

مكتبة دائرة الآثار

دارات دائرة الآثار العامة

Publications Series of Department of Antiquities of Jordan

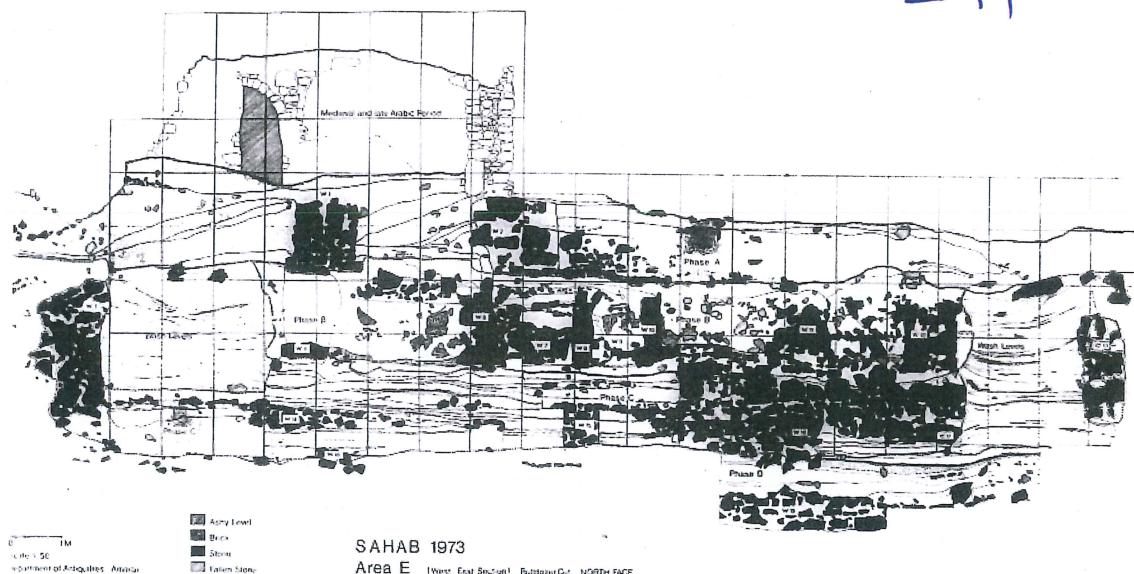
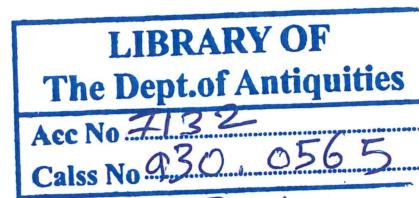
الرقم المتسلسل.....

رقم التصنيف.....

# SAHAB

Excavations at Sahab: Bronze & Iron Ages

Volume II



Editor & Author

MOAWIYAH M. IBRAHIM

The Hashemite Kingdom of Jordan  
The Deposit Number at The National  
Library  
(2016/2/655)

930.0565

Yousef, Moawiyah Mahmoud Ibrahim  
Excavations At Sahab / Moawiyah Mahmoud  
Ibrahim Yousef .- Amman: The Author, 2016

2Vol( ) p.

Deposit No.: 2016/2/655

Descriptors: /Archaeological Excavations//Jordan//Antiauties/

يتحمل المؤلف كامل المسئولية القانونية عن محتوى مصنفه ولا يعبر هذا المصنف  
عن رأي دائرة المكتبة الوطنية أو أي جهة حكومية أخرى.

# SAHAB

---

Excavations at Sahab: Bronze & Iron Ages

---

Volume II

**MOAWIYAH M. IBRAHIM**

*with Contributions by*

**Dima Abu Aisheh  
Luma Hadad,  
Abdel Nasser Hindawi  
Ahmad Y. Abu Dalou  
and  
Abdelrahman Elserogy**

*English Text Revised by*

**Anne Poepjes**

---

## Table of Contents

---

Abbreviations, Symbols, Translations and Selected Glossary .....	vii
List of Illustrations: Figures .....	viii
Tables.....	xiii
Plates .....	xiv
<b>Chapter 1: The Middle Bronze Age.....</b>	<b>1</b>
- Introduction .....	3
- Middle Bronze Age Pottery.....	3
<b>Chapter 2: The Late Bronze Age .....</b>	<b>23</b>
- Introduction .....	25
- Area E West.....	28
- Sahab among other LB sites.....	38
- The Late Bronze Age pottery from Sahab: Pottery from the settlement (town wall and building) .....	47
<b>Chapter 3: Iron Age .....</b>	<b>175</b>
- Introduction: Early Iron Age .....	177
- The Iron II Period.....	178
- Iron Age pottery sherds from Sahab .....	195
<b>Chapter 4: Jar burials of human skeletal remains from the archaeological site of Sahab, Jordan: A bioarchaeological and conservation study .....</b>	<b>265</b>
- Abstract .....	267
- Introduction .....	269
- The archaeological site.....	270
- Materials and methods .....	271
- Determining the sex of the skeletons .....	273

---

- Determining the age of the skeletons .....	273
- Estimation of stature .....	273
- Pathology .....	273
- Osteophytes.....	274
- Dental Caries.....	275
- Investigation and analysis .....	276
- Treatment and conservation .....	279
- Gluing the fragments.....	283
- Consolidation and coating of the bones .....	284
- Discussion .....	285
- Conclusion and recommendations .....	286
- Acknowledgments .....	286

## **Chapter 5: The Collared Rim Jar of the Early Iron Age ..... 289**

- General description of the jar.....	291
- Impressions found on the jars .....	292
- Discussion and comparative study.....	293
- Pithoi: Storage and trade .....	296
- Pithoi as burial jars.....	297

## **Chapter 6: Seals and seal impressions from Sahab ..... 307**

- Fragment of a clay seal stamp .....	309
- Steatite scarab .....	311
- Jar handle with seal impression .....	313
- Limestone picture seal .....	315
- Early Iron Age seal impressions on “collared rim jars” .....	317
- Faience scarab .....	323
- Faience seal pearl .....	326
- Bronze seal ring .....	327
- Limestone seal of undetermined date.....	329

---

## Abbreviations, Symbols, Translations and Selected Glossary

---

AASOR	Annual of the American School of Oriental Research
AD	Anno Domino
ADAJ	Annual of the Department of Antiquities in Jordan
AY	Ayyobi
BA	Biblical Archaeology
BASOR	Bulletin of the American School of Oriental Research
BC	Before Christ
ca.	Approximately
Chalco.	Chalcolithic Period
EB	Early Bronze Age
EI	Eretz Israel
F.	Feature
GL	Greatest Length
GPW	Greatest Proximal Width
I I	Iron Age Period Phase One
I II	Iron Age Period Phase Two
IEJ	Israel Exploration Journal
JPOS	Journal of the Palestine Oriental Society
L.	Layer
LB	Late Bronze Age
<i>Maazem</i>	Ossuaries
Mam	Mamluk
MB	Middle Bronze Age
MDW	Minimal Diaphyseal Width
NRA	The Natural Resource Authority
PEQ	Palestine Exploration Quarterly
QDAP	Quarterly of the Department of Antiquities in Palestine
RB	Revue Biblique
S.	Scale
Sq.	Square
UD	Undefined
W.	Wall

---

## List of Figures

---

No	Caption Details .....	Page
1	Cross-section of Tomb 1.Area A, Sahab .....	5
2	Top plan for the MB tomb found in Area A .....	5
3	General view of MB Tomb, Area B.....	6
4	MB Tomb, Area B .....	6
5	Pavement for MB Tomb, Area B .....	7
6	MB II Fort, Area G II .....	7
7	MB construction with glacis system, Area G II .....	8
8	MB Age Pottery from Area G II.....	8
9	MB Age Pottery from Area G II.....	9
10	Late Bronze Walled Town .....	25
11	1977 Season: Area E.. Chalcolithic - LB structure.....	28
12	LB level at the bottom of the trench, Area E.....	29
13	LB building with earlier Chalcolithic structures, Area E .....	29
14	Detailed section drawing of a bulldozer cut in Area E, showing occupational levels from LB to 19th Century.....	30
15	Photo of the bulldozer cut in Area E .....	30
16	Recent image of the bulldozer cut in Area E (from Haddad, 2011: Fig.6).....	31
17	LB town wall surrounded by modern buildings (photo taken in 1977) .....	32
18	LB Pottery, Area H III .....	32
19	Mycenaean sherds from Sahab, Area H III .....	33
20	Top plan for Area EW.....	33
21	LB painted pottery.....	34
22	LB pottery sherds .....	35
23	The seal impression on a typical LB storage jar handle found in association with the foundation trench of the town wall.....	35
24	The scene combines the three signs of seated sphinx, uraeus (snake), and god beard.....	35
25	LB base forms .....	36
26	LB pottery: medium bowls (diameter 16-25 cm). Simple rim with rounded lip type.....	36
27	Arial photograph of the Sahab area (Google Earth).....	39
28	Sahab and other important sites in the vicinity (from Ibrahim et al., 1984: 187, 188) .....	39
29	Sahab and other LB sites in Amman and Jordan (from van der Steen, 2004: Fig. 3-1).....	40

---

30	The main pottery types .....	51
31	Type A.1.1.a: simple rim with rounded lip.....	52
32	Type A.1.1.b: internal thickened rim with rounded lip .....	52
33	Type A.1.1.c: external thickened rim with thickened lip.....	52
34	Type A.1.2.a: simple rim with rounded lip.....	53
35	Type A.1.2.b: simple rim with squared lip .....	54
36	Type A.1.2.c: internal thickened rim with rounded lip.....	54
37	Type A.1.2.d: internal thickened rim with squared lip .....	55
38	Type A.1.2.e: external thickened rim with rounded lip .....	55
39	Type A.1.2.f: external thickened rim with thickened lip .....	55
40	Type A.1.3.a: simple rim with rounded lip.....	56
41	Type A.2.1.a: internal thickened rim with squared lip .....	56
42	Type A.2.1.b: simple rim with rounded lip.....	56
43	Type A.3.1.a: everted flattened rim with rounded lip.....	57
44	Type A.3.2.a: simple rim with rounded lip (?) .....	57
45	Type A.3.3.a: two handled carinated bowl with simple rim and rounded lip.....	57
46	Type A.4.1.a: external thickened rim with rounded lip .....	58
47	Type A.4.1.b: internal thickened rim with rounded lip .....	58
48	Type B.1.a: outwardly curving rim with thickened lip.....	58
49	Type B.2.a: outwardly curving rim with squared lip.....	59
50	Type C.1.a. Thickened rim with rounded lip.....	59
51	Type C.1.b. T-shaped flattened rim with squared lip.....	59
52	Type C.2.a. Two handled krater with external thickened rim and squared lip .....	60
53	Type D.1.a: external thickened rim with thickened lip .....	60
54	Type D.2.a: external thickened rim with thickened lip .....	60
55	Type D.2.b: external simple rim with rounded lip .....	61
56	Type E.1.a: External thickened rim with thickened lip .....	61
57	Type E.2.a: External thickened rim with thickened lip .....	61
58	Type F.a: Simple rim with rounded lip (?) .....	61
59	Type F.b: External simple rim with thinned lip.....	61
60	Elevated ring base .....	62
61	Flat base.....	62
62	Double ring base.....	62
63	Concave-ring base .....	62
64	Elevated trumpet base .....	62

65	Elevated loop base.....	62
66	L.S.S: loop handle/ small/ simple.....	63
67	L.S.G.: loop handle/ small/ grooved.....	63
68	L.S.T.: loop handle/ small/ triple.....	63
69	L.M.S.: loop handles/ medium/ simple .....	64
70	L.M.G.: loop handles/ medium/ grooved .....	65
71	L.L.S.: loop handles/ large/ simple.....	65
72	L.L.G.: loop handles/ large/ grooved.....	66
73	L.S.: lug handle/ small.....	66
74	Map of the Areas where pottery was discovered and analysed for this study.....	68
75	Form ratios for bowls, carinated bowls, and goblets (Main type: A).....	72
76	Form ratios for cook pots and kraters (Main types: B and C).....	73
77	Form ratios for jugs, jars, and lamps (Main types: D, E, and F) .....	73
78	Comparison of form ratios for sherds found at Tell Sahab and included in this study .....	74
79	Sahab Late Bronze Age decorative designs .....	80
80	Painted Body Sherds (1-12) .....	158
81	Painted Body Sherds (13-20) .....	159
82	Iron Age Settlement.....	181
83	Iron I Storage Area in Area A.....	181
84	Iron I Collared- Rim Jars in-situ, Area A.....	182
85	Iron I Storage Area (Area A) .....	182
86	Area B.....	183
87	Iron I Building (Area B).....	183
88	Area D: plan of Early Iron Age building.....	184
89	Iron I house (Area D) .....	184
90	Area D: Iron I Cook pots.....	185
91	Cave C: Illustrating burial jars in M -shape, wooden coffin and other burials .....	185
92	Iron I burial jars (Area C).....	186
93	Iron I burial (Area C).....	186
94	Area C: Iron Age .....	187
95	Iron I (Cave C)—Alabaster finds .....	187
96	Iron II Pillared House (Area BO19).....	188
97	Ground plan of Iron II occupation (Area BO19).....	188
98	Iron II pottery (Area BO19) .....	189
99	Painted Ammonite ware- Iron II (Area Bo19).....	189

100 Red burnished ware – Iron II (interior and exterior) .....	190
101 Iron II Cook pots .....	190
102 Iron Age objects from Sahab on display in the Museum of Jordanian Heritage – Yarmouk University .....	191
103 The number of sherds examined from each unit .....	196
104 Total number of sherd forms examined for the purpose of this study.....	196
105 The number of different pottery forms selected for the purposes of this study .....	197
106 The number of selected samples according to archaeological context .....	197
107 Location of Sahab archaeological site, Jordan .....	270
108 Sahab Area C Tomb II, 1972 (from Ibrahim, unpublished excavation report).....	270
109 Burial jars at the Faculty of Archaeology & Anthropology, Yarmouk University Store.....	271
110 Safe transportation of one of the jars to the laboratory .....	271
111 Skeletal remains inside one of the burial jars.....	271
112 The mandibles from the three skeletons.....	271
113 Adult female skeletal remains .....	272
114 Skeletal remains of the fetus and infant .....	272
115 Measuring the length of a long bone to estimate age for the fetus.....	275
116 A mild degree of osteophytes (Lipping) on the upper rim of one of the thoracic vertebra of the adult female skeleton.....	275
117 Dental caries on the second molar of the adult female skeleton .....	276
118 XRD for the adult female bone sample .....	276
119 XRD for the soil sample.....	277
120 FTIR results for the adult female skeleton .....	277
121 XRF results for the soil .....	278
122 Sacrum from the adult female before cleaning .....	279
123 Using a dental pick to clean the sacrum .....	279
124 Using the water and alcohol/ acetone solution to clean the sacrum.....	279
125 Drying the sacrum of the adult skeleton.....	279
126 Humeri from the adult skeleton before and during cleaning by hand .....	280
127 Humerus of adult skeleton after final cleaning .....	280
128 Ilium from the adult female before cleaning .....	280
129 Ilium from the adult female during cleaning.....	280
130 Ilium from the adult female after final cleaning.....	280
131 The hipbone of the female adult skeleton illustrating the amount of caked on dirt before cleaning .....	281

132 The hipbone of the female adult skeleton during hand cleaning.....	281
133 The hipbone of the female adult skeleton during cleaning .....	281
134 Part of the female adult skeleton's lower jaw with caked on dirt.....	281
135 Part of the female adult skeleton's lower jaw during cleaning.....	281
136 Part of the adult female skeleton's lower jaw after final cleaning .....	281
137 Bone fragments from the female adult skeleton before cleaning.....	282
138 Bone fragments from the female adult skeleton after final cleaning .....	282
139 Mandible from the infant after final cleaning .....	282
140 Broken sacrum of the female adult skeleton .....	283
141 Gluing the sacrum with Paraloid B-72 dissolved in acetone (20% concentration).....	283
142 Sacrum of the female adult skeleton after gluing.....	283
143 The broken fragments of the left ilium from the adult female skeleton.....	283
144 Gluing the fragments of the left ilium from the adult female skeleton .....	284
145 The left ilium from the adult female skeleton after gluing.....	284
146 Consolidation of one of the vertebrae of the female adult skeleton.....	284
147 Consolidation and application of resin on the sacrum of the adult female skeleton.....	284
148 Consolidation and application of resin on some of the bone fragments from the female adult skeleton.....	285
149 Typical collared rim jar from Sahab.....	289
150 Fragment of a clay seal stamp .....	310
151 Steatite scarab from Sahab .....	312
152 Jar handle with seal impression.....	314
153 Limestone Picture Seal .....	316
154 a. Two stamp impressions on the same jar; each has different motif .....	318
154 b. A slanted, rectangular-shaped seal impression with an indented narrow side.....	320
154 c. Rosette stamp impression .....	321
154 d. Impressions of a round stamp pressed three times in a horizontal row.....	322
155 A scarab of blue-glazed faience.....	324
156 Faience scarab; only traces of green glaze remain .....	325
157 A seal pearl of green glazed faience .....	326
158 Bronze seal ring.....	327
159 A limestone seal.....	329

---

## Tables

---

No	Caption Details .....	Page
1	Sahab and other LB sites in the vicinity .....	41
2	Other LB sites in Jordan .....	42
3	Classifications for LB types .....	47
4	Main types of Late Bronze Age pottery from Sahab .....	51
5	Sherd association .....	69
6	Parallels for Sahab pottery from other sites .....	70
7	Season, Area, Box No. and quantities of MB and LB sherds stored at the Jordan Museum ....	71
8	Number of sherds for each form and context included in this study .....	72
9	Peter Fischer's chronology .....	81
10	Numbers and distribution of the pottery repertoire according to Square .....	195
11	Total number of sherds, forms and archaeological context selected for the purpose of this study .....	197

---

# Plates

---

No	Caption Details.....	Page
<b>Chapt. 1 Middle Bronze Pottery</b>		
1.1-1.6	Plate 1.1 – 1.6 .....	10-21
<b>Chapt. 2 Late Bronze Pottery</b>		
2.1	Type A.1.1.a: Simple rim with rounded lip.....	83
2.2	Type A.1.1.b: Internal thickened rim with rounded lip.....	85
2.3	Type A.1.1.c: External thickened rim with thickened lip .....	85
2.4	Type A.1.2.a: Simple rim with rounded lip.....	89
2.5	Type A.1.2.b: Simple rim with squared lip .....	91
2.6	Type A.1.2.c: Internal thickened rim with rounded lip .....	93
2.7	Type A.1.2.d: Internal thickened rim with squared lip .....	95
2.8	Type A.1.2.e: External thickened rim with rounded lip.....	95
2.9	Type A.1.2.f: External thickened rim with thickened lip.....	97
2.10	Type A.1.3.a: Simple rim with rounded lip.....	98
2.11	Type A.2.1.a: Internal thickened rim with squared lip.....	101
2.12	Type A.2.1.b: Simple rim with rounded lip .....	103
2.13	Type A.3.1.a: Everted flattened rim with rounded lip .....	106
2.14	Type A.3.2.a: Simple rim with rounded lip (?) .....	106
2.15	Type A.3.3.a: Two handled carinated bowl with simple rim and rounded lip .....	106
2.16	Type A.4.1.a: External thickened rim with rounded lip.....	108
2.17	Type A.4.1.b: Internal thickened rim with rounded lip.....	108
2.18	Type B.1.a: Outwardly curving rim with thickened lip .....	110
2.19	Type B.2.a: Outwardly curving rim with squared lip .....	110
2.20	Type C.1.a: Thickened rim with rounded lip .....	114
2.21	Type C.1.b: T-shaped flattened rim with squared lip.....	114
2.22	Type C.2.a: Two handled krater with external thickened rim and squared lip .....	114
2.23	Type D.1.a: External thickened rim with thickened lip .....	116
2.24	Type D.2.a: External thickened rim with thickened lip .....	118
2.25	Type D.2.b: External simple rim with rounded lip .....	118
2.26	Type E.1.a: External thickened rim with thickened lip.....	121
2.27	Type E.2.a: External thickened rim with thickened lip.....	121
2.28	Type F.a: Simple rim with rounded lip(?).....	123
2.29	Type F.b: External simple rim with thinned lip .....	123
2.30	Elevated ring bases .....	129
2.31	Flat base .....	129

---

2.32	Double ring base .....	129
2.33	Concave-ring base .....	129
2.34	Elevated trumpet bases .....	130
2.35	Elevated loop base .....	130
2.36	Type: L.S.S. Loop Handles/ Small/ Simple .....	145
2.37	Type: L.S.G. Loop Handles/ Small/ Grooved.....	146
2.38	Type: L.S.T. Loop Handle/ Small/ Triple .....	146
2.39	Type: L.M.S. Loop Handles/ Medium/ Simple .....	147
2.40	Type: L.M.G. Loop Handles/ Medium/ Grooved .....	148
2.41	Type: L.L.S. Loop Handles/ Large/ Simple.....	149
2.42	Type: L.L.G. Loop Handles/ Large/ Grooved.....	150
2.43	Plate 2.43: Type: L.S. Lug Handle/ Small .....	150
2.44	Painted Body Sherds (1-12).....	160
2.45	Painted Body Sherds (13-20).....	161

### **Chapt. 3 Iron Age Pottery**

3.1–3.59	Plate 3.1 – Plate 3.59 .....	235-264
----------	------------------------------	---------

### **Chapt. 5 The Collared Rim Jar of the Early Iron Age**

5.1	A: Area A at Sahab. Illustrating the Iron I deposit with broken jars.....	300
5.1	B: Square I, Area A with collared rim jars lying on an Iron I stone pavement.....	300
5.2	Collared rim variants from Sahab. Note the thumb impressions on the example above .....	301
5.3	Seal impressions on collared rim jars .....	302

### **Chapt. 6 Seal stamps and seal impressions**

6.1	Fragment of a clay seal stamp .....	310
6.2	Steatite scarab .....	312
6.3	Jar handle with seal impression .....	314
6.4	Limestone Picture Seal .....	316
6.5 a	Two stamp impressions on the same jar; each has different motif .....	318
6.5 b	A slanted, rectangular-shaped seal impression with an indented narrow side.....	320
6.5 c	Rosette stamp impression .....	321
6.5 d	Impressions of a round stamp pressed three times in a horizontal row .....	322
6.6	A scarab of blue-glazed faience .....	324
6.7	Faience scarab; only traces of green glaze remain .....	325
6.8	A seal pearl of green glazed faience .....	326
6.9	Bronze seal ring .....	327
6.10	A limestone seal .....	329

---

## Preface

---

The second volume of excavations at Sahab deals with the occupational levels of the Middle Bronze, Late Bronze and Iron Ages at the site. Two MA thesis were developed on the “Middle Bronze pottery from Sahab” by Dima Abu Aisheh and the “Late Bronze Age Pottery from Sahab” by Luma Hadad. Both thesis were submitted at Queen Rania Institute of the Hashemite University. The Iron Age Pottery was dealt with by Dr. Abdel Nasser Hindawi. Burial Habits of Human Skeletal Remains in Jars from Sahab were concluded by Ahmad Y. Abu Dalou, Abdelrahman Elserogy and Moawiyah Ibrahim.

Two articles were published earlier on the “collared- rim Jar” of the Early Iron Age ( Ibrahim, 1977) and seals and seal Impressions (Ibrahim, 1983)were also included in this volume.

It would have been difficult to complete this volume without the close cooperation of all these colleagues and graduate students. Technical issues were accomplished by Yousef Zoubi (photographer) Ali Omari (draft person) of the Faculty of Archaeology and Anthropology, Yarmouk University made available by the authors of various chapters.

The field work at site completed in 1980as a joint project between the Jordanian Department of Antiquities and Yarmouk University. Jack Lee of Rochester/ New York and 6 of his American Students together with 5 students participated in this last season. The project continued to benefit from volunteers and staff members of previous season.

The citizen of Sahab continued to cooperate with the project to a large extends although most of our trenches were laid out infront of their houses, their back yards or in the middle of the streets and paths leading to their houses the team of Sahab excavations admires this kind of cooperation and full understanding of the excavation as being part of their own heritage.

Other staff members of the 1980 season were late Dr. Fawaz Al-Khraisheh, Dr Mohammad Maraqtan, Architect Bassam Hamadneh, Nabil Al-Qadi, Fayeza Tarawneh.

Major parts of MB, LB and Iron II structures were uncovered during this 1980 season. After the excavation most of the trenches were covered again to allow the construction of streets in the middle of the town.

It should be noted that all 5 seasons of excavations at Sahab were considered as a salvage project in very difficult conditions and lack of fund.

The delay of publication has also to do with shortage of funds and the movement of funds.

The main excavator to Yarmouk University where he occupied administrative positions. He also spent several years between German and US University. He also spent 10 years at Sultan Qabous University in Oman where he dealt with sever field projects.

The author had received much support by various administrators of Yarmouk University, especially its Founding President Dr. Adnan Badran, the Department of Antiquities, and Levy-White Foundation for Archaeological Publications. Special efforts were made by my personal assistants Mariam Omar and Yazan Juper who spent months coordinating various contributions and preparing the lay out of both final publications.

Prof. David Graf and Robert Schick were extremely helpful in editing parts of the chapters.

Special thanks are due to Dr. Munther Jamhawi Director General of Antiquities and Ihab Ammarin, Director General of the Jordan Museum who showed sincere interest in the publication of both volumes and secured necessary funds.