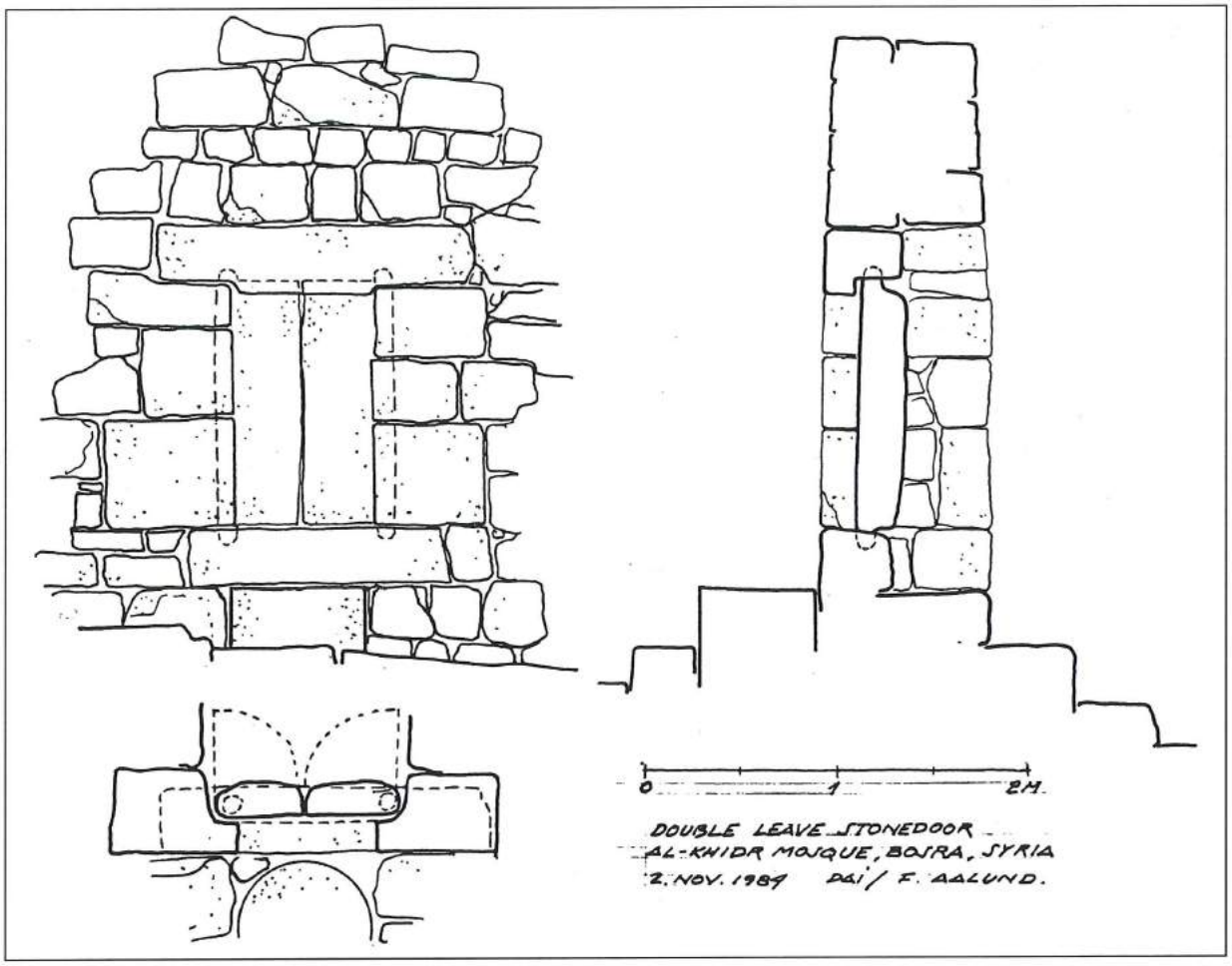
The solid and heavy stone is forming a mass construction in which apertures and niches become the principal motive of the architectural vocabulary. Even doors and window shutters are made in solid stone on hinges (FIG. 5). The double walls reach an average thickness of 70-90 centimetres. Generally, the quality of the ashlar work is in keeping with the prominence of the building, varying from crudely hammered stone masonry with rubble backing used by the waller to neatly picked and finely smoothed ashlar surfaces with fine jointing used by the mason. Often doorways and window openings are accentuated by way of a specially refined surface treatment. Once quarried the stones have been used time and again for building purposes. Existing buildings have been pillaged and especially decorative and precious features have become the hallmark of other buildings, or the stones have been re-moulded to fill a new purpose making any dating of buildings a very tricky affair. Even for the construction of such a prestigious edifice as the Cathedral of Buṣrā, building stones with carvings dating from the second century AD have been re-used.

The restrictions imposed by the bearing capacity of the basalt stone has determined the roofing shape. Most common is the flat roof obtained by spanning stone planks between corbel supports on top of the walls or stone-built arches. Above the corbels, the walls were carried up to about one metre or less, to weight the corbels down and to

[2] See especially: B. De Vries, 'Research at Umm el-Jimal, Jordan, 1972-1977', *BA* 1979, pp. 49-55, and subsequent studies.



4. Preserved colonnade forming a porch in front of a local building, Umm az-Zaytūn, Syria (Survey by Eeva-Liisa Rautalathi and F. Aalund, 1988).



5. Entranceway with double-hinged stone door, al-Khidr Mosque, Buṣrā (Survey: F. Aalund, 1984).

hold them in place. Alternatively, double-ended corbel stones were frequently used for the slabs on either side of the partition wall to counterbalance each other. The girder arches are spaced at regular intervals of about 3m and hardly exceeding 4 m. Due to the maximum span of the basalt stone slabs, the load-bearing walls and arches are placed at regular intervals, creating an almost modular design. The width of the rooms is thus determined by the span of the arch, while the length depends on the number of girder arches used for the construction.

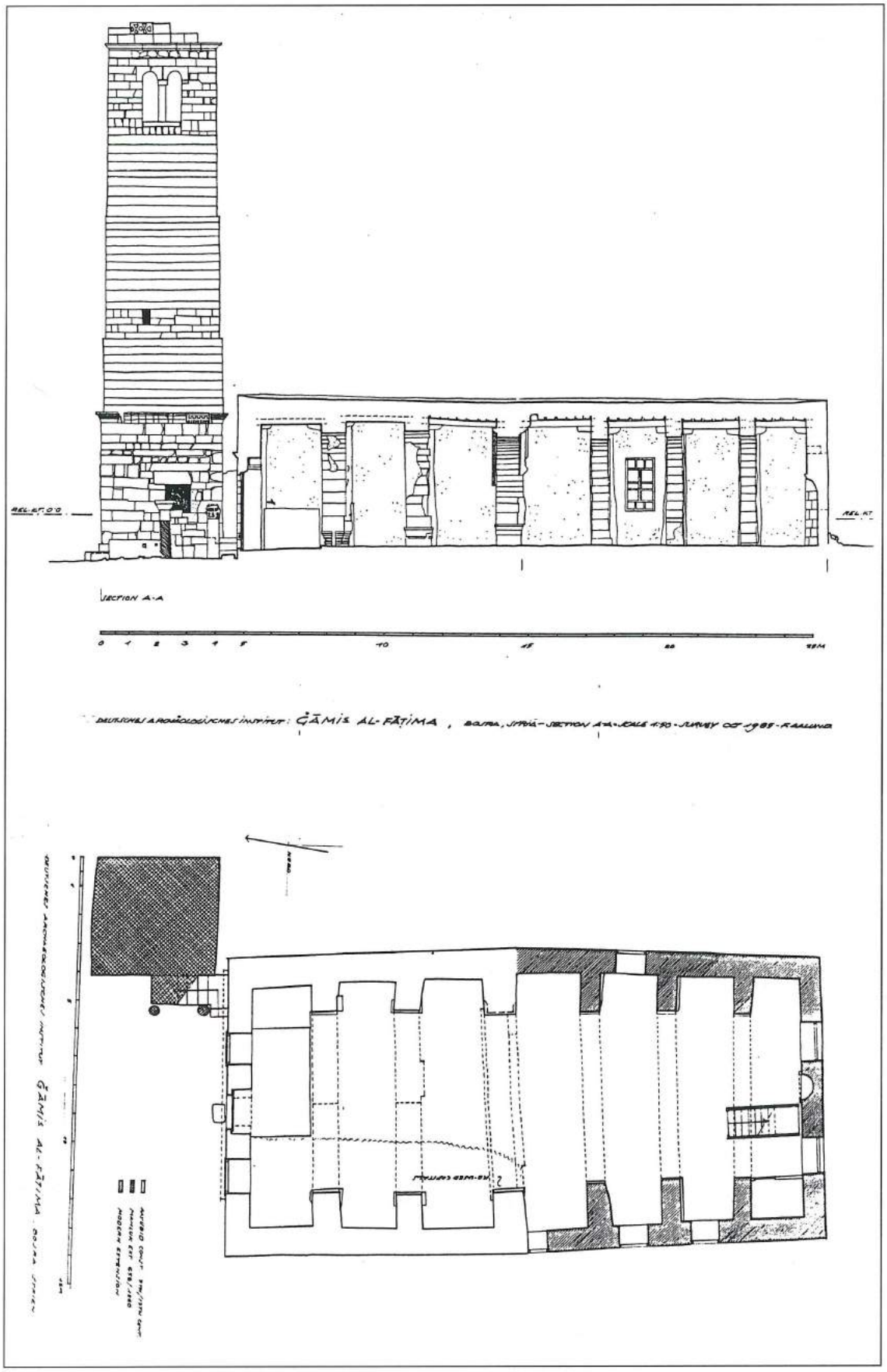
The building form has then been determined essentially by two factors: (i) Firstly by the use of basalt as the sole building material forming a truly lithic architecture and (ii) secondly, by the extensive use of the semi-circular girder arch as a means to span any larger space, implying that basalt planks can be used for roofing. But the outward trust of the aches have to be counteracted in one way or the other, either minimizing the trust by keeping the springing of the arch low (FIG. 6) or by providing various types of abutment to the external walls (FIG. 7). This structural implication has resulted in a widespread use of *'al-Bayt'* as the universal plan form, made up of a central hall with double floor-to-ceiling height and flanked to both sides by secondary rooms of lesser size in two stories, providing the required counterbalance[3]. In this way the use of buildings, material and construction methods constitute a unique vernacular architecture, which is based on a long tradition in the Middle East.

Al-Bayt

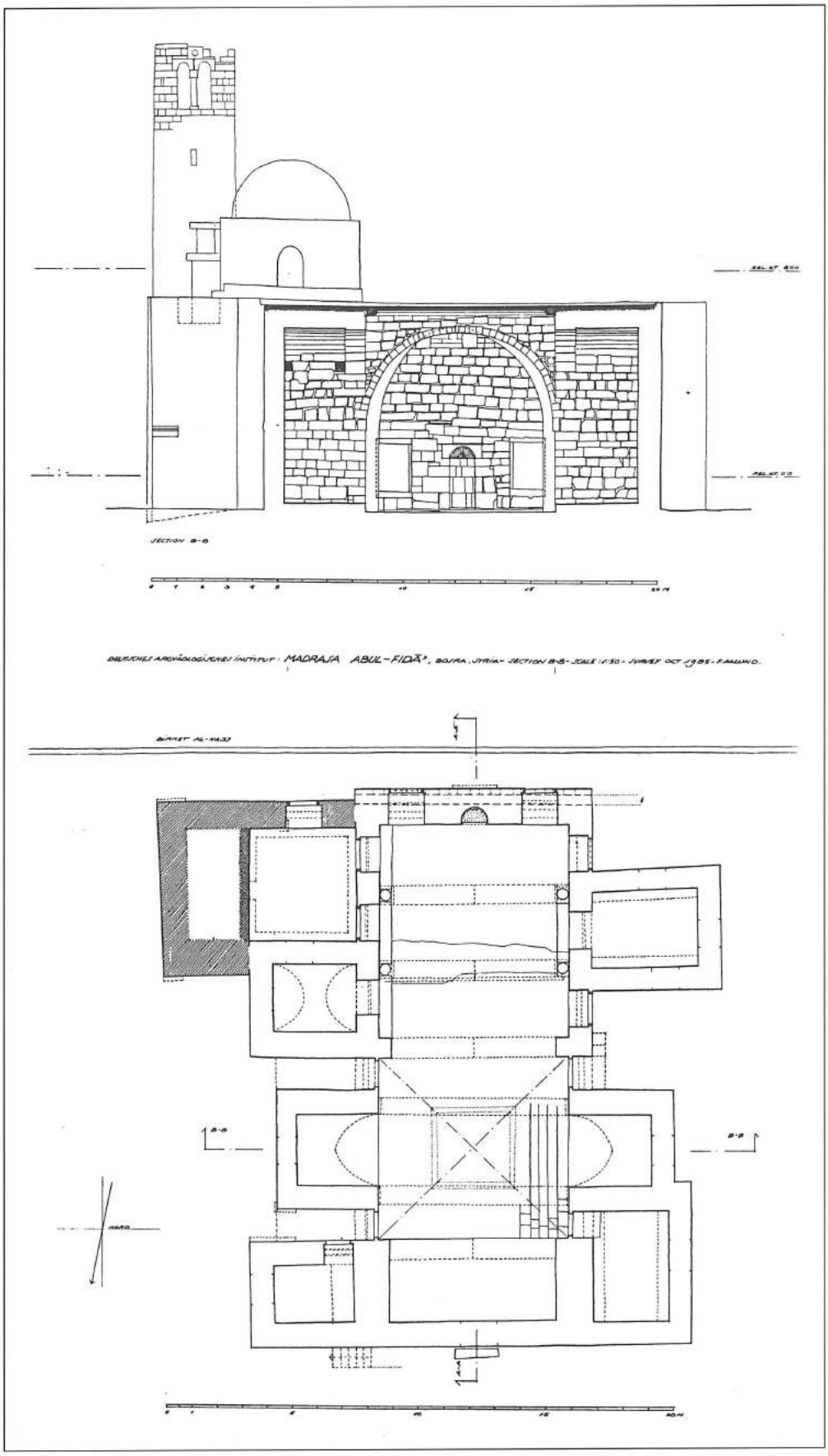
The impressive mansion at Inkhil may provide a good example of vernacular architecture (FIG. 8). The mansion is composed of three separate compartments, each with one big central room and several, secondary rooms adjoining. Obviously the size and decoration of the doorway accentuates different functions or the relative importance of the various units. It might have been built as a row house, possibly used for habitation by an extended family of several individual households, but it is difficult to suggest a definite function of the individual spaces, as long as the social organization and contemporary way of living is so little known (FIG. 9).

The central *bayt* is built to impressive proportions, featuring a large hall in the middle rising to a height of about

[3] The self-contained compartments are generally refered to as 'bayts' using the Arabic term for 'house' or 'dwelling', whether it might be the tent of the normads or the house of sedentary people.



6. The semi-circular arch of equal, centripetal stones without a keystone is the form generally used for the traditional architecture. Every single stone of the arch is cut to the same curve giving a direct interdependence between the span and the rise of the arch and consequently, a large floor area would result in a similar higher floor-to-ceiling height. Al-Fāṭima Mosque, Buṣrā, built before 1306 (Survey by F. Aalund 1985).



7. More prestigious buildings need a higher floor-to-ceiling height than normally found in local buildings and the subsequent statical problems can be solved by adding adjoining rooms or side-*īwāns*, which can provide the required counterbalance to the outward thrust of the transverse arches. Ad-Dabbagha Madrasa, Buṣrā, built 1226 (Survey by V. Hellborg and F. Aalund, 1985).



8. Main facade of the mansion at Inkhil, Syrial, forming a row-house with three individual *Bayts* (Photo by F. Aalund, 1988).

seven metres measured from floor to ceiling. Most astonishing, the vault of stone slabs forms a slightly ovoid shape, whereas the other halls have more traditional stone planks forming a flat roof on each side of the girder arch (FIG. 10). The central- and the eastern *bayt* have one of the separate rooms decorated with an elaborated cornice featuring carved floral motives and facial portraits in the style of the Palmyrene commemorative funeral reliefs adding to the puzzling and enigmatic interpretation of this place.[4]

Textual sources related to Umayyad ceremonies indicate that next to the formal *majlis* used for receptions, there was also a *majlis al-lahwah* intended for entertainments and pleasure.[5]

This description can give a plausible explanation to the plan form of the Inkhil mansion. The prodigious space of the central *bayt* with double floor to ceiling height would then be assigned to ceremonial functions serving as a reception room, or alternatively as an all-purpose room providing access to the secondary rooms, mostly without natural light and possibly serving as sleeping rooms.

The use of the *bayt* as the basic plan for housing has a long tradition in the Middle East. The layout shows great resemblance to Parthian and Sasanian architecture of Persia during the first centuries AD, and a reference to the main palace at Ḥatra falls near at hand (FIG. 11). This formal structure of grand design is composed originally with two open *iwāns*. At a later time the palace was extended by adding two more in succession and each of them are flanked by secondary rooms in two stories. Apart from the scale and the open front of the *īwāns*, the similarity of planning to the row house at Inkhil is very striking indeed and hardly accidental.

The elaborate plans of the Umayyad palaces of Qaṣr al-Ḥayr and al-Mushatta (first half of the eighth century AD) and the Abbasid palace of Ukhaydir (second half of the eighth century AD) may be considered an assemblage of similar smaller uniform housing units, joined together within a fortified complex of a formal design. Each of the individual units are typically composed of one central room or hall adjoined by smaller rooms on each side (FIG. 12).

It might be sensible to assume that these new, highly sophisticated desert settlements were closely related and depending on an agrarian community, which persisted in the Ḥawrān.

Assuming that the desert settlements are reflecting a contemporary building tradition firmly established in the more fertile parts of the Ḥawrān, it would then be obvious to conclude that they were part of the same cultural establishment, which continued to exist within the Ḥawrān also after the Islamic conquest in 13 AH/684 AD.

Then taking the Inkhil mansion as an example, there is a Syrian vernacular tradition, which form a link between the Parthian, Sasanian and the later Umayyad architecture, indicating a pervasive eastern influence at the plan and form of building, which has lasted quite independently of external influences during the Roman and Byzantine era.

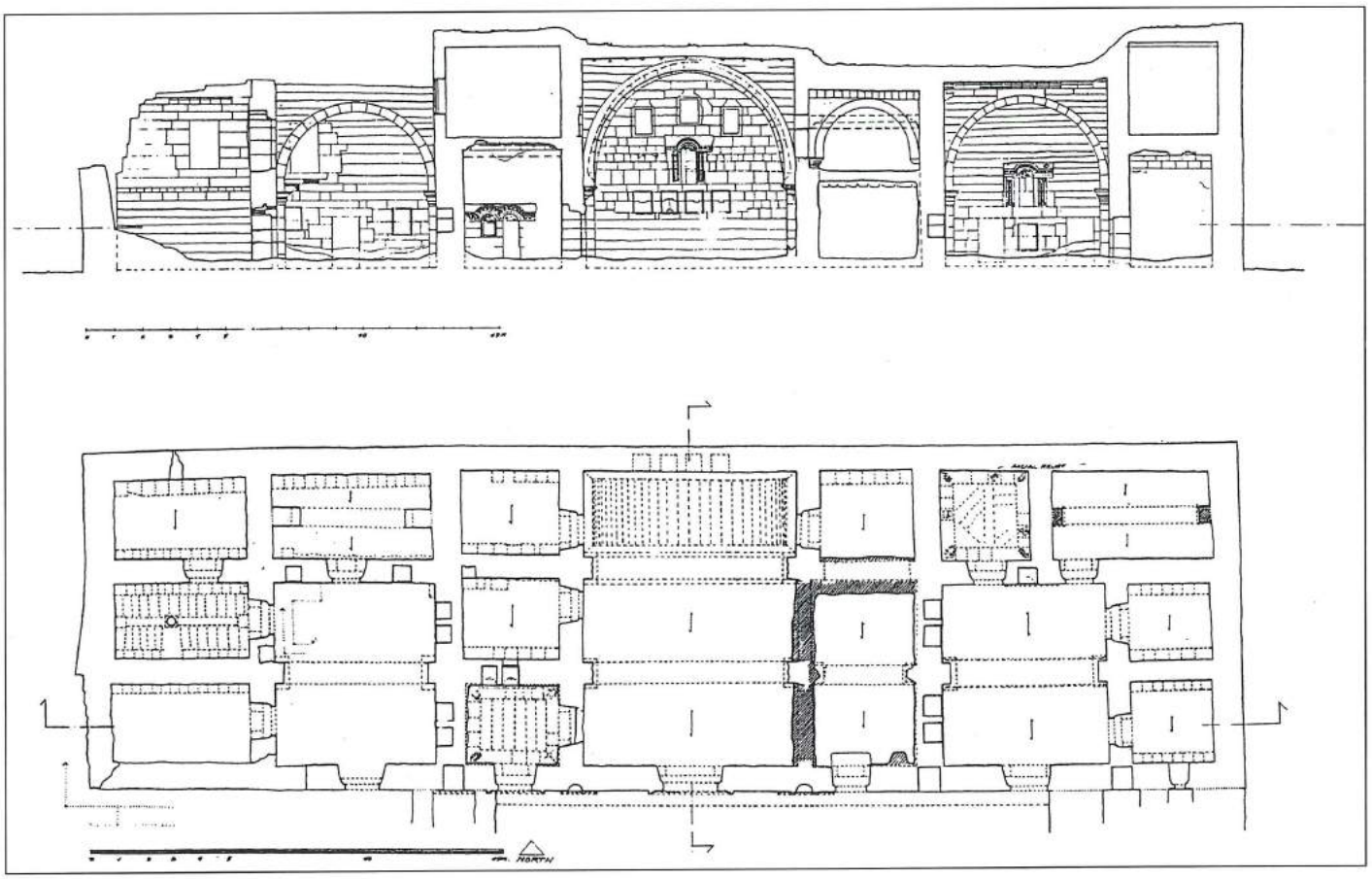
As a concluding remark it is pertinent to quote K. A. C. Creswell, referring to the so-called Roman palace at Buṣrā: '..the palace of the Roman governor, a monument, which has been completely ignored in all discussion on the origin of the Umayyad palace and its *bayts*'.[6] The preserved stone buildings in the Ḥawrān still provide an interesting field of research.

---

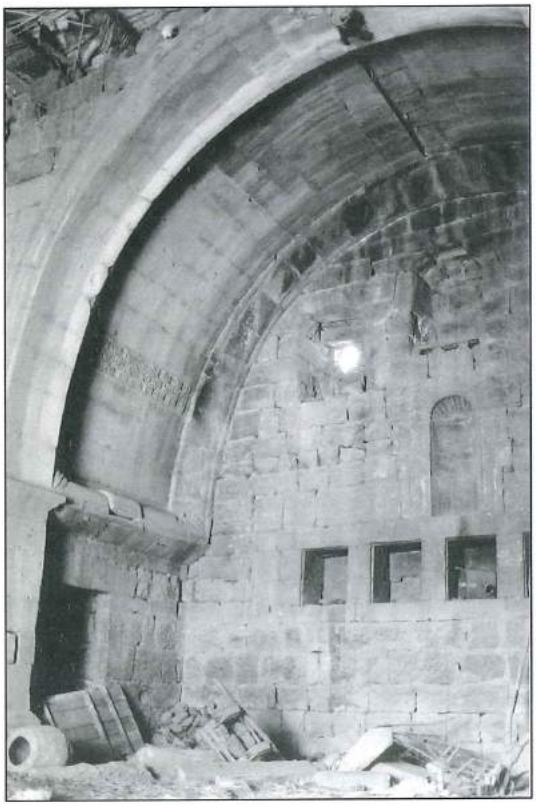
4 Relating to the classical traits in the ornamental decorations, Butler dated the building to the 2nd century AD; Dentzer-Feydy, discussing the chronology of classical ornament in the Ḥawrān proposes a later dating, possibly 4th or 5th century, arguing that the use of Greco-Roman ornaments ceased by the beginning of the 6th century. Certain construction details corroborate this dating. For example, the interlocking courses to be seen in the large central hall and the sun hood above the tripartite window arrangement are typical features of the Byzantine architecture in the area. Also the shell-niches put up at the interior seem to be re-used fragments, indicating the eclectic style of the architecture and the building could be of a later dated, possibly of the Ummayad period.
For a more detailed analysis of the architectural decoration in the Roman and Byzantine Ḥawrān confer J. Dentzer-Feydy, 'Décor Architectural et développement du Ḥawrān dans l'Antiquité', Pp. 261-309 in J.-M. Dentzer (ed.), Bibliothéque archéologique et historique, vol. 124, *Ḥawrān* I, 1985, Paris.

5 Oleg Grabar, *The formation of Islamic Art*, 1987, p. 148, Yale University Press.

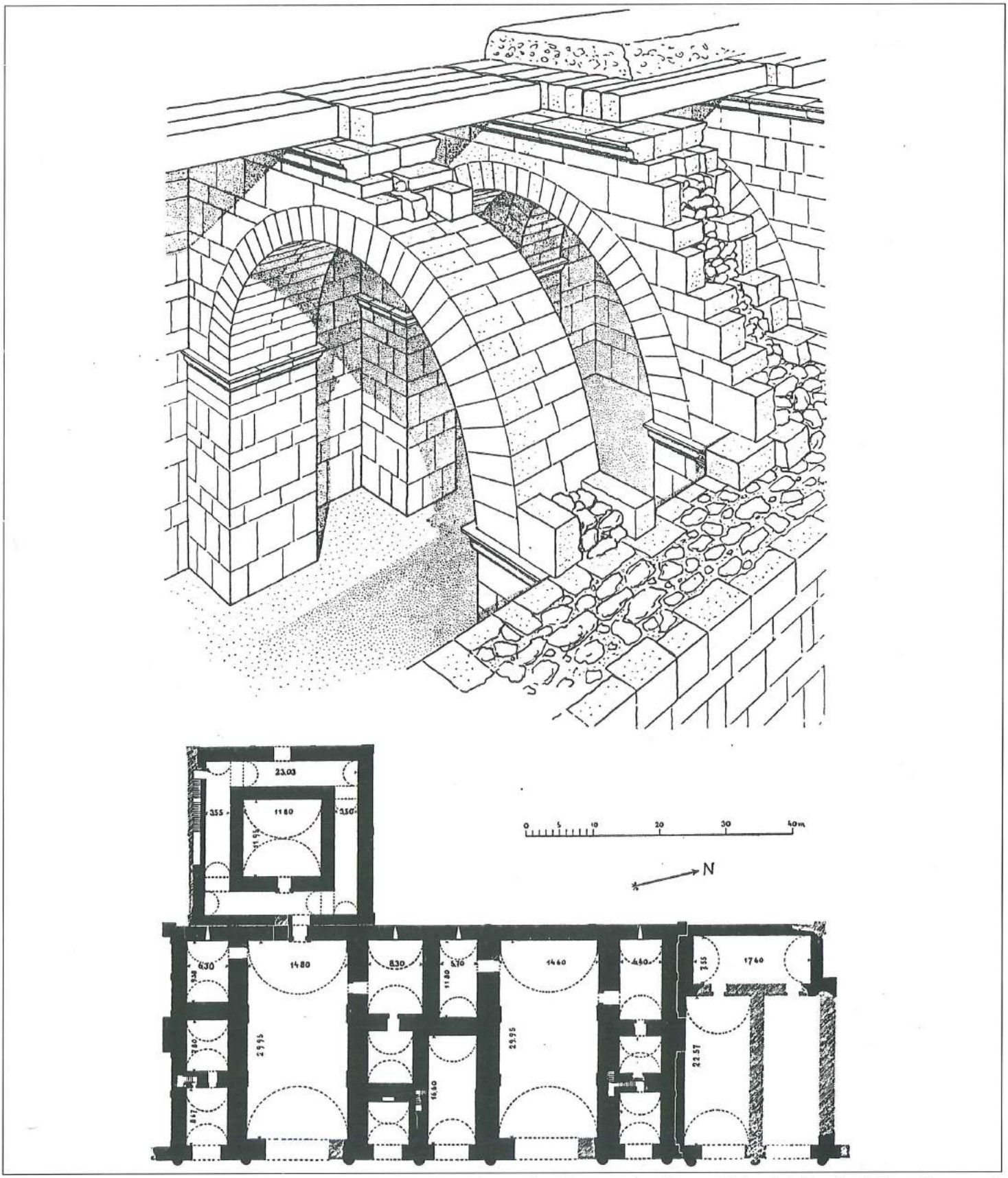
6 K.A.C. Creswell, *Early Muslim Architecture*, (reprint), New York, 1979, vol. I, part II, pp. 214-15. The monument is published by H. C. Butler, who dates the building from the early Roman period, see *PPUAES*, Div. II,A, pp. 255-260; the reconstruction ill. 229, does not include the staircase in the north-eastern corner of the building; this structure is similar to early Nabataean examples at Mampsis (modern Kurnub) possibly corroborating Sartres view, that the building may be attributed to the Nabataean period of Rabbel II; cf. Maurice Sartre, *Bostra, des origines á l'Islam, Biblioteèque archéologique et Historique*, vol. CXVII, 1985, p.94, Paris.



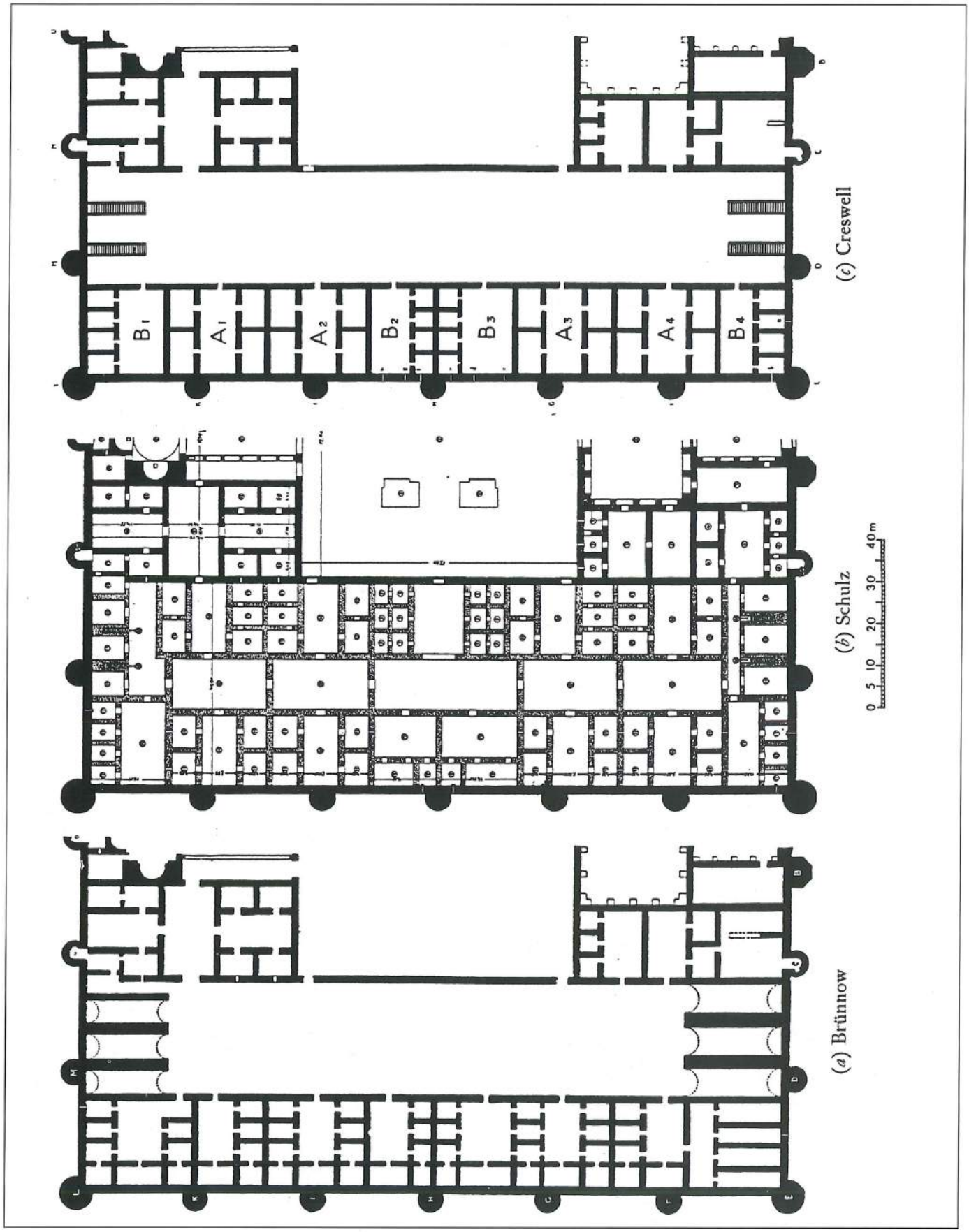
9. Plan and section of mansion at Inkhil, Syria (Survey Eeva-Lisa Rautalathi and F. Aalund, 1988).



10. Large stone vault in ovoid shape at the rear of the mail hall, mansion at Inkhil, Syria (Photo by F. Aalund, 1988).



11. Ḥatra main palace, ground plan and axonometric view showing scheme of roof construction. Source: O. Reuther, Parthian Private Houses and Palaces, *A Survey of Persian Art*, A. Upham Pope, (ed.), vol 1, 1939, London.



12. Al-Mushatta: Plan of western side court, attempted reconstructions. Source: K.A.C. Creswell, *Early Muslim Architecture*, vol.1, part II, 1969, Oxford.

Raouf Abujaber
Amman - Jordan

Raouf Abujaber

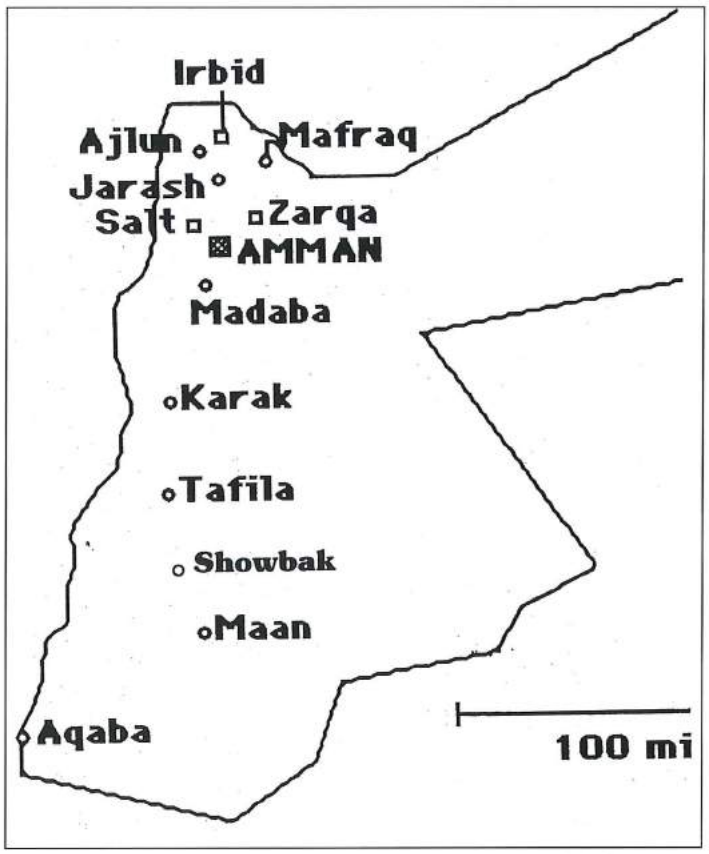
The People of Jordan during the Second Millenium AD

A thousand years ago, the population of Earth stood at 250 million people, a figure which was unchanged for probably the preceding one thousand years. Like nowadays, China had one quarter of these people and Cordova, the largest city, had only 450000 inhabitants. These revealing facts are the result of an extensive research carried out by the *National Geographic* Magazine (vol. 193/1, January 1998) in their attempt to spotlight six subjects that will shape human destiny the next one thousand years. The subject of this important study "Making sense of the Millenium" will undoubtedly be an outstanding contribution about the pressures of population growth, the relations of humans to nature and to one another, science and human culture.

During that period the Arab world had what the distinguished historian Albert Hourani called "A long period of dislocation and these changes may have been symptoms of a deeper disturbance in the balance between Government, population and production" (Hourani 1991: 213).

The population of Jordan with those of the other parts of Bilād ash-Shām must have felt the effects of that dislocation (refer to FIG. 1). In the year 1000 the political and military powers were in the hands of Al-Ḥākim, the Fatimid ruler. His name is well-remembered for persecution and mistreatment of the people in a grand attempt to spread Shi'ism. His ruthless measures greatly disturbed the religious setup prevailing in the land, and many Christians converted to Islam. Probably it was during his reign that farmers of the southern parts of Jordan started migrating northwards, especially to the Ḥawrān. Al-Ḥākim who declared himself in 1017 a god, at the encouragement of Al-Durzī, died in mysterious conditions in 1021. Al-Durzī managed to escape to Lebanon where he founded the Druze sect (al-Sa'id Sulaeman 1969: 132).

Prior to this unhappy episode in the life of the people, happenings of major importance took place. In the year 941 Muḥammad al-Ikhshīd, who was already an independent ruler of Egypt under nominal loyalty to the



1. Main population centres in Jordan during the second millenium.

Abbasid Caliph in Baghdad, occupied Bilād ash-Shām. He died in 946 and as his two sons were young, the real authority fell into the hands of a black eunuch of the palace named Kāfūr. Being originally an African slave, his authority was questioned by many in Bilād ash-Shām and in 960, Shabīb ibn Jarīr al-'Uqailī, Governor of 'Ammān and al-Balqā', advanced against Damascus with an army of ten thousand horsemen and, after a short siege, occupied the city. Jarīr, however, died in mysterious circumstances that same day, and his troops, whilst making a disorderly withdrawal, lost over four hundred horsemen.

This short-lived event has been fortunately put on record by a famous poem of Abū aṭ-Ṭayib al-Mutanabbī, when he was still at the court of Kāfūr in Cairo (see al-Mutanabbi 1944).

Conditions in Jordan during the 261 years of Fatimid rule must have been dominated by the instability of Al-Ḥākim's period and the hardship brought about by the many Crusades that followed. The First Crusade was two years after the visit of Peter the Hermit to Jerusalem in 1094. Jerusalem fell in 1099 and a few years later the new Latin Kingdom in the Holy Land started its incursions into the Jordanian territories. The first expedition was against Wādī Mūsā, and in 1107 Baldwin attacked the southern parts. In 1110 he built the castle of al-Ḥabīs and in 1115 he built the castle at ash-Shawbak, better known in European history as Montreal. After that the occupation of the southern parts of the country followed up in a more systematic manner. The castle at Wādī Mūsā was repaired, al-'Aqaba was occupied and a castle was built on Fir'aun Island. Castles were also built at aṭ-Ṭafila, Ma'ān and al-Wu'ayra in the ash-Sharāh Mountains. The building of the castle at al-Karak was completed in 1142, and this city became the centre of Crusader life in Transjordan until 1188 when it was retaken by Saladin, never to be attacked again by the Crusades.

These ninety years of wars must have had their deep effect on the life of the people in this area. Agriculture must have suffered during the expeditions and fruit orchards and olive groves were sometimes used as tools of warfare. In 1144 the Crusaders were only able to occupy the citadel at al-Wu'ayra after threatening to cut down all the olive trees in the Wādī Mūsā region (Peake 1934: 124; Kennedy 1925: 37). The people had no choice but to adapt themselves to situations and in spite of all the odds, they continued to produce wheat, cochineal, dates, wines and sugar. They also paid their taxes and especially their import and export dues on goods. The Crusaders established a fleet at al-'Aqaba and were exacting dues on all sea and land trade in and around the Gulf, as well as collecting taxes from trade between Jordan and Palestine across the Dead Sea (Peake 1934: 125; Schlumberger 1923: 164).

During these times, the area — for all purposes — was split in two halves, the northern being under the Governors of Damascus, and the southern under the Crusaders who had no interest or strength to occupy the north. The mountainous area in the north was saved the agony of continuous fighting although the citadel at Jarash was attacked and destroyed by Baldwin II in 1121. Life in the area nevertheless continued as usual and it was only in 1183 that Saladin ordered the building of the ar-Rabaḍ Castle at 'Ajlūn, mainly as an outpost to watch the enemy's movements.

The Ayyubid rule in al-Karak continued from the defeat of the Crusaders at Ḥiṭṭīn in 1187 until after the Mogul invasion in 1263. Four kings ruled and the countryside seems to have regained wider stability and economic progress. Al-'Ādil, Saladin's brother and first King of al-Karak controlled all Transjordan. He extended the ar-Rabaḍ Castle in 1214 and built the castle at as-Salṭ after putting down a revolt in the same year. The region continued to be an important agricultural area but it also continued to play an important role as a result of its geographical position. It was the transit arena for all caravan routes between Egypt and Bilād ash-Shām and this resulted in income to the ruler and ruled alike. It also enjoyed the benefits of the pilgrimage yearly caravan and what it brought with it in trade and transport activity.

Following these developments the people in Jordan experienced a new phase of stability, and prosperity under the famous ruler Baibars who became Mamluk Sultan of Egypt and Bilād ash-Shām in 1260. He gave Jordan all the importance it deserved as the link between Cairo and Damascus. In his endeavors, he aimed to reconstruct the general system in the land after its bad treatment at the hands of the Moguls who had destroyed the infrastructure, demolished the castles at as-Salṭ and 'Ajlūn, killed many of the men, while on their withdrawal they took the women and children captive. In addition to rebuilding the castles, Baibars reconstructed public buildings at 'Ajlūn, as-Salṭ, Ḥisbān, Zīzia, and the Dāmīa bridge at the Jordan River (al-Ghawanmih 1979: 83). His plan of reconstruction must have succeeded in bringing back to the area the people who had left during the Mogul invasion and new settlers who were impressed by the strong government. Baibars gave special attention to the Jordan Valley in general and the produce of sugar cane in particular, including that of his own estate at ash-Shūna ash-Shamāliyya (al-Ghawanmih 1979: 85). Needless to say that Al-Karak and ash-Shawbak and their populations benefited a great deal as they became garrison cities as a result of their strategic importance on the road to Cairo. This importance was so impressive that during Baibars rule and for many decades after him, the region was attached to Egypt administratively.

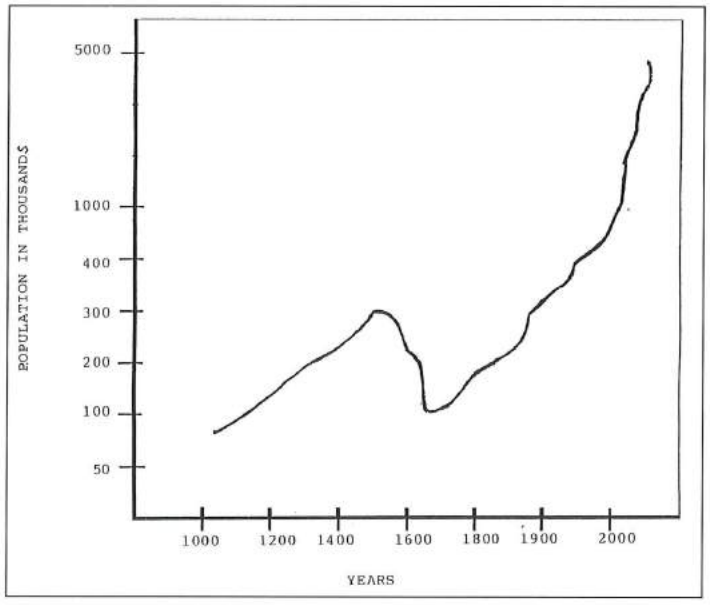
The Mamluk rule in Jordan — which extended until the Ottoman conquest in 1517 — was relatively good for the people as it gave to the area the benefits of the strategic importance mentioned above. Al-Karak, during different periods, became a kingdom under kings who trusted the people and received their loyalty. A certain standard of economic progress seems to have prevailed allowing development in the social and cultural fields. Arab historians relate that *'ulama*, singers and musicians traveled from al-Karak and ash-Shawbak to Cairo where they acquired fame and that a Christian merchant of ash-Shawbak presented to Sultan Barquq one hundred thousand gold dinars to assist in the mobilization of his army

in the year 1399 (al-Ghawanmih 1979: 116).

The study of population in the area meets with a landmark in the year 1005 H/ AD1595, when the first Ottoman census was carried out. This census gave the figures of nearly 51000 for all the areas of Transjordan for the settled population and although there is mention of the Bedouin tribes Banī Ṣakhr, Na'īm, Ṣumaydāt and Banī Mahdi (Hütteroth and Abdulfattah 1977), the stress there was on the amount of taxes and not the population. It is therefore reasonable to assume that the Jordanian countryside had possibly a population of 100,000 people in the year 1595 (see FIG. 2). This is considered by researchers as evidence of an increase of population during the 16th century, when it is taken into consideration that the last part of the 14th and the 15th centuries have been periods of depopulation as a result of the plague and the decline in economic activity following it (Dolls 1977).

The start of the census period in Bilād ash-Shām did not mean that Transjordan was to continue having them and we are unaware of any similar census during the 17th, 18th and eight first decades of the 19th centuries. This situation necessarily takes us back to the use of estimates depending on other administrative and fiscal governmental records, local chronicles, and travellers reports. The basic fact remains however that during that period of stagnation and instability, the true population figures will never be known.

Perhaps it will be useful at this point to discuss the different systems that have been used by historians and researchers to assess the numbers of people in other areas. These included the study of living space and the areas of settlements. Archeologists have made good studies in this direction but fast development and drastic changes in the countryside make this a difficult proposition for Jordan. Food requirements, such as wheat and other cereals production, will be a good base for estimates since Jordan has been all throughout a producer. Furthermore the areas where wheat and cereals were produced can still be assessed since the frontier of settlement is still known. A third scheme may prove more useful through the study of ruined sites in a certain period and counting the wells of water in the suburbs of sites that still have them. In this regard I would mention al-Yādūdah which was repopulated around 1860. Sixty years ago it had an estimated population of around 400 people who had at their disposal around 120 repaired wells, having an estimated total capacity of 7000 cubic meters of water. Considering that the village had a big *birka* (pool) for watering the livestock, this gives an average of no more than 17.5m^3 per person per annum. It is not much by today's standards but it is definite that people living to the east of al-Yādūdah had to do with much less.



2. Preliminary chart attempting to show the population changes in Jordan during the second millenium.

It is therefore very difficult to give even reasonable estimates for the population figures during the different periods before AD 1600. A rough estimate of people at the time of the Crusades may be around 200,000 with perhaps some 80,000 under Crusader administration and the remainder in the eastern areas and in the north under the Ayyubids. This number may have increased at the time of the Kingdom at al-Karak and later Baibars to some 300,000 people. The 15th and 16th centuries had a decreased population of around 20,000 that increased to around 100,000 when the census was carried out in AD 1595. Larger figures as some researchers tend to present, are not convincing since the water supply in the plateau without any rivers and a limited number of springs, could not have supported a population of larger numbers.

The situation during the Ottoman period followed the same pattern and the population of Jordan at the end of that administration in 1918 could not have been more that 200,000 people. Ruppin in 1915 estimated it at 131,788 while Grobba in December 1917 estimated it at 141,198. Both figures did not include Bedouins and refugees and therefore the figure 200,000 may be the one acceptable under the circumstances.

An attempt at an administrative survey in Jordan was carried out in the different districts in 1938 and the result of 300,214 people showed an increase of importance. The actual official census was the one held in 1943 which showed that the country's population was 340,000 people of whom 75,000 lived in the four cities of 'Ammān, as-Salṭ, Irbid and al-Karak. The population in 1948, when the first wave of Palestinian refugees arrived, could have been between 375,000 and 400,000. It was then that the real change started and the population suddenly increased.

The story of this striking change within 50 years

where the population grew from 400,000 to 4,600,000 people is a story of great endeavor. It will be registered in the annals of history that Jordan, a relatively poor country with very little water or natural resources, managed with the wisdom and perseverance of a progressive king and the planning and hard work of the government not only to keep the country going but to improve the standard of living for millions in the general public. This outstanding performance, it is hoped, will continue as the numbers increase and the population of Jordan will hit the figure of five million at the turn of the century when we enter the third millenium.

The twentieth century when it comes to its end, will close with 12 times as many people in Jordan as there were when it started in 1900. In spite of the fact that the high rate of annual increase has been reduced, the world will have a population of 6.2 billion in the year 2000.—Jordan on the other hand had around 200,000 around the year 1900 and will end the millenium in 2000 with nearly 5 million or an increase of 12 times compared to the world's average of 3.6. Providing for all of them as *The Times Atlas of the World* states, is "the great challenge of the next few generations", but for the Jordanians the challenge is much greater than the standards known to humanity up till now.

References

Dolls, M. W. 1977. *The Black Death in the Middle East*. New Jersey: Princeton University Press.

al-Ghawanmih, Y. D. 1979. *Sharqi Al-Urdun in the Era of the First Mamluke State*. Cairo.

Hütteroth, W.-D. and Abdulfattah, K. 1977. *Historical Geography of Palestine, Transjordan Southern Syria in the Late 16th Century*. Palm and Euke Erlawgen.

Hourani, A. 1991. *A History of the Arab Peoples*. Cambridge: The Belknap Press of Harvard University Press.

Kennedy, A. 1925. *Petra; Its History and Monuments*. London: Country Life.

al-Mutanabbī, 1944. *Diwān al-Mutanabbī*. Edited by Abdul Wahab Azzam. Cairo.

Peake, F. 1934. *Transjordan and its Tribes*. Jerusalem.

al-Sa'id Sulaeman, A. 1969. *Tarīkh* ad-Duwal *al-Islāmiyya*. Cairo: Dar al-Ma'arif.

Schlumberger, S. 1923. *Renaud de Chatillon*.

Pietro Ruschi
Università di Udine
Italy

Guido Vannini
Università di Firenze
Italy

Pietro Ruschi and Guido Vannini

The Fortified Crusader-Ayyubid Settlements in the Petra Valley: A Study for a Project of Restoration[1]

1. Mediaeval Petra: A Research and a Project

The site of al-Wu'ayra, famous for the presence of a small Crusader castle,[2] is becoming one of the most interesting and outstanding archaeological areas of the region and potentially able to express significance and historical and archaeological values comparable to the most important ones present in the nearby Valley of Petra.

The results obtained by the Italian Archaeological Mission, already allow us to consider the area of al-Wu'ayra as the centre of a complex system of observation and protection of the main accesses to Petra, thus making its occupation and control very important (FIG. 1).[3]

The archaelogical analysis, and the topographical reading of the valley of medieval Petra have outlined a Crusader facies of a western presence in this area and from here to the Transjordanian region —the only area that for historical reasons has preserved clear characteristics of the first European settlements in the Holy Land.



1. The al-Wu'ayra castle, key to the access system of Petra.

The philological reconstruction of the complex material traces of settlements and Crusader presence, using special methods of 'global' archaeology (analysis of the stratigraphy of the walls, archaeology of the landscape, archaeometry) can be the documentary basis for a number of structural, monumental and environmental operations — that aim at conservation and involve a number of sites

The conservation aim of this project must correspond with the creation of a recognized system — able to inform by means of a documentary apparatus and with the aid of information systems that aim at a critical reconstruction of the site and the fortifications, in relation with settlements comparable in different ways.

As regards directly to the program of conservation, restoration and exploitation hereby presented, we can observe that at the moment we have a large amount of documentary material that gives us a scientific basis, philologically ascertained to accomplish the selected operations that will be necessary. On the other hand, the very process of archaeological exploration we are expecting to carry out, can easily be extended to acquire new information that could be useful to the program of exploitation. This program will be carried out with a series of specific operations on some of the constructions of particular architectural interest and with the requalification of the ar-

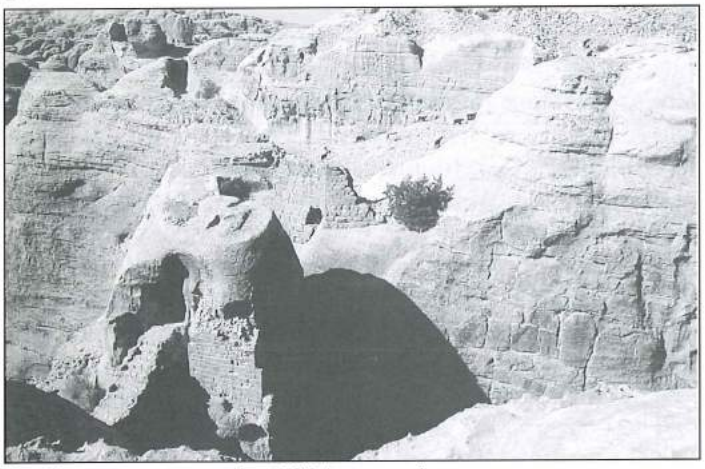
[1] This paper relates to the project of University of Florence, Ministero dell'Università e della Ricerca Scientifica e Tecnologica ('Ricerca scientifica di rilevante interesse nazionale', 1997/8 dedicated to 'Settlements of the Crusader-Ayyubid Period in Transjordan', in cooperation with the Ministero degli Affari Esteri (direttore di missione Guido Vannini). Parts 1 and 2 are by G. Vannini, 3 and 4 are by P. Ruschi; translation by Barbara Salvadori. The photographs are by Anna Marx (FIGS. 1, 2, 4, 11, 12, 14, 16, 18, 19), Mario Frau (FIGS. 5, 7, 10), Guido Vannini (FIGS. 8, 9, 13, 15), Pietro Ruschi (FIG. 20); drawings are by Tommaso Zoppi (FIG. 3), Riccardo Berretti, Stefano Bertocci e Pietro Ruschi (FIGS. 6, 17, 21).

[2] Recently, the castle has been studied briefly for the first time by H. Savignac, Ou'airah, *RB* 12, 1903, pp. 114-120; see also G. Vannini and A. Vanni Desideri, Archaeological reserarch on medieval Petra: a preliminary report, *ADAJ* 39, 1995, pp. 1-32.

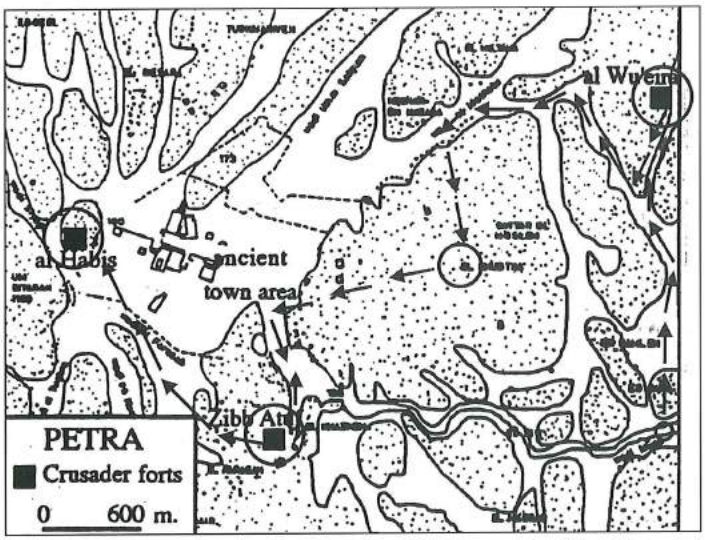
[3] Cf. some recent results obtained by the research of the University of Florence carried out by G. Vannini and C. Tonghini, Mediaeval Petra. The Stratigraphic Evidence from Recent Archaeological Excavations at al-Wu'ayra, in *SHAJ* VI, Amman 1997, pp. 371-384 and the main publications indicated.

chaeological, monumental and naturalistic area as a whole (FIG. 2).

The result could be a route — from Wādī Mūsā to Jabal ʻĀṭūff, touching the castles of al-Wuʻayra, the main entrance of the valley of Petra, and the fort of al-Ḥabīs — connected to the nearby 'Royal Capital' of ash-Shawbak, allows us to become aware of characteristics and culture of the European settlements in ancient Petra (FIG. 3). A similar example of restoration and 'use' of the territory in an intact archaeological area, defined integrating the archaeological recostruction of the sites and the territory, would form examples of operations recently carried out on Italian archaeological areas and up to today never experimented in the Near East.[4]



2. The access area to the al-Wu'ayra castle.



3. The archaeological route to medieval Petra.

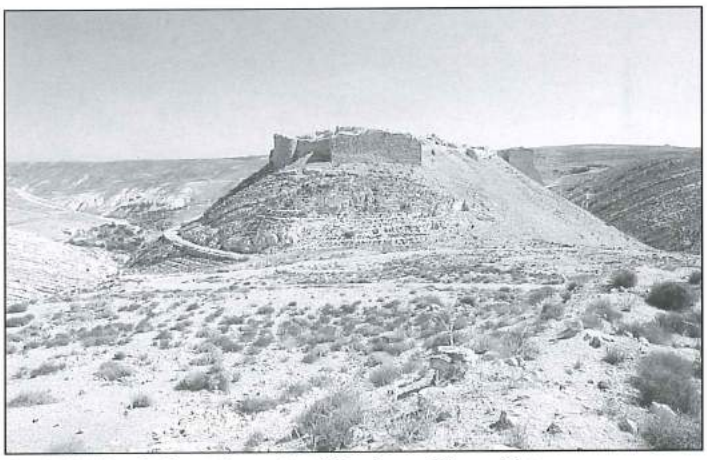
2. Forming an Archaeological Picture

Firstly, in synthesis, we must take into consideration some basic archaeological elements that have been identified during the various phases of the research work, that can be usefully included in the choice of the plan, both regarding the comprehension of the historical and archaeological significance, in accordance with the tradition of the region and the planning of the territorial and structural emergences present.

The research required a series of topographical reading and a wide archaeological reconnaissance, as well as an analysis of the territory and a horizontal stratigraphy of the area of Petra. On such basis, first of all, it appears that the dimension and territorial role of the settlements examined in the area of Petra turn out to be the center of the Transjordanian area, both politically (with the exception of a brief period in the second third of the 12th century) and strategically, right back from when it was founded by the king of the Latin reign of Jerusalem.[5]

Under this light the royal establishment of Crac de Montreal (ash-Shawbak) has a precise strategical-territorial significance as an integrating part of the external system of connection between the military base, acquired during the first decade in the valley of Petra, and the regional road system. A very important strategical system referable to the road leading from north to south (the biblical 'road of the Kings' between Syria and Egypt) near the main ramifications of the tracks leading towards the internal areas of the Arabian peninsula (FIG. 4).[6]

Secondly, closely connected with the above territorial organisation, the complex western fortified system stands



4. Ash-Shawbak castle on the "King's road" near Petra.

[4] As regards to the problem of the conservation of open archaeological sites there are recent publications, especially carried out by Italian archaelogical schools, starting from the account given by the records of the meeting *I siti archeologici. Un problema di musealizzazione all'aperto*; Roma 1988; see also G. Vannini, Ricerca scientifica e comunicazione sociale in archeologia: un rapporto da definire, in *AA.VV., La società fiorentina nel basso medioevo*. Elio Conti, *Nuovi Studi Storici* n. 29, Roma, Istituto Storico Italiano per il Medio Evo 1995, pp. 255-282 and *Siti e monumenti della Giordania. Rapporto sullo stato di conservazione*, ed. L. Marino (who took part in the mission of the University of Florence between 1987-1990), Firenze 1994.

[5] Vannini and Vanni Desideri, Archaeological reserarch on medieval Petra, *op. cit.*, pp. 511-514; Vannini and Tonghini, Mediaeval Petra. *op. cit.*, pp. 371-373, 383.

[6] A useful summary explanation is collected by H. Kennedy, *Crusader castles*, Cambridge 1994; cf. also L. Marino, 1997.

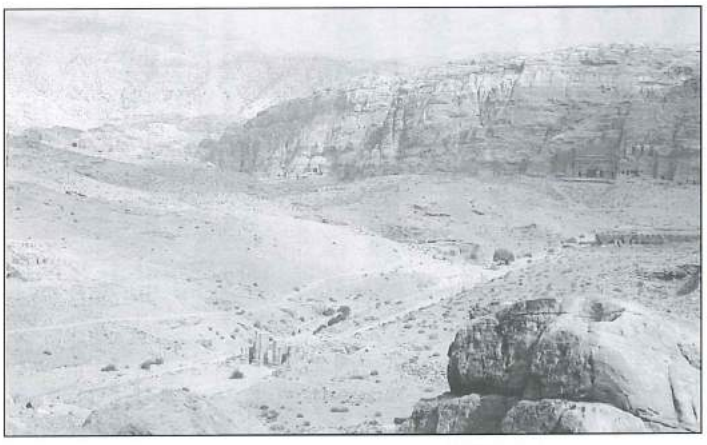
out — later abandoned again by the Ayyubids, with no exception — in the entire region and in the Valley of Petra. This characteristic has emerged very clearly during the archaeological analysis of the landscape carried out in the area of Petra. The control of the valley and its access systems appears to be the main reason why the Crusaders settled in an area that had been abandoned for centuries. A picture of the settlement together with the project to clarify a historical event that can be clearly explained with the aid of an organized and suggestive itinery, included in the touristic routes in programme (FIG. 5).

Some of the main fortifications in the area of the valley would then become more comprehensible; because of their topographical position (both in relation to the environmental and orographical character of the area and in relation to the other fortified sites), and concerning the choice of the organisation of the 'spaces' and the various architectural solutions chosen.

First of all, the castle of *Li Vaux Moises* (al-Wu'ayra), is the main point of support of the western establishment of Petra and of the fortified site that guaranteed full control of the main accesses to the valley (FIG. 6).

Externally to this, deep stratigraphical analysis has indicated the fundamental historical function of each presence interested in the control.

At present, the stratigraphy of the site indicates the presence of settlements of three different periods, two of which have impressive monumental characteristics that make al-Wu'ayra a potential, almost unknown archaeological area of great interest: the facies late Neolithic and the medieval. The former, characterized by a monumental necropolis of tombs dug in the rock, pathways and sacred areas (FIG. 7);[7] the latter formed by a vast and complex defensive network, dating back to the Crusader-Ayyubid period around a central castle, that make part of a complex system of protection and control of the Valley of Petra, including other internal and external fortified areas (i.e. al-Ḥabīs and Shawbak). For a century this system placed Petra, politically, in the center of the entire historical Transjordan (Fig. 8).



5. The Valley of Petra and the Crusader fortified system of al-Ḥabīs.

The castle of al-Ḥabīs, that dominates the internal part of the valley and at the same time closes the entrances (FIG. 9), like the castles of al-Wu'ayra and probably Jabal 'Āṭūff (FIG. 10), has different characteristics even if in some ways complementary; after Philip Hammond's pioneering but very useful reseach carried out about thirty years ago,[8] a thorough archaeological survey of the surface has been carried out (and stratigraphical tests are planned for our following mission).

This fortified site appears more complex than we had assumed, with a strictly military arrangement and fitting and practically no residential functions (FIG. 11).[9] It occupies the peak of an entire rock formation and dominates, with a number of natural rock buttresses and rock terraces all around the peak, up to the extreme northern point of the valley below, the only position that can fully control Wādī al-Maṭāḥa entrance to Petra, externally closed in by al-Wu'ayra (FIG. 12).[10]

For the latter castle, we have precise information concerning the location and the function of the entire structure, as well as for each single architectural solution taken by the constructors and modified during the century of the Crusader occupation (and partly Ayyubid) (FIG. 13). We are still acquiring data for al-Ḥabīs, and as yet we are not in possession of the vertical stratigraphy (both external and internal, in height and underground) that could suggest the type of conservation intervention necessary to emphasize this characteristic site.

3. The Production of a Project and the Proposal of a Plan

Fundamentally, the project suggested can be carried out in three different steps:

a) The production of specific maps: with different scales according to the theme: Transjordan ('Ammān - al-'Aqaba) / the system of Petra (ash-Shawbak - Petra) / the Valley of Petra (al-Wu'ayra - al-Ḥabīs - Jabal 'Āṭūff).

The above cartography will be based on the existing maps[11] integrated both on the basis of aerial photographs and the data obtained from the research. These maps will be computerized and will be constantly brought up to

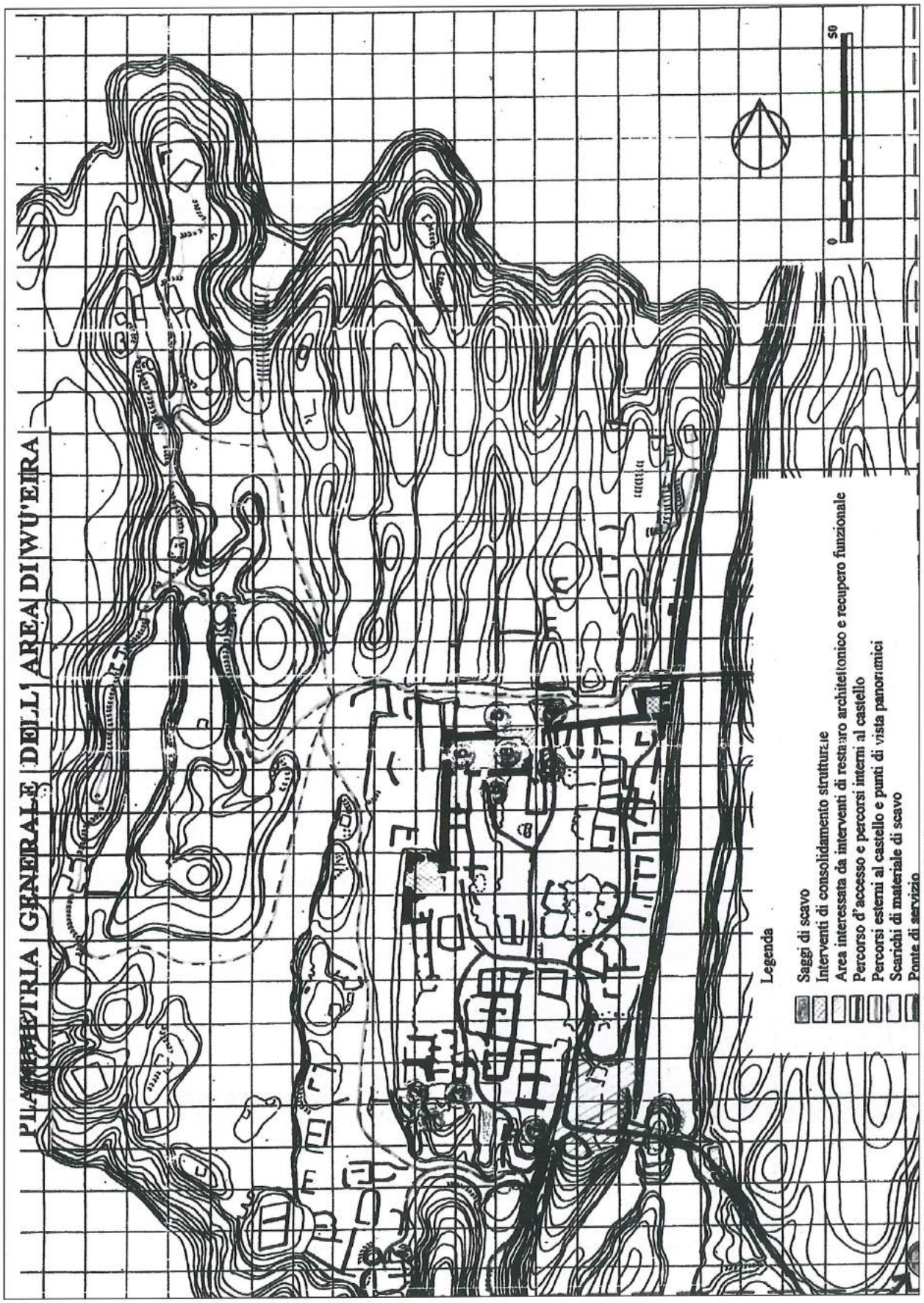
[7] M. Frau, Al Wu'eira. Ipogeismo e megalitismo funerario, *Sardegna Antigua*, 3/1, 1993, pp. 9-13; M. Frau, in the press

[8] P. Hammond, *The Crusader Fort on El-Habis at Petra. Its survey and Interpretation*, University of Utah 1970.

[9] Vannini and Vanni Desideri, Archaeological Reserarch on Medieval Petra, *op. cit.*, pp. 512-513, n. 12.

[10] Intensive reconnaissance have been carried out starting in 1998 in the area of the castle directed by Cristina Tonghini (with the cooperation of Michele Nucciotti and Antonella Sogus).

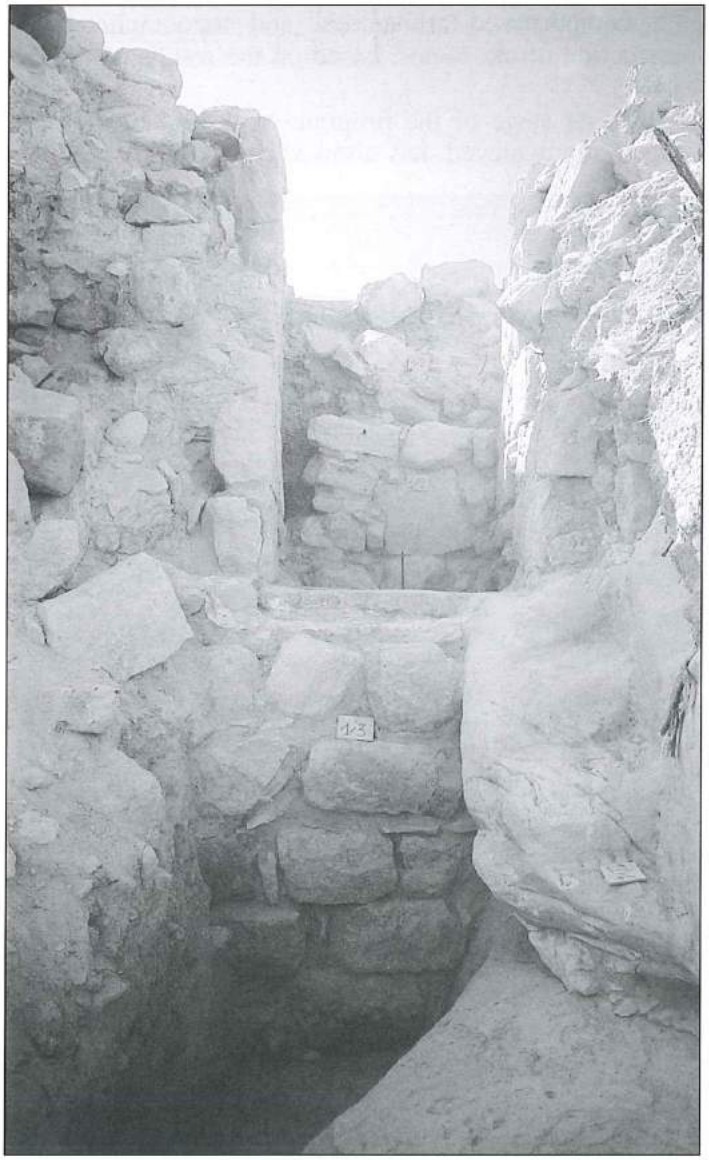
[11] M. Bini and S. Bertocci, The Survey of al-Wu'ayra: A Contribution to the Knowledge of the Crusader Castles in Jordan, *ADAJ* 41, 1997, pp. 403-414.



6. Historical routes identified inside the fortified area of al-Wu'ayra.



7. The prehistorical necropolis of al-Wu'ayra: an hypogeum tomb in the rock.



8. Al-Wu'ayra: excavation of the postern in the northern wall of the keep.



9. Al-Ḥabīs castle: part of the external defensive system.



10. The 'towers' of Jabal 'Āṭūff.

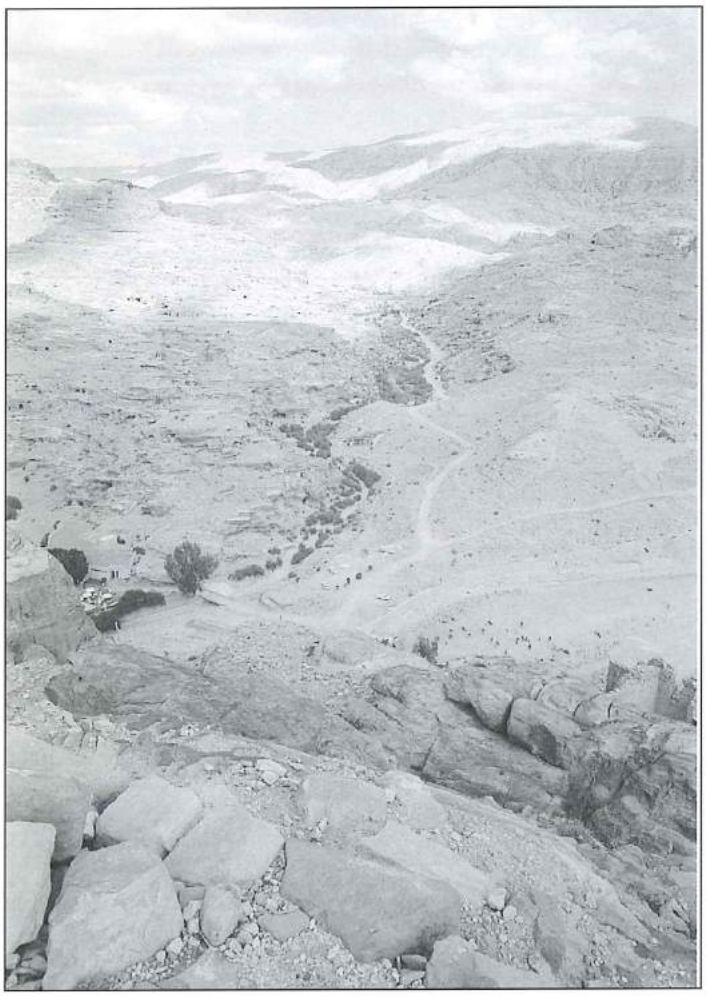


11. Al-Ḥabīs: the monumental cistern.

date.

b) Preparation of the internal routes of the Petra Crusader-Ayyubid complex.

The qualification of the environment will be carried



12. Al-Ḥabīs: the control of the access wadi to the Valley of Petra.



13. An example of reusage in al-Wu'ayra: the moat of the Crusader keep and the plant of an Ayyubid metallurgical system.

out with the estimated access system of the valley: an original and fascinating system of routes (where people can walk or ride), that can also become a great tourist attraction, situated between the hotel area and the larger area that would be suitable for the 'entrance' to Petra, Wādī al-Maṭāḥa passing through the fortifications of al-Wu'ayra and continuing through the valley, up to the summit of the castle of al-Ḥabīs, from where one can enjoy the most unique and majestic views of the archaeological-monumental area of Petra (FIG. 14). The route would end with the climb of Jabal 'Āṭūff, where well conserved defensive structures, which have been used again during the Crusader era to close the accesses and control the valley, are present (FIG. 15).

Therefore the idea of erecting a light structure for various functions such as a museum and facilities, in the large natural panoramic square near the path that leads to the entrance to the castle of al-Wu'ayra (FIG. 16).

Here an automatic computerized system can be installed, with information that regards both the data obtained by the research, the maps of the settlements as well as a computerized arhitectural and topographical reconstruction of the rooms, based on the results of the research.

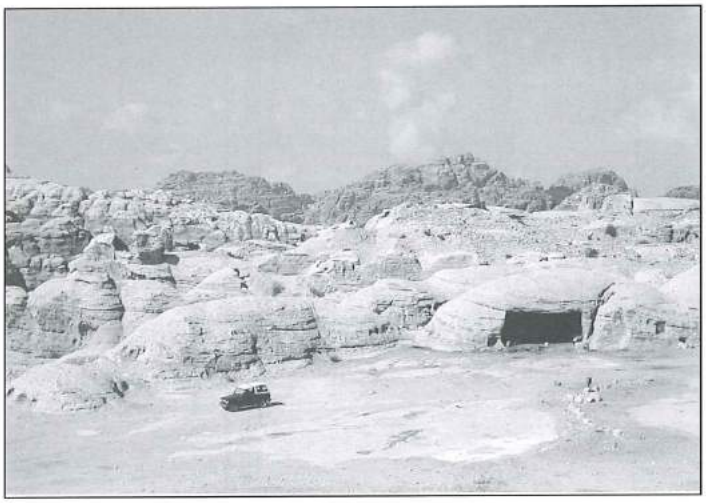
The first stage of the program of information of the data already achieved, has allowed the unification of the



14. View of the archaeological area of Petra from al-Ḥabīs.



15. The archaeological area of Jabal ʿĀṭūff.



16. The area for facilities in front of the entrance to al-Wu'ayra.

basic documentary material, creating an automatic system of HTML pages, consultable with a browser and able to supply a graphic description for each different relation between the various elements —mobile and structural— recorded. The second stage, now being carried out, aims at the creation of a specialized Java HTTP miniserver that can be used on a PC both on local network and Internet in order to swiftly obtain the HTML pages, with the addition of the 'query' function. This will have various functions that can be programmed for different uses (therefore not only specialistic but also for touristic use).

c) Structural operations: The restoration, reinforcement and exploitation of the fortified sites of the valley can be carried out using the same techniques as the ones employed for the al-Wu'ayra castle. These operations will be mainly conservative, only a few limited structural and architectural operations will be carried out. At the same time, the construction of a few light protective structures and the opening of internal routes connected to the historical roads of the valley will be taked into consideration.

Among the various solutions indicated in the project for the al-Wu'ayra castle, and that could prove a useful indication to be followed again, just as an explanatory example, we relate to the one for the fortified church. This building and topographic area are a critical point of the castle and have therefore been carefully examined. The operations in program are based directly on the documentary information obtained (FIG. 17).

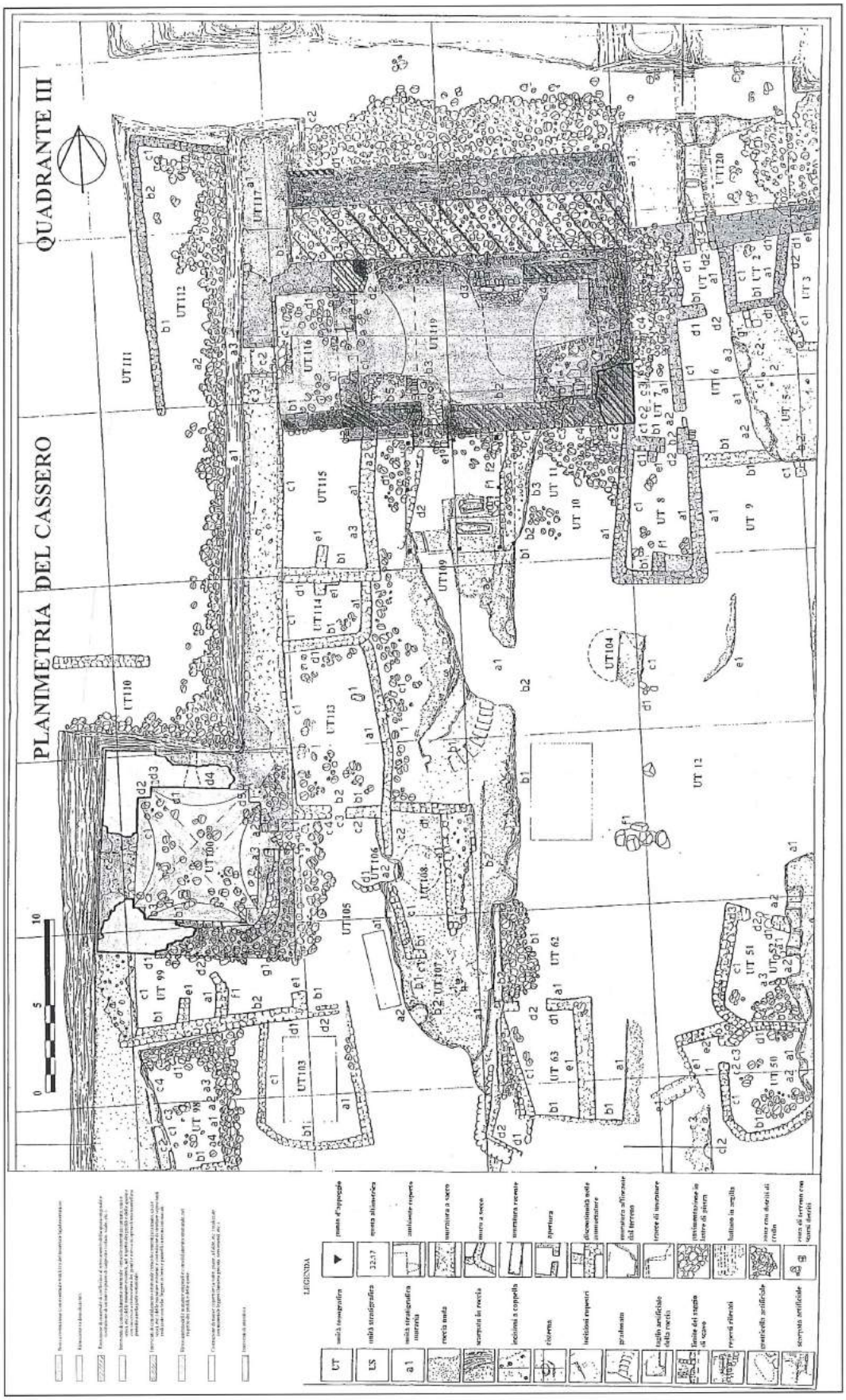
To recapitulate, there are various elements that characterize the church as surveyed from the excavations: the foundations and location plan, locating the area of the apse, the level of the stone floor, the main arch portal on the southern side and the western entrance (FIG. 18); finishing elements such as architectural furnishings or plastering; structural and functional connection such as the monumental cistern beneath the apse or the burial ground area — which also has some monumental characteristics — connected with the access ramp to the main portal (FIG. 19); topographic relation with the defensive system and the organisation of the internal spaces, like its position overhanging the western fortress and resting on the northern wall of the castle and the location of the two small doors connecting the northern and western external defensive areas of the castle.

This building provides sufficient elements to contemplate its utilization for facilities (i.e. an exhibition area) and therefore in addition to the general conservation operations, it will need a partial architectural operation and here we have sufficient documentary elements to compare with similar churches such as ash-Shawbak (FIG. 20).

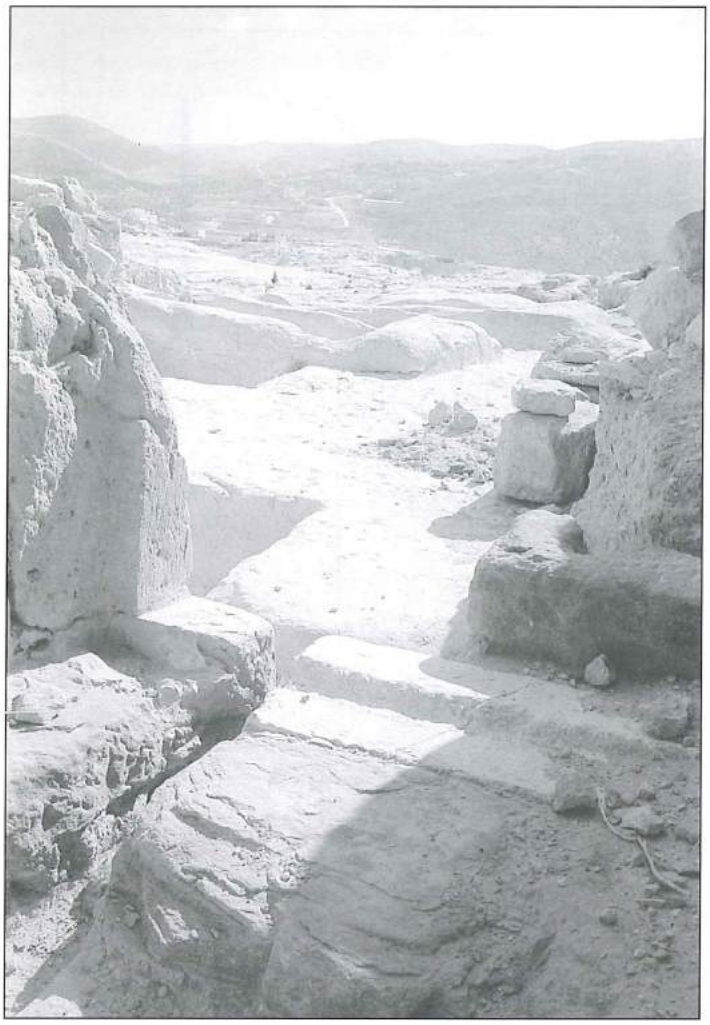
On a strictly operative basis, many technical operations that have been chosen for the project for the al-Wu'ayra site, can be taken as examples for the general restoration program.

12 M. Crescioli, F. Niccolucci, C. Tonghini and G. Vannini, PETRA: un sistema integrato per la gestione dei dati archeologici, in I° Workshop Nazionale di Archeologia Computazionale, Napoli-Firenze, 1999, *Archeologia e Calcolatori*, 10, 1999.

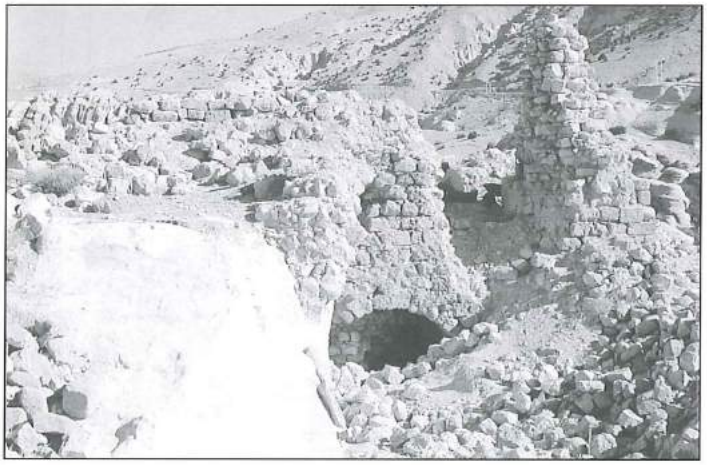
13 A first proposal of a project for the restoration of the al-Wu'ayra castle has been carried by P. Ruschi. This project, directly connected with the archaeological research of the mission under the direction of G. Vannini, is based on the survey carried out by M. Bini, and aims at the conservation of the existing fortifications, limiting the structural operations to the reinforcement of the existing parts and without having to recourse to anastilosys (that will probably concern only the side-portal of the church). This does not exclude the fact that the project aims at giving back the image of the Crusader architecture and after the restoration of the existing parts, carried out with advanced technologies, will be become clear with the aid of a series of guided routes and architectural 'indications' carried out with modern techniques, some of which have a functional and protective purpose (as in the case of the new covering of the church).



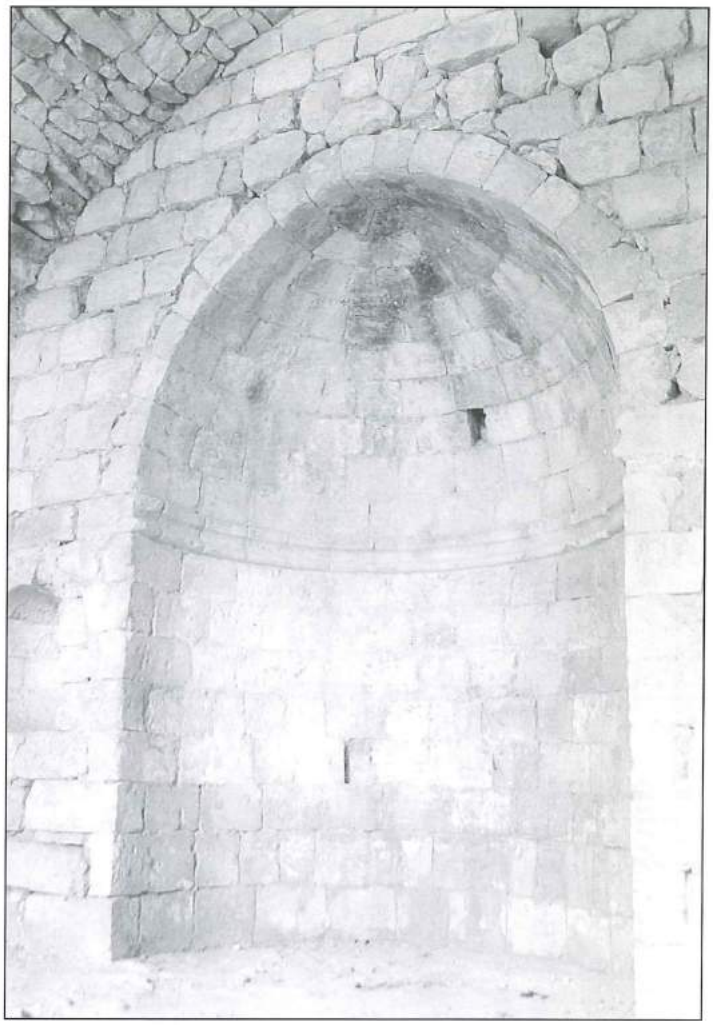
17. The planimetry of the archaeological area of the al-Wu'ayra church: plans for a restoration.



18. Al-Wu'ayra church: archaeological elements of the entrance portal.



19. Al-Wu'ayra church: the walls of the apse and the entrance to the monumental cistern.



20. The church of ash-Shawbak.

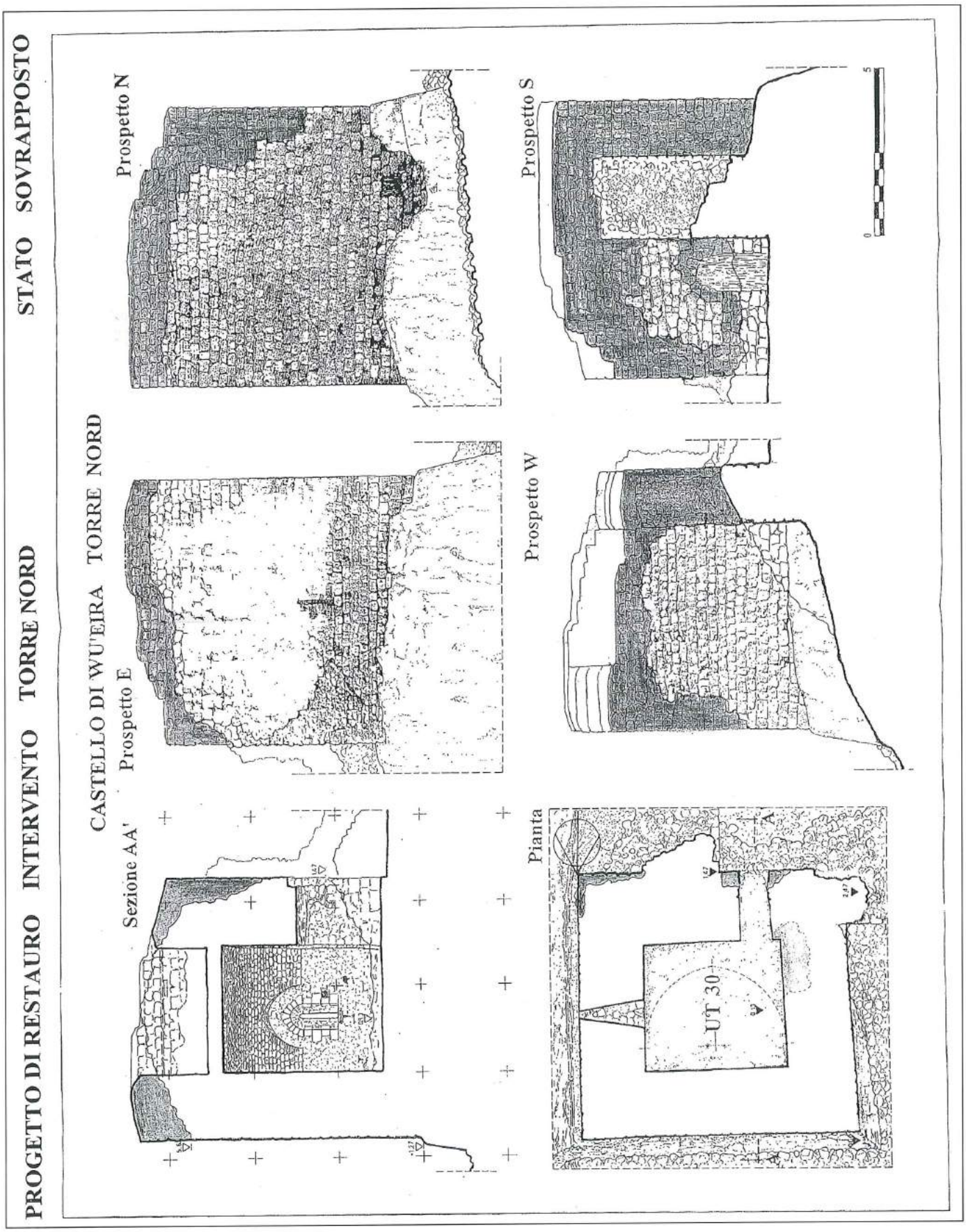
4. General Program of the Operation: Operative Phases

An operative program could be carried out as follows:

A) Analysis and critical evaluation of the building techniques and of the state of conservation of the structures and the sites.

B) Defining the methodology of the operation of restoration (the problems, development of the archaeological research, consevative aims and operative levels), at present possible for al-Wu'ayra:
   1. urgent operations on elevated structures (in al-Wu'ayra: access door, northeastern angular tower, western tower, the church apse and the cistern below);
   2. restoration and strengthening of the structures (FIG. 21);
   3. integrating in the traditional way missing parts of the walls;
   4. getting rid of the waste and collapsed stone in a selected way and in accordance with the proceeding of the archaeological research.

C) For al-Wu'ayra: restoration and architetural and functional recovery of the fortified access to the castle and exploitation of its formal and environmental characteristics. In particular, we suggest the proposal of some architectural elements (entrance portal, part of the ex-



21. A plan for the restoration of the northeastern angular tower of the keep of al-Wu'ayra.

ternal walls, the walls on each side of the internal ramp, the control tower in the access area, elevated passage) able to demonstrate the articulate and complex defensive system.

D) Making adequately equiped access and visiting routes integrated with the historical routes.

E) Building a light polyfunctional structure that has a didactic aim, a display (a scale plastic model, illustrative panels, reading systems, and computerized reconstructions, audio visual, etc.) and services (a restroom, cafè, WC, a shop, etc.) to be positioned in the area in front of the castle near the road.

F) Technical regulations for the maintenance of the entire castle based on local competence and resources.

One cannot but enphasize that one the aims of this research is to define, on the basis of an accurate scientific and tecnical cognizance, a method that will lead the way to an 'operative' integration of the research with the final restoration.

A sperimental method,[14] which basicly develops by singling out parameters common to both sections, such as the absolute respect for the documentary value of the constructions, the analysis and critical comparison of the various results, the severe application of the respective methods. The attempt is to carry out a coordinate operation, able to demonstrate the possibility of operating in the vast field of archaeology and restoration on the basis of complementary criteria, respecting the different scientific spheres, thanks to the defined operative systems, but avoiding separations and diversifications sometimes apparently insuperable, if considered strictly in a disciplinary area.

14 Remembering how the conservation of archaelogical buildings towards the end of 18th century set the roots for modern restoration, and how, up to over the second half of the 20th century, has been the center of a critical and methodological debate of the entire subject of study, one cannot but point out how, in recent years, we are witnessing profound changes (for an accurate and up to date general picture on this subject cf. G. Carbonara, *Teoria e metodi del restauro* and M. P. Sette, La continuità passato-presente e le operazioni sulle preesistenze, in G. Carbonara (ed.), *Trattato di restauro architettonico*, vol. I, Torino1996, pp. 3-302). Under the impulse of archaelogical schools, disciplinary interventions and various solicitations, we can notice, worldwide and particularly in the Middle Eastern area, restorative interventions far from, if not in contrast with, the basic principles for restoration recognized all over the world.
The main risk is that of taking a step backward. The experimental aspect of this project is entering into the subject, in a complex, like the medieval ruins of the Crusader castle of al-Wu'ayra, without renouncing the possibilities that modern technologies offer, both in a architectural and informatic fields.

Christina Tonghini
Andrea Vanni Desideri
Universita degli Studi di Firenze
Dipartimento di Storia
Florence - Italy

Christina Tonghini and Andrea Vanni Desideiri[1]

The Material Evidence from al-Wu'ayra: A Sample of Pottery

1.1. Introduction

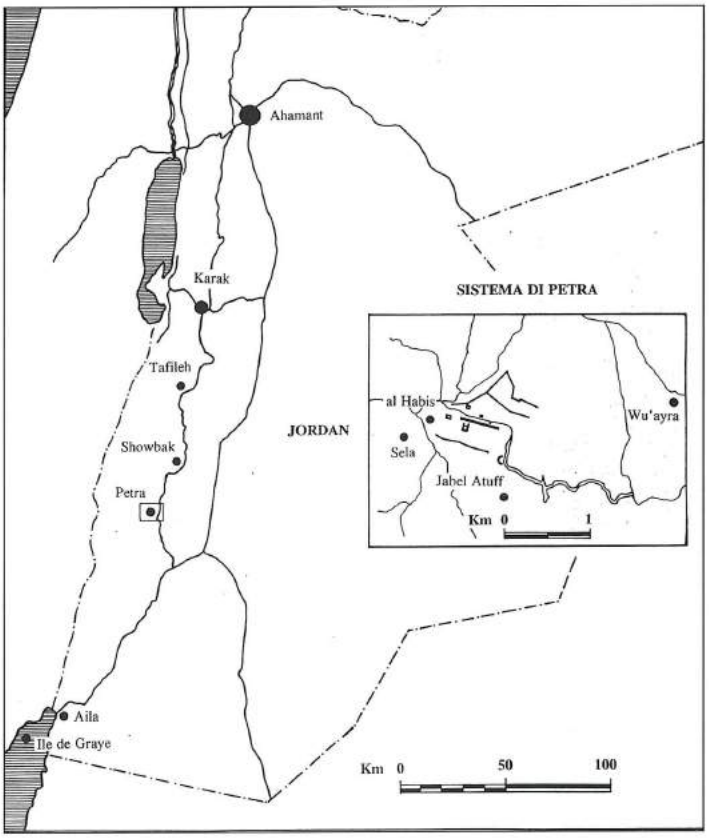
The work presented here illustrates some of the results of the research project that a team from the University of Florence has been carrying out since 1986: *Mediaeval Petra: Settlements of the Crusader and Ayyubid Periods in Transjordan*. This historical and archaeological project aims at analysing the patterns of the Western settlement system in the territories of the 12th century *Seigneurie* of Transjordan; it also aims at comparing these patterns with the settlement model of the Ayyubid period.[2]

After a wide ranging survey and surface reconnaissance in the region between Syria and the Gulf of 'Aqaba, the research concentrated on the Petra region (FIG. 1). Evidence indicated that features related to the earliest phase of the Crusader presence in the Holy Land are better preserved and easier to identify from a stratigraphic point of view in the *Seigneurie* of Transjordan, as all the fortifications were definitely abandoned by the Crusaders in the aftermath of the battle of Ḥiṭṭīn (1187). Moreover, on the basis of preliminary survey work it clearly appeared that the valley of Petra played a significant role as the focal point for the Western occupation of Transjordan after a long period of abandonment which started in the early Middle Age.

Investigations concentrated then on the site which has been recognised as the most important element in the Crusader settlement system at Petra, the castle of al-Wu'ayra.

1.2. The castle of al-Wu'ayra: Summary of the Results

Archaeological evidence showed that the site of al-Wu'ayra played a very peculiar role in the settlement system at Petra as a whole. This is not only true in relation to the Crusader period; in fact, archaeological investigations indicated that the site had been a monumental sacred and funerary area in the Neolithic period. Its function in the Nabataean, Roman and Byzantine period has yet to be established: no structural remains of these phases have been identified yet in the sondages,[3] but a significant quantity of pottery in secondary deposition which can attributed to these periods has been found.



1. General map showing the location of Petra and the fortified sites of the area (al-Wu'ayra, al-Ḥabīs).

[1] Parts 1, 2.1 and 2.2 are by C. Tonghini; 2.3 by. A. Vanni Desideri; Part 3 by both authors.

[2] For the most recent publication on some of the results achieved in the course of the University of Florence archaeological research at Petra, and for a complete bibliography relating to the project, see: Vannini and Vanni Desideri 1995; Vannini and Tonghini 1997a and 1997b.

[3] A phase which can very likely be ascribed to the Byzantine period has been recently identified on a number of structures at the castle of al-Wu'ayra. The chronology of this phase which preceeded the Crusader period needs further evidence to be assessed with a certain degree of precision.

Therefore, the Crusader re-occupation of the site confirms that Petra had regained strategic significance within the framework of the new political situation which developed when the Crusader Kingdoms were established in the core of the Islamic territories.

This site was studied in terms of horizontal stratigraphy (and included a systematic survey of the standing structures) and of vertical stratigraphy (and included the excavation of trenches, sondages and open area sondages) (FIG. 2) (see note 2).

Excavations at this site were conducted in those areas which were shown to be of crucial significance for the understanding of the site on the basis of the survey work. More specifically, excavations concentrated on the various accesses to the *cassero* (the central and more strongly fortified area) and on the fortified church (Vannini and Tonghini 1997a; 1997b).

The fortified church was central to the internal organisation of the entire fortification. The church projects from the north-east corner of the cassero and dominates part of the external fortification from above; it also guards the main access to the water (i.e., the great cistern underneath). To the north, the church is connected to the lower bailey by the north postern gate, and, to the south, by a ramp which leads to the main access to the church; a burial area dating to the Crusader period was located on the access ramp. Another entrance to the church was identified on the western wall, in front of yet another postern gate connecting the *cassero* to the external part of the fortification. The study of the burials discovered provided relevant anthropological new evidence.

Nine phases were identified in the course of the excavations of the sondages. This phasing only relates to the Mediaeval castle and in particular to the stratigraphic formations in primary deposition identified so far; in the final interpretation of phases the Neolithic and Nabataean/Roman/Byzantine occupation or frequentation of the site will also have to be included.

Three of the nine phases mentioned above, with occupation levels in primary deposition, can be ascribed to the Crusader period (two phases can be dated to the mid-12th century). The fourth phase is characterised by a sporadic occupation of the site and can be attributed to the end of the 12th-beginning of the 13th century (i.e., the post-1187, Ayyubid period). The last five phases are related to the abandonment of the site as a military installation: they consist of a perfectly clear stratigraphy of collapses together with contexts related to a number of re-occupation activities (Vannini and Tonghini 1997a: 373-378).

Given the number of sondages excavated at the site (10 in three different areas), the phasing offered for the Mediaeval castle may be expected to be reliable and precise for the interpretation of the whole site.

2.1. The Material Evidence from al-Wu'ayra: A Sample from the Pottery Assemblage

Excavations provided a precise sequence of occupation levels and related artefacts.

To illustrate the assemblage of the finds, and the pottery in particular, the sample chosen for this paper consists of the pottery from a number of Stratigraphic Units excavated in the area of the church.

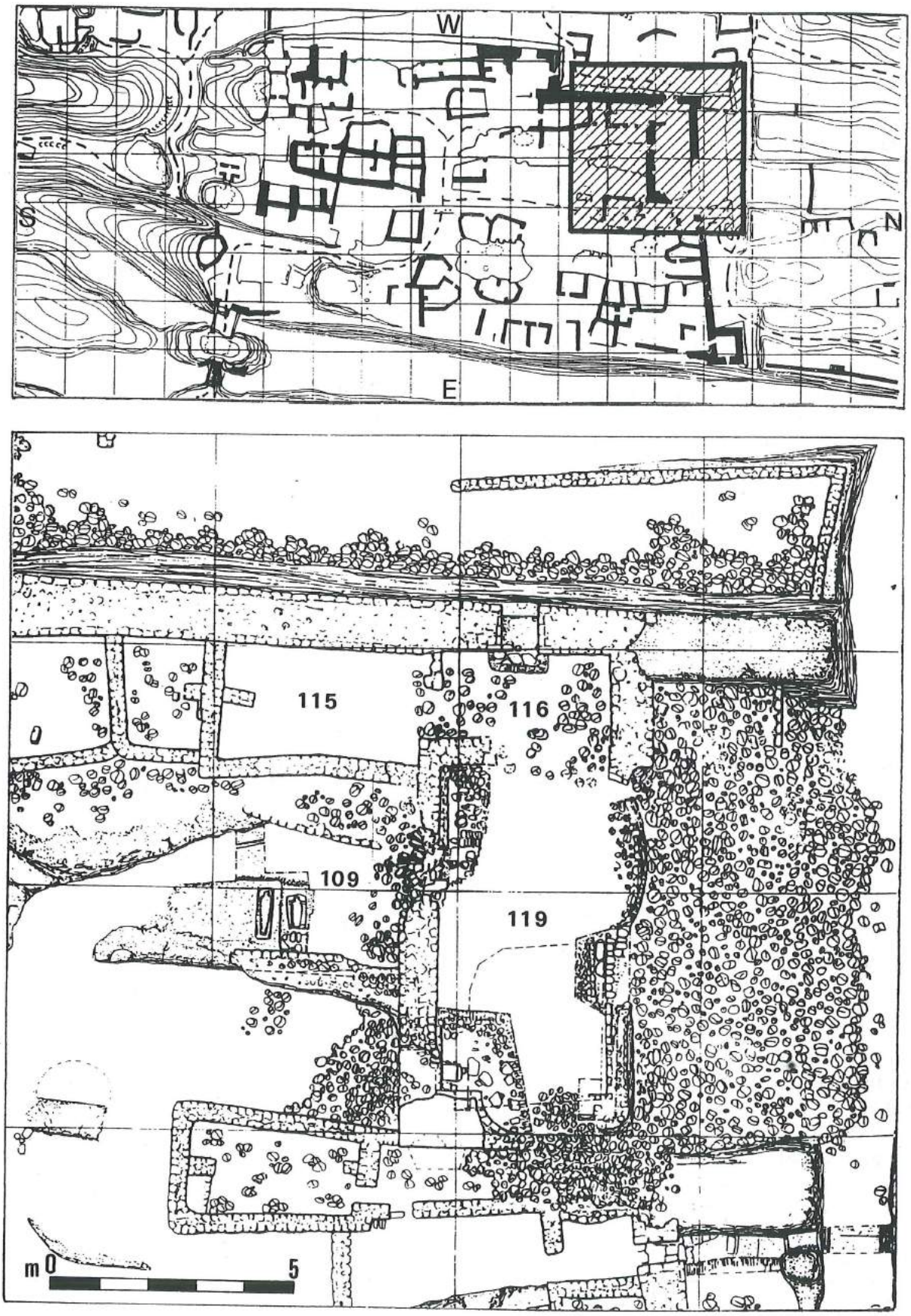
This paper will especially concentrate on the *handmade pottery* production, which is better represented among the finds (see below). The characteristics of this production, especially in relation to its evolution through time, will be better understood when the results of archaeological investigations conducted at multi-stratified sites in the area will be made available. The assemblage excavated at al-Wu'ayra cannot be expected to provide data in this respect, given the limited span of time of its occupation and the limited quantity of the assemblage of finds. However, it illustrates in detail a specific moment of this production, which can be placed very precisely in the framework of the handmade pottery production and its evolution. Data from al-Wu'ayra will acquire in fact more value when a more detailed picture of the pottery production of the area will be available.

This paper will illustrate in detail the pottery finds from 12 stratigraphic units (US), which represent two highly significant moments in the phasing of al-Wu'ayra: the earliest phase of the Crusader occupation of the castle (S 6, UT 116, US 23) and the latest occupation of the site (UT 109, US: 3, 4, 52, 58, 62, 72, 73, 80, 85, 89, 90).

The major groups of pottery identified at the site consists of handmade pottery, wheel-thrown pottery and glazed pottery:[4]

Handmade pottery: quantitatively, this is the most significant of the pottery assemblage. Handmade pottery represents a rudimentary ceramic production: vessels were produced by slow-wheel method, many displaying marks of manufacture. The fabric shows a wide range of colours, from pale yellow-brown to light red and grey, depending upon firing. There are frequent inclusions of basalt, quartzite and calcite, and temper of crushed quartzite/shell and vegetable temper. Products are characterised by thick black cores, poor levigation, heavy mineral inclusions and chaff-pocked surfaces. There are also better levigated products, with finer walls and more accurately finished. Among these, one can count the group with a painted decoration (Brown 1987: 284-287; 1992: 189-203, 243-256; Franken and Kalsbeek 1975:

[4] For a more detailed description of the pottery groups excavated at al-Wu'ayra, see Vannini and Vanni Desideri 1995: 529-537, and Vannini and Tonghini 1997a: 378-383.



2. General plan of the al-Wu'ayra *cassero*, showing the location of the church and of sondages 6 (UT 116) and 8 (UT 109).

167-203; Pringle 1984: 97-99; 1985: 176; 1986: 140-142). Another variety is represented by a group with abundant calcareous inclusions.

The majority of the assemblage consists of closed forms. Products seem to have played a basic utilitarian function, as can be seen from the shapes.

This pottery has been attested at various archaeological sites of Jordan and Palestine, and it may have been in production for a considerable span of time: it occurs already in 11th century contexts (Ayla: Whitcomb 1988: 212; Khirbat al-Mu'allaq: Lindner *et al.* 1996: 132) and it seems to have been still produced in the Ottoman period (Brown 1992: 189-198, 256-259, 310-336; Franken and Kalsbeek 1975: 143-159 in particular; Pringle 1984: 95; 1986: 139-140).[5] This pottery does not seem to specialised labour; it probably did not reach distribution markets, but it was consumed within the area of production, although no evidence in this respect has been identified so far.

Taking into consideration the whole assemblage excavated at the site, and comparing the Crusader phases with the phases related to its abandonment and reoccupation, no significant variations seem to have occurred through time (Vannini and Tonghini 1997: Figs. 15 and 18). This may be the result of the 'long duration' character of the pottery production in the area represented by this handmade pottery group. At the same time, its gradual and slow development through time may thus provide a further indication about the character of this area, basically peripheral in relation to the rest of the Islamic territories, and especially after the Islamic reconquest.

Wheel-thrown pottery: in this group are classified a number of different productions, including Nabataean, Roman and especially Byzantine wares. All this pottery was found in secondary deposition and its quantity is fairly significant. This pottery seems to have been extensively used at the site together with mortar in masonry, especially for laying water tanks (Vannini and Tonghini 1997: 381 and Fig. 19).

Glazed pottery: glazed pottery represents a very small proportion of the pottery assemblage. A number of different types do occur in the assemblage. Glaze is generally associated with wheel-thrown pottery, either with an earthenware body or with a body very rich in silica (so-called fritware). A change over time was noted in the assemblage of glazed pottery: fritware seems to appear only in the Crusader phases (phase III, for instance), while glazed-slipped pottery (with an earthenware body) occurs in later phases.

This can be interpreted in relation to the changes in the control over the site; during the Crusader occupation, the presence of fritware may indicate that the site was not isolated from the circulation of technologically specialised products.[6] In the following phases, glazed pottery consisted on the glazed and slipped type, corresponding to a fairly common group which circulated and was extensively produced in the southern Levant between the 12th and the 15th century (Brown 1988: 237; 1987: 284; 1992: 267-280; Franken and Kalsbeek 1975: 131-141; Pringle 1984: 99-103; 1985: 177-179; 1986: 147-149) and which was very likely supplied by more local markets.

2.2. The Pottery from US 24, Sondage 6

This Stratigraphic Unit consists of the fill from a deep cut dug from a floor (US 22) which has been interpreted as the level of use employed during the building of the church (FIG. 3). This surface is sealed by a wall contemporary with the wall of the church.

The interest of the assemblage excavated from this fill is that it is probably related to a very limited span of time, possibly a few months, during which the church was under construction. At the present state of our knowledge, the construction of the church has been attributed to Phase I, on the basis of the assumption that a church would have been the first monumental building the Crusaders would have devoted their effort to. Phase I has been ascribed to a 1109-1116 date on the basis of written sources (Vannini and Tonghini 1997: 376). Another possibility is that the building of the church relates to the following phase, Phase II. This would only postpone the chronology of a few decades, since Phase II has been assigned to a post 1116-mid-12th century date (Vannini and Tonghini 1997: 376-377).

There is no evidence for structural modification of the church, but for a single and unique building phase.

An abundant assemblage of pottery was recovered from this fill, together with large amount of animal bone and charcoal, currently under study, arrow-heads, fragments of nails, and one single fragment of glass.[7]

The graphics illustrate the occurrence of the various

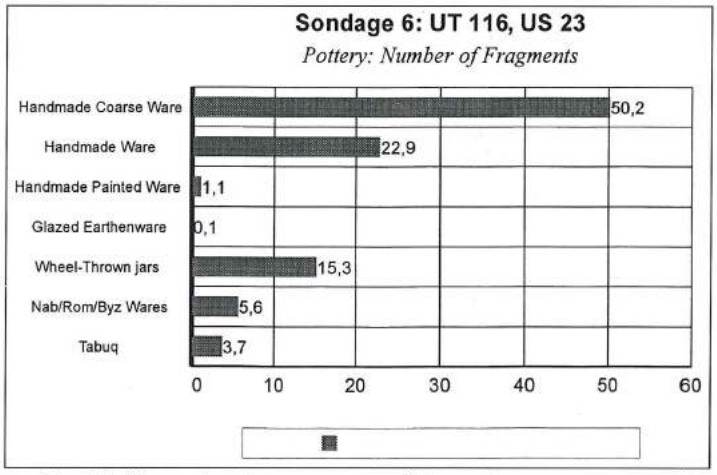
[5] A description of this type of pottery can be found in Brown 1987: 277-287, and Vannini and Vanni Desideri 1996: 530. See also Pringle 1985: 176; Johns *et al.* 1989: 89.

[6] See Vannini and Tonghini 1997: 382-383. It would be interesting to be able to ascertain the presence of fritware at other contemporary sites in the area, but data of this kind are not available yet. A stronger connection with markets supplied with fritware products (presumably from the Syrian coast) may in fact be one of the peculiarities of Crusader settlements which may not be expected to be found at other Islamic sites of this frontier land. Obviously, more specific evidence is necessary to reach conclusive observations on this subject.

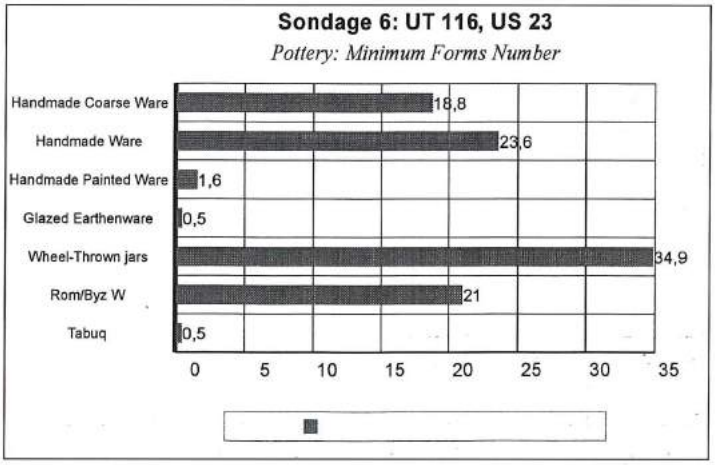
[7] No significant botanical remains were identified in the flotation of the soil from this fill. Archaeobotanical investigations were conducted by John Meadows, La Trobe University, Australia.



3. Sondage S6, UT 116, US 23 during excavation and floor US 22.



4. Graphic illustrating the occurrence of the various pottery wares in US 23: Number of Fragments (806), percentage.



5. Graphic illustrating the occurrence of the various pottery wares in US 23: Minimum Forms Number (186), percentage.

groups of pottery (FIGS. 4-5). Since it is often very difficult to assess the quantity of very different wares, and, in particular, when evaluating and comparing handmade and wheel-thrown vessels quantity, both the Number of Fragments and the Minimum Forms Number are provided.

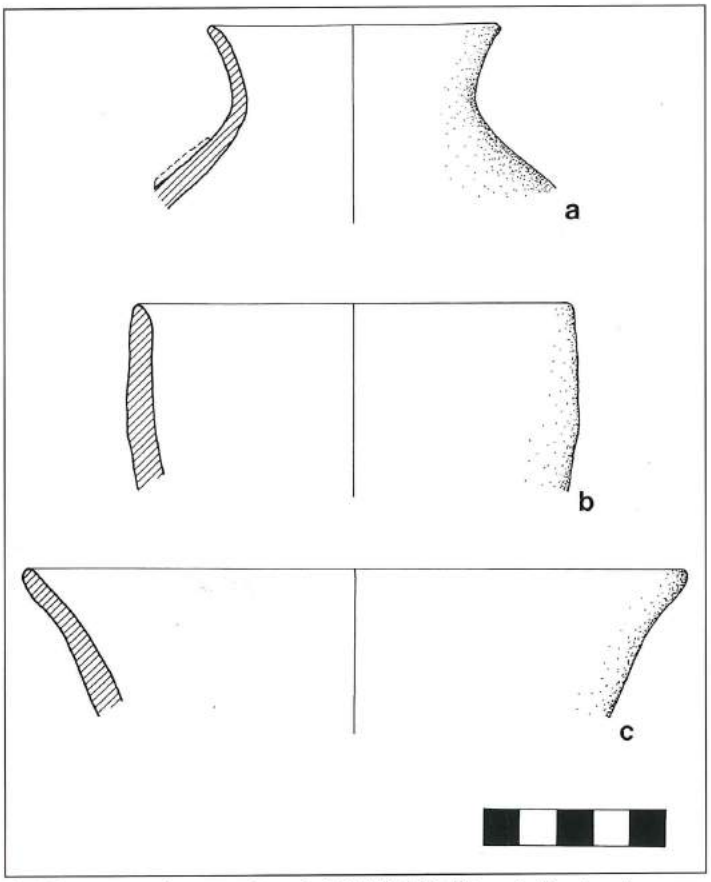
A group of pottery wares which have been interpreted as residual (Nabataean, Roman and Byzantine wares) seems to represent a very significant proportion of the pottery assemblage excavated from US 23. As noted above, two different kinds of pottery quantity assessment are provided: the remarkable difference between these two figures may also confirm the residual character of these wares (the number of estimated vessels is very close to the number of fragments). In this group a high proportion is represented by fragments from jars with rather thick walls (FIG. 9b), with a well levigated, reddish and well-fired body; they have been tentatively attributed to the Byzantine period.

It is the *handmade pottery* group which seems to represent the pottery in use at the site by the time of the building of the church by the Crusaders. The handmade pottery group occurs in two varieties: the *Handmade Ware* is characterised by a finer and better levigated body, and often thinner walls (FIGS. 6, 7, 8a-b, 9a) if compared with the *Handmade Coarse Ware* (FIGS. 8c-d, 9c-d, 10a). The finer variety can also be associated with a painted decoration (FIG. 7a).

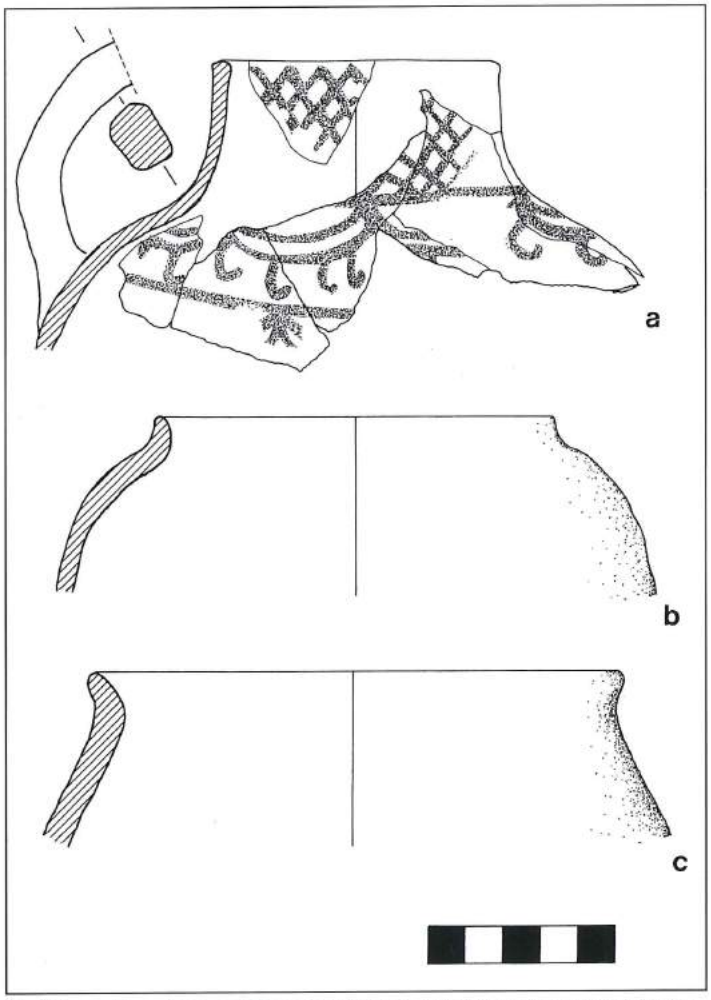
The majority of the identifiable forms from the *handmade pottery* group consist of closed forms; open forms occur more occasionally (Figs 6 c, 8 c, 9 d). Ware and form suggest that the vessels may have served very utilitarian purposes, such as the storage of food or liquid and the preparation of food.

One single fragment of glazed pottery was found: it is slipped and it is covered with a monochrome green glaze. This variety of glazed pottery, as noted above, seems to have been in use in the southern Levant for a long period of time, between the 12th and the 15th century.

As noted above, this assemblage represents the pottery in use at the site in the very limited period of time related



6. The pottery from sondage 6, UT 116, US 23: a-c) *Handmade ware.*



7. The pottery from sondage 6, UT 116, US 23: a) *Handmade Painted ware;* b, c) *Handmade ware.*

to the building of the church; this activity has been tentatively ascribed to the first Crusader phase, Phase I, but an attribution to Phase II is also plausable. In the first case, the assemblage discussed here would represent the pottery in use in the area at the arrival of the Crusaders. In the second case, it would represent the pottery in use at the site by the time of the Crusader occupation. This is obviously a question of great importance, particularly in relation to an attempt at identifying the characteristics of Crusader material evidence from the area.

At present, the evidence is still insufficient to clarify this point. On the one hand, only the study of the whole pottery assemblage excavated at the site, still in progress, will allow to clarify if the pottery discussed here can be considered representative of the pottery in use by the Crusaders (and therefore be attributed to Phase II), or whether it differs from the pottery excavated from the other Crusader contexts (in which case it could be assigned to Phase I). It must be added, however, that given the limited quantity of the pottery excavated from the whole site, this comparison may not allow to reach a conclusive interpretation.

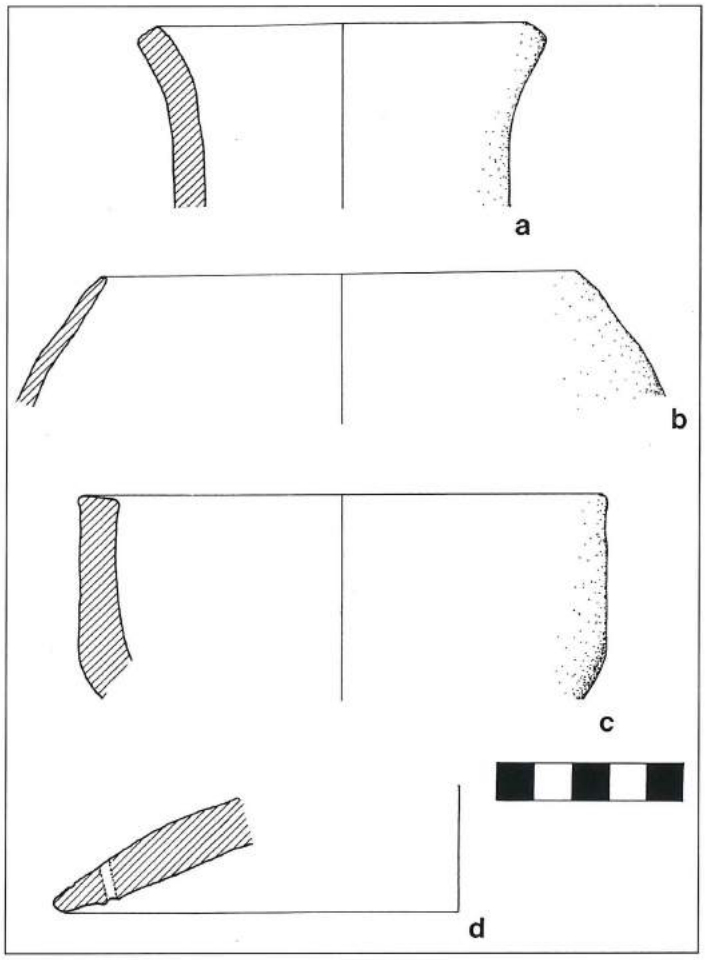
On the other hand, very little comparative evidence is available at present for contemporary Islamic sites in the area; it is at the moment virtually impossible to identify the characteristics of pottery productions at the time of the arrival of the Crusader and their later evolution in the Islamic territories.

To conclude, very little evidence is available at present to allow the identification of those elements which can be regarded as specific to the Crusader culture in terms of material evidence, and to determine in which terms they differ from local culture as far as pottery is concerned.

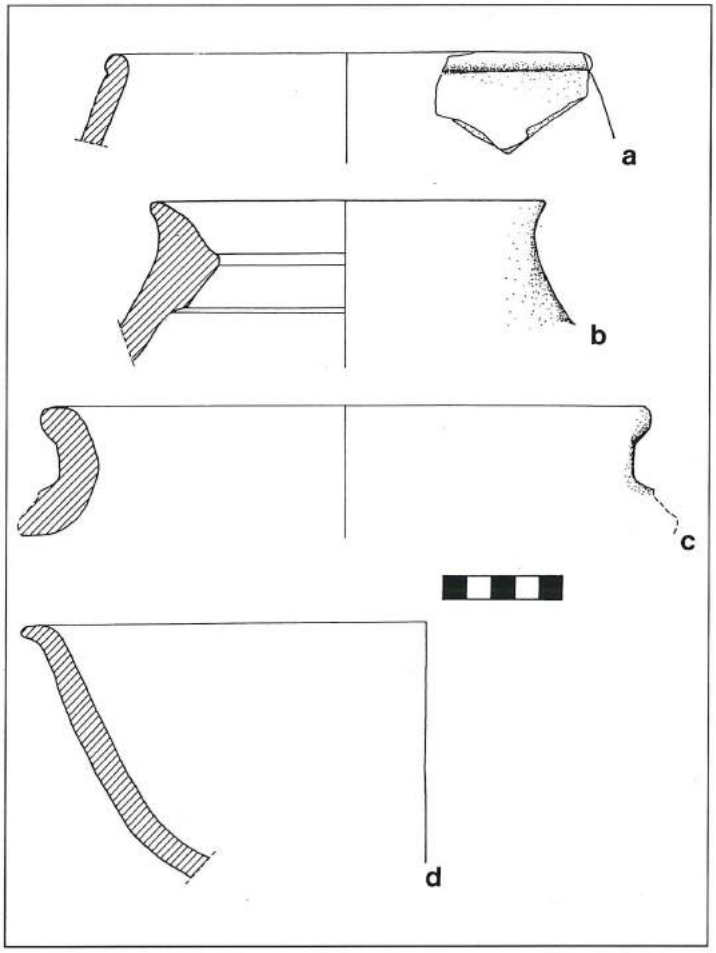
The evidence from excavations conducted in the area is still insufficient to make an attempt in this respect. From what is available at present, however, one may form the impression that the pottery in use at Crusader sites is not substantially different from that in use at contemporary Islamic sites.

For example, on the basis of a superficial and preliminary examination, the pottery assemblage found at Khirbat Fāris[8] does not seem to differ from that excavat-

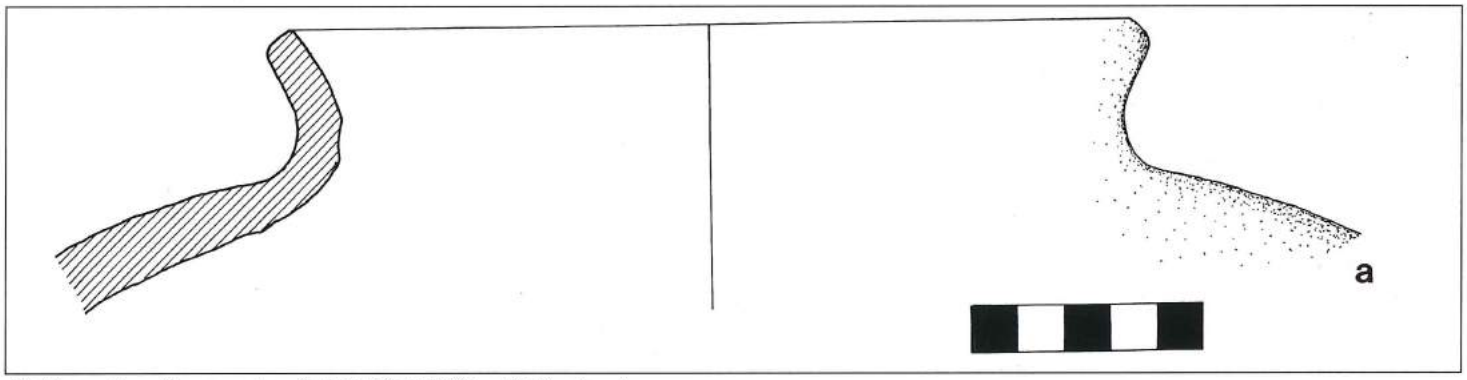
[8] The authors would like to thank Alison McQuitty for generously providing access to the pottery excavated at Khirbat Fāris.



8. The pottery from sondage 6, UT 116, US 23: a, b, d) *Handmade ware;* c) *Handmade Coarse ware.*



9. The pottery from sondage 6, UT 116, US 23: a) *Handmade ware;* b) *Wheel-Thrown jar;* c, d) *Handmade Coarse ware.*

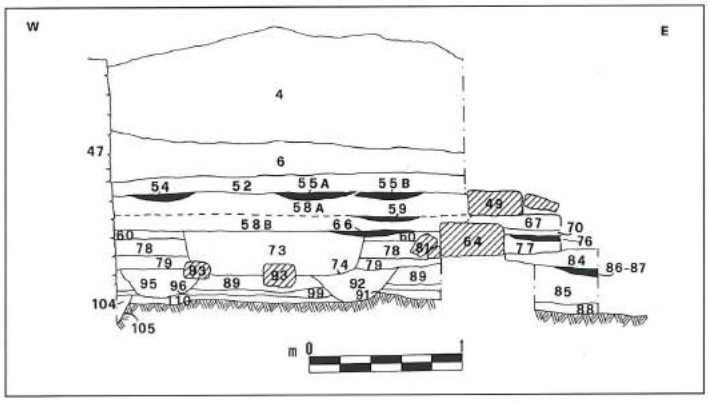


10. The pottery from sondage 6, UT 116, US 23: *a) * Handmade ware.*

ed at al-Wu'ayra (refering to the entire assemblage), except that the first is far richer in terms of shapes and varieties of painted pottery. The difference noted between the assemblage from al-Wu'ayra and assemblage from Khirbat Fāris may be determined by the different function of the two settlements. The assemblage of pottery from al-Wu'ayra really reflects the character of the site as a military installation provided with no more than the essential equipment, but does not seem to show features which can be specifically connected with Crusaders.

2.3. A Post-Crusader Sample. The Pottery from Sondage 8, UT 109

In the course of previous excavations in the southern ditch of the castle, evidence of a phase clearly belonging to a post-Crusader period had already emerged. An iron smelting workshop had been located in the area of the ditch, clearly belonging to a phase during which the ditch itself had lost its defensive function, i.e., after the Ayyubids had conquered the whole region in 1189 (Vannini and Vanni Desideri 1995). More recent sondages (in particular sond-



11. Part of the W-E Section of sondage 8, UT 109 (1998 season; drawing by S. Tuzzato).

age 8, corresponding to UT 109, carried out in the 1994-1998 seasons, FIG. 11) provided new data about the post-Crusader settlement at al-Wu'ayra in relation to the re-use of the site, its characteristics and phases of occupation.

The stratigraphy of UT 109, which corresponds to the external area next to the southern entrance of the church, shows a number of phases dating from Crusader time to the latest Islamic occupation of the site. Thus the topography of the site and the substantial modifications of its use make the features of the settlement particularly clear, including the finds related to it. The Crusader phases of UT 109 include the setting and the use of the cemetery, without buildings, accumulation of levels, or wasting of materials from domestic activities; thus the finds coming from these phases are quantitatively rather limited.

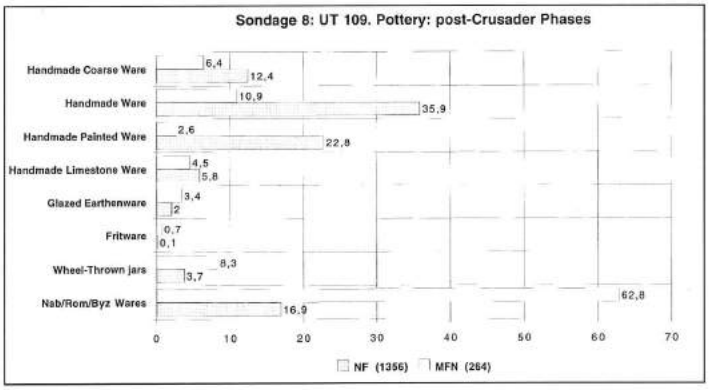
On the contrary, stratigraphic evidence indicates that a first Islamic occupation of the site, started as a simple reuse of the still standing Crusader buildings, is followed by the setting of new structures over the cemetery using materials coming from the collapsing walls of previous phases, mainly from the church; in a later phase the settlement increased its extention. Therefore, the stratigraphic units which seal the cemetery are to be related to post-Crusader phases and they provide data on the features of the post-Crusader material culture that can be compared with that related to Crusader phase.

Taking into consideration the whole assemblage of pottery from Sondage 8, the most evident feature is the inversion of the usual proportions between the handmade coarse ware and the handmade ware, the first being less conspicuous than the second one. Whether the latter is due to cultural reason or to the deposition of the fills is not yet clear. Nevertheless, one can note that the stratigraphy is regurarly formed, without gaps and well sealed, thus providing a high degree of reliability.

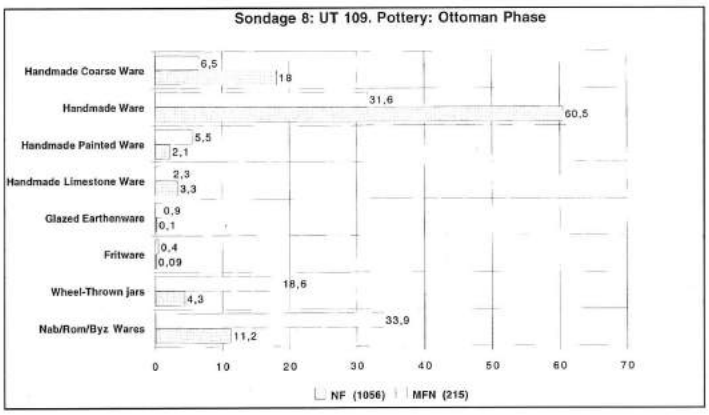
The pottery finds indicate at least three occupation phases of UT 109 corresponding to the last phases of life on the whole site. Some of the earlier levels could have accumulated during the use of a house (UT 115) perhaps built up when the southern wall of the church was already damaged, if not collapsing. The next phases consist of the use of a new small building close to the earlier one, in its modifications and abandonment.

If the occurrence of tobacco pipes can be assumed as a chronological indicator, it is then possible to identify at least three levels (US 52, 58, 90) dating to the Ottoman time. Thus the levels which stand between this phase and the Crusader cemetery are to be related to phases dating to a generic post-Crusader period.

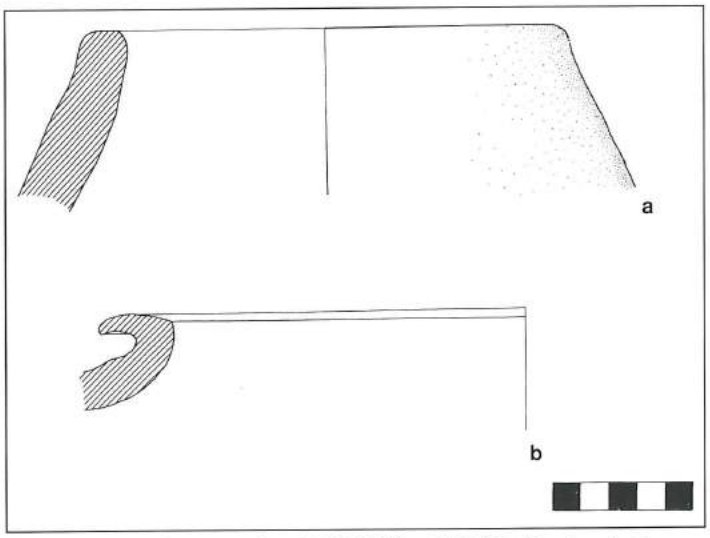
The trend of percentages of the pottery groups from the Ayyubid-Mamluk to the Ottoman periods allows some interesting observations to be formulated, which, however, should be treated with caution owing to the fact that the two assemblages related to different types and numbers of phases (FIGS. 12, 13). The more significant trend is the tendency to increase, shown in percentage by certain pottery wares, while the total amount of pottery fragments decreases from the post-Crusader phases to the Ottoman phase. The most evident feature is the increasing of the handmade ware and a contemporary decreasing of the handmare painted ware. The divergence of these trends possibly means that the two groups could really reflect



12. Sondage 8, UT 109: Graphic showing the occurrence (1356 Number of Fragments and 264 Minimum Forms Number) of the various pottery wares in the post-Crusader US of UT 109.



13. Sondage 8, UT 109: Graphic showing the occurrence (1056 Number of Fragments and 215 Minimum Forms Number) of the various pottery wares in the late Ottoman US of UT 109.

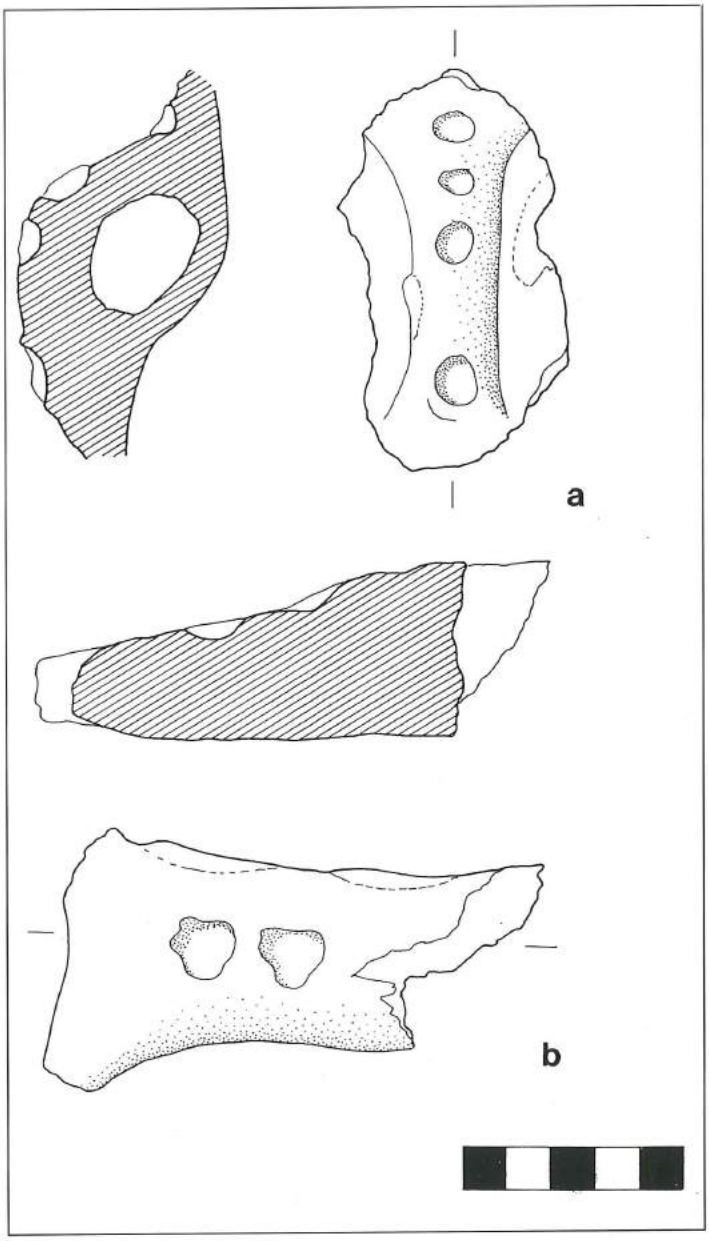


14. The pottery from sondage 8, UT 109: a) US 85: *Handmade Coarse ware;* b) US 52: *Handmade Coarse ware.*

two different kinds of products.[9] At the same time, the amount of handmade coarse ware does not vary its proportion, meaning that traditional pottery production is still well established. The amount of residual pottery (Nabataean, Roman and Byzantine) is decreasing, probably reflecting the different features throught which the settlement evolved (from several building activities to a simple reuse of still-standing structures). One fragment of a roof-tile comes from US 52.

Among the handmade coarse ware group, hole-mouth jars (FIG. 14a) occur in the post-Crusader assemblage while a different type with an elaborated outcurved rim appears in the Ottoman time (FIG. 14b) probably an indication of wheel-thrown examples. Applied finger-stamped ridges and necked jars (FIG. 17a) with handles are to be noted. Loop handles and lug handles sometimes are finger-stamped (FIG. 15a), in one case the lining of such prints suggests the use of wood or bone as a stamp instead of a finger (FIG. 15b). This group also includes loop handles with a vertical groove, conical lids and hemispherical cups (FIG. 16a).

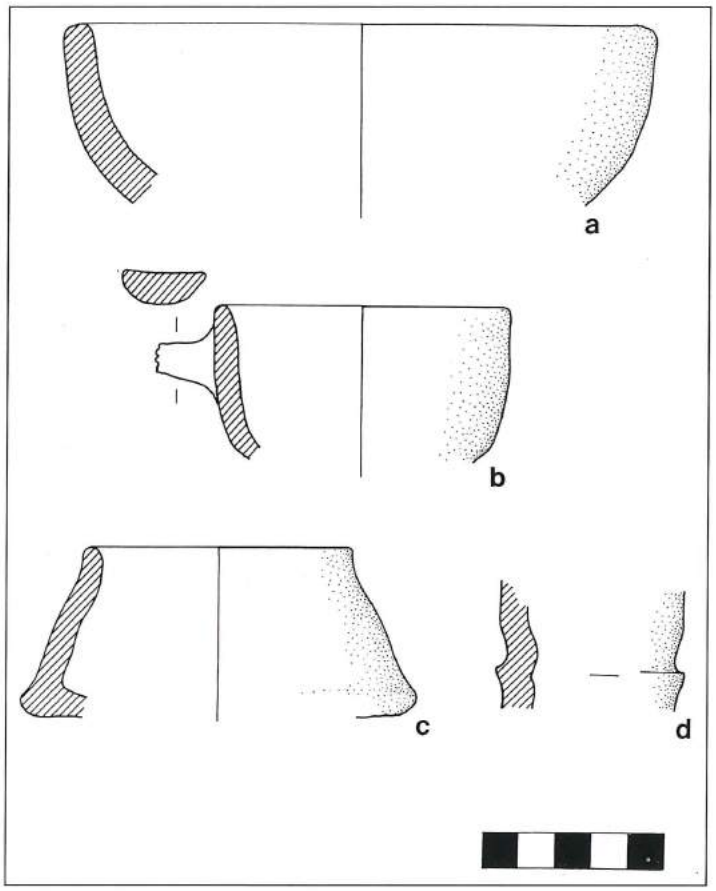
It has been suggested that the handmade limestone tempered ware may characterise the post-Crusader assemblages (Vannini and Vanni Desideri 1995: 530) and indicate a change in the source of raw material: limestone beds are widely scattered on top of the mountains all around the village of Wādī Mūsā and east of al-Wu'ayra itself (Bender 1975). This type of pottery could actually have been locally produced: the poor technological features do not seem to indicate that this was an imported product. It is likely that the presence of limestone in the clay body would be natural, already mixed with the clay, when collected from the foot of the conoids flowing from the top of the mountain around Wādī Mūsā. Anyhow the new data confirm that this kind of pottery is peculiar of post-Crusader time at least in the surrounding area of the castle[10] and its occurrence is continuous until the Ottoman period. More difficult is to explain the reason of this new raw material source which anyhow never entirely substitutes the more traditional ones.



15. The pottery from sondage 8, UT 109: a) US 3: *Handmade Coarse ware;* b) US 4: *Handmade Coarse ware.*

9 This possibility was already taken into consideration in the first stage of the research during the setting of the methods for the grouping of pottery. At that time the authors supposed that the handmade ware fragments could possibly have been unpainted or vanished painted parts of painted vessels on the basis of the close similarities in the ceramic body between the two groups.

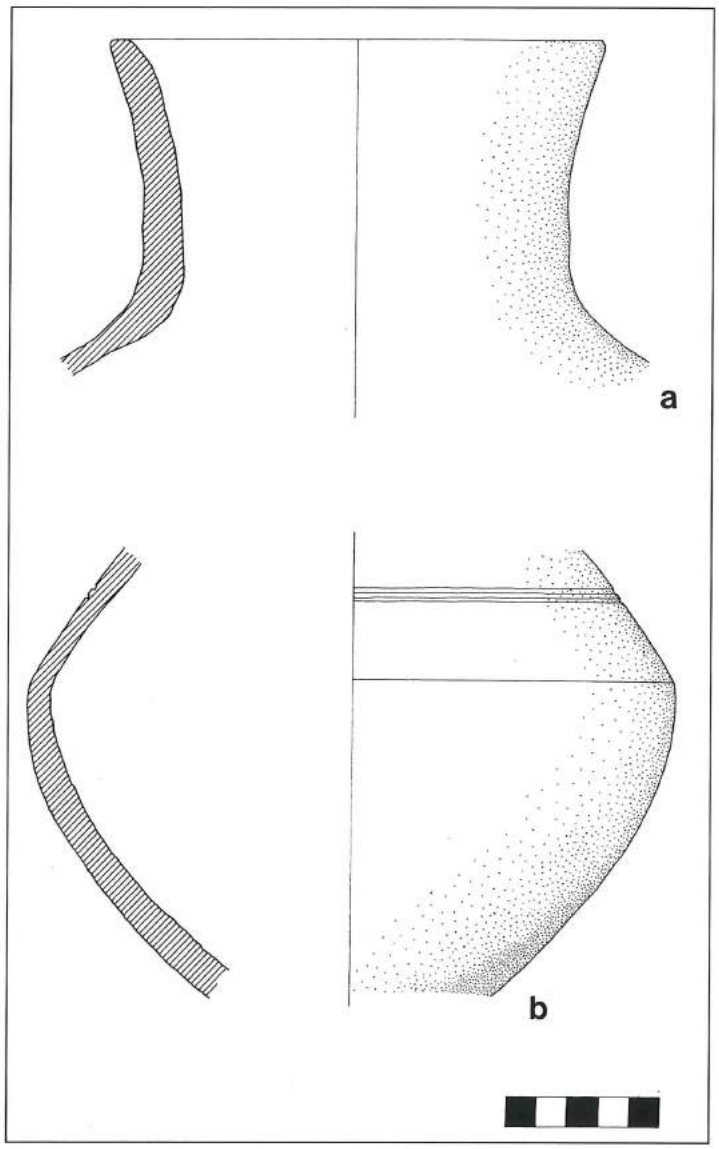
10 The absence of this kind of pottery at Khirbat Fāris dating from Crusader time seems to strengthen this point.



16. The pottery from sondage 8, UT 109: a) US 80: *Handmade ware;* b) US 73: *Handmade ware;* c) US 62: *Handmade ware;* d) US 72: Wheel-Thrown ware.

Handmade ware includes necked forms with outcurved rim (FIG. 14b) sometimes provided with a strainer. Some loop handles show an applied knob on the top. One sherd may be related to a lamp with a conical shape (FIG. 16c).

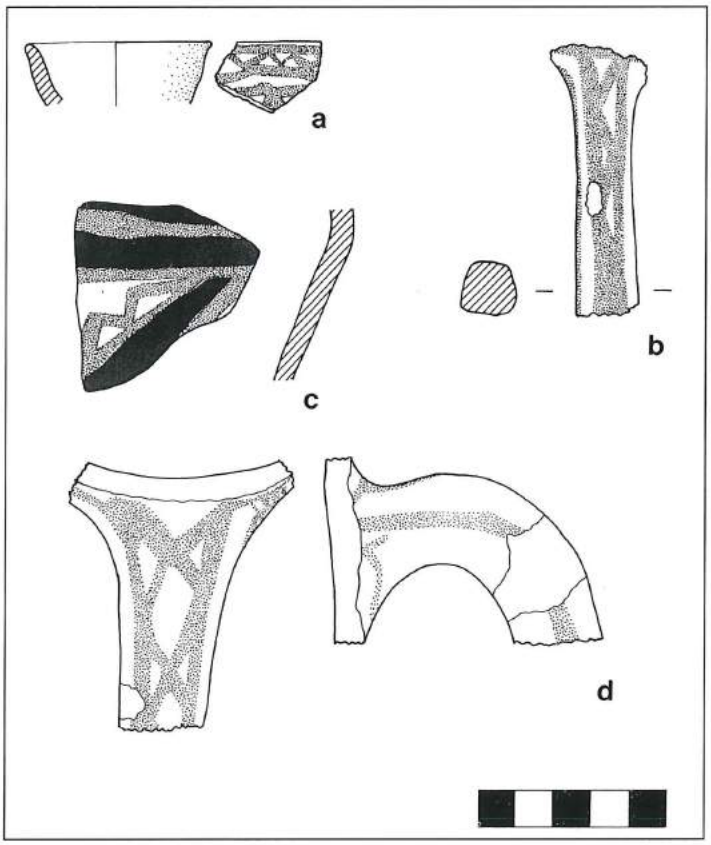
One residual fragment of neck belonging to a wheel-thrown jug, coming from US 72, bears a *round stamp* with a cross-hatching pattern whose poor preservation unfortunately does not allow a clear drawing of it (FIG. 16d). While the shape of the neck and the fabric is quite common in the area from the Umayyad (Sodini and Villeneuve 1990) to the Ayyubid periods, the stamp appears to be more distinctive. It is known on the neck of jugs coming from the excavations at Bethany (Saller 1957: 16, Pl. 129, b1-4, 6) and at 'Imwās al-Qubayba (Emmaus el-Qubeibeh, Bagatti 1947). Although the type of decoration is very simple and it could not allow us to consider it a distinctive feature, both in terms of cronology and production, it is interesting to note that stamps perfectly similar to these are very characteristic of pottery productions from Pisa commonly dated to the 12th-13th centuries. These stamps never appear elsewhere in Italy and the type seems to be shortlasting and distributed in a small area around the town. In one case surface archaeological research recognized a kiln waist coming from a small pottery factory near Fauglia, south of Pisa (Dani and Vanni Desideri 1981). The main difference between the eastern and the western stamps seems to be the position: in the first case they are placed around the neck of jugs while in Italy they are nearly always on the upper part of the handle. In both cases the decoration was made by impressing on the leather-hard clay body a round wooden stamp on which a series of crossing grooves were carved. No conclusion can be drawn at this stage; for example, it is not clear whether the two types are contemporary and in such a case if they are due to a mere phenomenon of cultural convergence or to trading and cultural relationships between Italy and *Oultremer.*[11]



17. The pottery from sondage 8, UT 109: a) US 72: *Handmade Painted ware;* b) US 72: Yellow-glazed wheel-thrown pottery; with slip.

The handmade painted pottery group includes both ex-

[11] A specific study on the subject is in progress, conducted by A. Vanni Desideri.

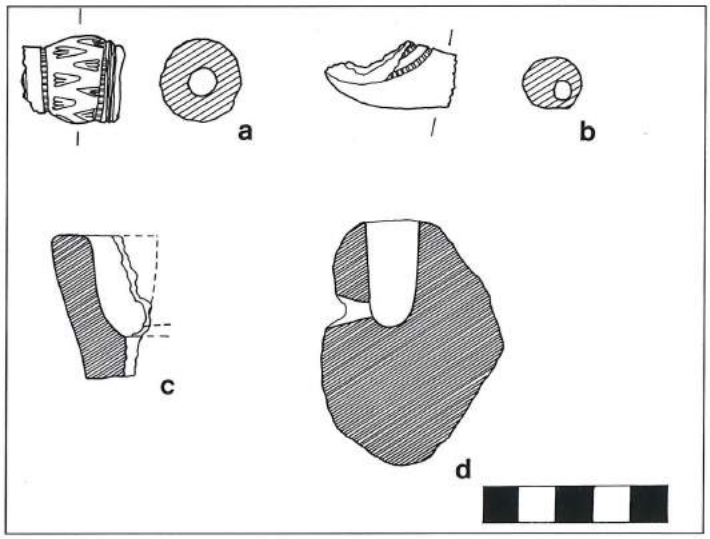


18. The pottery from sondage 8, UT 109: a) US 85: *Handmade Painted ware;* b) US 73: *Handmade Painted ware;* c) US 52: *Handmade Painted ware;* d) US 89: *Handmade Painted ware.*

amples of the so-called "linear painted" and "geometric painted" (Brown 1987: 1988) decorated in brown and reddish paint and mainly represented by closed forms sometimes with spouts (FIG. 18).

Pottery with green or yellow glaze is widely scattered through the whole stratigraphy and it appears as imported good rather than local production also in considering the poor amount of fragments that just in one case allow the reconstruction of a form (FIG. 17b). As previously stated (Brown 1988: 237; Vannini and Tonghini 1997a: 382) the monochrome glazed types are almost well known in Mamluk Transjordan but the poor preservation of this pottery here and its association with tobacco pipes seems to point out its character of residual material. Two fragments of fritware are obviously residual also in consideration of the fact that one of them comes from the same level (US 52) where two pipes have been recovered.

One interesting feature of the stratigraphy of UT 109 is the presence of smokers pipes in US 52, 58 and 90 attributed to the last phase of settlement at the site. They consist of poorly made stone pipes, carved into yellow local sandstone, no more than a simple stone with two holes (FIG. 19c, d). In addition, some ceramic pipes are to be



19. The pottery from sondage 8, UT 109: a) US 90: Clay pipe; b) US 52: Clay pipe; c) US 52: Sandstone pipe; d) US 58: Sandstone pipe.

mentioned. Since smokers pipes have never been recovered from Ayyubid-Mamluk sites and there is no historical evidence of the practice of smoking tobacco into the Ottoman empire prior to the early 17th century (Simpson 1990: 8; Tonghini 1998) we may thus consider this data as a *terminus post quem* for these objects. On the other hand the presence of stone and clay pipes in UT 109 indicates that these objects are not residual and therefore their chronology could be extended to levels 52, 58 and 90.

The pipes appear to belong to two main types, possibly reflecting different chronology or productions. The first one belongs to the so-called lily-shaped type; the surface of the fabric is black while the section is grey and around the lower part of the bowl, close to the stem-socket, there is a rouletted dots decoration (FIG. 19b). This type appears to be common from the middle of the 18th century on the basis of examples coming from the excavations at Istanbul and Varna and several examples have been found at the Kerameikos in Athens (Robinson 1983). The last type is of an almost short shape with a large bowl and a thick stem-socket. The fabric is light buff and has more elaborated stamped decorations around the stem and the bowl consisting of dots and petals-like patterns (FIG. 19a). Although lacking the bowl, the shape of the stem-socket could be compared with Turkish types dating from the 18th to the 19th century (Hayes 1980) and with an example coming from Athens possibly dating from the 18th century (Robinson 1983: 275, 11, Taf. 52) but the fabric is quite different possibly indicating a different production.[12] The evidence extends the chronological range of the Islamic settlement at al-Wu'ayra which had been

[12] For a recent assessment about the various problems concerning the study of clay pipes in the Near East see Tonghini 1998.

suggested in previous publications. This is particularly interesting, since it consitutes the first clear archaeological evidence of Burckhardt's statement of a bedouin settlement at this site in 1812.

3. Conclusions

The analysis of the results achieved in the course of several years of archaeological excavations conducted at the site of al-Wu'ayra is still in progress. In order to illustrate in part these results, a very small proportion of the assemblage of finds has been presented and discussed here.

In particular, two specific assemblages have been selected as a sample; they represent the material evidence related to two highly significant moments in the history of al-Wu'ayra: the earliest phase of the Crusader occupation of the castle and the latest occupation of the site, very likely belonging to the Ottoman period.

In the Stratigraphic Units analysed, the presence of a very high proportion of residual pottery on the one hand, and the limited quantity of the assemblages of pottery on the other hand does not allow to formulate conclusive hypothesis on the pottery in use in the two periods considered and to clearly isolate the differences between the two assemblages.

However, some preliminary remarks could be offered at this stage.

A significant percentage of residual pottery, which has been preliminarly classified as belonging to the Nabataean/Roman/Byzantine period characterises both assemblages and has already been noted in previous publications (Vannini and Vanni Desideri 1995; Vannini and Tonghini 1997a).

The pottery variety which is better represented in the two assemblages is the *handmade pottery* production. The most conspicuous difference between the two assemblages analysed so far seems to be the different proportion of the *Handmade Painted Ware*, very low in the early Crusader phase, much higher in the later Islamic phases. However, the fact that it is not possible to clearly isolate residual late Crusader and Ayyubid painted pottery in the late Islamic assemblage should be taken into account. The handmade ware seems to increase from early Crusader to the late Islamic period but the difficulty at isolating residual pottery in the *handmade pottery group* does not allow at the moment to be more conclusive in relation to the evolution of forms through time: the absence of certain forms in the late Islamic assemblage may not necessarely indicate their falling out of use, but may simply be related to the limited size of the assemblage considered here.

In the post-Crusader phases and in the late Islamic phase the presence of a variety which does not appear in the early Crusader phase has been recorded: *the Handmade Limestone Ware*. This may thus correspond to a pottery production in use in these periods only.

Glazed-slipped pottery occurs in both assemblages; its presence in the late Islamic assemblage may be residual, while its occurrence in the early Crusader assemblage testifies to its early introduction in the southern Levant pottery production.

Fritware only appears in the late Islamic assemblage, where it should be considered residual. Its absence from the early Crusader assemblage should be treated with caution, given the limited size of this group of pottery. However, since fritware can be regarded in this region as an import, its presence has been interpreted as an indication of a connection with markets supplied with technologically specialised products, presumably the Syrian and Palestinian coast (Vannini and Tonghini 1997, pp. 382-383), a situation which could be established with the creation of the Crusader Kingdom. Its absence from the early Crusader phase may confirm that the phase we are dealing with is the earliest of the Crusader phases, which may correspond to a period during which connections with the coastal area were evolving and were not as well established as in the following Crusader phases.

In the late Islamic phase, the absence of a ware which has been associated with *ṭawābīn*, the bread ovens, may not necessarely be interpreted as an indication of the abandonment of this kind of technique in the later period, but may be related to the different function of the area investigated.

The continuation of the study of the results from al-Wu'ayra, together with further evidence provided by archaeological research conducted at other sites in the regions it is hoped will provide more conclusive evidence to define the characteristics of pottery production in the region and its evolution through time.

References

Bagatti, B. 1947. *I monumenti di Emmaus el-Qubeibeh e dei dintorni. Risultati degli scavi negli anni 1873, 1887-90, 1900-2, 1940-44.* Studium Biblicum Franciscanum, Collectio Maior, 4. Jerusalem.

Bender, F. 1975. *Geologic Map of Jordan*, 1:500.000, United States Department of the Interior Geological Survey, Reston.

Brown, R. 1987. A 12th Century A. D. Sequence from Southern Transjordan Crusader and Ayyubid Occupation at el-Wu'eira. *ADAJ* 31: 267-288.

——1988. Summary Report of the 1986 Excavation: Late Islamic Shobak. *ADAJ* 32: 225-245.

——1989. Excavations in the 14th Century A.D. Mamluk Palace at Kerak. *ADAJ* 33: 287-304.

——1992. *Late Islamic Ceramic Production and Distribution in the Douthern Levant: a socio-economic and political interpretation.* Ph.D. dissertation, State University of New

York.

Dani, A. and Vanni Desideri, A. 1981. Uno scarico di fornace medievale presso Fauglia (Pisa). *Archeologia Medievale* 8: 475-482.

Franken, H. and Kalsbeek, J. 1975. *Potters of a Medieval Village in the Jordan Valley*. Amsterdam, Oxford, New York

Hayes, J. W. 1980. Turkish Clay Pipes: A Provisional Typology. *BAR*: 3-10.

Johns, J. 1992. Islamic Settlement in Ard al-Karak. Pp. 363-368 in *SHAJ* IV. Amman: Department of Antiquities.

Johns, J., McQuitty, A. *et al.* 1989. The Faris Project: Preliminary Report upon the 1986 and 1988 Seasons. *Levant* 21: 63-95 .

Lankester Harding, G. 1959. *The Antiquities of Jordan*, fifth impression 1984.

Lindner, M., Knauf, E. A. and Zeitler, J. P. 1996. An Edomite Fortress and a Late Islamic Village near Petra (Jordan). Khirbat al-Mu'allaq. *ADAJ* 40: 111-135.

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.

——1986. *The Red Tower (al-Burj al-Ahmar). Settlement in the Plain of Sharon at the Time of Crusaders and Mamluks, A.D. 1099-1516*. London: B.S.A.J.

Robinson, R. 1983. Clay Tobacco Pipes from the Kerameikos, *Athenische Mitteilungen* 98: 265-285.

——1985. Tobacco Pipes of Corinth and of the Athenian Agora. *Hesperia* 54: 149-203.

Rose, J. C., Al-Awad, F., Al-Horani, S. and Vannini, G. 1998. Crusader Period Disease in Jordan. 12th European Meeting of the Paleopathology Association, Prague, Czech Republic, 26-29 August.

Saller, S. 1957. *Excavations at Bethany (1949-1953)*. Jerusalem: Studium Biblicum Franciscanum.

Simpson, S. J. 1990. Ottoman Clay Pipes from Jerusalem and the Levant: A Critical Review of the Published Evidence. *Society for Clay Pipe Research, Newsletter* 28: 7-16.

Sodini, J. P. and Villeneuve, E. 1990. Le passage de la céramique byzantine à la céramique ommeyade en Syrie du Nord, en Palestine et en Transjordanie. Pp. 195-218 in *La Syrie de Byzance a l'Islam*. Actes du Colloque International de Lyon-Paris.

Tonghini, C. 1998. *Qal'at Ja'bar Pottery: A Study of a Syrian Fortified Site of the Late 11th-14th Centuries*. British Academy Monographs in Archaeology 11. Oxford: Oxford University Press.

Vannini, G. and Vanni Desideri, A. 1995. Archaeological Reserarch on Medieval Petra: a preliminary report. *ADAJ* 39: 1-32

Vannini, G. and Tonghini, C. 1997a. Mediaeval Petra. The stratigraphic evidence from recent archaeological excavations at al-Wu'ayra. Pp. 371-384 in *SHAJ* VI. Amman: Department of Antiquities.

——1997b. Mediaeval Petra. Settlements of the Crusader and Ayyubid period in Transjordan. *AJA* 101: 534-535.

Whitcomb, D. 1988. A Fatimid Residence in Aqaba, Jordan. *ADAJ* 32: 207-224.

Khalil Salameh
Royal Jordanian Geographic Centre
Amman - Jordan

Khalil Salameh

The Role of Photogrammetry in the Conservation of Jarash

Introduction

Photogrammetry is the basic method of topographic map production. Due to its major role in reducing the time-effort of plotting, it has been used since 1950 to replace direct survey. Photogrammetry uses different kinds of stereoplotters for plotting maps, plans and orthophotos.

Terrestrial photogrammetry is one of the non topographic applications of photogrammetry dealing with terrestrial photos for the survey of historical monuments and archaeological sites. It is considered as one of the best measuring technique used in this field.

The recording of historical monuments produces photogrammetric documentation of the "as-found" condition. Detailed measured drawings can be generated and plotted prior to restoration or renovation of a historical monument. The most frequent scales of plotting are:

* plotting scale 1/100 for relative plotting (preliminary studies for restoration);
* plotting scale 1/50 for accurate plotting (classification, documentation, evolution study and conservation of sites).

RJGC Capabilities and Equipment Used

The equipment used for this work were:

1- P31 WILD camera: wide angle F = 10cm, the diapositives of such camera can be used for orientation and measurements (see camera P31, FIG. 1).

2- T3 theodolite for angle measurements of traverse and ground control points on the site, for the determination of a topometric layer of all images equipped with ground control points. Generally a camera combined with a theodelite "phototheodelite" is used, but an independent camera of I.G.N. with a long exposiure time was used in this case.

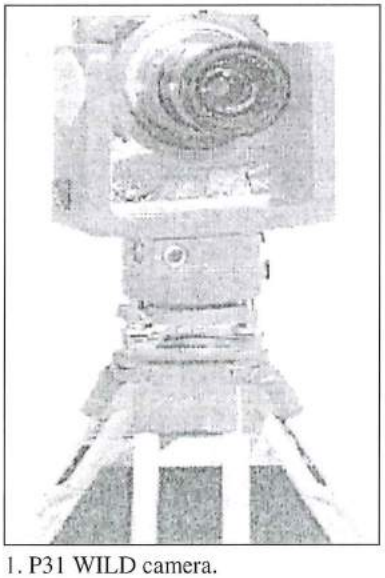
3- BC2 analytical stereoplotter with a suitable software (INP, ATI, PMO) for aerotriangulation and plotting (contours and digital data).

4- RJGC profile equipment (see TABLE 1).

Terrestrial Photogrammetry and the Site of Jarash

Why Terrestrial Photogrammetry?

1- Taking the photographs is relatively easy since they are independent of the structure, the site and the condition of the object to be photographed.



1. P31 WILD camera.

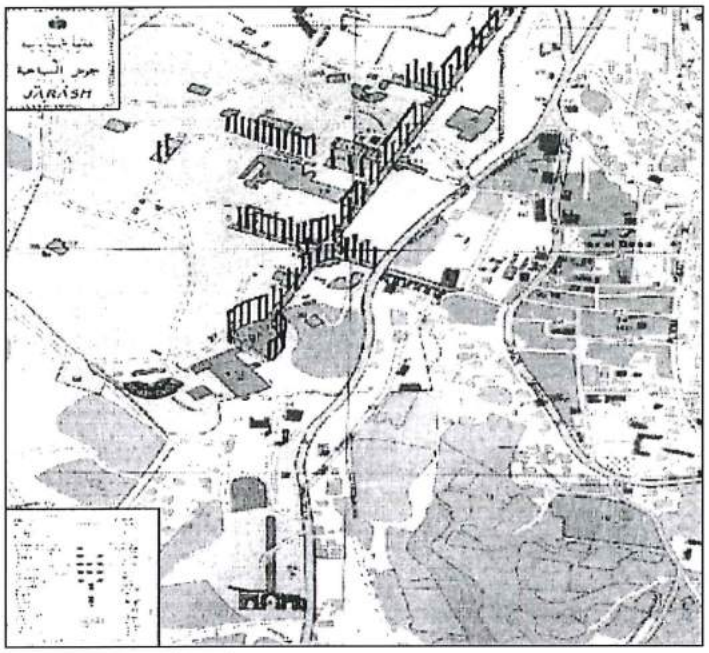
TABLE 1. List of equipment.

EQUIPMENT			
AERIAL PHOTOGRAPHY CAMERA AND LABS EQUIPMENT		FIELD SURVEY EDM's	
RC30 Wild Camera System	1	Tellorometer (AGA, CA1000)	13
ASCOT Aerial Survey Control Tool	1	Geodimeter (DI10, 3S, 300)	9
PHOTO LABS (B/W ,Miligan/ COLOR, Durst)		TOTAL STATIONS	
GPS RECEIVERS		Wild TC1610	4
Ashtech ZXII	5	Wild T2000	2
PHOTOGRAMMETRY		THEODOLITS	
Analytic Stereoplotter / BC2	1	Wild T16	10
Wild B8S	2	Wild T2	10
Wild A8	2	Wild T3	21
Wild AG1	4	DKM3	1
Wild A10	2	LEVELS	
Wild RecE4	1	Wild NA2, N3, Nic2, N2	19
Wild Pug4	1	GENERAL PURPOSES	
TA10 Plotting Table	2	PC's 386/486 Pentium	20
Printers (dot-matrix, lazerjet, color)	3	Plotters (Versatic, Optronix, Tektr.)	3
PC's + (TCP / IP + LAN + HUB)	11	Electrostatic Plotter	2
REPROGRAPHY		Scanner B/W	1
Klimsch Repro Camera	1	Digitizing Tables	5
Developing Machines (B/W And Color)	2	Silicon Graphics	2
CARTOGRAPHY		ARCInfo	5
Desk Top publisher	3	Dipex, Pericolor	2

2- Low cost of photographs, savings of both time and finances are considered more than in architectural surveys when the camera and stereoplotters are available.
3- With a complete process — for faithful reproduction of the monument — going from terrestrial photographs survey, triangulation, until the final output there is a possibility to get data and output quickly for any studied site.
4- Taking photographs and plotting are two operations quite separate in time. Plotting for documentary purposes can be carried out at any moment (even years after).
5- The possibility to measure complicated object (no matter how complex the shape and the form) and it is not necessary to touch or to set foot on it.
6- The amount of information contained in terrestrial metric photographs and the conditions of exposure are recorded objectively in full detail.

Why Jarash?

1- Jarash is situated some 50km north of 'Ammān, making communications with the centre easy during the experimental stages.
2- The ancient city of Jarash is an important and attractive site in archaeological terms with a remarkable unbroken chain of human occupation, considered as one of the best preserved examples in the world of a Roman provincial city.
3- Jarash was a member of the Decapolis. Its engineering was so advanced that large parts of the city—including our concerend monument—still survive today.
4- This pilot project highlights a major sight as well as new techniques for the concerned institutions in this pilot project which are: RJGC "Royal Jordanian Geographic Centre"; IGN "Institut Geographique National" (France); JADIS "Jordan Archaeological Database and Information System" (Department of Antiquities); JIIAS "Jordanian-Italian Institute of Archaeological Science /Amman".
5- The chosen monument (the **Eastern Baths**) is an easy-to-access feature close to the down town (FIG. 2). It is an ideal monument for the study. In the middle of the eighth century AD, the city was hit by an earthquake that affected many of its buildings, one of which was this monument.
6- An attempt to conserve some monuments that are 2000 years old using the photogrammetric methods, taking into consideration the massive effects of human activities and festivals around the site, affected also by the urban expansion services and infrastructure of the new city.
6- The "Eastern Baths" is the only preserved monument in the centre of the new city, and there is a danger that the walls could be ravaged by traffic going around close to them or that the monument would be otherwise affected by the new city.



2. Tourist map of Jarash.

Requirements

Requirements for terrestrial photographs:

Reconnaissance (preliminary study)

Some factors have to be taken into consideration when we perform terrestrial photography, this is a kind of preliminary study of the site:

1- Location of the monument in the site .
2- Position in space (vertical, horizontal elevations) of the monument.
3- The relief (weak, deep).
4- The complexity of the monument and the light direction.

The simple case is an architectural element flat with vertical elevations. We get a photographic image when we orientate the axis of view perpendicular to the plan of that element.

5- Photographic scale of 1/100 and a plotting scale of 1/50 were adopted, the reconnaissance showed that 7 strips of 24 photos were required to allow the plotting of the whole of the 2 elevations.

Our study was restricted to four models with clear fiducial marks and points covering the west elevation.

Other Factors

1- Camera calibration certificate, principal distance = 99.21mm.
2- Well distributed and accurate ground control points (traverses, computation), related to the Jordanian national system of coordinates with premarked control

points on the elevations themselves. For the western elevation, 8 control points were trisected to control the 4 models. Artificial targets were fixed on the corners and in the common overlap to increase the accuracy.

3- Photoscale and plotting scale related to the more adequate existing stereoplotter and plotting table for plotting results issued from these photographs.

Requirements for PMO Program of Plotting (Initialization Parameters):

1- Preperation and input of CA- file for calibration data by INP program.
2- Choice of terrestrial photo as type of photgraphs.
3- Computation and introduction of photo base (22mm).
4- Introduction of distance camera-object(10m).
5- Camera height (terrain unit) = distance camera-object + dH (10m+4m = 14m).
6- Ground height = dH of the object = 4m.

Methodology and Execution

1- Initialization: details about input photo, calibration data, ground control data is introduced.
2- Orientation (inner, outer) py parallax for 6 standard points of each model , RMS py = 1.3 microns for photo coordinates (TABLE 2). The tolerance in precision can be of the order of 4% of the principal distance, and what we had achieved was about RMS xy = 3mm, RMS z = 5mm (outer orientation on ground control points).
3- Plotting (scale and accuracy). The scale of the photo is the ratio (principal distance/distance camera object).

In general the final output scale is 1/50 or 1/100 allows to show all existing structural defects. TA10 plotting table was used to plot the west elevation, example of output is to be found in FIG. 3.

Planimetric details: lines in black and slopes in red.

Altimetric contours: index in red and normal in black in digital files. All breaks in masonry as well as individual stones, fractures, gaps, cement surfaces were represented, either by lines or by plotting both sides with slopes and dashed lines.

Results and Remarks

1- Field survey: full ground control points with premarked points and some natural details on the monument itself had been selected, observed and computed with an accuracy of RMS xyz = 1mm.
2- RMS xy for models = 1mm targeting could increase the accuracy of identification and plotting.
3- Plotting PMO with the following specifications:
   - projection XZ plan instead of XY plan;
   - rotation for the axis system;
   -diapositive with emulsion up and overlap out.
4- The monument (walls) form an attractive feature of the site, the top of the monument has remained in a ruined condition, with falling masonry presenting a hasard, and some gaps/fractures in the fabric. It is important to strengthen it against further deterioration, for remedial measures, very large scale plotting for the west monument at (1/20) scale instead of 1/50 scale is needed to highlight the fractures, gaps, cement surfaces and individual stones.

Conclusion and Recommendations

1- Good representation of architectural objects of Jarash by photogrammetric survey. These representations are useful for architectural, archeaological and art-history experts and indicate the advantage of the photogrammetric survey in terms of accuracy, economy and homogeneity.
2- The complex reality of the monument in a manner adapted to the needs of different users and objectives of the photogrammetric results. Thus the participation of different concerned users in the analysis of the photogrammetric results.
3- Appropriate training should be provided to develop a deep analysis of the site with the participation of all

TABLE 2. The inner and outer orientation protocols.

Orientation Protocol
Model name :J35J34

OUTER ORIENTATION

Residuals on Photo Coord.(Micr.) and Ground Coord.(Metres) ORI-1.0

Pt.No.	DXL	DYL	DXR	DYR	PY	DXG	DYG	DZG
0111	.0	1.3	.1	-.9	2.1			
0222	.1	-1.7	-.1	1.3	3.0			
0333	.0	.0	.0	-.6	1.5			
0444	.0	.2	-.0	.3	.1			
0555	.1	-.5	-.0	.4	.9			
0666	.0	1.6	.1	-1.5	3.1			
36	-.0	.2	-.0	-.2	.4	.004	-.005	-.005
38	.0	.4	.0	-.3	.9	-.009	-.011	.014
40	.0	.3	.0	-.2	.5	.009	.016	-.004
39	.0	.3	.0	.0	.3	-.004	.000	-.006
RMS :					1.3	.007	.010	.008

Orientation Elements and their Std.deviations ORI-2.0

Photo No	XG	YG	ZG	Azimut	Nadird	Kappa
J335	480.68	517.36	701.75	126.408	107.384	.074
	.07	.07	.13	.279	.504	.249
J334	479.20	512.91	701.93	114.983	107.130	-.075
	.07	.07	.13	.278	.508	.240

ORIENTATION PROTOCOL
Model number :J35J34

INNER ORIENTATION

Left Photo: J335

Fid. Coords. and Residuals in Microns

Pt.No.	XT	DX	YT	DY
1	-57500.	-1.	-1.	0.
2	57500.	-4.	-3.	3.
3	-4.	4.	57499.	0.
4	-0.	3.	-27497.	-4.

DXG = 538.6 SFX = 1.00008 KAPA = -.21279
DYG = -55840.2 SFY = 1.00006 ALFA = .00000

Right Photo: J334

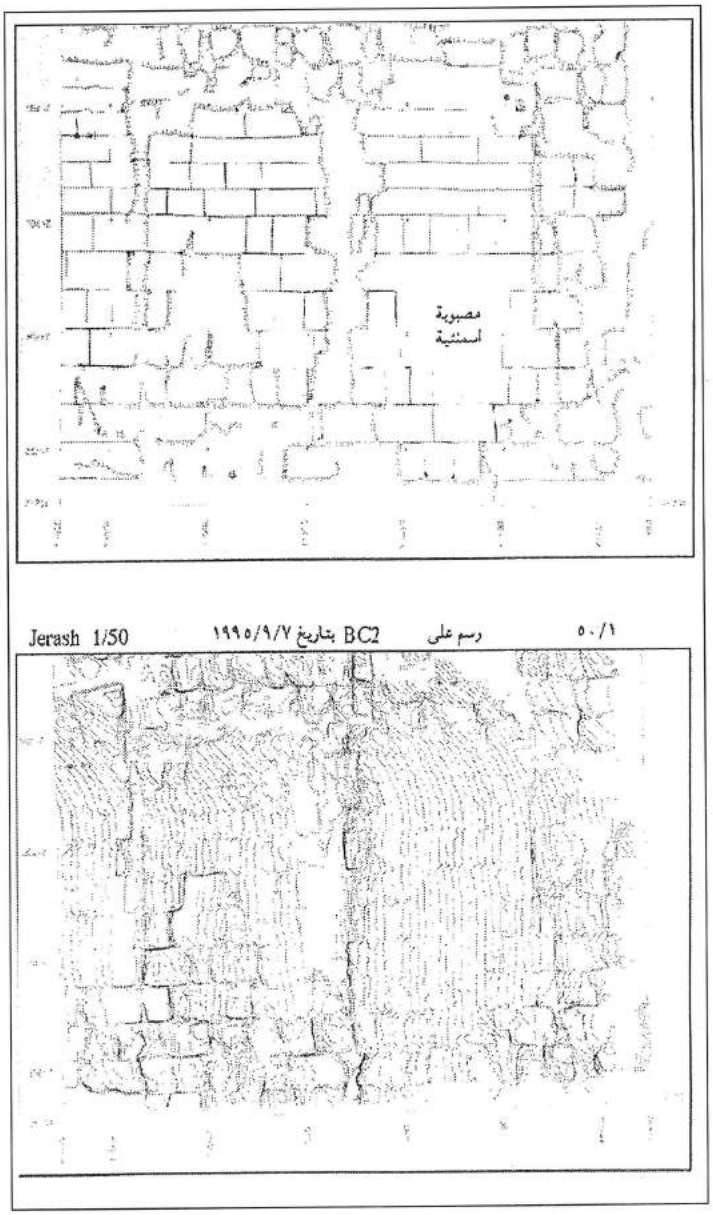
Fid. Coords. and Residuals in Microns

Pt.No.	XT	DX	YT	DY
1	-57507.	6.	1.	-1.
2	57505.	0.	0.	-1.
3	0.	-9.	2.	-2.
4	0.	0.	57498.	11.
5	-2.	2.	-27495.	-8.

DXG = 703.8 SFX = 1.00015 KAPA = .78162
DYG = -55391.9 SFY = 1.00015 ALFA = .00000

concered institutions, giving priority to those concerned with the safeguarding and restoring the architectural heritage.

4- The major role of photogrammetric methods applied to architecture is for recording measurments and conservation of historical sites. The models can be used to reproduce specifically—true to scale and safety—any detail of interest at any time.



3. Examples of the final output.

5- The analytical approach is suitable in studying the structure and stability of the monument through multitemporal digital models.

6- The study of elevations from a structural point of view has led to a conclusion about the mode of repair and restoration taking into consideration th critical areas of falling stones risk. I think that permanent marks to all models could be helpfull to get photogrammetric plots related to each other.

New Aspects of Development

New techniques and methods are recently used or proposed:

1- Close range photogrammetry for historical site (nacelle + photo.camera + lifts) and remote sensing technique for cultural heritage (multispectral images) for the entire city documentation.

2- Employment of an airborn thermal scanner, coupled with the photogrammtric camera and GPS reciever antenna (IR + Visible images) by the CENTRO ESCAVI "Centro Ricerche Archeologich e Scavi di Torino". RJGC is ready to cooperate with international institution concerned by similar archaeological studies for monuments in Jordan in coordination with the Department of Antiquities.

3- Rolleimetric camera 6x6 for orthophotos of surveyed building or site with automatic exposure medium format camera.

4- Digital plotting could be used also when photos are well controlled by means of DPW "digital photogrammetric workstations".

All Jarash photos will be scanned by DSW "Digital Scanning Workstations" and processed to create a data base of all terrestrial models of the site to get digital orthos and other applications.

References

Manual of Photogrammetry. A.S.P. fourth edition.
Photogrammetrie. H. Bonneval. Paris 1972.
Photogrammetrie et urbanisme. I.G.N-FRANCE.
Photogrammetrie. R. Martin & N. Challine Paris 1973.
Bulletin SFPT no: 19,89,40.
REPORTER No: 36 *Periodical of Surveying and Photogrammetry / LIECA* Aug 1997 .
Brochures of Ministry of Tourism and Department of Antiquities-Amman 1997.
Scientific American August 1997.

الطبعة الأولى ٢٠٠١
مطبوعات دائرة الآثار العامة، عمان - الأردن



المملكة الاردنية الهاشمية

دراسات في تاريخ وآثار الأردن

المجلد السابع

دائرة الآثار العامة - عمّان