

*STUDIES IN ANCIENT ORIENTAL CIVILIZATION • No. 50*

THE ORIENTAL INSTITUTE OF THE UNIVERSITY OF CHICAGO

*THOMAS A. HOLLAND, Editor*

With the assistance of Richard M. Schoen



SUBSISTENCE, TRADE,  
AND SOCIAL CHANGE IN  
EARLY BRONZE AGE PALESTINE

DOUGLAS L. ESSE

THE ORIENTAL INSTITUTE OF THE UNIVERSITY OF CHICAGO  
*STUDIES IN ANCIENT ORIENTAL CIVILIZATION* • No. 50  
CHICAGO • ILLINOIS

*Library of Congress Catalog Card Number: 90-62583*

ISBN: 0-918986-66-4

ISSN: 0081-7554

*The Oriental Institute*

©1991 by The University of Chicago. All rights reserved.  
Published 1991. Printed in the United States of America.

COVER ILLUSTRATION: AN EARLY BRONZE AGE III RED  
POLISHED WARE JAR FROM BETH YERAḤ (PLATE 3:G).

*To Ann*



## TABLE OF CONTENTS

ACKNOWLEDGMENTS .....	ix
LIST OF BIBLIOGRAPHIC ABBREVIATIONS .....	xi
LIST OF FIGURES .....	xiii
LIST OF PLATES .....	xv
LIST OF TABLES .....	xvii
1. THE ENVIRONMENT .....	1
The Physical Landscape: Constraints and Potential .....	1
Geomorphology .....	1
Soils .....	5
Phyto-Geography .....	7
Rainfall .....	11
Hydrology .....	12
Topography .....	14
Man in His Environment .....	14
Trade Routes .....	14
Pre-Modern Land Use .....	19
Sixteenth-Century Records from the Ottoman Period .....	19
Nineteenth-Century Eyewitness Accounts .....	23
Transition: The Central Jordan Valley in the Early Twentieth Century .....	27
Summary .....	29
2. BETH YERAH: HISTORY AND MATERIAL CULTURE .....	33
Site Identification .....	34
Site Topography .....	36
Archaeological Investigations at Beth Yerah .....	37
The Kinneret Tomb .....	41
Oriental Institute Excavations .....	42
Analysis of the Ceramics from Beth Yerah .....	45
EB II Pottery from Beth Yerah .....	45
EB III Pottery from Beth Yerah .....	48
Summary .....	52
3. CONTEXT AND CONTACTS .....	63
Terminology .....	63
EB II .....	63
EB III .....	64

Stratigraphic and Ceramic Context in Northern Palestine .....	67
Introduction .....	67
Megiddo .....	67
‘Afulah .....	90
Tel Qashish .....	91
Ta‘anach .....	92
Beth Shan .....	93
Hazor .....	94
Tel Reqet (Kh. Quneitra) .....	95
Rosh HaNiqra (Kh. Musherifa) .....	96
Tell Qishyon .....	96
Qadesh Naphtali .....	97
Tell esh-Shunch .....	97
Summary .....	98
Cultural Context .....	98
Regional Subsistence and Intraregional Trade .....	98
Interregional Trade .....	100
International Trade: Context and Contacts .....	103
Red Polished Ware .....	104
Light Faced Painted Ware .....	107
Combed Ware .....	109
Combed Ware in Palestine .....	110
Combed Ware in Syria .....	111
Combed Ware in Egypt .....	114
Combed Ware Vats and the Olive Oil Industry .....	119
Northern Palestine .....	119
Southern Palestine .....	120
Syria .....	121
The Olive Oil Factory at Beth Yerah .....	122
4. SETTLEMENT PATTERNS IN NORTHERN PALESTINE .....	127
Site Density .....	129
Demography .....	130
Integration .....	135
Distribution and Growth Rates .....	143
The Chalcolithic Period (4500–3500 B.C.) .....	143
The Early Bronze Age (Early Bronze Age I [3500–3100 B.C.], Early Bronze Age II–III [3100–2200 B.C.] .....	146
Early Bronze Age IV/Middle Bronze Age I (2200–2000 B.C.) .....	152
Function .....	156
Agricultural/Pastoral Continuum .....	162
5. CONCLUSIONS .....	171
APPENDIX: SITE LIST .....	177
BIBLIOGRAPHY .....	197

## ACKNOWLEDGMENTS

There are at least three levels of support that are necessary for the successful completion of a long term piece of scholarship. First, I would like to thank a number of institutions who gave me financial support and encouragement. Most of my field research was conducted while I was the George Barton fellow at the Albright Institute of Archaeological Research in Jerusalem in 1979/1980. My research fellowship at the Albright Institute allowed me to examine the unpublished results of a number of excavations in northern Israel, as well as to conduct my own site survey of the Jezreel and Beth Shan Valleys in the month of November 1979. That year of study abroad was also made possible by a Ryerson travel grant from The University of Chicago. These two institutions were generous in their support of the beginning stages of my project. The final year of my work was made possible by a fellowship from the Mrs. Giles Whiting Foundation, and it was this grant that allowed me to bring my research to a successful conclusion.

This book began as a doctoral dissertation for the Department of Near Eastern Languages and Civilizations at The University of Chicago, and I would like to thank the members of my thesis committee. McGuire Gibson was remarkable for his ability to instill enthusiasm and for his editorial skills. I owe a debt of gratitude to Helene Kantor for giving me complete access to the materials excavated from the site of Beth Yerah by The Oriental Institute in 1963 and 1964. She was always willing to take time from her busy schedule to discuss the material from the site, and I credit her with sharpening my artistic skills and my ceramic "eye for form." The excavations were directed by Professor Pinhas Delougaz, and although they were limited soundings, I am confident they provide us with the stratigraphic key that will help unlock the secrets of the Early Bronze Age in northern Palestine.

Lawrence Stager served as the chairman of my thesis committee. He has broadened my intellectual horizons and has had a major impact on the way I view things archaeologically. He has taught me to look for the larger picture in a way that does justice to both the potentials and limitations of archaeology. I hope I have learned the lesson well.

I would like to thank a number of friends and colleagues in Jerusalem who have aided me in my research. First, I am indebted to Amnon Ben-Tor who initially sparked my interest in the Early Bronze Age. He willingly shared the newly excavated material from Tel Qashish, which has provided valuable comparisons to that from Beth Yerah. I would also like to thank Pierre de Miroschedji, Shulamit Geva, Avner Raban, Dan Bahat, Albert Glock, Albert Leonard, Jr., and Pesah Bar-Adon for discussing with me and showing me their excavated material. I am also grateful to Daniella Saltz and Dani Katsir for providing my wife and me with a "home away from home" whenever we were in Jerusalem.

In Chicago, I thank Larry Brown who gave me access to his vast array of computer equipment and his advice. The maps were drawn by Carlene Friedman who worked through countless details and showed an inexhaustible supply of patience. I also thank Paula Woods who edited the manuscript with thoroughness and good cheer and Rick Schoen who did an excellent job in proofreading and in formatting the text on the Macintosh computer for final camera-ready pages for the press.

The financial support of the above mentioned institutions and the advice and encouragement of my friends and colleagues in the profession have greatly facilitated my research and helped me define my goals. I sincerely wish to thank my family for their enthusiasm and words of encouragement when they were most needed. I thank my children, Joe and Allie, who gave up much of "their" time to allow me to finish this research. I particularly want to express my gratitude to my wife, Ann, who not only stood by me for almost a decade of scholarship, but also gave me the confidence and strength to complete this project.



## LIST OF BIBLIOGRAPHIC ABBREVIATIONS

AAS	<i>Annales archéologiques de Syrie</i>
AASOR	Annual of the American Schools of Oriental Research
ADAJ	Annual of the Department of Antiquities of Jordan
AJA	<i>American Journal of Archaeology</i>
ASOR	American Schools of Oriental Research
BA	<i>Biblical Archaeologist</i>
BAR	British Archaeological Reports
BASOR	<i>Bulletin of the American Schools of Oriental Research</i>
BBSAJ	<i>Bulletin of the British School of Archaeology in Jerusalem</i>
BJPES	<i>Bulletin of the Jewish Palestine Exploration Society</i>
BMB	<i>Bulletin du Musée de Beyrouth</i>
EAEHL	<i>Encyclopedia of Archaeological Excavations in the Holy Land</i>
EI	<i>Eretz Israel</i>
ESI	<i>Excavations and Surveys in Israel</i>
Had. Arkh.	<i>Hadashot Arkheologiot</i>
IEJ	<i>Israel Exploration Journal</i>
JESHO	<i>Journal of the Economic and Social History of the Orient</i>
JNES	<i>Journal of Near Eastern Studies</i>
JPOS	<i>Journal of the Palestine Oriental Society</i>
LAAA	<i>Liverpool Annals of Archaeology and Anthropology</i>
OIP	Oriental Institute Publications
PEFQS	<i>Palestine Exploration Fund Quarterly Statement</i>
PEQ	<i>Palestine Exploration Quarterly</i>
RB	<i>Revue biblique</i>
SAOC	Studies in Ancient Oriental Civilization
TA	<i>Tel Aviv</i>
ZDPV	<i>Zeitschrift des Deutschen Palästina-Vereins</i>



## LIST OF FIGURES

1. Topography of Northern Palestine .....	2
2. Geology of Northern Palestine .....	3
3. Phyto-Geographic Zones of Northern Palestine .....	8
4. Rainfall in Northern Palestine .....	10
5. Beth Yerah — Areas of Excavation .....	44
6. Megiddo, Photograph of Temple 4050, Stratum XIX. View to the Southwest .....	70
7. Megiddo, Photograph of Sherds from E-4008A (Field Negative 4338; Courtesy of The Oriental Institute), Stratum XIX. Scale 1:2 .....	71
8. Megiddo, Photograph of Sherds from E-4008A (Field Negative 4375; Courtesy of The Oriental Institute), Stratum XIX. Scale 1:2 .....	72
9. Megiddo, Photograph of Wall 4045, Stratum XVIII (after Loud 1948, fig. 152). View to the Southeast .....	73
10. Megiddo, Photograph of Building 4033 and Slope, Stratum XVIII (after Loud 1948, fig. 154). View to the Southeast .....	75
11. Megiddo, Photograph of Sherds from Locus W=4058 (Field Negative 4350; Courtesy of The Oriental Institute), Stratum XVIII. Scale 1:2 .....	77
12. Megiddo, Photograph of Sherds from Locus E=4033 (Field Negative 4365; Courtesy of The Oriental Institute), Stratum XVIII. Scale 1:2 .....	78
13. Megiddo, Photograph of Sherds from Locus E=4033 (Field Negative 4366; Courtesy of The Oriental Institute), Stratum XVIII. Scale 1:2 .....	79
14. Megiddo, Photograph of Sherds from Locus W=4045 (Field Negative 4349; Courtesy of The Oriental Institute), Stratum XVIII. Scale 1:2 .....	80
15. Megiddo, Photograph of Sherds from below Palace Complex 3177 (Field Negative 4339; Courtesy of The Oriental Institute), Strata XVII–XVI. Scale 1:2 .....	81
16. Megiddo, Plan of Strata XVII–XVI. Combines Elements from Published Plans of Strata XVII, XVI, and XV. ....	82
17. Megiddo, Photograph of Altar 4017, Strata XVII–XVI (after Loud 1948, fig. 176). View to the Northeast .....	85
18. Megiddo, Plan of Stratum XV. Combines Elements from Strata XV and XIV .....	88
19. Megiddo, Photograph of Approach to Sacred Area, Stratum XV (after Loud 1948, fig. 187) .....	89
20. Light Faced Painted Ware. Scale 1:5 .....	108
21. Relative Sizes of Light Faced Painted Ware, Red Polished Ware, and Combed Ware Found in Egypt .....	115

22. Vats and from Syria-Palestine: (A) Beth Yerah, (B) Megiddo ( <i>Meg.</i> vol. 2, pl. 5:15), (C) Byblos (Dunand 1952, pl. 5). Scale 1:5. ....	117
23. Vats and Combed Ware Bowls from Syria-Palestine: (A) Ras Shamra (Courtois 1962, fig. 19A), (B) Qatna (du Mesnil du Buisson 1935, fig. 33:208), (C) Qishyon (Cohen-Arnon and Amiran 1981, fig. 6), (D) Yarmuth (Miroshedji 1988d, pl. 35:7). Scale 1:5. ....	117
24. Beth Yerah, Plan of Olive Oil "Processing Plant" in Trench H-K. ....	125
25. Distribution of Khirbet Kerak Ware by Components in Assemblage. ....	138
26. Chalcolithic Sites in Northern Palestine. ....	144
27. Early Bronze Age Sites in Northern Palestine. ....	147
28. Distribution of Early Bronze Age I Sites (detail). ....	148
29. Distribution of Early Bronze Age II-III Sites (detail). ....	149
30. Histograms of Site Size by Subperiod. ....	153
31. Early Bronze Age IV/Middle Bronze Age I Sites in Northern Palestine. ....	154
32. Distribution of Early Bronze Age IV/Middle Bronze Age I Sites (detail). ....	155
33. Socioeconomic Categories by Ratio of Pastoralism to Agriculture (Adapted from T. Ingold 1987, fig. 7.1). ....	164
34. Distribution of Early Bronze Age I Sites Within the Survey Areas by Phyto-Geographic Zone. ....	167
35. Distribution of Early Bronze Age II-III Sites Within the Survey Areas by Phyto-Geographic Zone. ....	168
36. Distribution of Early Bronze Age IV/Middle Bronze Age I Sites Within the Survey Areas by Phyto-Geographic Zone. ....	169

## LIST OF PLATES

1. Beth Yerah, Early Bronze Age II Pottery. Scale 2:5 .....	54
2. Beth Yerah, Early Bronze Age II Pottery. Scale 1:5 .....	55
3. Beth Yerah, Early Bronze Age III Pottery. Scale 2:5 .....	56
4. Beth Yerah, Early Bronze Age III Pottery. Scale 1:5 .....	57
5. Beth Yerah, Early Bronze Age III Pottery, Khirbet Kerak Ware. Scale 2:5 .....	58
6. Beth Yerah, Model Furniture. Scale 1:2 .....	59
7. Beth Yerah, Andirons. Scale 1:2 .....	60
8. Beth Yerah, Trench H-K, Early Bronze Age III Pottery from the Olive Oil Factory. Scale 1:5 .....	61
9. Beth Yerah, Trench H-K, Early Bronze Age III Pottery from the Olive Oil Factory. Scales (A-G) 1:5, (H) 1:10 .....	62



## LIST OF TABLES

1. Stratigraphic Summary of Beth Yerah Trenches .....	45
2. Ranked Loci from Megiddo, Strata XIX–XV .....	69
3. Aggregate Chronological Distribution of Sites in Survey Area .....	129
4. Distribution of Khirbet Kerak Ware Assemblage Components .....	137
5. Chronological Distribution of Sites in Survey Area by Subperiod.....	150
6. Site Size Distribution by Subperiod .....	151



## CHAPTER 1

# THE ENVIRONMENT

One of the primary goals of the archaeologist is to recover and interpret the material remains of the past in a systematic way. This recovery process is geared toward elucidating the fundamental aspects of the particular culture under investigation. In the absence of information from textual sources, archaeological data become increasingly important. A vital tool in the process of culture reconstruction is the study of the pattern of settlement in relation to the environment.

A thorough environmental analysis of the region of northern Palestine is essential to outline the constraints under which the ancient population labored in their attempts at subsistence. Certain subsistence strategies simply will not work in some ecological niches. In these cases, agricultural exploitation must either adapt to ecological realities or develop ways to manipulate the environment.

Environmental analysis will not only define the various constraints which were faced in antiquity, but will also serve to clarify the picture of what the potential may have been for the utilization of certain crops and agricultural products. The implications of these environmental factors do not stop at the definition of the particular subsistence level likely to be found in a specific region, however, or even with the possible re-creation of the state of ancient technology. More wide-ranging conclusions can be drawn concerning the extent of intraregional trade practices in regions with diverse ecological character as well as aspects of long distance interregional trade, crop specialization, and the attendant cultural economics.

Most archaeological reports contain a section or two on the local environment, serving as a background to the excavated site or survey under discussion. All too often, these ecological treatises could just as well be relegated to the back of the report as an appendix. They are interesting enough in their own right but never fully integrated into the archaeological report, which is concerned mainly with chronological indicators in the ceramics and in the architectural artifacts. The purpose of this chapter is not merely to provide a sense of the physical nature of the region of northern Palestine; it serves to present a summary of the environmental constraints and potential of this region through the analysis of modern geological data, Ottoman documents (from the sixteenth century A.D.), and the impressions of the early European and American travelers to Palestine (late eighteenth and nineteenth centuries).

## THE PHYSICAL LANDSCAPE: CONSTRAINTS AND POTENTIAL

### GEOMORPHOLOGY (fig. 1)

In any analysis of the pattern of human settlement on the physical landscape, a number of variables must be considered. The geography of the land provides both limits and opportunities for settlement and must be seen as basic in any treatment of the problem. Geomorphology provides the specifics for subsistence, trade routes, political boundaries, and, at times, even political organization. It is the framework within which all human endeavors in the region must operate.

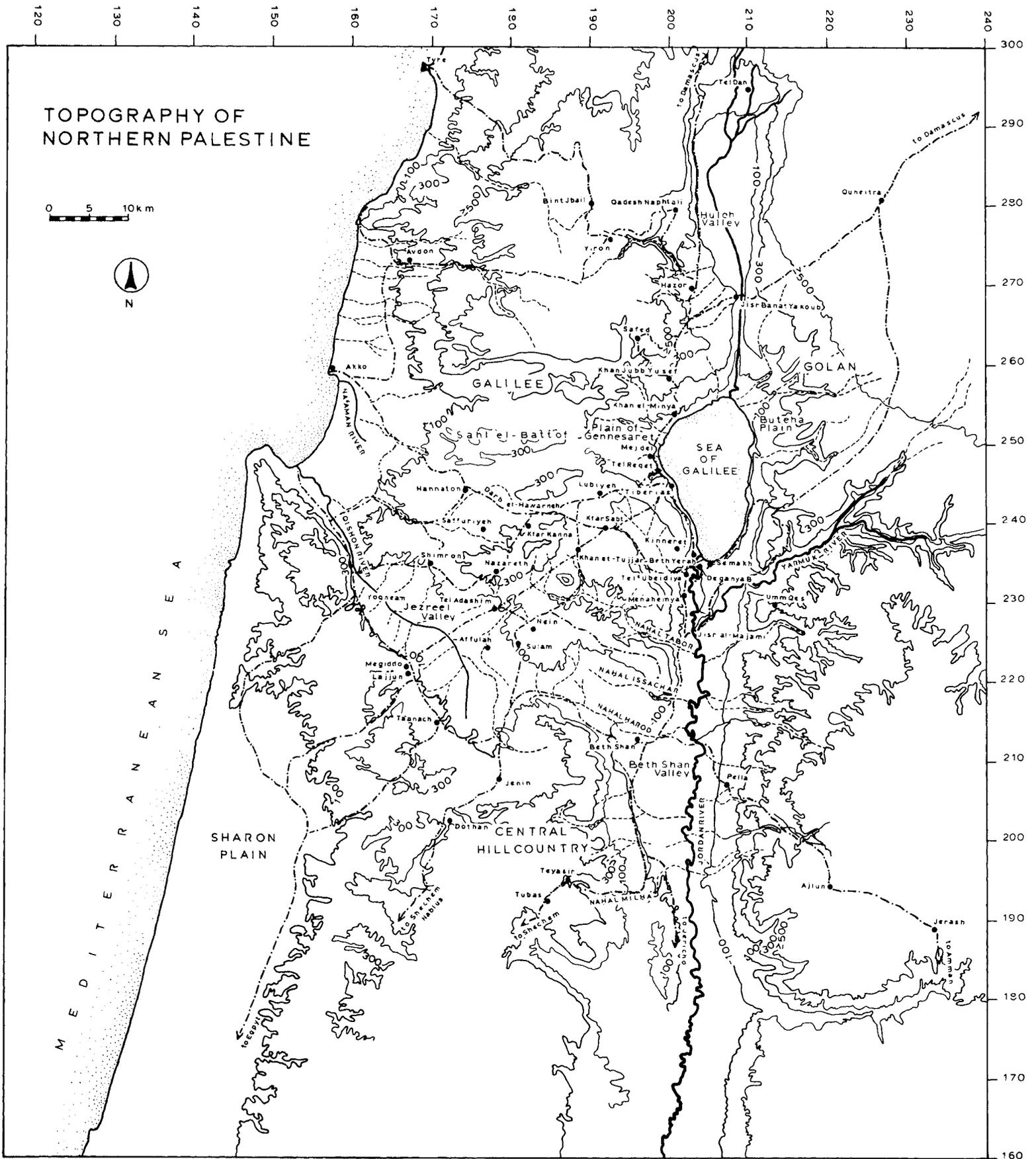


Figure 1. Topography of Northern Palestine.

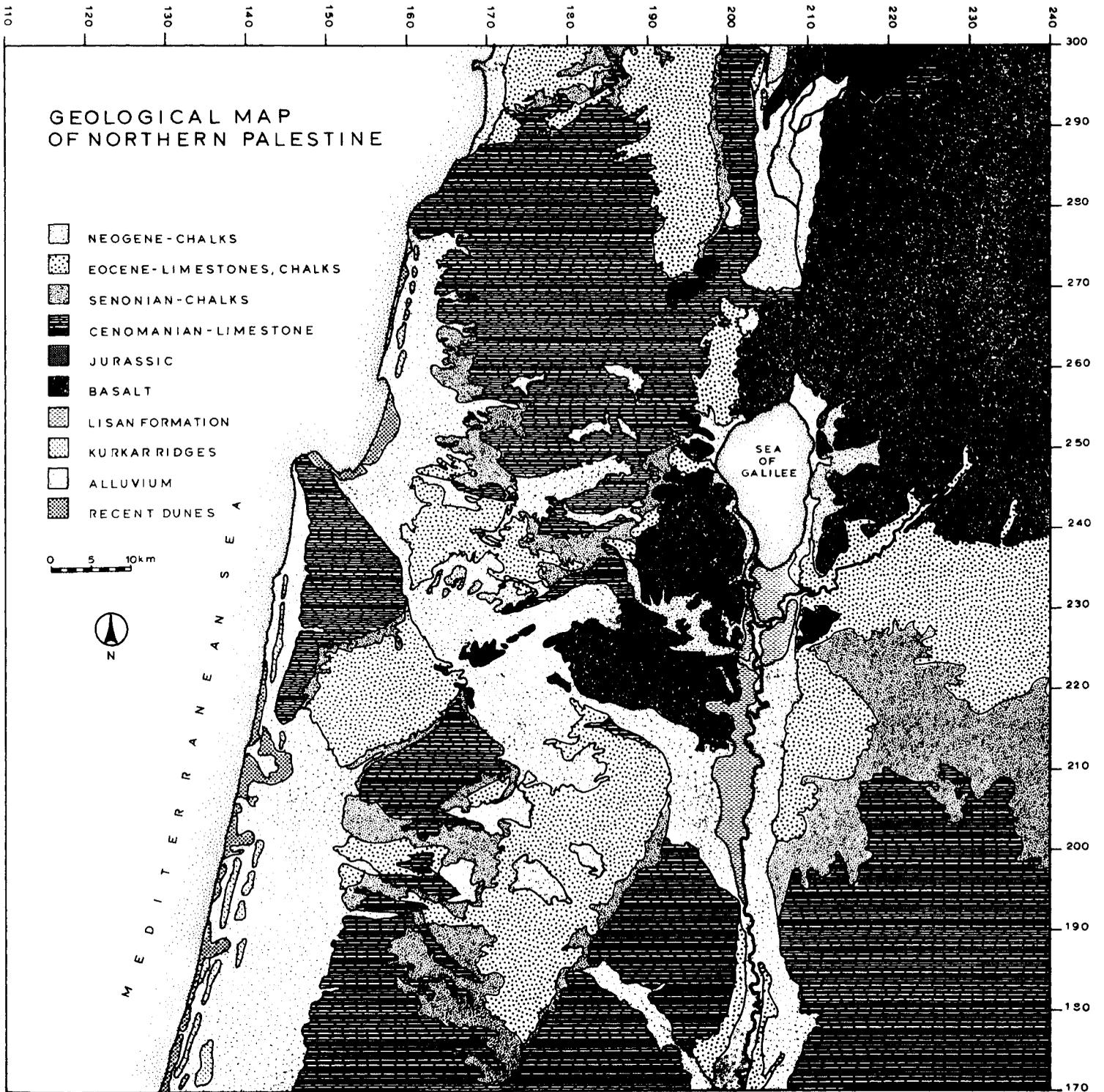


Figure 2. Geology of Northern Palestine.

Northern Palestine can be divided fairly easily into three morphologically distinct groups from west to east. The first, the Akko Plain, stretches from Mt. Carmel to Rosh HaNiqra.<sup>1</sup> The southern part of the plain lies between Akko and the Carmel fault line and results from the subsidence that created the Bay of Akko.<sup>2</sup> The plain is no more than 6 m above sea level in the center. The coast is made of sand dunes which block the mouth of the river Qishon, and as a result the area tends to become swampy. Farther north along this coast the topography changes slightly. The coastal plain narrows (it is an average of 5 km wide) and kurkar ridges run parallel to the shore. The westernmost ridge is submerged and forms an underwater reef. The innermost kurkar ridge is approximately 2 km inland and forms a line of low hills which served as an excellent location for settlement.<sup>3</sup> The kurkar ridges along this coastal plain are sufficiently broken to allow adequate drainage, thus preventing the creation of swamps similar to those along the coast south of Mt. Carmel.<sup>4</sup>

Dominating the landscape of northern Palestine are the mountains and hills of Galilee. This mountainous area is divided into two distinct sections: Upper and Lower Galilee. No mountain in Lower Galilee exceeds a height of 600 m. In Upper Galilee, Mt. Meiron is 1,208 m high, and there are several other mountains which are more than 1,000 m in height. The two areas were formed by the tilting of massive geological blocks. Upper Galilee has extremely complex topography, and because of the large number of minor fault scarps, the western part of the region is sharply dissected into isolated hills with no natural routes of communication and very little level land. Eastern Upper Galilee is relatively more level and thus can support some degree of agriculture.<sup>5</sup> Upper and Lower Galilee are separated by the Shagar Basin which cuts east-west through the mountainous terrain.

Although Lower Galilee is also deeply affected by cross faulting and rough topography, it is much more amenable to human exploitation and communication. Upper Galilee has almost no level areas, while at least 30 percent of Lower Galilee is composed of level basins and another 15 percent is gently sloped.<sup>6</sup>

Farther to the east lies the great Rift Valley. For our purpose, it can be divided into three sections. The northernmost is the Huleh Valley. Lake Huleh lies 71 m above sea level. A basalt dam, the result of a volcanic flow, blocked the waters accumulating from the three sources of the Jordan, thus forming Lake Huleh and, in the process, creating a very large swamp. This basalt dam also marked the location of one of the most important fords across the Jordan, Jisr Banat Yakoub. The total area of the Huleh Valley is 177 km<sup>2</sup>. After leaving the lake, the waters flow down into the Sea of Galilee.

The Sea of Galilee covers 165 km<sup>2</sup> and varies between 209 and 214 m below sea level. Only three plains are located along the shores of this lake. At the northwest corner of the lake is the Plain of Gennesaret. The Buteha Plain is located to the northeast, and to the south of the lake is a portion of the central Jordan Valley which forms a triangle located between the Jordan River, the Yarmuk River, and the lake itself.

In the Jordan River Valley there are two distinct morphological units. The wider valley bottom is known as the *Ghor*. The valley floor is flat and flanked on both sides by the hills of Palestine and Transjordan. Cut down into the *Ghor* to a depth of 20–30 m is the incised river bed of the Jordan itself, the *Zor*. It is much

1. E. Orni and E. Ephrat, *Geography of Israel*, 3rd ed. (Jerusalem: Israel Universities Press, 1976), pp. 50, 51. See also Y. Karmon, *Israel: A Regional Geography* (New York: John Wiley, 1971), pp. 194, 195. Both these sources subdivide the region into two sections. The southern coast is known as the Zebulun Valley (Haifa Bay area), and the northern coast is the Akko plain. See also D. Baly, *The Geography of the Bible* (New York: Harper & Row, 1974), pp. 121ff. Baly refers to this as the coast of Asher and includes part of the coast south of Mt. Carmel as far as the Crocodile River (Nahal Tanninim).
2. Baly, *Geography of the Bible*, p. 124; on his journey through this area in the late eighteenth century, Pococke described the area as an "exceedingly rich plain, but almost impassable after rain, nor is it easy to ride through it in dry weather, except in the high road, on account of the clefts which are made in the earth by the heats. There are a great number of wild boars here. I observed that the plain was well cultivated with corn and cotton." R. Pococke, "A Description of the East, &c.," in John Pinkerton, ed., *Voyages and Travels*, vol. 10 (London: Longman et al., 1811), pp. 452, 453.
3. Baly, *Geography of the Bible*, p. 124; Orni and Ephrat, *Geography of Israel*, p. 51; Karmon, *Israel: A Regional Geography*, p. 196.
4. For the Sharon Plain, see idem, "Geographical Influences on the Historical Routes in the Sharon Plain," *PEQ* (1961): 43–60.
5. Idem, *Israel: A Regional Geography*, pp. 177–79.
6. *Ibid.*, pp. 186–88.

narrower, and its lowlands are subjected to flooding by the river.<sup>7</sup> Two important fords across the Jordan were found south of the Sea of Galilee. One was at Tell 'Ubeidiya, opposite the mouth of Naḥal Yabneel (Wadi Fejjas); the other was east of Beth Shan. At least by the Roman period and continuing into the Islamic period the road also crossed the Jordan at Jisr al Majami.<sup>8</sup>

Naḥal Tabor (Wadi Bira) forms the northern border of a subsection of the Jordan Valley known as the Beth Shan Valley. The southern border of this valley lies in the area where the Jordan Valley narrows to less than 5 km between the hills of Samaria and Gilead, where the Naḥal Milḥa (Wadi el Malik) enters the river valley.<sup>9</sup> Its total area is about 187 km<sup>2</sup>.

The Jezreel Valley<sup>10</sup> separates the hill country of Samaria from the mountains of Galilee. It can be divided into two main sections. The western Jezreel forms a triangle, with its base along the foot of the Carmel range from Yoqneam to Jenin and its apex at Tel Adashim, which is straight north of Jenin. It covers an area of 365 km<sup>2</sup>. The eastern Jezreel (also known as the Ḥarod Valley) forms a narrow corridor 18 km in length and 5 km wide. It descends from the eastern end of the Jezreel Plain in a southeasterly direction. Its rate of descent is fairly sharp and passes from about 40 m above sea level to approximately 115 m below sea level by the time it reaches Beth Shan.

#### SOILS (fig. 2)

The quality of the various soil groups as well as their distribution is important in understanding the agricultural potential of the area. General soil properties such as texture, salinity, susceptibility to erosion, and location are all important factors in determining their usefulness to man for productive exploitation.

*Terra rossa* soils are encountered in many areas of Palestine. This soil is generally formed on the hard limestones (e.g., Cenomanian and Turonian).<sup>11</sup> *Terra rossa* soils are alkaline and have a high proportion of silt and clay.<sup>12</sup> This soil group is quite fertile. Because its parent material is composed of hard limestone, it is the characteristic soil of the hill country in Palestine ranging from Galilee to Judea. It dominates Galilee, although Lower Galilee also possesses other soil types in its southern extremities. Because the soil is located in such rough topography, it is affected by erosion more than most other soil types. It thus has a fairly shallow profile, and care must be taken to preserve it. This affects the way it is used and terracing is necessary at times, both to prevent complete denudation of the landscape and to provide level areas on which to practice agriculture. The ancient farmer could also build dams across the wadis or narrow valleys and thus create small plots of arable land in the valley floors.<sup>13</sup>

The rendzina soil group is also a major component in the pedology of Palestine. These gray soils are formed on much softer parent material than that which produces the *terra rossa*. The soil is formed on the soft limestones, chalks, and marls. Dark rendzinas are found in Upper Galilee, Mt. Carmel, Samaria, and the northern Judean mountains.<sup>14</sup> They are distinguished primarily by the type of climax vegetation which appears on them. The topography of the areas which exhibit rendzina soils is, on the whole, much less harsh

7. Ibid., p. 173.

8. See Aharoni, *The Land of the Bible* (Philadelphia: Westminster, 1967), p. 49.

9. Karmon, *Israel: A Regional Geography*, p. 174; also Orni and Ephrat, *Geography of Israel*, pp. 92, 93.

10. Orni and Ephrat, *Geography of Israel*, p. 96; Karmon, *Israel: A Regional Geography*, p. 192. Both these authors use the term Jezreel Valley for the western triangular plain and Ḥarod Valley for the narrower eastern valley. Baly, *Geography of the Bible*, p. 118, refers to the western plain by the traditional name Esdraelon Plain, and only the eastern portion of the valley is labeled the Jezreel. In this work, the area will simply be referred to as the eastern and western Jezreel.

11. M. Zohary, *Plant Life of Palestine* (New York: Ronald Press, 1962), p. 10; also J. Dan and H. Koyumdjisky, "The Soils of Israel and Their Distribution," *Journal of Soil Science* 14 (1963): 12-20.

12. A. Reifenberg, *The Soils of Palestine* (London: Murby, 1938), p. 51.

13. B. Golumb and Y. Kedar, "Ancient Agriculture in the Galilee Mountains," *IEJ* 21(1971): 139.

14. Zohary, *Plant Life*, pp. 11, 12.

then the areas which possess the *terra rossa* series. Due to the long term effects of erosion on the soft chalks and limestones, the hills are lower, more rounded, and the landscape is generally much more rolling. The rendzina series is rich in lime but poor in humus and not particularly fertile.<sup>15</sup> Although this soil is not as fertile as others, Zohary points out that the easy topography on which it is found and the soft parent rock have made this soil easily accessible. Consequently, its vegetation has suffered much more destruction than that of the *terra rossa* soils.

Northern Palestine possesses great amounts of alluvium. The nature of alluvial soils will vary, of course, depending on the nature of the original soil group which was transported. Alluvial soils from most areas share several properties, however. They are heavy and tend to retain a high degree of moisture.<sup>16</sup> These soils are generally very fertile. The high moisture-holding capacity can be both a blessing and a curse. Where rainfall is restricted to certain months it is important that the soils retain moisture for the drier periods of the year. The attendant problem, however, is that these soils are located in lowland areas which often have problems with adequate drainage. This promotes waterlogging of the soil, which can be a serious problem for crops.

These alluvial soils are located in a number of areas in northern Palestine. The Jezreel Valley, both east and west, is completely dominated by alluvium. In the western Jezreel the parent material would have consisted of both *terra rossa* and rendzinas. The eastern Jezreel is a combination of *terra rossa* and basaltic soils. The entire coastal plain produces alluvium. It receives its soil from Mt. Carmel and the western slopes of the mountains of Galilee. It also receives alluvium from the Jezreel, from which soils are carried by the Qishon River into the southern Akko Plain. Although the kurkar along the northern coastal plain allows drainage, it does trap much of the alluvial soil washed down from the mountains. The Sahl el Battof in Lower Galilee is dominated by alluvial soils.

The area of and around Lake Huleh is dominated by alluvial soils, but in this area the effects of poor drainage are evident. The Huleh swamps are primarily composed of peat soil, which is alkaline and formed on a seasonally flooded bog.<sup>17</sup> The degree of alluviation can be appreciated by the discovery of a Byzantine/Arab site in this area which was found buried beneath alluvium 4 m thick.<sup>18</sup>

Alluvium is found along the Sea of Galilee in several areas. It is located in the Plains of Gennesaret and Buteha which are situated at the northern end of the lake. On the southern end of the lake, alluvial soils can be found along the major wadis (Naḥal Yabneel, Naḥal Tabor, and Naḥal Issachar), as well as all along the base of the hills of Lower Galilee as far as the Beth Shan Valley. These areas will later receive special attention when the nature of the settlement distribution of the Early Bronze Age is discussed. The parent material for the alluvium in these wadis is predominantly basalt.

Basaltic soils appear only in northeastern Palestine. They have a shallow soil profile and tend to be very heavy in texture. They are also very low in organic matter. These soils result from the volcanic activity which affected most of eastern Lower Galilee, part of the eastern Upper Galilee, and large portions of the Golan. It is this same volcanic activity that blocked the waters of the Jordan in the area of Jisr Banat Yakoub and formed Lake Huleh. Basaltic soils tend to dry out quickly. Most of these soils adjoin the Irano-Turanian climatic zone and are covered with a predominantly semi-steppe variety of vegetation.

The last major soil group is the Lisan Marl group. These marls were formed at the bottom of the large Lisan Lake, which by most accounts dried up around 20,000–18,000 B.C.<sup>19</sup> This soil is grayish-white and contains a high lime content and large percentage of gypsum. It has a crumbly nature, which makes it easy to till. The marls have a 30 percent calcium content and thus tend toward salinity. Lisan marls are found all along the Jordan Valley, from the Dead Sea up to the southern shore of the Sea of Galilee, but the deposits become much thicker and more dominant at roughly the Majami bridge (Gesher) and farther south

15. Baly, *Geography of the Bible*, p. 79.

16. Zohary, *Plant Life*, p. 14; A. Horowitz, *The Quaternary of Israel* (New York: Academic Press, 1979), p. 26.

17. Zohary, *Plant Life*, p. 14.

18. Orni and Ephrat, *Geography of Israel*, p. 86. See also E. Ashtor, *A Social and Economic History of the Near East in the Middle Ages* (London: Collins, 1976), pp. 53, 54, for similar phenomena in the Sharon Plain.

19. A. Horowitz, "The Quaternary Stratigraphy and Paleogeography of Israel," *Paléorient* 3 (1975): 47–86. See also O. Bar Yosef and E. Tchernov, *On the Palaeo-Ecological History of the Site of 'Ubeidiya* (Jerusalem: Israel Academy, 1972), p. 8.

(sometimes called the “badlands”).<sup>20</sup> In the southern portion of the valley, it is quite saline, but in the northern section of the valley, it seems to have been leached of its salts.<sup>21</sup> It is not very fertile, but in modern times fertilizers have been shown to be effective.

An interesting comparison between the properties of the heavy basalt alluvium and the lighter Lisan marls can be seen in the agricultural results of two kibbutzim near Tell Beth Yerah—Kinneret and Deganya. These kibbutzim are not more than 1 or 2 km apart, but Kinneret farms mainly basaltic alluvium, while Deganya farms mainly Lisan marls. They both use water from the Jordan for irrigation, which has a certain degree of salinity, but the crops from Deganya are in much better condition than those from Kinneret. The difference in agricultural yield, however, is primarily due to the properties of the soils and the degree of drainage which each type will allow.<sup>22</sup>

#### PHYTO-GEOGRAPHY (fig. 3)

Four of the world’s major phyto-geographical regions converge in Palestine: the Mediterranean, Irano-Turanian, Saharo-Sindian, and enclaves of Sudano-Deccanian.<sup>23</sup> In northern Palestine, only the Mediterranean and Irano-Turanian zones enter into consideration.

The Mediterranean zone covers most of northern Palestine, continues into Lebanon, east into Syria and parts of Transjordan, and south into the hill country of Judea and Samaria. It is characterized by subhumid Mediterranean climate, although minor climatic variations can occur, depending on topography and rainfall patterns. Its border with the neighboring Irano-Turanian zone is not always clearly defined because interference by man has disturbed the climax vegetation to the point where a broad transitional zone appears between them. These areas form a belt of mixed flora and vegetation, with the steppe vegetation penetrating more deeply into the Mediterranean zone than the original pristine pattern.<sup>24</sup> This transition zone runs along the eastern rim of the Samaria hill country, descends into the eastern Jezreel near Beth Alfa, follows the edge of the Beth Shan Valley, and stops at the southern shore of the Sea of Galilee. The Mediterranean zone is roughly present in those areas which receive 350 mm or more precipitation per year.<sup>25</sup>

Variations exist even within the Mediterranean zone, however, with the hill country differing considerably from the coastal plain and interior valleys. The hill country exhibits a climax vegetation of forest and high maquis. Most areas above 300 m are covered by the evergreen Palestinian oak (*Quercus calliprinos*) and associated flora. This oak is often found in association with the terebinth (*Pistacia palaestina*).<sup>26</sup> These trees are able to penetrate the hard limestones and dolomites which form the Galilean hills. They are thus found predominantly on *terra rossa* soils. Certain areas of Mt. Carmel and Galilee that are composed of softer limestone with rendzina soils exhibit small forests of Aleppo pine (*Pinus halepensis*). The southwestern corner of Galilee and various parts of the coastal plain as well as sections of the interior valleys (Jezreel and Huleh) support growth of the Tabor oak (*Quercus ithaburensis*).

20. I. Schattner, *The Lower Jordan Valley*, Scripta Hierosolymitana, vol. 11 (Jerusalem: Magnes Press, 1962): 70.
21. Zohary, *Plant Life*, p. 15; see also S. Ravikovitch in D. H. K. Amiran et al., eds., *Atlas of Israel* (Jerusalem: Survey of Israel, 1970), chap. 2, pt. 3. The atlas illustrates soil areas which are affected by soil salinity. The worst areas in northern Palestine are the area around ‘Afulah, the mouth of the Qishon, the Nahal Yabneel, the other wadis leading into the Jordan Valley, and the soils along the Jordan River.
22. Reifenberg, *Soils of Palestine*, pp. 87, 88.
23. Zohary, *Plant Life*, pp. 51–53; see also idem, *Geobotanical Foundations of the Middle East*, 2 vols. (Stuttgart: Fischer, 1973), vol. 1, p. 67. Although only the Mediterranean and Irano-Turanian zone are present in northern Palestine, there is some evidence that certain elements of the Saharan group have followed the coastal plain and the Jordan Valley northward and in some cases are found as far north as Beirut. See figure 3.
24. Zohary, *Plant Life*, p. 51.
25. Ibid., p. 79; Orni and Ephrat, *Geography of Israel*, p. 167; Zohary, *Geobotanical Foundations*, vol. 1, p. 23.
26. Orni and Ephrat, *Geography of Israel*, p. 169.

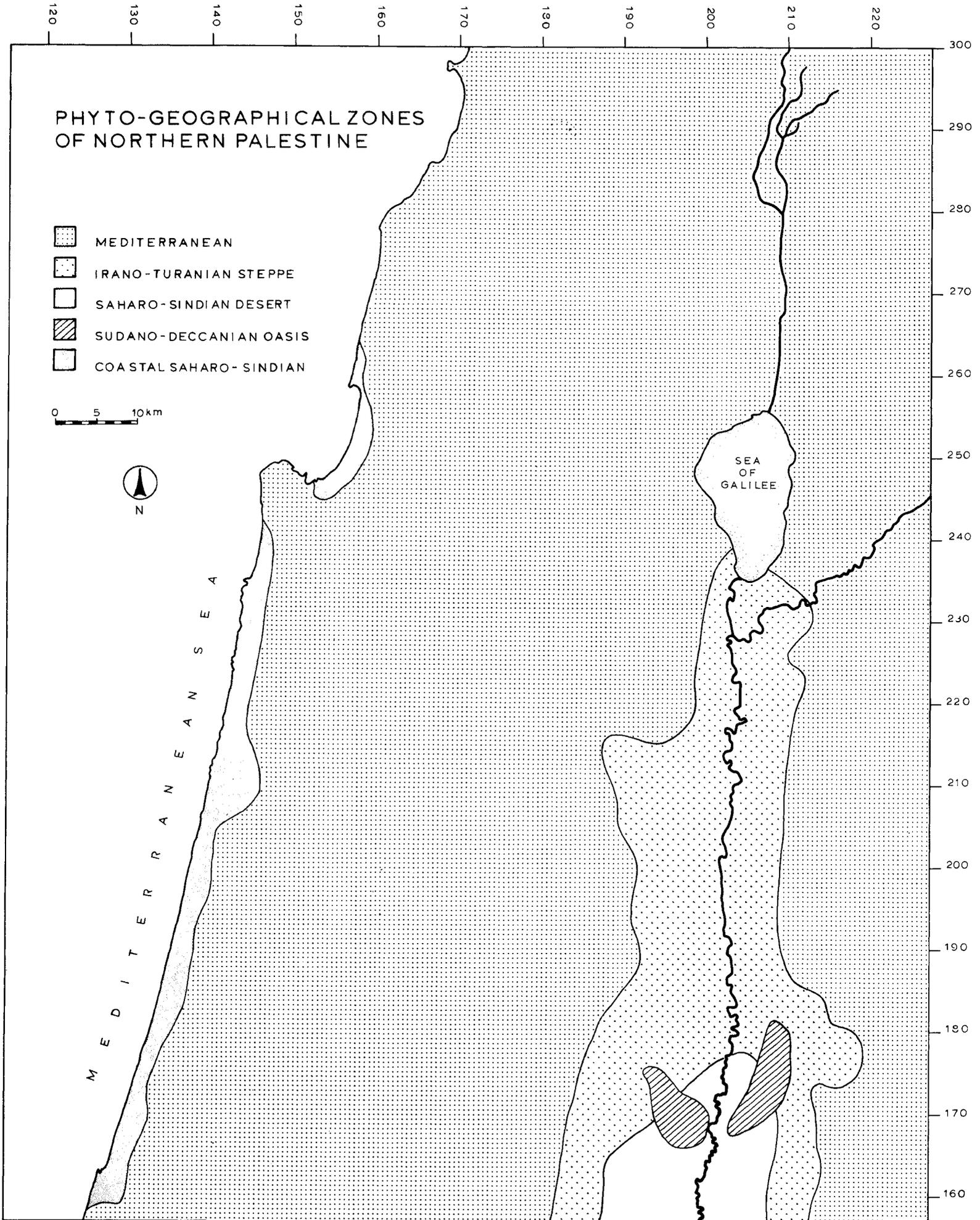


Figure 3. Phyto-Geographic Zones of Northern Palestine.

The *Quercus calliprinos* order is especially rich in species. Zohary attributes this diversity to interference by man in this area. He notes that the forests and maquis remnants which are still preserved intact today have far fewer species. The great number of plant communities in this association then, have developed for "historical and anthropogenic reasons."<sup>27</sup> The Aleppo pine forests have been particularly hard hit by deforestation, in part for the same reason other vegetation located on rendzina soils has been affected by man. The soil was soft and easily tillable and thus its climax vegetation tended to be cleared before the more tenacious forests located in the hill country of Palestine. The pine forests were also very susceptible to fire.

The other major climatic zone present in northern Palestine is the Irano-Turanian or steppe. The most characteristic association of this area is the shrub *Artemisia herba-alba*. The Irano-Turanian territory serves as a buffer between the Mediterranean zone and the Saharo-Sindian zone. It covers a large part of the northern Negev, large parts of southern and eastern Transjordan and, in the Jordan Valley, reaches north to the Sea of Galilee. In Palestine it is represented by fragments or relics of a steppe forest which include, among other species, *Pistacia atlantica* as well as patches of the other steppe communities of *Artemisia herba-alba* and *Zizyphus lotus*.<sup>28</sup> Most of the plants found in this association are shrubs or dwarf shrubs. In the Beth Shan area, the lotus shrub is particularly prominent on the basaltic and marly soil of the eastern Lower Galilee. This vegetation zone is generally found in areas which receive between 300–200 mm of precipitation per year.

The boundaries between the "desert and the sown" have remained essentially unchanged since biblical times. There are, however, a number of factors which can change the nature or extent of the vegetation. Even a slight cyclic or sporadic fluctuation in climate will have an effect on the nature of the vegetation by promoting or impeding growth. Prolonged periods of drought can adversely affect the growth of Mediterranean associations and promote the spread of steppe vegetation. On the other hand, a number of consecutive rainy years may be responsible for the restoration of Mediterranean vegetation in an area that had previously been a victim of deforestation. Generally, however, one sees a tendency to move from xeric to more mesic habitats.<sup>29</sup>

Deforestation and erosion have caused much of this range extension. In some cases, plant communities have spread into areas which were previously occupied by Mediterranean communities. One example is the lotus shrub *Zizyphus lotus* which is present in large areas of Lower Galilee once inhabited by the Tabor oak (*Quercus ithaburensis*).<sup>30</sup> Orni and Ephrat attribute this phenomenon to the abandonment of cultivation in the Middle Ages, when lotus shrubs could spread through the use of spring waters no longer used for crop irrigation.

Large areas that are now barren could support climax vegetation. The erosional processes have been so great, however, that the soil composition is no longer sufficient to support such plant communities. Once the forest is removed, in many cases it cannot regenerate.<sup>31</sup>

The effects of deforestation and erosion are magnified in marginal areas, such as the border between the Mediterranean and the Irano-Turanian phyto-geographical zones. Any fluctuations in climate or ground cover immediately have more impact on the transition area than in the "heart land" of the respective climax vegetational areas.<sup>32</sup>

27. Zohary, *Geobotanical Foundations*, vol. 2, p. 502.

28. *Ibid.*, vol. 1, p. 167, 168.

29. *Idem*, *Plant Life*, p. 70.

30. *Ibid.*, p. 70.

31. Zohary, *Geobotanical Foundations*, vol. 2, pp. 404, 405.

32. *Idem*, *Plant Life*, pp. 130, 131. As Zohary notes: "Mediterranean districts that border upon desert are gorged with desert immigrants, 'waiting' everywhere for man-made vacua in non-desert habitats. ... [W]here man is in control of the habitat, desert plants may assume a permanent foothold within more humid areas."

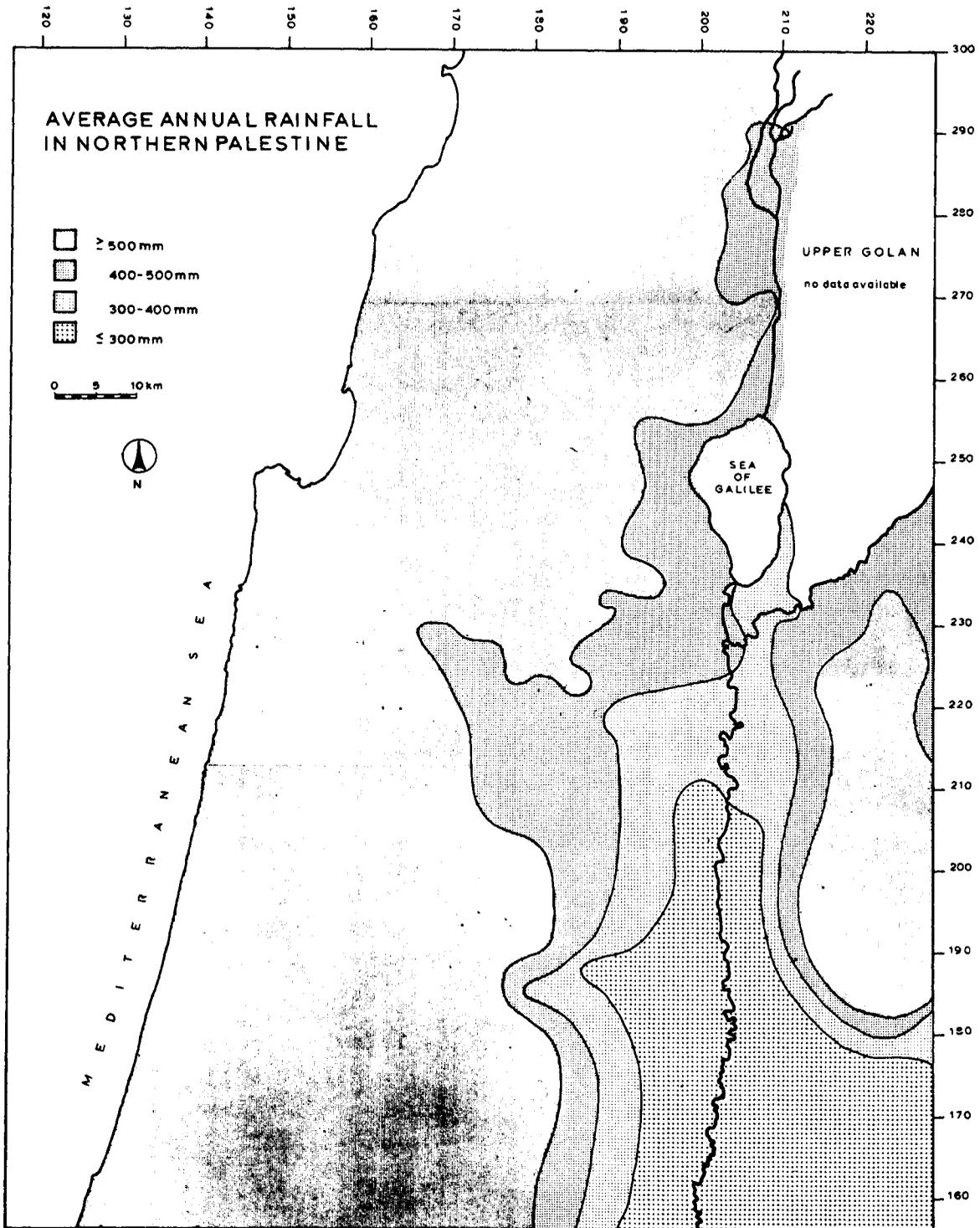


Figure 4. Rainfall in Northern Palestine.

## RAINFALL (fig. 4)

The amount of precipitation and its variability is of major importance in determining the effect of climate on the marginal areas located between these two phyto-geographical zones. Northern Palestine exhibits the typical Mediterranean pattern with rainy winters and dry summers. Rainfall decreases as one moves from north to south and from west to east. The hill country serves as a barrier to the prevailing rain-bearing winds, and thus the western slopes of the hill country receive far more rain. The eastern slopes and the Rift Valley suffer from the resulting rain shadow, and their rainfall averages are dramatically less than those areas farther west.

The rainy season is very short, with almost 70 percent of the annual rainfall occurring between the months of November and February. In general, Galilee receives its rain a little earlier and maintains its rainy season a little longer than other parts of the country. The timing of the first rains is crucial for some crops and also for preparing the soil adequately for the next season.<sup>33</sup> If the rains come early, more land can be plowed, and thus a greater area can be planted.

Rainfall distribution is also important. The transition is abrupt between the southern hill country/Shephelah and the Negev Desert and between the Judean hill country and the Judean Desert. This is not unexpected. Rainfall isohyets also indicate, however, a great disparity between the coastal plain of Galilee and the precipitation averages of the Beth Shan Valley. This disparity is critical in any attempt to understand the subsistence base and the settlement patterns of northern Palestine.

Although rainfall averages are important, certain isohyets are outstanding for their bio-geographical significance.<sup>34</sup> The lower limit for maquis is in the 400–350 mm/yr range, and for Mediterranean batha the range is 350–250 mm/yr. This level reflects a more continental climate and is more typical of the Irano-Turanian zone. The 100–50 mm/yr isohyet is the point at which the threshold of plant life in the desert is reached.<sup>35</sup> In such marginal areas a difference in rainfall of about 50 mm will determine the life or death of certain species. The limit for stable dry farming seems to be coterminous with that for the lower limit of the Mediterranean forest isohyet (400–350 mm).

The key to understanding these rainfall figures, however, lies not just in the average annual amount but in the variability of these averages. Marginal areas are particularly sensitive to the problems of variability.<sup>36</sup>

Orni and Ephrat stress the critical nature of the “aridity border.” Precipitation in these areas is the most unpredictable. In some years the northern Negev or Beth Shan Valley will receive only one-third of their average annual rainfall, and in other years they will receive twice the average amount. The effect of this instability can be disastrous. Although grain crops can survive with 250 mm of annual rainfall, the “aridity border” must be located along the 350 mm annual rainfall isohyet.<sup>37</sup>

The element of risk is thus an important consideration among those who cultivate the areas along this aridity border. Dry farming of cereals (mostly wheat and barley) is the most common agricultural pursuit. When cultivation in arid zones is practiced by the bedouin, each plot is planted only once every five to ten years, lying fallow for the rest of the time. Methods are restricted to crude scratch plows and broadcast sowing, which are non-destructive of the fragile semi-arid soils. Crops fail in nearly half the years, however, and a good crop cannot be expected more than once in about four years.<sup>38</sup>

33. P. Beaumont, G. Blake, and J. M. Wagstaff, *The Middle East: A Geographical Study* (London: Wiley, 1976), p. 132.

34. Zohary, *Geobotanical Foundations*, vol. 1, p. 17.

35. *Idem*, *Plant Life*, p. 29.

36. D. Nir, *The Semi-Arid World: Man on the Fringe of the Desert* (New York: Longman, 1974), p. 10. While the average annual deviation in the temperate or the humid equatorial zones does not exceed 10–20 percent, it reaches 30–40 percent in the arid zone, and the actual deviation (not the average)—which is the one that affects the plants and the farmer—may even reach 100 percent.

37. Orni and Ephrat, *Geography of Israel*, p. 149; Beaumont, Blake, and Wagstaff, *The Middle East*, p. 133, put the lower limit for dry farming of cereals at 240 mm/yr with a relative interannual variability at less than 37 percent.

38. D. H. K. Amiran and Y. Ben-Arieh, “Sedentarization of Beduin,” *IEJ* 13 (1963): 167.

The important figure in the discussion of ecological determinants of settlement patterns is thus not strictly the rainfall averages of a particular area but the relative standard deviation from those averages. In comparing the relative standard deviations of sites located on the aridity border, it should be noted that the standard deviation at Beersheva is the same as that of the Beth Shan Valley.<sup>39</sup>

This climatic variability also affects animal husbandry. Livestock rearing and herding is often associated with these marginal zones. Pasturage in the steppe zones is subject to the same fluctuations in climate way that affect cultivated plots, and a succession of very dry years might force groups dependent on pastoralism to expand their territory. This expansion would occur at the expense of areas which would normally be under cultivation. The establishment and abandonment of sites could then be seen against the background of this shifting border of aridity. Demographic shifts may at times reflect climatic shifts.<sup>40</sup>

#### HYDROLOGY (fig. 1)

There are few perennial rivers in northern Palestine. The Qishon traverses the triangular plain of the western Jezreel, makes its way along the northeastern slopes of Mt. Carmel, and empties into the southeastern corner of the Bay of Akko. Since it is the primary drainage system for the Jezreel Valley and the surrounding hills of Lower Galilee, Mt. Carmel, and Samaria, it is at times a fairly substantial stream. Its level fluctuates greatly with the various seasons.

The Na'aman River lies wholly in the coastal plain. It empties into the Bay of Akko near the site of Akko (Tell el Fukhar). The Na'aman is spring fed, and originates in the Akko Plain itself. A particular problem with these streams is their slow flow-rate, for they are sometimes unable to overcome the sandbars along the coast and flood the lowlands in the coastal plain, creating swamps.<sup>41</sup>

A large number of seasonal wadis enter the northern coastal plain north of Akko. These serve as drainage for the heights of western Galilee. Some of the streams are perennial but again their major hydrological impact would be seasonal. Most ancient settlements appear to have been located along the foothills on spring lines that primarily follow the wadi systems. A number of wadis provided drainage, thereby reducing the potential amount of swampland that could have formed on the heavy alluvium washed down from the Galilean hills.

Due to the complicated tectonic activity that shaped the Galilean landscape, the drainage patterns are not always direct, and as a consequence some of the basins become very waterlogged during the rainy season. This results in a rich layer of alluvium for the basins, but it creates treacherous conditions for a person traveling through one of them. Settlement is generally located on the edges of these basins in order to maintain adequate drainage for the villages.<sup>42</sup>

The Huleh Valley is located at the northern end of the eastern Galilee watershed. It is fed by run-off from both Galilee (900 mm of rain/yr) and the Golan heights (1,000 mm of rain/yr), while a large number of springs rise along the rim of the valley.<sup>43</sup>

The major hydrological feature in Palestine is the Jordan River. As it leaves the southern end of the Sea of Galilee to follow its meandering course to the Dead Sea, it is supplemented in the central Jordan Valley by a large number of wadis and springs. These wadis drain the hills of Lower Galilee and northern Transjordan.

39. D. Sharon, "Variability of Rainfall in Israel," *IEJ* 15 (1965): 171–76, especially fig. 1. Both figures stand at 40 percent. This means that a relative deviation of less than 20 percent can only be expected in 38 percent of the years, and in 13 percent of the years one could expect a deviation of more than 60 percent. See also Schatner, *Lower Jordan Valley*, p. 21, 22.

40. Beaumont, Blake, and Wagstaff, *The Middle East*, p. 133; see also D. H. K. Amiran, "The Pattern of Settlement in Palestine," *IEJ* 3 (1953): 68.

41. Orni and Ephrat, *Geography of Israel*, pp. 50, 51; Baly, *Geography of the Bible*, p. 124; Karmon, *Israel: A Regional Geography*, p. 196.

42. Baly, *Geography of the Bible*, p. 162.

43. Orni and Ephrat, *Geography of Israel*, p. 85. It is estimated that the total flow into the Huleh Basin is 740 million m<sup>3</sup> annually.

The most bountiful tributary is the perennial Yarmuk River which joins the Jordan approximately 8 km south of the Sea of Galilee. The Yarmuk contributes almost as much water as the Jordan at the point of their merging. The catchment area served by the Yarmuk is 7,250 km<sup>2</sup>, while that of the Jordan is 2,753 km<sup>2</sup> at the point where it exits from the Sea of Galilee. The Yarmuk is subject to much greater seasonal fluctuation. During the rainy months of November through April, it achieves 75 percent of its flow.<sup>44</sup>

The northernmost wadi to join the Jordan is the Naḥal Yabneel (Wadi Fejjas), followed by Naḥal Tabor (Wadi Bira) farther south. They are important drainage networks, but their total water output is small.<sup>45</sup> Other major wadis on the west side of the Jordan are Naḥal Issachar, Naḥal Bezeq (Wadi Humra), and Naḥal Milḥa (Wadi el Malik). The only perennial streams on the west side of the Jordan are Naḥal Tabor and Naḥal Ḥarod (Wadi Jalud).<sup>46</sup> Directly across the valley from Naḥal Tabor is the Wadi el Arab which drains a portion of Gilead and is a permanent stream. Other wadis on the eastern side are the Taiyebah, the Ziqlab, and the Yabis. These eastern wadis are all perennial. Their importance is derived not only from the water they carry, but also from the fact that at the mouths of the wadis the waters have deposited alluvial fans on the Jordan plain that are very fertile and which show evidence of occupation during the Early Bronze Age.<sup>47</sup> The combination of fertile alluvial soil and a fairly constant water supply provided an excellent location for settlement.

The ʿAin Ḥarod spring is quite strong and provides most of the water year round for the Naḥal Ḥarod. It waters the eastern Jezreel and the Beth Shan Valley on its way to the Jordan. The main springs in the Beth Shan Valley are located at the base of Mt. Gilboa. These springs form reliable sources of water, for they do not deviate from the average annual discharge more than 15 percent.<sup>48</sup>

Water quality is also important, for it can directly affect land use patterns. Although the areas of the northern and central Jordan Valley appear to be well watered, excess salinity can be detected among certain springs from the northern end of the Sea of Galilee and as far south as the Beth Shan Valley. The Sea of Galilee itself has a slight problem with salinity from a number of saline springs that discharge into the lake bottom and from the flow of the hot mineral springs near Tiberias. The degree of salinity varies depending on the amount of rain received during the winter and the level of the lake. According to a recent study, after five consecutive years of drought the lake had a mineral content of over 400 mg/liter, but after a four-month rainy season the average had dropped to 350 mg/liter.<sup>49</sup>

In the Beth Shan Valley, modern irrigation required the establishment of a system of mixing irrigation water. The spring water was simply too saline to use for irrigation. Water from some of the main springs in the valley was mixed with water brought directly from the Sea of Galilee. Some of the springs had a mineral content (calcium, chlorine) of 1,000–2,000 mg/liter.<sup>50</sup> Most crops can tolerate a chlorine content of 25–300 mg/liter.

Salinity poses a major problem for the soils of the Jordan Rift Valley. Soil salinity is caused by two main factors. Salt can be added to the soil through the use of poor quality irrigation water. Salinity can also be caused by ground water that is too close to the surface. When water is added to the soil it causes the ground

44. Karmon, *Israel: A Regional Geography*, p. 164. See also Schattner, *Lower Jordan Valley*, pp. 25, 26, who points out that the east side of the valley receives much greater rainfall than the west because of the rain shadow created by the hills of Galilee.

45. Orni and Ephrat, *Geography of Israel*, p. 90. Although the water output may be small, it was certainly adequate for the ancient farmer. Prausnitz reports "no less than thirty copious springs" in the Naḥal Yabneel. See M. Prausnitz, "The First Agricultural Settlements in Galilee," *IEJ* 9 (1959): 166–74. More information on the hydrology of this area is available in A. Saarisalo, "Boundary between Issachar and Naphtali," in *Suomalaisen Tiedeakatemia Toimituksia, Annales Academiae Scientiarum Fennicae, Series B*, vol. 21 (1927): 12–15.

46. I. Schattner, *Lower Jordan Valley*, pp. 25–26 and table 1.

47. The alluvial fans are much more extensive on the east bank of the river than on the west bank, *ibid.*, pl. 4.

48. Nir, *The Semi-arid World*, p. 142; see also D. Nir, "Naḥal Chisafime (Basse Galilée): Etude morphométrique," *IEJ* 13 (1963): 182ff.

49. Y. Ben-Arieh, *The Changing Landscape of the Central Jordan Valley*, *Scripta Hierosolymitana*, vol. 15 (Jerusalem: Magnes Press, 1968): 109; see also M. J. Goldschmidt et al., "The Mechanism of the Saline Springs in the Lake Tiberias Depression," *Geological Survey of Israel* 45 (1967).

50. Nir, *The Semi-arid World*, p. 142.

water to rise by capillary action. When it evaporates it leaves behind the salts, which can even form a crust on the soil. The problem is compounded when saline water is applied to the heavy alluvial soils which are present in these areas. The solution to most of the problems with soil salinity lies with good drainage. If enough water is applied to an area where good drainage is provided, salts are leached out of the soil.<sup>51</sup>

#### TOPOGRAPHY (fig. 1)

Before concluding this section on the physical characteristics of the environment of the region of northern Palestine, certain aspects of the environment should be stressed, for they will become important whenever human exploitation of these resources is discussed. Especially important is the distinction between the hill country and the lowland plains. The hill country is generally well provided with rainfall, and its difficult topography ensures a greater degree of security than the more low-lying settlements. This same topography prohibits extensive fields, however, and requires intensive agriculture, usually with terrace construction. Terracing serves a dual function for it both creates space and inhibits the erosion which afflicts these highland areas. Due to the particular tectonic and geological structure of Galilee, however, terracing was not as prevalent or as effective as that practiced in the Judean hills and Samaria.<sup>52</sup>

The lowland plains are generally well watered by adequate rainfall, numerous springs, and both perennial streams and episodic wadis. Their soil is primarily composed of fertile alluvium, which is constantly enriched by soil washed down from the neighboring highlands. Problems affect settlement in lowland areas also. Although the plains are well watered, their greatest liability is a surfeit of moisture, for inadequate drainage creates large areas of swamp. In cases such as the Jezreel Valley and the Sahl el Battof these swamps are seasonal, but in others (southern Akko Plain and Huleh Valley) they are permanent. The lowlands are also more susceptible to vagaries of political fortune than the hill country; everyone from invaders to tax collectors found them more accessible. Accessibility was not always a liability, for it also brought with it economic benefits in certain periods of relatively high stability.

Although distinct physical characteristics demand different subsistence strategies for the hill country and the plains, both areas are subsumed under the same climatic and phyto-geographic category—the Mediterranean. More general, and perhaps profound, distinctions can be drawn between the two major phyto-geographic zones in northern Palestine: the Mediterranean and the Irano-Turanian. Moving from one zone to another means making the transition from a classic Mediterranean crop economy (vine, olive, wheat) to a more marginal steppe environment that is better adapted to animal husbandry and lies at the lower end of the scale permitting dry farming. In northern Palestine the marginal zone is not large in area when compared with the classic Mediterranean zone. It covers only the area of the Rift Valley from the southern end of the Sea of Galilee to the southern end of the Beth Shan Valley.

The importance of this Mediterranean/steppe dichotomy lies not in its extent, however, but in the implications that such an abrupt climatic and vegetational shift has for subsistence in the area. The very nature of the environment forces the consideration of certain questions, not only about subsistence, but about social organization, intraregional cooperation, and even interregional trade.

## MAN IN HIS ENVIRONMENT

#### TRADE ROUTES (fig. 1)

The location of trade routes can be a powerful influence on the location and nature of human settlement. In this respect, the physical landscape can directly affect the cultural landscape. In order to understand the

51. Beaumont, Blake, and Wagstaff, *The Middle East*, p. 45; Reifenberg, *Soils of Palestine*, pp. 87–88; Zohary, *Geobotanical Foundations*, vol. 1, p. 48; see also T. Jacobsen and R. McC. Adams, "Salt and Silt in Ancient Mesopotamian Agriculture," *Science* 128 (1958): 1251–58.

52. Golumb and Kedar, "Ancient Agriculture," p. 138.

economics of a region and its function in relation to other regional economic systems, it is crucial to chart the human flow across the physical terrain. Northern Palestine was not a static and closed system. The location of Palestine astride the major land route between the two great centers of civilization in Mesopotamia and Egypt assured that. One need only review evidence from the last five millennia to understand the dynamic character of the region and to get some sense of the tremendous movement of people and goods through northern Palestine.

The most important route linking Egypt and Mesopotamia traversed northern Palestine. Most traffic, commercial and military, followed this major north-south route that ran along the edges of the Palestinian coastal plain and passed through the Mt. Carmel range by way of the Wadi 'Ara.<sup>53</sup> This route began its passage into and through northern Palestine at the site of Megiddo, located at the southwestern edge of the Jezreel Valley.

From Megiddo, this main trade route could go on to Damascus by one of two ways. One route crossed the valley of Jezreel, passed Mt. Tabor, and traversed the eastern portion of Lower Galilee. It descended into the Rift Valley at the Plain of Gennesaret on the northwestern shore of the Sea of Galilee and made its way into the Huleh Valley. This route either crossed the Jordan at Jisr Banat Yakoub (just east of Hazor) and went directly to Damascus through the Golan or continued into the Lebanese Bīqa' through the Wadi et-Teim.<sup>54</sup>

After leaving Megiddo, the alternate branch of this route followed the southern rim of the Jezreel and descended into the Jordan Valley at Beth Shan. One could ford the Jordan directly east of Beth Shan or journey north and cross the river near its confluence with the Yarmuk River at Jisr al Majami or even farther north at Tell 'Ubeidiya.<sup>55</sup> The route then ascended the Transjordanian hills and reached Damascus after traveling through the Hauran. It was also possible to continue northward and skirt the edges of the Sea of Galilee.<sup>56</sup>

More details on this major north-south route are available in the sixteenth-century records (*daftar*s) of the Ottoman administration in Palestine. These records clearly indicate the major routes of that period by providing lists of the taxes collected by various toll stations from passing caravans.<sup>57</sup> After crossing the Jezreel the caravan route led to the Khan et-Tujjar, located on the plateau of Lower Galilee which lies east of Nazareth.<sup>58</sup> The next station, Khan el Minya, lay in the Plain of Gennesaret. Khan Jubb Yusuf was situated on the slope north of the Sea of Galilee where caravans had to climb to enter the Huleh Valley. The last khan in the region was located exactly at the ford of the Jordan River at Jisr Banat Yakoub. The locations of these toll stations identify the points along which any major thoroughfare would probably be forced to pass. During this period there was no toll station located at Beth Shan, indicating that this route was not as frequently traveled.<sup>59</sup>

53. This route is often referred to as the "Way of the Sea" based on the reference in Isaiah 9:1; Aharoni, *Land of the Bible*, p. 41. See also P. Thomsen, "Die römischen Meilensteine der Provinzen Syria, Arabia und Palaestina." *ZDPV* 40 (1917): 1-141, especially table 1, for a summary of the Roman milestones found along this route. For a discussion of the term "Way of the Sea" and the problems associated with this term, see A. Rainey, "Toponymic Problems," *TA* 8 (1981): 146-51.
54. Aharoni, *The Land of the Bible*, pp. 48, 49; see also idem, "Galilee Survey: Israelite Settlements and Their Pottery," *EI* 4 (1956): 56-64 (Hebrew).
55. Roman milestones indicate a preference for the ford at Jisr al Majami during that period, Thomsen, "Die römischen Meilensteine," table 1.
56. To illustrate how political events can affect trade routes, the Roman and Byzantine road, which passed through Beth Shan, was less traveled after the Islamic conquest. Because Tiberias had become a provincial capital during the early Islamic period, traffic began to flow with greater volume over the Megiddo, 'Afulah, Tiberias route, and Beth Shan gradually slipped into decline. A. Walmsley, "The Administrative Structure and Urban Geography of the Jund of Filastin and the Jund of Al-Urdunn" (Ph.D. diss., University of Sydney, 1987), p. 221 and map 8.
57. W.-D. Hütteroth and K. Abdulfattah, *Historical Geography of Palestine, Transjordan, and Southern Syria in the Late 16th Century* (Erlangen: Erlanger Geographische Arbeiten, 1977), pp. 92-97.
58. For recent work at this site, see Z. Gal, "Khan et-Tuggar: A New Look at a 'Western Survey' Entry," *PEQ* (1985): 69-75.
59. Although there was a khan at Beth Shan during this period, it was not listed in the *daftar*s as a toll station. The khan at Beth Shan was operating when Burckhardt made his journey: "On the left bank of the stream is a large

The major trade routes followed fairly predictable courses when passing through northern Palestine in a north-south direction. The geographical realities posed certain limitations which seemed to affect traffic in much the same way through time. The location of the toll stations in the sixteenth century A.D. corroborates the evidence from both the geological constraints and the fragmentary ancient records referring to trade routes through this area.

Even more detailed descriptions of these routes can be recovered from the observations of some of the eighteenth and nineteenth-century explorers of Palestine. Their impressions of pre-industrial Palestine give us valuable information on the nature and location of local routes between villages in the region, in addition to the location of the major routes leading to Egypt, Syria, and Arabia.

One of the first and most thorough of these European adventurers was J. L. Burckhardt. Burckhardt is generally known for his discovery of Petra. In addition to his various travels in Transjordan, Syria, and Arabia, however, he managed to visit the northern area of Palestine and the Biqa'.

In the summer of 1812, Burckhardt set off for Cairo from Damascus, and he listed a number of khans along his route.<sup>60</sup> They rested at the village of Sasa, which had a large khan, and then joined a small caravan that was destined for Akko. Their caravan took them to Quneitra, which was where the caravans coming from Akko generally stopped for the night.

This caravan route continued southwest from Quneitra and descended to the bridge over the Jordan, Jisr Banat Yakoub (Burckhardt incorrectly identified it as Jisr Beni Yakoub). After crossing the bridge, the caravans passed across the narrow plain running the length of the Huleh Valley and then began the ascent to the town of Safed.

After leaving Safed, Burckhardt passed the Khan Jubb Yusuf which was also frequented by travelers from Akko to Damascus.<sup>61</sup> They reached the shore of the Sea of Galilee just west of 'Ain Tabgha. At the time of Burckhardt's visit, Khan el Minya was abandoned and in ruins, and there was no khan at Tiberias. Two standard routes led from Tiberias to Nazareth: the southern branch passed through Kfar Sabt and Khan et-Tujjar, while the northern route passed through Lubiye.

This portion of the caravan road from Egypt to Damascus was also clearly described by Edward Robinson. The description is contained in Robinson's account of his trip from Nablus to Nazareth.<sup>62</sup>

Robinson mentioned two possible roads to Tiberias from Khan et-Tujjar, and these seem to be similar to routes noted by Burckhardt. The southern route went through Kfar Sabt, skirted the extreme northern end of the Nahal Yabneel (Wadi Fejjas) and descended to the shore north of Tiberias.<sup>63</sup> The route which Robinson chose was north of this path and passed through Lubiye. From Lubiye one can descend directly to Tiberias, and indeed the modern road does so.

Robinson chose to descend from these heights slightly to the north of Tiberias. The plain below the Horns of Hattin was called the Sahl Hattin (modern Biqa' t Arbel). It was through a small wadi on the eastern edge of the plain that the main road to Damascus lay, "leaving Tiberias at some distance on the right."<sup>64</sup> This wadi leads to Khirbet Quneitra (or Tell Requet on modern maps) on the shore of the Sea of Galilee. Robinson mentioned Khan el Minya on the northern end of the Plain of Gennesaret and the important function it once had as one of the series of khans along the Damascus road to Egypt. His description of the route parallels

Khan, where the caravans repose which take the shortest road from Jerusalem to Damascus." J. Burckhardt, *Travels in Syria and the Holy Land* (London: John Murray, 1822), p. 343.

60. *Ibid.*, p. 312.

61. *Ibid.*, p. 318.

62. E. Robinson, *Biblical Researches in Palestine*, 2d ed., 2 vols. (Boston: Crocker and Brewster, 1860), vol. 2, pp. 331, 369; The khan to which he refers is probably the Khan et-Tujjar and what Burckhardt referred to as the Souk el-Khan, Burckhardt, *Travels in Syria*, p. 323.

63. The Yabneel is referred to differently in a number of sources. Burckhardt calls it Ard el-Hamme. Jacotin's map, dating from 1799, labels it Vallée de Hama, and Robinson states that he heard it called Ard el Ahmar. For major routes during this period, see Y. Karmon, "Jacotin's Map of Palestine," *IEJ* 10 (1960): fig. 2.

64. Robinson, *Biblical Researches in Palestine*, vol. 2, p. 379. See also *idem*, *Later Biblical Researches in Palestine*, 2d ed. (Boston: Crocker and Brewster, 1871), p. 342.

Burckhardt.<sup>65</sup> He suggested that travelers, prior to the construction of the bridge (Jisr Banat Yakoub), would have crossed the Jordan below the Sea of Galilee.

Another section of the Egypt-Syria route discussed by the earlier travelers was the portion of the road that traversed the Jezreel Valley from the area south of Mt. Tabor to the pass near Megiddo. The Jezreel was infamous for the great quantities of mud which were present during the winter months. Robinson quotes Monro when describing the northeastern arm of the plain as being inundated by a number of rivers which even formed a small lake before being drained off to the west and merging with the Qishon. He also mentions the plight of Prokesch, who entered the plain at or near Lajjun:

Here he came upon the Kishon, flowing in a deep bed through marshy ground; and after wandering about for some time to find the way through the morass, was at length set right by an Arab who pointed out the proper ford.<sup>66</sup>

The ford undoubtedly was located along the basalt ridge that spans the Jezreel from Megiddo to 'Affulah (see fig. 2 above).

There is no shortage of stories from people who attempted to traverse the Jezreel during the winter or spring months. W. M. Thomson characterized it as a bottomless mire with tangled grass. Gertrude Bell describes a trip along the southern edge of the valley, which was so filled with mud that the donkeys almost disappeared into it.<sup>67</sup>

Robinson himself had to cross the Qishon during his second trip to Palestine. One of his companions had forded the river in 1844 and found it almost impassable. When Robinson crossed, however,

the stream was not large; the water scarcely reaching the fetlocks of our horses. It was just here limpid, and flowing over a bed of fine gravel; but a little further above there were standing pools and mud. The gravel here, the guide said, was only a few inches in thickness; and in the rainy season, the stream could not be crossed at this spot. We had been told at Tell Shemmam, that the horses would sink perhaps up to their bellies.<sup>68</sup>

In addition to the north-south route from Egypt to Syria, an important east-west road linked the Hauran with the Akko Plain. This route is commonly known by its name during the Ottoman period—the Darb el Ḥawarneh. Saarisalo commented on the Darb el Ḥawarneh, which he traversed in 1926 in the course of his archaeological survey.<sup>69</sup> He located a string of Bronze and Iron Age sites along this route. According to his reconstruction, the ancient route between Damascus and Akko crossed the fertile Hauran of northern Transjordan and entered the Jordan Valley toward the south end of the Sea of Galilee through Fik (between the Yarmuk and the Sea of Galilee). It crossed the ford directly across from the Naḥal Yabneel and continued up the wadi to the Sahl el Battof and on to Akko. It would have provided a good road even during the rainy

65. Idem, *Biblical Researches in Palestine*, vol. 2, p. 405.

66. Ibid., pp. 363, 364; the reference by Prokesch to a ford across the valley proves interesting when combined with our knowledge of the geology of the region. There are two barriers to the waters of the Qishon as it drains westward toward the Mediterranean. The gentle slope of the plain is slightly broken by a narrow volcanic outcrop that runs from the area near Megiddo directly across the valley to the area of modern Tel Adashim, in the plain below Nazareth (See fig. 2). The second barrier is at the narrow pass between the hills of Carmel and the hills of Lower Galilee. It is at this pass that the Qishon leaves the Jezreel and enters the plain of Akko. These barriers create two basins that are easily flooded and do not drain well. It is clear that the main route across the valley, during the period of waterlogging, would have to traverse the low volcanic outcrop between Megiddo and Tel Adashim. It is probably this outcrop to which Prokesch refers when he mentions the ford across the valley. From Tel Adashim the road would follow along the scarp below Nazareth, pass Mt. Tabor, and terminate at the Khan et-Tujjar. See Baly, *The Geography of the Bible*, p. 146.

67. W. M. Thomson, *The Land and the Book: Central Palestine and Phoenicia* (New York: Harper, 1882), p. 211; Gertrude Bell, *The Letters of Gertrude Bell*, Lady Bell, ed., 2 vols. (New York: Boni and Liveright, 1927), vol. 1, p. 176. See also Baly, *Geography of the Bible*, p. 146.

68. Robinson, *Later Biblical Researches in Palestine*, pp. 115, 116.

69. Saarisalo, "The Boundary Between Issachar and Naphtali," pp. 23ff. East-west passage was also possible through the Naḥal Tabor, located just south of the Wadi Fejjas. Its terrain was extremely rugged, however, and at the time Saarisalo visited the area it was only used by smugglers.

season, since drainage was good and the road passed over limestone ground, avoiding the “soft” alluvial plains. He saw this route as an important alternative to the route through the Jezreel Valley, which suffered from extreme problems of flooding and inaccessibility during the rainy months.<sup>70</sup> The southern slopes of Naḥal Yabneel and the Sahl el Battof were gentle and would have made passage uncomplicated. At the time of Saarisalo’s survey, grain was still being transported by camel caravans from the Hauran to Akko.

Aharoni claims that the author of Papyrus Anastasi I also knew of the Darb el Ḥawarneh, which would be an indication of its importance.<sup>71</sup> It is possible that evidence of its use can be found in certain Amarna letters which mention the site of Hannaton. Hannaton is located at the westernmost end of the Sahl el Battof and would have been a strategic point for any route which passed along the Darb el Ḥawarneh. One Amarna letter records how a caravan from the king of Babylon was looted at Hannaton by the rulers of Akko and Shimron.<sup>72</sup> Another records how Labayu, the ruler of Shechem, escaped at Hannaton from the ruler of Akko who was to take him from Megiddo to Shimron, from Shimron to Hannaton, and finally to Akko.<sup>73</sup> Thus one sees that the route leading from the Jezreel to the Akko Plain at times went by way of the western part of the Darb el Ḥawarneh,<sup>74</sup> probably to avoid the swamp located on the lowlands of the southern Akko Plain.

The Darb el Ḥawarneh was extremely important for east-west trade in the Ottoman period. As will later be shown, the Hauran produced large grain surpluses, at least during the sixteenth century A.D. The hill country of Samaria seemed to specialize in olive production, producing far more than subsistence requirements. The possibility of commodity exchange between these two areas is very likely, in which case the Darb el Ḥawarneh would have facilitated transport of these goods.<sup>75</sup>

More details of this route were provided by Masterman. Although he stated that during the winter the eastern portion of the Sahl el Battof became a great marsh and was dangerous to cross, the caravan route entered the plain more toward the western end. There the valley was better drained. Pococke visited this basin and remarked that the valley was very fertile and covered with grain.<sup>76</sup>

In addition to the Darb el Ḥawarneh, another east-west route ran across Upper Galilee. This route was marked by a chain of settlements which date to the Bronze and Iron Age periods. The ascent from the east was accomplished up the Naḥal Dishon to the site of Qadesh-Naphtali. From here the settlements lead westward via Yirʿon, Iqrit, and ʿAvdon to the northern part of the Akko Plain. A branch of this route turned north and led to Tyre through Bint Jbail in Lebanon.<sup>77</sup> This branch formed an important line of communication between the Phoenician coast and the interior of northern Palestine and southern Syria.<sup>78</sup>

Burckhardt described a portion of a minor east-west route which travels from Lower Galilee (Nazareth) to Transjordan. His caravan passed just to the south of Mt. Tabor skirting the edge of the Jezreel at this point. They did not remain in the valley but traveled on the plateau just to its north and continued in a southeasterly direction. This route seems to have traversed the northern rim of Naḥal Issachar (his Wadi Oeshe). They tried to avoid the lowlands of the eastern Jezreel because of the difficult passage that would be encountered there.<sup>79</sup> Burckhardt descended into the Jordan Valley and continued south to Beth Shan. The caravan forded

70. Ibid., p. 23, 24; see also Aharoni, *Land of the Bible*, p. 56.

71. Aharoni, *Land of the Bible*, p. 56. In this case Aharoni assumes that Yenoʿam should be identified with Tell ʿUbeidiya. This is disputed by Naʿaman, however, who sees Tell esh-Shihab in Transjordan as a more likely site for Yenoʿam. Nadav Naʿaman, “Yenoʿam,” *TA* 4 (1977): 168–77.

72. El Amarna letter no. 8. J. A. Knudtzon, *Die El-Amarna Tafeln* (Leipzig: Hinrichs, 1915).

73. Ibid, El Amarna letter no. 245.

74. Aharoni, *Land of the Bible*, pp. 56, 57.

75. B. Oded, “Darb el-Ḥawarneh,” *EI* 10 (1971): 191 (Hebrew).

76. E. Masterman, *Studies in Galilee* (Chicago: University of Chicago Press, 1909), pp. 7, 8; see also Robinson, *Later Biblical Researches in Palestine*, p. 109; also Pococke, *A Description of the East*, p. 453.

77. Karmon, *Israel: A Regional Geography*, p. 180. He notes that due to the nature of the topography in Upper Galilee “there is no place which could form a junction and thus reach regional importance. Only Qadesh, which was nearest the main international route and situated in the midst of a fertile basin, achieved some importance ...”

78. Aharoni, *Land of the Bible*, p. 57.

79. Karmon notes that the “Ḥarod River too used to cause severe inundations and for most of history this valley was also a swamp;” Karmon, *Israel: A Regional Geography*, p. 192.

the Jordan east of Beth Shan, at which point Burckhardt described the river as eighty paces wide and three feet deep.

The flow of goods and people across the region of Palestine was confined mainly to certain routes which were determined by geographic barriers. The main "international" traffic route was north-south and made its way to Damascus. The major east-west routes lay either through the Jezreel or the Darb el Ḥawameh. Seasonal factors must have played a part, to some extent, in selecting a route. It is clear that swamps were a major problem, and traffic must have kept to the slopes as much as possible.

## PRE-MODERN LAND USE

Analysis of pre-literate cultures often uses data from much later periods. These data give one a sense of the potential of human exploitation in an environmental niche which presumably remains roughly similar to that inhabited by the ancient culture. I would suggest that some of the patterns of cultivation and herding presented here reflect what may have been similar patterns of land use in the Bronze Age. Variables of geomorphology, hydrology, rainfall, pedology, and topography remain roughly the same today as in ancient times. Obviously social organization differed throughout history, but agriculturists had to work the same ground. The following sections highlight the agricultural potential of northern Palestine prior to the use of modern mechanical aids to agriculture.

## Sixteenth-Century Records from the Ottoman Period

Extensive work has been done on the Ottoman period by critical analysis of the tax registers or *daftar*s. These registers were compiled during the census at the end of the sixteenth century and formed the basis for Ottoman administration of the Arab lands until the conclusion of World War I. The tax records provide us with a wealth of information—a synchronic "cross-section"—that enable us to determine where villages were located, what crops they grew, the nature of their land tenure system, and their level of diversification and crop specialization.

The primary Ottoman administrative subdivision was the *liwa'*.<sup>80</sup> Northern Palestine was divided into two main districts: Safed and Lajjun. Safed included Upper Galilee, most of Lower Galilee, and a small part of southern Lebanon. Lajjun included most of the Jezreel Valley, a portion of Lower Galilee, and the Carmel mountain range. Although population estimates are rough even for a well-documented period such as this, the population of the *liwa'* of Safed was approximately 82,570 and that of Lajjun was 7,490. For comparison, the population of the *liwa'* of Jerusalem (Quds) was approximately 42,155 and that of the Nablus *liwa'* was 39,960. Most of the Ḥuleh Valley was included under the jurisdiction of Damascus. Northern Palestine supported the largest population group in the country, although the density of population was less than the other areas.

Hütteroth and Abdulfattah have defined what they call a "frontier of permanent settlement" which generally corresponds to the 250 mm isohyet in the south, east, and along the Jordan Rift Valley.

On the flanks of the Rift Valley, this frontier is nearly linear, clearly due to natural conditions. But approaching northern parts of the Gawr, villages appear on the alluvial cones, especially in the Baysan valley.<sup>81</sup>

80. Hütteroth and Abdulfattah, *Historical Geography of Palestine*, p. 43. The area of the *liwa'* of Jerusalem was roughly the same as the Judean hill country, while Nablus was roughly the same as Samaria. All the *liwa'*s mentioned extended as far west as the sea coast and included the coastal plain.

81. *Ibid.*, pp. 45, 46; the "alluvial cones" mentioned here may be the lacustrine sequence which was common in the area around the town of Beth Shan. It consists of several meters of brown to black clay and silt with large quantities of *Melanopsis* shells. "Chalcolithic potsherds and artifacts are quite common within the sequence, whereas Early

This information is important confirmation of the type of settlement pattern one would expect, given the constraints laid out earlier in this chapter. Agriculture in the sixteenth century A.D. was limited primarily to areas which could support dry farming in years of normal rainfall. Once again the rainfall isohyets are diagnostic. Settlement on the alluvial fans near Beth Shan indicates that these Ottoman period settlements utilized the fertile soils of the area. They evidently exploited the abundant water resources of the Naḥal Ḥarod as well as the numerous springs which flank the valley. Without adequate drainage these areas would quickly become swampy, malarial, and saline, and one must assume that they practiced irrigation and drainage at least to some degree.

It is instructive to note the areas which were not settled. The central areas of the Jezreel Valley were not occupied. In fact, the "frontier of human settlement" forms a pocket in the Jezreel. The non-settled area extended from the central Jezreel Valley through the pass between Mt. Carmel and the hills of Lower Galilee. It included much of the southern coastal plain between Haifa and Akko. The scarcity of settlements reflected the swampy conditions which existed in the Jezreel. Inadequate drainage and a heavy influx of water in the rainy season made the flat central portion of the plain a hostile environment for permanent settlement. The same conditions applied to the southern Akko Plain. Settlement in the Jezreel along the southwestern edge of the valley, however, included a string of settlements from just northwest of Lajjun, near Megiddo, to the southeast as far as Jenin. Settlement was also heavy across the valley in the area of Mt. Tabor and the village of Nein. Thus the edges of the Jezreel were settled and prosperous, although the valley itself was not.<sup>82</sup>

Lajjun illustrates an important aspect of sixteenth-century settlement. Villagers preferred more mountainous terrain. The density of settlement was greatest in those areas and perhaps indicates a lack of adequate security. The edges of the fertile plains were settled in areas which would permit a "concentration of villages to such a degree that the danger of nomadic raids was of relative unimportance—for the sixteenth century at least."<sup>83</sup> In times of weak or inefficient government, settlers remained in the hill country and abandoned the easily accessible plains and valleys. In periods of insecurity the frontier of permanent settlement retreated and marginal land would have been the first to be abandoned.

Nomadic tribes tended to occupy areas which bordered deserts or swampy plains. In the sixteenth century a group of nomadic tribes practiced buffalo breeding which of course required swampy land. These tribes concentrated their efforts in the northern Sharon Plain, the Ḥuleh Valley, and the Beth Shan Valley.<sup>84</sup> The other tribes may have taken their flocks in certain seasons to the hills of Galilee and Samaria.<sup>85</sup>

Although there were several settlements along the plateau just south of Naḥal Tabor, absolutely no villages were located in the Naḥal Yabneel. Several small villages, however, were located just west of the wadi and on the hills at its upper reaches. Also, no villages existed in the fertile triangle located between the Yarmuk, the Jordan, and the south end of the Sea of Galilee. Hütteroth and Abdulfattah have determined that the Naḥal Yabneel was within the territory controlled by several nomadic tribes, but their location was not precisely defined. The fertile area around Tell Beth Yerah in the uppermost portion of the central Jordan Valley, like Naḥal Yabneel, was not permanently settled in the sixteenth century.

A marked degree of abandonment took place between the sixteenth century and the nineteenth century. The decline in numbers of villages was quite evident, although there was parallel growth in the number and importance of towns. By the nineteenth century the settlement frontier had contracted, and there was a

Bronze remains were encountered on the surface. The *Melanopsis* shells yielded a radiocarbon age of around 5,000 B.P. ... the Early Bronze people, consequently found a very rich organic soil on which they settled in large numbers"; Horowitz, *Quaternary of Israel*, pp. 145, 146.

82. Hütteroth and Abdulfattah, *Historical Geography of Palestine*, pp. 18 and 50. See also their fig. 6. The percentage of nomadic population is shown in relation to settled population. There is evidence that in the two Transjordanian districts at least 25 percent of the total population was nomadic.

83. *Ibid.*, p. 47; see also H. Margalit, "Some Aspects of the Cultural Landscape of Palestine during the First Half of the Nineteenth Century," *IEJ* 13 (1963): 212, 213.

84. In the early nineteenth century, tribes had to pay the Ottoman governor for grazing rights in the Ḥuleh Valley and the Golan, A. Cohen, *Palestine in the 18th Century* (Jerusalem: Magnes, 1973), p. 108.

85. Hütteroth and Abdulfattah, *Historical Geography of Palestine*, p. 48.

concomitant increase in the areas which were inhabited and exploited by nomadic groups.<sup>86</sup> The area along the “frontier” was the most dramatically affected by total abandonment, exhibiting a withdrawal of up to 20 km in the plain east of Gaza, the Hauran, and areas of the Jordan Rift on both sides of the river as far north as Beth Shan. The abandonment rate was greater than 70 percent all along the western shore and adjoining hills of the Sea of Galilee and the Huleh Valley, as far north as Tel Dan. The zones that experienced the least amount of change in settlement density were located in the hill country of Judea, Samaria, and Galilee. The pattern is clearly one of abandonment of the lowlands or plains and of stability in more mountainous terrain.

As central Ottoman authority declined during the period between the sixteenth and nineteenth centuries, the increase in bedouin activity became stronger in the more accessible areas. The plains and valleys were exposed to more raids and were the first to be abandoned. The hill country, on the other hand, proved to be far less accessible to raids. The villages were located in more defensible positions, and the terrain did not abound in vegetation that was of prime choice for grazing. Steppe vegetation was more prevalent in the lowland areas—those bordering the “frontier” of permanent settlement.

During the Ottoman rule of Palestine, the number of towns decreased. The tax registers seem to distinguish a town from a village primarily by function, not size. Hütteroth and Abdulfattah have isolated one variable. A town was defined by the presence and variety of non-agricultural activity, especially of a commercial nature.<sup>87</sup> These commercial activities were listed in the tax registers (e.g., butchers, animal markets, bakers) and can provide a clue to the importance of the various non-agricultural endeavors. The market places themselves were taxed in addition to the various activities which were practiced within the bazaar. Among appropriate towns a “port tax” was also levied. In northern Palestine this was only applicable to Akko, which had both a port and a market tax.<sup>88</sup>

In addition to Akko, only four other market centers were located in northern Palestine in the sixteenth century. Safed was unquestionably the most important. It was very near the main trade route from Egypt to Damascus and was the northernmost of a line of major market centers which included Gaza, Jerusalem, and Nablus. Safed served as the market center for Upper Galilee, the Huleh Valley, and the portion of southern Lebanon included within the *liwa'* of Safed. It was the capital of the most populous *liwa'* in Palestine. Kafr Kanna was a secondary market town located just northeast of Nazareth. Its location was excellent for the performance of market place functions for Lower Galilee (both the hills and the Sahl el Battof) as well as the Jezreel Valley.

The size of Kafr Kanna was approximately the same as that of Hebron. Kafr Kanna was located between the two major markets of Safed and Nablus, and Hebron was located between Gaza and Jerusalem. Hütteroth and Abdulfattah have suggested that this is a clear case of the linear variant of the Christaller system of rank-size distribution. Dominant centers were located in a north-south line,<sup>89</sup> with places of less importance distributed between or beyond them.

The market function of towns was an important one, but the economic backbone of the region was the agricultural production of the villages. For tax purposes the village was the main unit, and it could vary in size from one or two households to five hundred inhabitants (rarely more than five hundred). The *daftars* were usually very specific about the nature of the agricultural product and the rate at which the village was taxed, thus making it possible to determine the extent and distribution of the major agricultural crops.

One aspect of the agricultural economy of the individual village was not included in the calculation of crop yield and distribution. The *mazra'a* is a term which is best translated as “a small isolated agricultural area.” This area had no permanent settlement on it and was cultivated by a village which was located nearby. In some cases the *mazra'a* represented the fields which had once belonged to a neighboring village. The abandonment of that village resulted in the cultivation of its fields by the village listed in the *daftars*.

86. Ibid., pp. 54–63; note especially fig. 7.

87. Ibid., p. 25.

88. The amount of tax collected at the port of Akko was very small. This would indicate that the Mediterranean trade was not of major significance in the Ottoman period. Karmon attributes its downfall to the loss of the Ottoman Empire's geopolitical dominance of the trade routes in the sixteenth century. “Now the Middle East was bypassed by the new trade routes and pushed into a position of isolation ... Jaffa possessed a few huts of fishermen and so did Akko”; Karmon, *Israel: A Regional Geography*, p. 51.

89. Hütteroth and Abdulfattah, *Historical Geography of Palestine*, p. 86 and fig. 8.

Although the products of these remote fields (the *mazra'a*) were usually not specifically mentioned, in most cases it was probably a grain crop.<sup>90</sup> This phenomenon can be seen in the nineteenth-century travelers' reports as well. Fields of grain belonging to villagers dwelling up in the mountains of Safed were observed along the western edge of the Huleh Valley. The villagers of Tiberias cultivated the fields of a former village located on the slopes above them to the west. Grain fields with no permanent inhabitants were spread along the base of Lower Galilean hills in the central Jordan Valley, sown either by bedouin or villagers from the hills. Not only would it be difficult to protect fields at great distances, but it would also be more difficult to tend crops that were far removed from the villages. Grain crops are essentially maintenance-free once sown, while vines, olives, and vegetables need to be tended periodically.

During the sixteenth century, the two main cereal crops in this region were wheat and barley. Olives and olive oil were taxed, as were "summer crops," consisting mainly of vegetables, fruits, rice, durra (sorghum), lentils, and garden vegetables.

The most productive agricultural areas in this region were located in the northeastern section of the western Jezreel Valley and in the hills south of the fertile alluvial plain of the Sahl el Battof.<sup>91</sup> Very productive areas were found in the hills north of the Sahl el Battof and along the southern edge of the Jezreel from Megiddo, through Ta'anach, and in the vicinity of the plain and hills northeast of Jenin. The predominant crop in most areas of northern Palestine was grain. The cereals formed the major source of taxable revenue in most areas, with only two areas showing exception.

Olives were important in the hills surrounding the Sahl el Battof. They were also plentiful in the hills just south of Safed. Although they were the predominant crop in only a few of the villages, the proportion of olives in these areas was greater than in the remaining areas of Galilee and the plains and valleys surrounding it. The general locale of olive production is not surprising, since the olive is best adapted to the hilly portions of the Levant that possess the rainfall and temperatures of the Mediterranean climate.

To maintain a perspective on olive production, however, it is important to mention the absolute dominance of the olive as a taxable product in the western hill country of Samaria during the sixteenth century. The olive was preeminent in most villages between Ramallah and Jenin.<sup>92</sup> It was grown in many of the villages located on the hills along the rim of the Jezreel, but there is no indication of a level of production that would have surpassed the amount absorbed for home consumption.

Viticulture played the same role in the hill country of Judea that the olive played in Samaria. The Judean sites exhibited more diversity in their agricultural produce than Samaria, but the presence of vines was certainly more apparent in Judea, the Shephelah, and the southern coastal plain than in Samaria. Viticulture was also practiced in Galilee, but in general the scale did not match that of the hill country between Jerusalem and Hebron. At no site in the hill country or Shephelah did grape production exceed 50 percent of the total agricultural production of any village, contrasted with the olive production of Samaria. This may reflect the Muslim prohibition on wine.

Most villages grew both wheat and barley, but the proportion of wheat was always greater than that of barley. The only exception was the Beth Shan Valley where approximately equal amounts of wheat and barley were recorded. This is not surprising because barley is more tolerant of areas with slightly less rainfall and more saline soils. The primary grain producing areas were located along the southwestern and northern edges of the Jezreel and the hilly plateaus of Lower Galilee around Nazareth, Saffuriya, and Kafr Kanna.

The overwhelming impression one receives from an overview of the sixteenth-century *daftars* is a reliance on a mixed economy. In northern Palestine there was little evidence for crop specialization. Generally there was a balance between three major categories: grain growing, summer crops, and small animal herding. Olives were grown but not to the extent that they were in Samaria. Vines and fruit trees were present but not to the degree found in Judea. Grain was predominant, but even grain is not present in the overwhelming percentage that was grown in the Hauran in Transjordan. Galilee and the Jezreel provided the

90. *Ibid.*, p. 29.

91. *Ibid.*, map 1. The authors have provided an extremely helpful cartogramme in their work on the *daftars*. At a glance, it provides an impression not only of crop location but of production based on the tax records.

92. *Ibid.*, p. 84. "The predominance of olive cultivation in many villages of the highlands is such that we have to assume at least an inter-regional exchange of commodities: the western flank of the mountains of Quds and Nablus must have had a surplus of olive oil on the one hand and a shortage of grains on the other."

approximate proportions of agricultural products that would indicate a degree of self-sufficiency. The necessity for interregional trade (with the exception of cotton production around Akko) was probably minimal. There was doubtless a degree of intraregional trade with olive and cotton producing areas taking advantage of the grain surplus that was produced in the Jezreel.

### Nineteenth-Century Eyewitness Accounts

Establishing the subsistence base is an important aspect of any study of ancient population and its location. To derive the agricultural potential of a region, it is often helpful to turn to early eyewitness accounts that discuss the areas under cultivation. They give us insights into pre-industrial society—where people lived, what crops were cultivated, why they lived where they did, and how their exchange systems functioned. In short, although they sometimes lack critical analysis, these observations provide us with the perspective necessary to interpret stark geological and climatological data. Eyewitness accounts provide a wealth of detail on both subsistence pattern and settlement pattern. In the absence of texts from Palestine dating to the third millennium that might provide such information, it is clear that a study of pre-modern land use is necessary for the reconstruction of the cultural and agricultural phenomena that were present in the Early Bronze Age in northern Palestine.

Political and social factors may also determine what agricultural practices will be and where they will be used. Some farmers might flee the lowlands in order to escape excessive taxation by local authorities. In the hill country, land of even marginal quality could be intensively farmed and thus be made more productive than land that had superior agricultural potential.

On a journey through Palestine, Robinson observed:

In like manner, as we learned, the greater portion of all the rich plains of Palestine and Syria are in the hands of the government; while the hill country and mountains are held in fee simple, or nearly so, by the inhabitants. It results from this state of things, that the inhabitants of the hills and mountains are far better off than those of the plains; they raise a greater variety of crops and have an abundance of all kinds of fruits; while those of the plains are in general poor, and are compelled to cultivate only grain in order to satisfy the rapacity of the government. Hence, while the rocky and apparently almost desert mountains teem with an active, thrifty, and comparatively independent population, and the hand of industry is everywhere visible: the rich and fertile plains, deserted of inhabitants or sprinkled here and there with straggling villages, are left to run to waste, or are at the most half tilled by the unwilling labours of a race of serfs.<sup>93</sup>

In addition to governmental rapacity, farmers suffered at the hands of bedouin. During the eighteenth century Tiberias functioned as a garrison to control the influx of bedouin from the Syrian desert, but by 1778 the size of the bedouin groups demanding taxes from the villagers and passing travelers reached roughly 20,000 men.<sup>94</sup> By the nineteenth century, Burckhardt presented a vivid picture of Beth Shan:

The present village of Bysan contains seventy or eighty houses; its inhabitants are in a miserable condition, from being exposed to the depredations of the Bedouins of the Ghor, to whom they pay a heavy tribute.<sup>95</sup>

93. Robinson, *Biblical Researches in Palestine*, vol. 2, p. 46. See a very similar description in Burckhardt, *Travels in Syria*, p. 20. The abandonment of villages to escape taxation was already well underway by the eighteenth century; Cohen, *Palestine in the 18th Century*, p. 2. The practice of fleeing to the hills to escape taxation is well documented from the third through the fourth centuries A.D. as well. See D. Sperber, *Roman Palestine 200–400: The Land* (Ramat Gan: Bar-Ilan University, 1978), pp. 102ff.

94. Cohen, *Palestine in the 18th Century*, p. 107.

95. Burckhardt, *Travels in Syria*, p. 344. See also H. B. Tristram, *The Land of Israel* (London: Society for Promoting Christian Knowledge, 1866), p. 494.

A helpful source for obtaining a general impression of cultivated areas can be found in a late eighteenth century map. When Napoleon invaded Palestine in 1799 he brought with him a corps of engineers and surveyors. The chief editor, Jacotin, published a series of maps in 1810 that were drawn at a scale of 1:100,000. The brief length of time that the French were present in Palestine limited the ability of their surveyors to make accurate measurements. The area of Lower Galilee was, however, the most carefully surveyed.

Jacotin's map indicated cultivated fields around Semakh at the south end of the Sea of Galilee and along the course of the Yarmuk where it left the mountains of Transjordan. The western edge of the Plain of Gennesaret also was cultivated, as were the wadis leading down to the Jordan Valley. The fairly broad plain of the Nahal Yabneel had fields along its stream bed, and the plateau above and south of the Nahal also showed signs of cultivation.<sup>96</sup>

Burckhardt's observations are helpful in creating a picture of what life was like in northern Palestine at the beginning of the nineteenth century. He notes that the "greater part of the Houle is uncultivated; the Arabs El Faddel, El Naim, and the Turkmans pasture their cattle here."<sup>97</sup> Some settlements were located along the Huleh Lake, however, for he mentioned two villages and the ruins of a third. There was some cultivation in the plain at the northeastern corner of the Sea of Galilee. The village Battykha was located there and the villagers cultivated large quantities of cucumbers and gourds, which were sent to market in Damascus. The produce ripened at least three weeks earlier in the Jordan Valley than it did in Damascus.<sup>98</sup>

Burckhardt also described the Plain of Gennesaret. He mentioned the ruins of the Khan el Minya and extolled the agricultural potential of this plain. In spite of the apparent fertility of the area, civilization does not seem to have been much in evidence. Only a few inhabitants were settled at 'Ain Tabgha, and the water was so brackish that it was undrinkable. The main occupation of the villagers was fishing. The only other village in the plain was Mejdal which Burckhardt described as a "miserable place."<sup>99</sup>

Burckhardt continued southward along the shore of the lake as far as Tiberias. At the time of his visit, the town had approximately 4,000 inhabitants, only a minority of whom made their living by trading in the local bazaar. The customers for the bazaar were mainly the bedouin from the *Ghor* and from the district of Safed. Most of the inhabitants cultivated the fields and slope directly west of the town, which they irrigated with water from nearby springs.

Produce consisted of wheat, barley, durra, tobacco, melons, grapes, and a few vegetables. The surplus was traded with both Akko and Damascus.<sup>100</sup> Tiberias' residents also farmed fields farther up the slope. These fields were once farmed by a village which had since been abandoned, a practice mentioned in the sixteenth century *daftars*. Burckhardt remarked on the well-cultivated fields of durra which he passed on the way to Nazareth. These fields were located at the beginning of the Nahal Yabneel.

The Beth Shan Valley was apparently plagued by too much water in some places and not enough in others.

The great number of rivulets which descend from the mountains on both sides, and form numerous pools of stagnant water, produce in many places a pleasing verdure, and a luxuriant growth of wild herbage and grass; but the greater part of the ground is a parched desert, of which a few spots only are cultivated by the Bedouins.<sup>101</sup>

96. The field plots were only general indications of areas under cultivation. Ben-Arieh states: "Sometimes the map makers, not wishing to publish a map with empty spaces, filled-in areas with symbols of plants and sites. Thus the area west of Jerusalem was covered with stylized trees and bushes, while geographical data was altogether absent." Y. Ben-Arieh, *The Rediscovery of the Holy Land in the Nineteenth Century* (Jerusalem: Magnes Press, 1979), p. 22.

97. Burckhardt, *Travels in Syria*, p. 42.

98. *Ibid.*, p. 316.

99. *Ibid.*, pp. 319, 320.

100. *Ibid.*, p. 323. It is also interesting to note Robinson's description of Tiberias: "... the whole town made upon us the impression of being the most mean and miserable place we had yet visited; a picture of disgusting filth and frightful wretchedness"; Robinson, *Biblical Researches in Palestine*, vol. 2, p. 381.

101. Burckhardt, *Travels in Syria*, p. 323.

The actual river bed of the Jordan is quite narrow and is deeply incised into the plain. The *Zor* is filled with luxuriant amounts of vegetation and Burckhardt contrasted it with the "sandy slopes bordering it on both sides."

The valley served as pasturage for a number of different bedouin tribes. Burckhardt distinguished two groups of bedouin. One group remained in the valley year round. This group regarded the valley as its patrimony. The second group spent its winters in the valley. They came from various districts, but he mentioned specifically the areas of Nazareth, Nablus, and the eastern mountains. The stationary bedouin cultivated a few fields of wheat, barley, and durra.<sup>102</sup> The northern portion of the Jordan Valley was not cultivated, except around the village of Semakh.

Robinson's accounts also give important data concerning land use and custom. He made a brief reference to the area around the site of Khirbet Quneitra (Tel Requet) at the mouth of the wadi that drained the eastern end of Sahl Hattin. It was here that the main Damascus road from Mt. Tabor descended to the Sea of Galilee and continued north to Jisr Banat Yakoub. Robinson observed that "here, at the mouth of the little Wady, is a small space of arable plain along the shore, on which were a few patches of vegetables, with a miserable hut or two for the keepers." A number of springs were also located in this plain, although the water was somewhat brackish.

Like Burckhardt, Robinson observed that the plain was obviously very fertile and had an abundance of water, and in some cases there was evidence of simple gravity flow irrigation. The soil of the area was a "rich black mould . . . indeed, in beauty, fertility, and climate, the whole tract answers well enough to the glowing though exaggerated description of Josephus." With the exception of the area around Mejdal, the plain was not cultivated by the peasants but by Arabs (Ghawarineh) dwelling in tents. Robinson saw two or three of them "lazily opening a watercourse, to carry the water to a different point in the plain."<sup>103</sup>

Robinson's description of Lake Huleh supplements the observations by Burckhardt. On the east side of the valley the lake extended all the way to the foot of the hills. The main road thus ran parallel to the west side of the lake, where there was a strip of arable land between the lake and the mountains. This strip of land was suitable for cultivation and was never marshy. In Robinson's time it was under the jurisdiction of the government of Safed.<sup>104</sup> The northern end of the Huleh was described as a meadow. It was occupied by nomadic Arabs (again the Ghawarineh), who used the meadowlands to graze their cattle. Robinson described an artificial ditch which ran along the road at this point and was used for irrigation. This particular canal was diverted from the waters flowing from Hasbeiya. North of this area, as far as Banias, was a fertile plain upon which wheat was cultivated. Again, the only inhabitants of the area were "Bedawin and Ghawarineh." Pococke visited the Huleh Valley and also noted evidence of irrigation:

the waters are muddy, and esteemed unwholesome, having something of the nature of the water of a morass, which is partly caused by their stopping the brooks on the west side, in order to water the country; so the water passes through the earth into this lake;<sup>105</sup>

Robinson observed peasants digging simple irrigation canals in the Plain of Gennesaret. Molyneux, who visited in 1848, reports a large number of diversion canals present along the Jordan itself. The technology involved in making such channels was not complicated. The peasants built simple dams of stone, bushes, and mud that reached three or four feet above the water. The water was diverted to small canals on either side of the river and used to irrigate vegetable plots. Molyneux had to dismantle a number of the large canals in

102. *Ibid.*, p. 346.

103. Robinson, *Biblical Researches in Palestine*, vol. 2, p. 402; also Prausnitz, "The First Agricultural Settlements in Galilee," p. 170. Prausnitz mentions the possible use of irrigation channels in the Nahal Arbel (Wadi Hamam) that may have dated back to the Neolithic period, "the irrigation channel is one of the decisive inventions in human progress. Here nature prepared most, if not all the work. The channels at Khan 'Ain Hamam are very short and could be dug and maintained by a few pairs of hands working the soil."

104. Robinson, *Biblical Researches in Palestine*, vol. 2, p. 435.

105. Pococke, "A Description of the East," p. 463.

order to gain passage for his boats.<sup>106</sup> When the Lynch expedition made its way down the river the explorers also referred to irrigation canals that they observed along the way.

In some cases, gravity flow irrigation diverted water from the wadis draining into the Jordan Valley. In these cases, irrigation was practiced primarily along the wadis and on the small alluvial fans at the point where the wadi opened into the valley. These areas provided the fertile soil necessary for decent crop yields but also provided adequate drainage.<sup>107</sup>

The Plain of Gennesaret has been shown to have been at least partially irrigated. In addition to the wadis and alluvial fans, there was some irrigation of the Jordan River flood plain, the *Zor*. The Jordan River has an incised flood plain, and the river is much lower than the Jordan Valley as a whole. A strip of land along the banks of the river is potentially arable, however. It is possible to irrigate this strip of land because of its proximity to the water from the river.

Adequate drainage posed the greatest problem to irrigation in the Jordan Valley and the wadis that empty into it. Because the spring water in the valley was so saline, inadequate drainage would salinize the soil, which would sharply decrease agricultural yields. Drainage is important not only for prevention of salinization, but in some cases it also is necessary for land reclamation. Burckhardt noted that there seemed to be large areas of stagnant water lying about in the Beth Shan Valley. These pools would have had to be drained before productive use of the land could have taken place.

The Jordan Valley, just south of the Sea of Galilee, was described by a number of nineteenth-century explorers. A common theme running throughout their descriptions seems to be that although the valley was sown with grain, a large part of the population did not reside in the valley because of the extreme summer heat. According to Irby and Mangles, the area north of Beth Shan was covered with wheat and barley but "without a living soul or a spot of shade." Tristram indicated that the *Ghor* was fertile but treeless. The land was sown with barley. The barley was left to ripen; the inhabitants returned only to harvest it. Schumacher also reported that the intense heat in the *Ghor* prevented even the local peasants from living there.<sup>108</sup>

When this evidence is combined with that given by Burckhardt concerning the nature of the bedouin occupation, one can make a plausible case for a fairly elaborate scheme of selective use of the Mediterranean and steppe environments by both agriculturists and pastoralists. Huntington, during his trip to Palestine in 1909, mentioned that early ripening was often used to advantage:

The descent from the plateau to the Ghor in northern Judea and Samaria is so easy that some of the upland villagers take flocks thither to feed in winter. Others cultivate land at the base of the escarpment where water comes to the surface in springs. Seed-time and harvest come earlier in the Ghor than on the plateau. Hence it is possible for the peasants to raise crops in both places. At El Aujeh we visited a mild peasant from Tayibeh who was getting ready to cut his lowland wheat.<sup>109</sup>

Early ripening time seems to be consistent with a number of accounts. While Burckhardt was in the village of Umm Qeis in the Transjordanian hills just south of the Yarmuk, he was met by peasants from the Hauran who were on their way down to the *Ghor* "to purchase new barley, of which grain the harvest had already begun in the hot climate of that valley."<sup>110</sup> The product of the early harvest was sent to Damascus and Akko. The Lynch expedition to the Jordan Valley also passed numerous patches of cultivated wheat and

106. Ben-Arieh, *Changing Landscape*, p. 42.

107. Schatner mentions a network of open artificial channels which were dug for irrigation purposes that diverted water from the various wadis into the valley floor. These were mainly detected on the east bank of the Jordan River. The oldest channels dated to the Roman period, but the technology was simple enough to be used on a limited scale in earlier periods. Schatner, *Lower Jordan Valley*, p. 27. See also R. Miller, "Water Use in Syria and Palestine from the Neolithic to the Bronze Age," *World Archaeology* 11(1980): 332.

108. Ben-Arieh, *Changing Landscape*, pp. 42–44.

109. E. Huntington, *Palestine and Its Transformation* (Boston: Houghton Mifflin, 1911), pp. 141, 142.

110. Burckhardt, *Travels in Syria*, pp. 273, 316, 323.

barley that were ripening early, although the sowers of these plots were nowhere within sight. They assert that the “hands that planted would come to reap them in the season,—if not anticipated by the spoiler.”<sup>111</sup>

Even in the twentieth century the early ripening of crops has been important to the development of this area. This ripening time has been especially helpful in the production of two crops—grapes and citrus fruits.<sup>112</sup>

The evidence for the exploitation of land in the Jordan Valley by people who lived in the adjacent hill country seems to be fairly consistent for the entire length of the Jordan Valley. Huntington referred to the area along the hill country of northern Judea and Samaria. Burckhardt mentioned both the Beth Shan Valley and the area along the west shore of Lake Huleh. Robinson wrote that the villagers of Tubas in northern Samaria cultivated areas of the *Ghor*.

The inhabitants of Tubas, as we have seen, are divided into three hostile parties; they carry their divisions into their agriculture in the Ghor. One party sows at ‘Ain el-Beida, where we now were; another around ‘Ain Mak-huz, more in the north; and the third at Ridghah, Sakut, and further south. The people of Teyasir also sow on the south of the Malih; the water of which is used for irrigation.<sup>113</sup>

Due to the intense heat and the lack of dew in the summer “the inhabitants did not grow summer crops, and most of the land was sown every other year.”<sup>114</sup> During the nineteenth century, the land was used primarily by bedouin and transhumants. It was sown with cereal crops and left to ripen. Both villagers and bedouin remained in the hill country while the grain ripened. They could then take advantage of the early ripening time of the crops in the valley and reap two harvests, one in the hills and one in the valley. Double cropping was also done in areas other than the Jordan Valley; there is some indication that the villagers of Nazareth cultivated cotton, wheat, and barley in fields that were located down in the Jezreel Valley.<sup>115</sup>

### Transition: The Central Jordan Valley in the Early Twentieth Century

Records of the early twentieth century are useful in completing the picture of land use and crop potential, for they depict the land just prior to the systematic application of twentieth century technology. The records present natural features of climate and landscape that must undergo intensive change before they fit into modern use patterns. It is this pre-industrial state of the landscape that provides important information about the environmental obstacles and potential that may have existed in the third millennium.

One of the areas in which agricultural production and the requirements for its development is most conspicuous is the portion of the central Jordan Valley that lies between the south end of the Sea of Galilee and the Beth Shan Valley. During the nineteenth century this territory experienced shifting population groups, first being occupied by peasants, then bedouin, then totally abandoned. At the end of the nineteenth century there were four major villages in the valley: es-Samra, located on the eastern shore of the Sea of Galilee; Semakh, at the southern end of the Sea of Galilee; Umm Junieh and ‘Ubeidiya, which were located on the Jordan River. Every spring and at harvest time the valley would be invaded by bedouin tribes, so the villagers tended to keep the cultivated plots small and close to the village. Population estimates for the central Jordan

111. W. F. Lynch, *Expedition to the River Jordan* (Philadelphia: Lea and Blanchard, 1849), p. 203.

112. Ben-Arieh, *Changing Landscape*, p. 96. “Differences in the time of ripening are found even within the region. Fruit of a given strain in plantations situated on the eastern side of the valley ripen about a week earlier than those in the west, and this is significant both from the point of view of price obtained and the absorption capacity of the local market.”

113. Robinson, *Later Biblical Researches in Palestine*, vol. 2, p. 313.

114. Ben-Arieh, *Changing Landscape*, p. 44.

115. Margalit, “Some Aspects of the Cultural Landscape of Palestine during the First Half of the Nineteenth Century,” p. 215. Farmers from Nazareth also worked land in the Jezreel in the eighteenth century. Cohen, *Palestine in the 18th Century*, p. 160.

Valley at the end of the nineteenth century, including both sedentary and bedouin groups, range from 2,500–3,000 people.<sup>116</sup>

Agriculture in the *Ghor* consisted primarily of dry farming wheat and barley. The villagers and bedouin sowed the seed on the plain and left it untended until harvest time. The *Zor* was also used for agricultural purposes. Water was easily accessible down in the *Zor*, and primitive irrigation channels posed no technological problems. Not only were small attempts at irrigation made along the Jordan, but gravity flow irrigation was practiced at the mouth of the Naḥal Yabneel. In the valley below the village of Umm Junieh were fields of irrigated crops on the fertile alluvial soil that had been deposited by the Jordan. Because of the extreme temperatures and the lack of rainfall in the summer, only one cropping season existed for the cereals. No summer crops were grown.<sup>117</sup>

When Jewish colonization of this area first began in the early twentieth century, the colonists attempted to farm with essentially the same techniques used by the traditional Arab agriculturists of the area. The economy of Menahemya, the first settlement of this region, was based on non-irrigated crops, including wheat, barley, beans, and lentils as winter crops. Chickpeas and pulses were grown as summer crops.<sup>118</sup> The harsh realities of climate in the Jordan Valley soon became apparent, however. The colonists discovered that it was not feasible to grow non-irrigated summer crops in this region. The barley and wheat quickly depleted the soil and the farmers could not practice crop rotation if no summer crops could be grown to replenish the soil. The only alternative to crop rotation was to extend the area under cultivation. This allowed an increase in the amount of land that could be set aside for fallow.

Similar problems were faced by the settlers of Kibbutz Deganya B. This settlement was located in the fertile alluvial plain east of the Jordan and south of the Sea of Galilee. The original intent of the settlers was to practice extensive cultivation of cereals, since the land was flat and lacked large quantities of stones. Although crops were rotated the summer heat of this area simply was too great for many of these crops to be grown without benefit of irrigation. During this trial period of unirrigated cereal cultivation the kibbutz came to the conclusion “that the actual value of a dunam of land in this region, in spite of the flat nature of the land, was far below that in the other areas.”<sup>119</sup>

The climatic conditions of the central Jordan Valley were not suitable for complete dependence on extensive cereal production to satisfy the needs of a number of growing communities. A solution to the problem was reached by the implementation of two important agricultural strategies. First, the colonists expanded the number of crops, thus giving each colony a more broadly based economy. By releasing themselves from their dependence on cereal production, they were able to use land that was more efficient for other crops. Hilly areas along the edge of the valley proved tolerant of grapes. Viticulture is now fairly common in these areas and particularly important is the use of a strain of grapes that ripens early in the valley’s climate, thus proving valuable for export. Olives, figs, pomegranates, and grapes were much more common above the valley on the plateau located between the Naḥal Yabneel and Naḥal Tabor.<sup>120</sup> This pattern duplicates the conditions reflected in the sixteenth-century Ottoman tax records.

Attempts at growing olives in the valley were not successful, but date palms thrived. Date palms tolerate marshy soils and brackish water. Dates are now primarily found along the western hilly flank, along the banks of the Yarmuk, and at the southern shore of the Sea of Galilee. The level of cereal production has fallen as a result of intensive irrigation of other crops. This has created a land shortage for cereal crops. As a consequence, the raising of sheep has rapidly decreased, since much of the former pasturage is now being used for cereals.<sup>121</sup>

The establishment of a broadly based mixed economy was important in an area that has not only a semi-arid climate but a variable one. Several consecutive years of drought could have a disastrous effect on an economy based only on dry-farmed cereals. Thus the second agricultural strategy undertaken by the colonists

116. Ben-Arieh, *Changing Landscape*, pp. 40, 41.

117. *Ibid.*, p. 44.

118. *Ibid.*, p. 49.

119. *Ibid.*, p. 65.

120. Saarisalo, “The Boundary between Issachar and Naphtali,” p. 18.

121. Ben-Arieh, *Changing Landscape*, p. 102.

was to intensify the cultivation of irrigated crops. Intensive irrigation allowed the production of important cash crops and also gave the settlers enough latitude to practice crop rotation. Bananas are now the primary crop produced in this area, a result of intensive irrigation and good drainage. Cereals are no longer extensively grown because of the large amounts of land required.

Although the Arab villagers had previously practiced gravity flow irrigation down in the *Zor* of the Jordan, the *kibbutzim* began to use pumps to bring the water up to the fertile land of the *Ghor* for the first time. As Ben-Arieh points out:

The basic difference between the exploitation of the region for agriculture in the past and today is that in the past man did not know how to raise water to the level of Kikkar HaYarden (the triangular area between the lake, the Jordan, and the Yarmuk), while today technical developments have made this possible.<sup>122</sup>

This morphological aspect of the Jordan River Valley was thus a primary obstacle to irrigation agriculture in ancient times. The Jordan was simply too deeply incised in the plain to enable any efficient use of its waters for irrigation of the potentially fertile land above it in the *Ghor*. It is ironic that because of this particular morphological characteristic, the Sea of Galilee, the largest reservoir of fresh water in Palestine, and the two largest perennial rivers in Palestine (the Jordan and the Yarmuk) are essentially useless for irrigation purposes on any large scale without the use of modern technology to elevate the water.

The settlement patterns in this area bear dramatic witness to this phenomenon. When the patterns are traced diachronically, we see that most ancient settlements were located along the river banks or at the points where the streams draining into the Jordan River Valley actually converged with the river, thus facilitating the use of gravity-flow irrigation.<sup>123</sup> Although the triangle of land lying between the Jordan, Yarmuk, and Sea of Galilee consisted of approximately 2,500 ha of fertile, flat, and relatively rock free land, only small portions of it were farmed. Jacotin's map showed only scattered field plots, and the report by Burckhardt mentioned only about forty hectares under cultivation in this plain. The non-irrigated areas of the *Ghor* were sown with cereals. Most settlement remained close to the rivers and on the alluvial fans at the wadi mouths.

## SUMMARY

The theme of this chapter centers around environmental constraints and potential. The nature of human settlement and subsistence was determined by man's ability to adapt to and in some cases to manipulate these constraints.

Northern Palestine was dominated by the dichotomy between rugged hill country and plains. The mountains and small intermontane basins provided opportunities for subsistence, but their lack of arable land and difficulty of communication affected the nature of settlement in this region. No relatively large cities or regional centers developed in Galilee in antiquity. On the other hand, there is some evidence that the population tended to remain more stable in these hilly areas, at least according to the Ottoman records and the nineteenth-century accounts. The lowlands exhibited more fluctuation in both population and prosperity. Ancient sites such as Akko, Megiddo, Beth Shan, and Hazor were all wealthy and important cities at various periods. They all were located on major trade routes and were more susceptible to political instability. In unstable times life in the lowlands was often more insecure and often would result in depopulation. Topography thus played an important role in the definition of settlement distribution and its fluctuation.

Two major climatic and phyto-geographical zones appear in northern Palestine. The differences between the Mediterranean zone and the Irano-Turanian zone are more significant than simply reflecting a disparity in rainfall averages or plant types. These distinctions are crucial for the understanding of the subsistence dynamics of the region. The transition between these two zones marks the lower limit for successful dry

122. *Ibid.*, p. 117.

123. *Ibid.*

farming. The importance of this “aridity border” is magnified by the variability with which moisture is obtained. The implications for the agriculturist for long-term planning and risk taking are many.

A dichotomy also presents itself when one examines the types of agricultural pursuits followed in these two zones. The Mediterranean climate is well suited for the cultivation of the classic “wheat-vine-olive” combination. It can also, in some cases, support multiple cropping seasons and the planting of supplementary leguminous crops, thus permitting crop rotation and preventing soil depletion. The climate in the Irano-Turanian zone seldom permits summer cropping and is also sometimes hostile to crops other than cereals. According to the Ottoman records, barley, due to its greater tolerance for drought, was grown in greater proportion to wheat in the Irano-Turanian zone than in the higher and wetter Mediterranean zone.

The hydrological status of the region is also important. The problem in northern Palestine can be briefly summed up—not enough water in some places and too much in others. Lack of moisture is mainly evident in the *Ghor* of the central Jordan Valley. This area can be used only sparingly for farming, however, because of the lack of adequate water supply. Intensive exploitation of the land is not possible within the limits of climate and topography.

Excess water is a problem that actually affects more total area than does lack of water. The southern Akko Plain, Jezreel Valley, Sahl el Battof, Huleh Valley, and portions of the central Jordan Valley all have problems with excess water, with a tendency toward swampy conditions. A few of these areas are mainly susceptible to seasonal inundations and are exploited by agriculturists once they dry out. The southern Akko Plain, the Huleh swamp, and portions of the area around Beth Shan show tendencies toward permanent swamps, however. The existence of these swamps had to have an impact on the pattern of settlement in these areas.

The excess water in some sections of the Beth Shan Valley was compounded by a certain degree of salinity in both water and soil. A number of springs along the western edge of the Rift Valley from the north end of the Sea of Galilee to the south end of the Beth Shan Valley were affected by salinity. This problem of water quality could have affected the soil and the success of certain crops. It also must be considered when determining the environmental parameters within which man worked.

The marginal area of the central Jordan Valley provides dramatic potential for a re-creation of ancient subsistence strategies and a study of the effect of man on environmental constraints. Such an area would tolerate fewer varieties of agricultural exploitation. Thus dramatic shifts in population or settlement distribution in a marginal area would presumably reflect equally dramatic shifts in subsistence strategy or technology. Hydrological constraints have been mentioned, and these factors provide the greatest opportunity for observation of active human intervention with the “natural state.”

The surfeit of water in portions of the Beth Shan Valley has combined with the heavy alluvial soils and created a very swampy environment. The most obvious task in any land reclamation project is to implement adequate drainage. Drainage not only extends the amount of land available for cultivation, but also promotes a healthier climate by reducing the danger of malaria. This, then, is an active method for man to develop agricultural potential.

The solution to the problem of lack of water, on the other hand, is to develop a method for water distribution. In this chapter, we have seen the potential for simple gravity flow irrigation systems that could service land along the wadis themselves as well as the alluvium at the wadi mouths. The *Zor* was also capable of being watered by irrigation. The change in number, distribution, and size of settlements in such a marginal area would certainly indicate changes in land use and may have more profound implications concerning regional organization.

The geographical location of Palestine guaranteed a role in international trade—if not as an active participant then at least as a passive funnel through which merchants and armies passed. This location was of strategic value, and the control of Palestine was an important part of the grand designs of numerous empires. This position at times resulted in prosperity and at times resulted in wholesale destruction.

The hills provided the appropriate climate and soils for cultivation of olives, vines, or wheat. Olive production tended to concentrate in the hills of Samaria during the sixteenth century. Certain areas of Galilee had that potential, but generally Galilee tended toward a more balanced, or mixed, economy in the Ottoman period. The alluvial soils of the lowlands were flat, well watered, and generally suited for grain crops. The steppe-like areas in the Jordan Valley could support a certain amount of cereal cropping as well as provide

pasturage for sheep and goats. The diversity of topography and climate thus provides northern Palestine with economic potential that is certainly equal to or better than any other section of the country. The successful implementation of a mixed economy also provides the region with the potential for a certain degree of self-sufficiency. The effect of this self-sufficiency, however, may have been to prevent the region from participating in interregional trade networks. This could have resulted in a more parochial region that did not share in the benefits that accrued from crop specialization and trade.

It is known that the Early Bronze Age saw the introduction of the mainstays of the Mediterranean economy. Viticulture as well as olive and cereal production were practiced at numerous Bronze Age sites. That the potential for the cultivation of these crops existed does not ensure that they were grown, however. Tracing Early Bronze Age settlement growth and distribution will provide at least some indication of the importance of this economic triad in the region.



## CHAPTER 2

## BETH YERAH: HISTORY AND MATERIAL CULTURE

The site of Beth Yerah lay on the border of two major phyto-geographical zones. To the west it shared climate and flora with the Lower Galilee. Both enjoyed the rainfall and vegetation of the Mediterranean zone. The area south and east of the tell was in the Irano-Turanian zone. This steppe-like territory allowed seasonal cropping of cereals, although the potential yields of these grains was greatly increased when simple gravity flow irrigation was practiced in the alluvial soils located at the mouths of the major wadis emptying into the valleys.

Their location at the juncture of two major ecological zones provided the inhabitants of Beth Yerah with a certain degree of security. By being flexible with subsistence strategies, they could minimize risk and thus offset variability in rainfall. This was probably done by having a truly mixed economy based on stock raising, fishing, and the cultivation of cereals, grapes, and, perhaps, olives.

Although the flexibility demanded by the site's location in a marginal zone provided security from the short term vagaries of rainfall patterns, longer term fluctuations of climate and/or political and commercial instabilities could prove more hazardous. Increasing irrigation and the resulting salinization of soils could eventually decrease cereal yields. A protracted drought could have disastrous consequences in an area within such a precarious ecological niche. A breakdown in international trade patterns could seriously affect such agricultural processes as olive oil production and viticulture.

It has been suggested that the development of these agricultural products was the result of an international demand fostered by the Egyptian upper classes.<sup>1</sup> Increasing involvement in this international trade network by the emerging urban elites of Early Bronze Age Palestine thus would lead to an increasing dependence on "cash crops," replacing the more basic subsistence economy documented for Early Bronze Age I.

That Beth Yerah was involved in the broad commercial network of the Early Bronze Age is beyond question. All the standard devices by which one measures involvement in trade in Palestine during this period are found at the site. Both the Red Polished Ware and the Light Faced Painted Ware jugs have been found on the site as well as in the nearby Kinneret tomb. The presence of these same vessel types in Egyptian tombs, on the Syrian coast, and as far north as the 'Amuq Plain, shows a certain degree of international contact during this period. The large seal impressions on metallic combed ware store jars link Beth Yerah to similar seal impressions from Byblos, other sites in Palestine (mainly in the north), and once again to Egypt.<sup>2</sup> In fact, there are far more cylinder seal impressions found at Beth Yerah than any other excavated site in Palestine. Evidence for trade with Mesopotamia is much less obvious. Several votive chairs and/or beds have been found at Beth Yerah. Both Callaway and Hennessy see Mesopotamia as providing the best possible parallels

1. L. Stager, "The Firstfruits of Civilization," in J. Tubb, ed., *Palestine in the Bronze and Iron Ages: Papers in Honour of Olga Tufnell* (London: Institute of Archaeology, 1985), pp. 172–87.
2. A. Ben-Tor, *Cylinder Seals of Third-Millennium Palestine*, ASOR Supplement Series, no. 22 (Cambridge, MA: ASOR, 1978).

for these objects, two of which were found at 'Ai, one in the sanctuary and one in the lower city, excavated by J. Marquet-Krause.<sup>3</sup> It is much more likely that these votive objects were locally manufactured, however.

Beth Yerah had even more international links. In addition to the material that appears at other Palestinian sites and in Egypt, the site has yielded large quantities of the ware that took its name from the site. Khirbet Kerak Ware has a distribution that stretches from northern Palestine through the Orontes Valley and as far north as the 'Amuq. Not only, then, is the site located on the margin of two phyto-geographical zones, but also its location in northern Palestine places it roughly on the edge of two cultural zones.

Beth Yerah thus presents an ideal place to study the interaction between Palestine and Egypt, as well as the connections between northern Palestine and Syria. It is the general purpose of this study to place Beth Yerah and northern Palestine in their international context. It is the specific purpose of this chapter to examine the site in some detail and to present the data that will allow the integration of the site into a regional and international perspective.

### SITE IDENTIFICATION

The origin of the ancient name of Khirbet Kerak, now referred to as Beth Yerah, has been long and fiercely debated. Although eyewitness observations of the topography of the site date back to the Middle Ages, the debate over its classical name began in the early nineteenth century. This debate stemmed from a comment made by Pliny that the site of Tarichea was located at the south end of the Sea of Galilee and an ambiguous and seemingly contradictory statement by Josephus about the location of Tarichea in his account of Vespasian's campaign in Galilee in A.D. 67.

C. Irby and J. Mangles assumed that the mound of Khirbet Kerak was ancient Tarichea when they passed it on their trip from Tiberias to Beth Shan in the spring of 1818.

We left the hot baths about noon; drawing towards the southern extremity of the lake, we observed, on our right, at the foot of the hills, an extensive aqueduct, and at the entrance are traces of the walls of Tarichea, which appears to have been situated on two eminences, one on the right of our road, and the other bordering on the discharge of the lake by the Jordan.<sup>4</sup>

Although E. Robinson did not visit the site in his 1838 journey to Galilee, his use of Pococke's description of Khirbet Kerak indicates that he too thought this large mound held the ruins of ancient Tarichea. By the time the Lynch expedition made their "naval" voyage from Lake Huleh to the Dead Sea in 1848, the exit of the Jordan River from the Sea of Galilee was firmly assumed to mark the location of classical Tarichea. W. M. Thomson also took for granted this identification in his publication of his travels<sup>5</sup> as did MacGregor in his canoe trip down the Jordan in 1869.<sup>6</sup>

It was Col. C. W. Wilson of the Palestine Exploration Fund Survey, who declared in 1877 that the mound of Khirbet Kerak could not possibly be Tarichea. Wilson apologetically wrote:

In 1866 I too hastily assumed that Dr. Robinson and other distinguished travellers were right in identifying Taricheae with Kerak, the mound covered with shapeless ruins which occupies such an important strategical position at the point where the Jordan leaves the

3. J. Callaway, *The Early Bronze Age Sanctuary at Ai (et-Tell)* (London: Quaritch, 1972), p. 304; J. B. Hennessy, *The Foreign Relations of Palestine during the Early Bronze Age* (London: Quaritch, 1967), p. 83.
4. C. Irby and J. Mangles, *Travels in Egypt and Nubia, Syria and Asia Minor* (London: White, 1823), p. 300.
5. Thomson, *The Land and the Book*, p. 333.
6. E. Robinson, *Biblical Researches in Palestine* vol. 2, p. 387. See, however, Pococke, "A Description of the East, &c.," p. 460, who places Tarichea north of Capernaum. For a description of his expedition, see Lynch, *Expedition to the River Jordan*, p. 172. In his 1838 account, Robinson reports that a Muslim village had "apparently recently sprung up." Jacotin's map indicated no buildings on the site, nor was the site named. Pococke mentioned the name "II-Carak" associated with the tell. Lynch's map depicts a small village on the mound and gives its name as "El-Kerak." See also the map in J. MacGregor, *The Rob Roy on the Jordan* (New York: Harper, 1870), p. 402.

lake, but a careful perusal of Josephus leaves no doubt in my mind that Taricheae was north and not south of Tiberias ...<sup>7</sup>

Ancient Tarichea was not the only ancient site with which the mound of Khirbet Kerak was associated. A. Neubauer was the first to suggest that the tell be identified with the town of Beth Yeraḥ, first mentioned in the Talmudic period.<sup>8</sup>

Gustaf Dalman also accepted Khirbet Kerak as the probable location of Talmudic Beth Yeraḥ. Although this fact would not preclude its identification with Tarichea, Dalman stated that he had changed his previous conviction on the matter by 1917, and he felt that Tarichea had to be located north of Tiberias.<sup>9</sup>

By the 1920s the acceptance of the ancient name of Beth Yeraḥ for the mound known as Khirbet Kerak was growing. Both Albright and Sukenik accepted this hypothesis, and both rejected the identification of Khirbet Kerak with Tarichea,<sup>10</sup> locating it, as did Dalman, north of Tiberias. Sukenik proposed to equate Khirbet Kerak with Hellenistic Philoteria. Philoteria was mentioned by Polybius in the second century B.C. Once again, this identification would not prevent acceptance of the claim that Khirbet Kerak was also Talmudic Beth Yeraḥ.

Beth Yeraḥ is mentioned in the Talmud in tandem with the Roman city of Sinnabris. Sinnabris is generally thought to have been located at Khirbet Sinn en-Nabrah, which is now occupied by the settlement of Kinneret.<sup>11</sup> Sukenik goes as far as to say that Beth Yeraḥ and Sinnabris were “sister cities.” The PEF map depicts Khirbet Sinn en-Nabrah just northwest of the mound of Khirbet Kerak. Their proximity would indeed make them sister cities.

Although the evidence is circumstantial, the name Beth Yeraḥ has generally been accepted and applied to the site of Khirbet Kerak. Albright explained the absence of the “house of the Moon” in any of the standard historical sources of the Bronze and Iron Ages by noting that there was a gap in occupation at the site from the third millennium until the Persian and Hellenistic periods. Both Albright and Sukenik asserted that the name Beth Yeraḥ (*bt yrḥ*) recalled a much older tradition and linked it with Jericho (*yrḥw*), whose name also reflected lunar influence.<sup>12</sup>

The fixing of the ancient name of Khirbet Kerak and all the accompanying historical baggage that this entails is only one aspect of the definition of the site. The position of the site at the exit of the Jordan River from the Sea of Galilee caused its presence to be noticed and often described by pilgrims and travelers from very early times. These descriptions offer more than simple satisfaction of intellectual curiosity, however. Geomorphology indicates that the course of the Jordan has changed, and understanding the details of this change can help explain certain archaeological evidence from the tell itself.

7. C. W. Wilson, “The Sites of Taricheae and Bethsaida,” *PEFQS* (1877): 10.

8. A. Neubauer, *La Géographie du Talmud* (Paris, 1868; reprint, Hildesheim: Olms, 1967), p. 216; see also references in G. A. Smith, *Historical Geography of the Holy Land* (London: Hodder and Stoughton, 1894; reprint, London: Fontana Library, 1966), pp. 292–94. Smith provided an excellent review of the debate. Both Smith and Masterman, *Studies in Galilee*, p. 28, remained convinced of the identification of Khirbet Kerak with Tarichea.

9. G. Dalman, *Sacred Sites and Ways*, trans. Paul Levertoff, 3d ed. (New York: MacMillan, 1935), pp. 126, 180, and n. 9.

10. W. F. Albright, “Contributions to the Historical Geography of Palestine,” *AASOR* 2–3 (1921–22): 29–46; see W. F. Albright, “The Jordan Valley in the Bronze Age,” *AASOR* 6 (1924–25): 30; see also E. L. Sukenik, “The Ancient City of Philoteria (Beth Yeraḥ),” *JPOS* 2 (1922): 102, 103.

11. Albright, “Jordan Valley in Bronze Age,” p. 27; Sukenik, “Philoteria,” pp. 106, 107; see also M. Avi-Yonah, *Gazetteer of Roman Palestine*, Qedem: Monographs of the Institute of Archaeology, vol. 5 (Jerusalem: Hebrew University, 1976), p. 95. In 1956, Bar Adon published an article in which he denied the equation Khirbet Kerak = Beth Yeraḥ = Philoteria. He also denied that Sinn en-Nabrah = Sinnabris. He concluded that Khirbet Kerak was the location of Philoteria and Sinnabris. Talmudic Beth Yeraḥ would then have been located somewhere farther south, probably between Moshava Kinneret and Tell ‘Ubeidiya. P. Bar Adon, “Šinnabra and Beth Yeraḥ in the Light of the Sources and Archaeological Finds,” *EI* 4 (1956): 55 (Hebrew).

12. Albright, “Jordan Valley in Bronze Age,” p. 30; Sukenik, “Philoteria,” pp. 102, 103. See also W. F. Albright, *Archaeology and the Religion of Israel* (Garden City, New York: Doubleday, 1969), p. 89.

## SITE TOPOGRAPHY

The first eyewitness account of the tell of Beth Yerah and its position in relation to the Jordan River is that of a Russian pilgrim, Abbot Daniel, describing his journey in Palestine in A.D. 1106. Daniel reports that there were two discharges from the Sea of Galilee.

The Jordan flows from the Sea of Tiberias in two streams, which foam along in a marvellous way; one of these is called the Jor and the other the Dan. Thus the Jordan flows from the Sea of Tiberias in two streams, which are three bow shots apart, and which after a separation of about half a verst, reunite as one river, which is called Jordan, from the name of the two arms.<sup>13</sup>

Despite Daniel's credulity in the field of etymology, he clearly observed the Jordan exiting from the lake at two different points, one north of the tell and the other south, where the modern discharge is located.

Pococke also mentioned the fact that "Il-Carak" became an island when the lake waters were high. His description of the exit of the river depicts the northern stream, for he notes: "Jordan first runs south for about a furlong, and then turns west for about half a mile: in this space between the river and the lake, there is a rising ground, called Il-Carak ... ." <sup>14</sup> Pococke observed a long arched bridge located on the west side of the mound that crossed "marshy ground."

The account by Irby and Mangles was not detailed, but they did mention that the "eminence" was artificially surrounded by water. The text of the Lynch expedition is even less helpful. Their map, however, showed the same "backwater" of the Jordan that is drawn on Jacotin's map (1799). Both maps illustrate a marsh north of the backwater, i.e., on the northwest edge of Beth Yerah. Undoubtedly, this was the marsh described by Pococke in his travels. The Palestine Exploration Fund Survey mapped this area more accurately. The outline of the tell of Beth Yerah was depicted correctly for the first time. The site was shown as a peninsula just as in previous maps, but the verbal description was also revealing. Kitchener writes:

On the east there is a large partially artificial plateau which extends from the road to the exit of the Jordan; a broad water ditch from the Jordan and the river itself defends two sides, while on the shore of the sea, thus leaving only a narrower entrance on the west from which it might be attacked.<sup>15</sup>

Did the Jordan indeed have two exits during ancient times? Sukenik argues as an historian:

I cannot therefore agree with Dalman, who ... says that in the time of Daniel the Jordan flowed out of the lake in two streams, which encircled Khirbet Kerak. Such a unique position of the town, situated on an island, would certainly be mentioned somewhere in the literature, but of this there would be no trace. What Dalman took to be the ancient bed of the northern arm of the Jordan is only an insignificant depression, through which water flows during inundations.<sup>16</sup>

When Picard discussed the geomorphology of the area in 1932, he noted that the barrier connecting Beth Yerah to the shore of the Sea of Galilee was about 100 m wide and 1 or 2 m high. This barrier separated the sea from the marshy backwaters of the Jordan which ran along the west side of the tell.<sup>17</sup>

Ben-Arieh has looked at the pilgrim accounts and travelers' diaries but has combined them with a geomorphological approach. He is convinced that there has been a steady retreat of the southern shore of the Sea of Galilee and that there was indeed a shift of the Jordan River outlet from north of Beth Yerah to its

13. C. W. Wilson, ed., "The Pilgrimage of the Russian Abbot Daniel in the Holy Land," *Palestine Pilgrims' Text Society*, vol. 4 (London, 1895; reprint, New York: AMS, 1971), pp. 60, 61.

14. Pococke, "A Description of the East," p. 460.

15. H. K. Kitchener, "Lieutenant Kitchener's Reports," *PEFQS* (1877): 120.

16. Sukenik, "Philoteria," p. 101 and n. 1.

17. L. Picard, "Geologische Probleme am Südrand des Tiberiassees," *JPOS* 12 (1932): 164-66.

present southern location. There seems to be little doubt that the northern outlet was originally the main one for the river. Ben-Arieh assumes that since the “original shore-line of Lake Tiberias lay further to the north, this would mean that the original outlet of the Jordan was also situated on this line.”<sup>18</sup>

When and how did this new outlet replace the northern one as the primary exit of the Jordan River from the Sea of Galilee? Both Picard and Ben-Arieh suggest that the southern outlet may have been man-made. They assume that a defensive moat was dug along the southern edge of the tell. Once a new channel was cut, the old channel would rapidly fill with alluvial soils washed down from the hills to the west.

The date of this change of course is elusive. Bar Adon makes a case for pushing the date later than the Byzantine period. Although we will discuss the archaeological data later in this chapter, there exists evidence that the southern and western edges of the tell were fortified, while no fortifications have been discovered on the northern portion of the tell. Bar Adon traced the sections of the Early Bronze Age wall and much of the Hellenistic wall along the southern and western side. These defenses indicate a fear of attack from that direction. He also notes that there are remains of a Roman bridge at the foot of the northern part of the site near the cemetery of Kinneret. This would indicate that at least as late as the Roman period the river was impassable enough to require a bridge.<sup>19</sup> This is no doubt the same bridge mentioned by Pococke that was still used to cross the marsh in his day.

The travelers’ accounts, the nineteenth-century maps showing marshes, and the Roman bridge all serve to underscore the tenuous link by which Beth Yeraḥ is connected to the mainland. In 1932 a power station that controlled the rise and fall of the lake level was constructed at the outlet of the Sea of Galilee. Before that time, however, every slight rise in the lake level caused the northern outlet to overflow, and the site was almost completely surrounded by water.<sup>20</sup> Thus, although this shift is difficult to date, it appears that at least during the Early Bronze Age the tell was connected to the mainland on the south and separated from it on the north and west.

#### ARCHAEOLOGICAL INVESTIGATIONS AT BETH YERAḤ

Albright was the first to call attention to the unique style of ceramics found at the site. The easily identifiable characteristics of Khirbet Kerak Ware and its importance in establishing the subdivision of the Early Bronze Age in Palestine as well as providing secure links with Syrian sites have stimulated great interest in the archaeological record of Beth Yeraḥ. Albright collected sherds along the road cut from Tiberias to Semakh and along the east bank of the site, where the mound is exposed to the eroding wave action of the Sea of Galilee.<sup>21</sup> Albright mentioned a thin stratum of Hellenistic-Roman occupation, but he focused primarily on the thick Early and “Middle Bronze” deposits from the road cut. Although he mentions the existence of Middle Bronze deposits, his detailed written descriptions of his pottery collection give no examples of any Middle Bronze “fossil types,” and in two cases (cooking pots and Yahudiyeh Ware) he specifically acknowledges their absence. His 1926 reference to Khirbet Kerak ware link this pottery with the Middle Bronze tradition, and it is probable that at this early stage of Palestinian ceramic study, he was attempting to draw parallels between the red polish of Khirbet Kerak Ware and the red burnished ware of the MB IIA period.<sup>22</sup>

The site was first explored by systematic excavations under the direction of Mazar, Stekelis, and Avi-Yonah in 1944–46.<sup>23</sup> In the first season, Mazar sank a trench 100 m long and 7 m wide in the southern part of

18. Y. Ben-Arieh, “The Shift of the Outlet of the Jordan at the Southern Shore of Lake Tiberias,” *PEQ* (1965): 59. See also idem, “Fluctuations in the Level of Lake Tiberias,” *IEJ* 15 (1965): 160–68.

19. Bar Adon, “Şinnabra and Beth Yeraḥ,” p. 53.

20. Ben-Arieh, “Shift of the Jordan,” p. 63.

21. Albright, “Jordan Valley in Bronze Age,” p. 27.

22. *Ibid.*, p. 28.

23. B. Mazar (Maisler), M. Stekelis, and M. Avi-Yonah, “The Excavations at Beth Yeraḥ (Khirbet el-Kerak) 1944–1946,” *IEJ* 2 (1952): 165–73, 218–29.

the mound. This was later expanded to 1600 m<sup>2</sup>. Material from the Hellenistic-Roman period was found directly on Early Bronze remains. This trench reached a depth of 4.20 m below the surface with a smaller probe reaching virgin soil at 7.30 m below the surface.

The excavations have not been published in final form, but the preliminary phasing at least gives one an idea of the nature of the sequence in the Early Bronze Age. Mazar defined four phases of settlement.

The earliest settlement period is designated Stratum I. This occupation level was founded on virgin soil. The stratum consisted of circular pits ranging in depth from 0.50 to 3.50 m and in diameter from 3.00 to 4.00 m. On the pavement of one of these pits, the excavators found a circular oven, indicating that at least some of the pits served as dwellings. The pits contained “thin layers” of ashes, animal bones, and sherds. Among the sherds were numerous examples of Gray Burnished Ware, assigned by Mazar and Stekelis to Late Chalcolithic. They found the closest parallels for the pottery of Beth Yerah I at Beth Shan XVII–XVIII, the early phase of Megiddo XIX, and Tell el Far‘ah (N) “enéolithique superieur.”<sup>24</sup>

The next stratum, Beth Yerah II, is marked by the shift in architecture from the pit dwellings of the previous period to a roughly rectangular construction built of mudbrick. The bricks were occasionally bonded by mud mortar. A courtyard was partially paved in basalt and one basalt bowl was found. The total accumulation of the stratum was 1.50 m, with some of the walls preserved to at least 0.50 m. This level is dated by the ceramic indicators to an early stage of the Early Bronze Age proper. The stratum had red burnished vessels as well as Grain Wash sherds. These were accompanied by the standard Early Bronze Age repertoire of ledge handles and flat bases. A tournette was also found.

Beth Yerah III, resting upon 1.50 m of debris from the previous stratum, also shows an innovation in construction techniques. The mudbrick walls were now built on basalt foundations. Mazar reports two phases of this stratum in the area just inside the stone wall at the southern end of the trench. A mudbrick building in this area contained at least five large two handled jars and an “oil jug of the type found in the Kinneret tomb.” A stamp seal was also found, the design of which resembles one from Megiddo Stage V.<sup>25</sup> In one of the buildings of this stratum was a large platform of flat basalt stones. On this platform was a layer of “half-burnt mud bricks with reed impressions, and on this brick layer was a clay cooking oven.” This stratum is dated to EB II for two reasons. It possesses no Khirbet Kerak Ware and the pottery found in this level is very similar to that found in the Kinneret tomb, which is generally taken as EB II.<sup>26</sup>

The last Early Bronze stratum, Beth Yerah IV had a total accumulation of debris that reached 2 m in depth. Mazar mentions at least four building stages in this stratum. Most of the buildings were constructed of basalt stones. One of these buildings measured at least 7 m × 8 m. One of the rooms of this stratum had a bench built of basalt along one of its walls, which measured 2.35 m × 0.60 m. In several loci, basalt bowls were sunk into the floors. This stratum also produced five animal figurines, as well as a small terracotta roaring lion. The stratum was dated by the Khirbet Kerak Ware found in it to the EB III.

The 1944–45 excavation season turned up remains from at least two fortification systems. A large brick wall, built in three phases, was located about 40 m east of the southern trench. The foundation trench cut at least 2 m deep into the virgin soil. The core wall had vertical sides. The exterior (southern) wall also had a vertical face, and the inner (northern) wall had a face that sloped toward the interior of the city. The battered face of this interior wall was covered with a layer of pebbles. The wall was 8 m wide and preserved to a height of 2 m and dated tentatively to EB II.<sup>27</sup>

24. *Ibid.*, p. 167.

25. *Ibid.*, p. 170.

26. See one net-painted jar from this area, Mazar, Stekelis, and Avi Yonah, “Excavations at Beth Yerah,” pl. 11:B; this jar is also shown in R. Amiran, *Ancient Pottery of the Holy Land* (Jerusalem: Massada, 1969), p. 59, photo 53.

27. Note that Mazar, Stekelis, and Avi-Yonah, “Excavations at Beth Yerah,” date it to two different periods in the same article. On p. 170 in their discussion of Beth Yerah III, they suggest that “to this stratum we may perhaps assign the earliest town wall.” On p. 172, however, they write “It was established that the brick wall was the older of the two and was built on virgin soil: it belongs to BY II, i.e., EBA I.” R. Hestrin, in her summary article on Beth Yerah, dates it to EB II. R. Hestrin, “Beth Yerah,” in M. Avi-Yonah, ed., *Encyclopedia of Archaeological Excavations in the Holy Land*, 4 vols. (Englewood Cliffs, New Jersey: Prentice-Hall, 1975), vol. 1, p. 256.

The second fortification system discovered by the Mazar team was found at the southern end of their trial trench. They recovered a poorly-made stone wall, constructed with dry-laid basalt boulders, 4 m wide, and preserved to a height of 2 m. The date of this wall was not determined.

During the second season, this excavation team uncovered the remains of a massive building dating to the second half of the third millennium. The building was rectilinear in plan, measured 40 m × 30 m, and was constructed of large basalt blocks. Nothing like this building has been found elsewhere in Palestine. In addition to the two courtyards within the structure, the traces of at least eight large circular storage areas or “bins” still remained outlined in the foundations. Each circle was approximately 9 m in diameter and was divided into quadrants by four stone partitions 2 m long.<sup>28</sup>

This large building had streets 2.50 m wide on its north, west, and south sides. The streets even had steps to facilitate passage from one level to another. Traces of walls parallel to the large building were located to its west and south.

A gate located at the southeastern end of the structure allowed entrance to the central courtyard of the building. Near the gate was found a double oven that contained a ribbed pottery stand and a bowl, both of which were Khirbet Kerak Ware. At least two more ovens were found in the courtyard. The Khirbet Kerak Ware dates the building to EB III. It is highly likely that the building functioned as a granary.<sup>29</sup> The open court near the ovens produced many burnt animal bones and carbonized olive pits.

A deep sounding made just across the street at the southwest corner of the granary indicated that the total depth of deposit below the final EB phase (BY IV) was 5.20 m before virgin soil was reached. The accumulation between Beth Yeraḥ III and IV was at least 2 m. The full sequence of the Early Bronze Age (BY I–IV) was represented in this limited sounding.

The Mazar, Stekelis, Avi-Yonah excavations ended in 1946. In spring, 1950, a five-month campaign led by P. L. O. Guy expanded on the previous work done by the Mazar group in the northern area of the tell.<sup>30</sup> Guy concentrated on the late period fortress which had been partially exposed in 1946 and was located just north of the previously excavated area. He also discovered more Early Bronze material in a trial trench southwest of this fortress but no details are published.

In 1951, P. Bar Adon began excavations at Beth Yeraḥ in the southern area of the mound. Although the exposure of this first season was small (100 m<sup>2</sup>), Bar Adon established a sequence of sixteen strata and subdivided them into twenty-four different phases. They span the Chalcolithic/Early Bronze transition to the early Arab period. In the area in which he placed his trench the depth of debris was almost 8 m to virgin soil.<sup>31</sup>

The earliest phase found in this area consisted of cooking pits and foundations for circular structures. Bar Adon dated this to the Chalcolithic/Early Bronze transition phase. The next major stratum was placed in EB I. Architecture was limited to the presence of an apsidal house which was built of mudbricks without stone foundations. The EB II phases consisted of mudbrick walls on stone foundations. In the fourth building level he excavated a street 2.70 m wide and nicely paved with stone with a paved drainage system and associated with “Abydos Ware.”

The levels labeled EB III by Bar Adon contained at least one destruction layer over a meter thick. Above this destruction level was a building with pillar bases and several large jars bearing rope decoration on the shoulders. These were probably combed metallic ware vessels.<sup>32</sup> Associated with this stratum was much

28. Mazar, Stekelis, and Avi-Yonah, “Excavations at Beth Yeraḥ,” p. 223.

29. *Ibid.*, p. 228 and n. 12. A similar layout can be seen in the model granaries of Old Kingdom date from El Kab. The most complete model had twelve silos with small openings at the top into which the grain was poured. J. E. Quibell, *El Kab* (London: Quaritch, 1898), pl. 6:2.

30. P. L. O. Guy, “Beth Yeraḥ,” *Alon* 3 (1951): 32, 33.

31. P. Bar Adon, “Beth Yeraḥ,” *Alon* 5–6 (1957): 29; see also P. Bar Adon, “Beth Yeraḥ: Notes and News,” *IEJ* 2 (1952): 142. It should be stressed that the number of strata and phases are still not finalized. I would like to thank Mr. Bar Adon for discussing his excavations with me and allowing me to examine some of the pottery from those seasons.

32. Although the reports are not specific, one is probably illustrated from this level in Amiran, *Ancient Pottery*, pl. 18:13 from Stratum XB.

Khirbet Kerak ware, parts of various jugs, and an ivory figurine in the form of a bull's head. Other items of interest include a slate palette with etched borders, pieces of bone, ivory, and hippopotamus teeth.

Bar Adon reported a substantial occupation level for the EB IV/MB I period, including a potter's workshop. This building included flint knives, bone burnishing tools, and some sort of clay "pipe" which may have been used as a tuyère for the kiln. Belonging to this period were paved streets and houses with stone foundations on either side. No corroborating evidence for this occupation has been published, however. An MB II grave containing Yahudiyeh Ware was cut into these levels. Persian, Hellenistic, Roman, and Arab material came from the uppermost levels of his sounding.

In his 1952 season, Bar Adon cleared a section of the southern defensive works that had been partially exposed by Mazar. He unearthed two superimposed gateways associated with the broad mudbrick wall. Although there is no published plan of the gates, he mentioned that the later gate had two guardrooms.<sup>33</sup> The gate was 3.20 m wide, and steps led down into the city and met a paved street Bar Adon had found in the 1951 trial trench.<sup>34</sup> In this season Bar Adon dated the stone wall, which had also been discovered several years earlier, to the MB I period. He also found a square tower associated with this wall.

The following year Bar Adon conducted another season of excavations in which he concentrated on extensive clearing of the stone defensive wall (for a distance of 750 m).<sup>35</sup> At this point he was still dating this wall to the MB I period and exposed alternating square and circular towers along its length. The total clearance of the wall by the 1955 season was 1600 m in length.<sup>36</sup> In this season, however, Bar Adon discovered Persian period pottery under the foundations of the wall. There were also coins, arrowheads, and Hellenistic pottery on the floors of the towers. It is clear that much of the material originally assigned to the MB I period should be re-assigned to the Hellenistic period.<sup>37</sup>

In 1967 D. Ussishkin and E. Netzer conducted two short seasons of excavation at Khirbet Kerak. The work was designed as a salvage project, made necessary by the expanding activities of modern builders. Ussishkin directed excavations in an area of at least 500 m<sup>2</sup>.<sup>38</sup> The total depth of accumulation in the area which he excavated was 3.5 m.

Ussishkin's sequence was very similar to that of Mazar. He placed the first occupation of this area of the site at the transition between the Chalcolithic and EB I periods. The architectural evidence was very slight, but there was some indication in this area that the early inhabitants lived in huts or tents (cf. both Mazar and Bar Adon). The most easily identifiable ceramic was once again Gray Burnished Ware. The second level was assigned to the Early Bronze I period. The structures were built of mudbricks and the pottery reflected EB I traditions, especially with "Grain Wash Ware."<sup>39</sup>

The EB II period in this area was represented by metallic combed ware. The EB III occupation was defined by the presence of Khirbet Kerak ware. The EB III stratum also seemed to be fairly well preserved. This level consisted of a straight street, cleared for at least 20 m, which was partially paved and bordered on both sides by buildings. The excavators also unearthed a large public building that was in use through at least three phases. The Hellenistic period was very poorly represented and consisted mainly of sherds found in pits.

A salvage operation at Beth Yerah was conducted by R. Amiran and C. Cohen in 1976. The total area exposed was only 150 m<sup>2</sup>, but in this small area at least ten strata were discovered, eight of which belong to the Early Bronze Age. The excavated area lies within the modern settlement of Oholo.<sup>40</sup> Representative levels of EB III (as defined by the presence of Khirbet Kerak Ware) were very fragmentary. Very few sherds

33. P. Bar Adon, "Beth Yerah: Notes and News," *IEJ* 3 (1953): 132.

34. Idem, "Khirbet Kerak (Beth Yerah): Chronique archéologique," *RB* 62 (1955): 85–88.

35. Idem, "Beth Yerah: Notes and News," *IEJ* 4 (1954): 128, 129.

36. Idem, "Beth Yerah: Notes and News," *IEJ* 5 (1955): 273.

37. Although Kenyon accepted an MB date there is no doubt that the stone wall with alternating square and circular towers is Hellenistic; K. Kenyon, *Archaeology of the Holy Land*, 4th rev. ed. (London: Ernest Benn, 1979), p. 99. See also S. Yeivin, *Archaeological Activities in Israel, 1948–1955* (Jerusalem: Department of Antiquities, 1955), p. 9, for a correction of Bar Adon's date.

38. D. Ussishkin, "Beth Yerah," *RB* 75 (1968): 266–68.

39. *Ibid.*, p. 267.

40. R. Amiran and C. Cohen, "Excavations at Tel Beth Yerah," *Israel Museum News* 12 (1977): 61.

of Khirbet Kerak Ware were noted in this small trench. The lower strata all dated to the EB I period. In stratum IX, a portion of a rectangular brick house was exposed, as well as a semi-circular wall which was also made of bricks.

Another salvage excavation in 1976 was conducted by D. Bahat for the Israel Department of Antiquities. Bahat's excavations exposed an area of about 100 m<sup>2</sup>. The material has not yet been published, but it is clear that all three of the major periods of the Early Bronze Age are represented.<sup>41</sup> The upper levels are Hellenistic, with the major amount of the material from EB II–III contexts. Time did not allow for more lateral exposure or a better stratigraphic profile of the EB I material. The best preserved architecture in Bahat's levels consisted of a series of circular mudbrick structures. The diameter of these circles is approximately 4–5 m. Although the date has not yet been determined, the similarity of these circular buildings to the circular "pit dwellings" described by both Bar Adon and Mazar (BY I) should be noted.

The most recent salvage excavations on the tell were directed by E. Eisenberg and O. Yogev.<sup>42</sup> They excavated a well preserved domestic area with occupational remains that spanned the EB I through EB III periods. The total area exposed was 350 m<sup>2</sup>, and the excavators revealed at least seven strata, with the final stratum dating to the Hellenistic period. The EB I occupation was reached in a limited area, but enough material was recovered to date the stratum to the latter part of the period. The EB II remains were simple domestic structures bordering streets or alleys. One room measured at least 12 × 5 m. In addition, at least two copper axes were discovered associated with EB II ceramics. The EB III levels were defined by numerous examples of Khirbet Kerak Ware, including at least one incised andiron.

### THE KINNERET TOMB

Although tombs dating to the EB I period have been found south of Beth Yerah in the Naḥal Tabor (Wadi Bira), only one Early Bronze Age tomb has been found in the immediate vicinity of the tell itself. A tomb, on the property of Kibbutz Kinneret, was cleared on behalf of the Jewish Palestine Exploration Society by B. Mazar in 1940.<sup>43</sup> This tomb was important because it was probably part of the ancient necropolis of Beth Yerah.

A preliminary report was published in 1942. The tomb was fully published in 1973 by Mazar, Amiran, and Haas.<sup>44</sup> The tomb itself was composed of two parts, a vestibule (2.30 m by 2.00 m) and an oval chamber (3.30 m by 1.93 m). The roof in the burial chamber was supported by a pillar of bedrock left standing slightly toward the rear of the chamber. Three separate levels of bones and grave goods were deposited in the tomb, each separated by a layer of sand and earth. At least two individuals, one man and one woman, were buried in the chamber and most of their bones were either completely or partially burned, which suggests cremation. Approximately fifty vessels were found in the tomb chamber, in addition to many sherds. Next to the pillar were one jug and two platter bowls, one inside the other. Mixed with the bones and vessels were more than three hundred beads made of gold, bone, quartz, agate, jasper, shell, faience, and copper. Although no copper weapons were found, one hard limestone pear-shaped macehead was discovered mixed with the bones.

The pottery vessels found in this tomb place it firmly in the traditional EB II period of Palestine. The repertoire includes burnished one handled jugs sometimes with red slip and sometimes without. A "hybrid" form of this jug is also present among the vessels of this tomb. This form possesses a loop handle like the other jugs, but, in addition, two small loop handles are attached to the body of the vessel. The jug is not

41. I would like to thank D. Bahat for allowing me to examine the material he excavated from Beth Yerah in 1976.

42. E. Eisenberg, "Tel Beth Yerah," *Had. Arkh.* 76 (1981): 11–13; O. Yogev and E. Eisenberg, "Bet Yerah—1985," *ESI* 4 (1985): 14–16.

43. Delougaz excavated a number of tombs dating to the Byzantine period across the old Jordan River bed west of the tell. There was no trace of remains from the Early Bronze Age, however; P. Delougaz and R. Haines, *A Byzantine Church at Khirbat al-Karak*, OIP 85 (Chicago: University of Chicago, 1960), pp. 28, 29.

44. B. Mazar, R. Amiran, and N. Haas, "An Early Bronze II Tomb at Beth Yerah (Kinneret)," *EI* 11 (1973): 176–93 (Hebrew); see also R. Amiran, "Khirbet Kerak Ware and Its Relations to the EB Tomb Discovered at Kinneret," *BJPES* 10 (1943): 63–65.

slipped, but its burnish darkens the natural brown of its fabric. Only four vessels like this one are found in all of Palestine.<sup>45</sup>

Two small juglets also help date the Kinneret tomb. Both of them belong in the category of vessel which Kantor terms "Light Faced Painted Ware."<sup>46</sup> The vessel type will be dealt with later in this work, but its appearance in this tomb is of considerable interest. One of the juglets is globular in shape and one is biconical.<sup>47</sup> Both vessels are made of a "greenish-white" fabric and were painted with a geometric decoration done in brown/black paint. Neither is complete, but the biconical form probably had one handle attached to the neck and shoulder, while the more globular vessel had two degenerate handles attached to its body. Both had pendant dotted triangles at the base of their necks, and both had a band formed by two parallel lines below the triangles. Between these two lines were linear geometric designs.

A small gold roundel was also found in the tomb. The disk is decorated with a "pricking-hammering" technique, and its geometric design has been compared to the gold jewelry found in the Royal Tombs at Alaca Hüyük.<sup>48</sup> The Alaca Hüyük graves are dated to the second half of the third millennium, i.e., approximately coeval with Palestinian EB III. The ceramic finds in the Kinneret tomb allow an EB II date only.

#### ORIENTAL INSTITUTE EXCAVATIONS (fig. 5)

Professor P. Delougaz conducted a ten-month excavation season at the site in 1952–53, during which he concentrated primarily on the later periods.<sup>49</sup> The excavated area was located toward the northern end of the mound between the site examined by Mazar, Stekelis, and Avi-Yonah in the 1940s and the modern cemetery at the northern extremity of Beth Yerah.

Although the major focus of the 1952–53 season was on clearance of the Byzantine church, a number of probes were instituted to determine the stratigraphic sequence of any pre-church remains. A few of these probes were beneath the floors inside the church itself. One of them (Locus K 11:9) turned up evidence of three successive street levels,<sup>50</sup> all dating to the Early Bronze Age. Each of these levels were separated by fills of earth approximately 0.40–0.50 m in depth. Each street was surfaced with packed pebbles and potsherds. Excavation in this locus was halted before virgin soil was reached, but the total depth of the sounding was at least 3 m below the foundations of the church.

In addition to this probe, a long narrow trench was extended to the east of the major excavation areas. This trench was labeled Trench A in the 1963 excavations. Although no significant architectural information could be recovered from this trench, it was helpful in establishing a profile of the occupation periods of the mound. It is clear from the section drawing that the mound sloped down to the lake in antiquity, and the late

45. Mazar, Amiran, and Haas, "An Early Bronze II Tomb," pp. 180–82. One is from the Garstang excavations at Jericho, a second is from Tell el Far'ah (N), and a third is from Tell Nagila, Tomb CT 1. A fourth example comes from Tell es-Sa'idiyeh; J. Tubb, "Tell es-Sa'idiyeh: Preliminary Report on the First Three Seasons of Renewed Excavations," *Levant* 20 (1988): 56, fig. 35.

46. H. Kantor, "Egypt and Its Foreign Correlations," in R. Ehrich, ed., *Chronologies in Old World Archaeology* (Chicago: University of Chicago Press, 1965), p. 15; see also R. Amiran, *Early Arad* (Jerusalem: Israel Exploration Society, 1978), pp. 51, 52.

47. Mazar, Amiran, and Haas, "An Early Bronze II Tomb," fig. 7:1, 2. Two other vessels from the tombs should probably be included in this category. Two juglets (figs. 5:11, 6:22) were made from the same greenish-white fabric as the painted juglets. Despite the absence of decoration, the ware was distinctive enough to warrant its inclusion with the Light Faced Painted Ware.

48. Although Mazar pointed out the foreign affinities of the piece, suggesting parallels with Troy and Mycenae, Amiran was the first to suggest that the disk was similar to those from Alaca Hüyük. R. Amiran, "Connections between Anatolia and Palestine in the Early Bronze Age," *IEJ* 2 (1952): 100; see also Hennessy, *Foreign Relations*, p. 81. Hennessy accepts the stylistic affinities between the Kinneret disk and the Anatolian jewelry but does not deal with the chronological problem.

49. Delougaz and Haines, *A Byzantine Church at Khirbat al-Karak*.

50. *Ibid.*, p. 25.

constructions followed that slope. In the western part of the trench (Plot B) virgin soil was reached at approximately 202.50 m below sea level, which gives about a 5 m depth of deposit for the Early Bronze Age debris. About 12–14 m to the east, virgin soil was reached at slightly below 201.50/202.00 m below sea level. The depth of deposit for the EB period in the eastern end of the trench was approximately 2.50 m; half that of the area just to the west. Although this indicates a slope from west to east during this period, the facts may be slightly misleading in this case. It is apparent that at least in the area exposed by this trench, the natural topography of the mound on its northeastern edge consists of a gentle rise near the shore and a slope downwards to the west.<sup>51</sup> Further excavations with a greater lateral exposure would be needed to determine more topographical details of the Early Bronze Age strata.

The Oriental Institute expedition returned to Beth Yeraḥ for further excavation during the months of August and September 1963.<sup>52</sup> The purpose of this second campaign was to sink trial trenches in various parts of the mound to elucidate further the extent of each period of occupation. Five trenches were dug during the 1963 season. The trench located east of the Byzantine Church was enlarged (Trenches A and C), and another was sunk to the south of the church (Trench B). A step trench was placed on the northwest edge of the slope (Trench F), and two trenches were located in the vineyard across the road from Oholo (Trenches D and E). Virgin soil was reached in all of the excavated areas. In most of these areas there were few remains of the later periods. The EB III period was better represented in the southern portion of the mound, but the EB I and II periods were encountered in all locations.

In 1964, a third campaign was launched which lasted from July through September. A series of test pits or trenches were placed in areas of the mound that had not been previously explored. Eight new trenches were excavated, in addition to some salvage work done along the main road which was being widened at that time. These new soundings were located east of the main road and virgin soil was reached in all but one probe. Again it was noticed that levels of the EB III period were less substantial than those of the preceding periods. All three subdivisions of the Early Bronze Age were represented in these trenches; furthermore, there was evidence of Neolithic occupation shown by several vessels found in a pocket of coarse sand at the bottom of Trench G.

A detailed analysis of stratigraphy at Beth Yeraḥ will be reserved for final publication, but the schematic stratigraphic chart presented in table 1 illustrates the chronological range of the Beth Yeraḥ trenches excavated in the 1963 and 1964 seasons. Furthermore, this chart provides a general sense of the spatial distribution of the archaeological remains. In most cases at Beth Yeraḥ, the floors were composed of packed pebbles, and consequently the ceramics may be separated by superimposed floors as well as by general relationship to architecture. Because the 1963 and 1964 excavations were designed as a series of probes to determine the extent of each of the major subdivisions of the Early Bronze Age and thus to reconstruct a site history prior to large scale horizontal exposure, the results of these probes are necessarily limited. They can give us an idea of the extent of occupation in the EB I through the EB III periods in the northern and central sections of the tell, but the lack of horizontal exposure limited the information available to study intrasite variability and functional differentiation. This problem has plagued all excavations at Early Bronze Age Beth Yeraḥ. The largest single exposure of the early levels at Beth Yeraḥ was in the area of the granary in the northern part of the tell, excavated by Mazar. The size of the building certainly would indicate that it formed part of a larger public complex at the northern end of the mound. One scholar has even reconstructed a possible inner wall separating the northern end of the mound from the rest of the site.<sup>53</sup>

51. *Ibid.*, p. 28 and see pl. 29 for section and suggested profile of original mound.

52. In addition to these excavations on the mound itself, a number of tombs were excavated south of Khirbet Kerak in the Naḥal Tabor (Wadi Bira). Tombs were excavated in the 1963, 1964, and 1966 seasons. During 1966 only the cemetery was explored; there was no work on the tell.

53. This reconstruction was based on topographic anomalies, not excavation; A. Kempinski, *Rise of an Urban Culture* (Jerusalem: Israel Ethnographic Society, 1978), fig. 7.

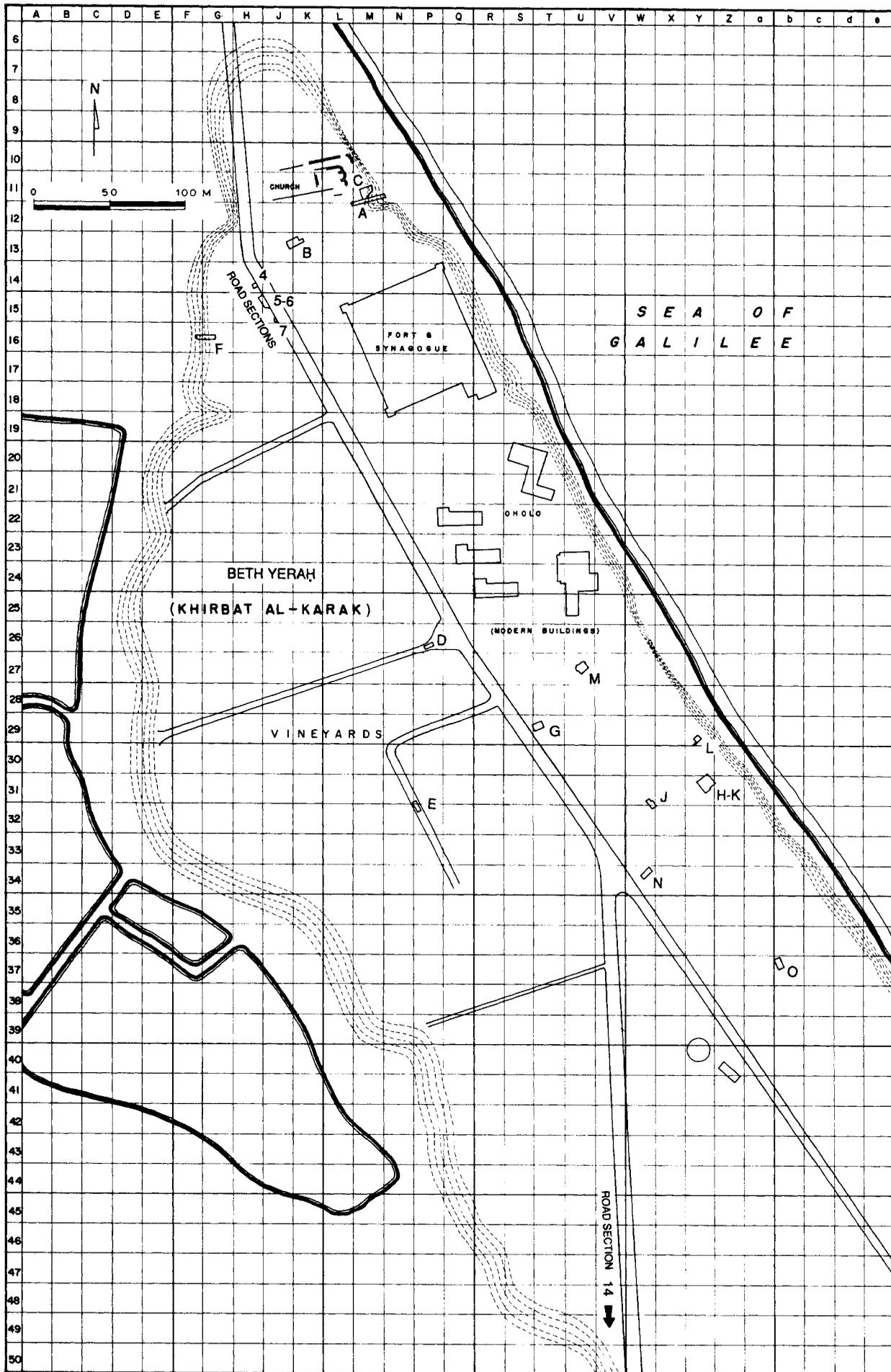


Figure 5. Beth Yerah — Areas of Excavation.

Table 1. Stratigraphic Summary of Beth Yeraḥ Trenches.

Trench	A	B	C	D	E	F	G	H-K	J	L	M	N	O	Rd.4	Rd.5-7	Rd.14
Arab/Byz.	×	×	×	×									×		×	×
Hellen.		×							×	×	×	×	×		×	×
EB III	?	?	×	×	×		×	×	×	×	×	×	×	×	×	×
EB II	?		×	×				×	×	?	×		×	?	×	?
EB I	?	×		×		×	×	×		×	×	×	×	×	×	×
Neo.							×									

## ANALYSIS OF THE CERAMICS FROM BETH YERAḤ

The ceramics presented here were excavated during the 1963 and 1964 campaigns at Beth Yeraḥ, which were directed by P. Delougaz. The terminology of periodization in archaeology is always difficult, but distinctions between the subperiods of EB II and EB III are often very fluid. In order to make my frame of reference explicit, I have selected examples of the most common diagnostic types from the Beth Yeraḥ trenches (see pls. 1-9). The selected sherds come from Trenches D, E, H-K, and M.

The site of Beth Yeraḥ can play a pivotal role in the definition of the EB II and EB III ceramic periods in northern Palestine. The site has yielded the two best diagnostic indicators for those periods. A few examples of Light Faced Painted Ware were found on the tell, similar to the vessels in the Kinneret tomb. They provide a solid link to EB II and the Egyptian First Dynasty. The later levels of the site contained substantial amounts of Khirbet Kerak Ware, probably the best indicator of the EB III period. There was no overlap, either chronologically or stratigraphically, of these two indicators. The pottery is presented by period, beginning with EB II. Each diagnostic type will be discussed and the appropriate comparative material from other sites will be listed.

## EB II POTTERY FROM BETH YERAḤ

### Small Bowls

#### A. *Small Bowls with Flattened Inverted Rims* (pl. 1:A, B).

Most small bowls with flattened inverted rims were metallic ware. These bowls were never slipped and were mainly produced in two fabrics, orange and buff. The fabric of the small, orange metallic ware bowls was similar to that of the orange metallic ware platters and deep bowls. In at least one case, the bowl was pattern burnished on the interior. The fabric of the buff metallic ware bowls was similar to that of the gray metallic ware platters discussed below. Occasionally, the bowls were radially burnished. The burnish lines turned the fabric gray wherever they were applied.

Compare: Yarmuth (Miroschedji 1988d, pl. 23:18).

#### B. *Small Shallow Bowls with Slightly Up-Turned Rims* (pl. 1:E).

The fabric of the small bowls with slightly up-turned rims varies from standard brown and buff ware to orange metallic ware. The interior of these bowls was occasionally washed in brown or red. Several of these bowls had traces of charring along their rims and were probably used as lamps.

#### C. *Small Carinated Bowls* (pl. 1:C, D).

These small carinated metallic ware bowls can be considered a hallmark of EB II. The bowls are highly fired and vary in color from brown to gray. One bowl once had a small pierced-lug attached to the sharply

carinated sidewall of the vessel. Often the interior of the bowls is marked with haphazard burnishing. On one sherd the exterior was also burnished. See further discussion of these bowls in the recent detailed treatment by P. Beck.<sup>54</sup>

Compare: Jericho (Hennessy 1967, pl. 5:52); Qashish (Ben-Tor et al. 1981, fig. 17:9); Beth Shan (FitzGerald 1935, pl. 5:18); 'Ai (Callaway 1972, figs. 35:18–22; 44:8, 59:15, 16; Callaway 1980, figs. 61:36, 68:5–8); Yarmuth (Miroschedji 1988d, pls. 23:7, 8, 10, 11; 25:5).

## Large Deep Bowls

### A. *Orange Metallic Ware Deep Bowls* (pl. 2:H).

Large deep bowls were often made from the same orange metallic ware that was so commonly used in the manufacture of the platters. The bowls, as distinguished from the platters, generally had a sharply inverted rim. Their straight side walls indicate that they had a flatter base than that found on the orange metallic platters. In at least two cases deep bowls were decorated with elaborate pattern burnish on their interiors. Although none of the metallic ware bowls had tool-cut grooves below their rim exteriors, at least three were scraped just below the rim exterior after the vessel had been burnished.

Compare: Qashish (Ben-Tor et al. 1981, fig. 17:1).

### B. *Standard Ware Deep Bowls* (pl. 2:I).

The large deep bowls in this subgroup are not metallic ware. Their fabric is buff standard ware. At least two bowls were found which may best be termed "hammer rim." The form of some of these bowls is similar to the orange-metallic deep bowls that have inverted flattened and thickened rims.

Compare: Qashish (Ben-Tor et al. 1981, fig. 16:5); 'Ai (Callaway 1972, fig. 36:5).

## Simple Platters

### A. *Orange Metallic Ware Platters* (pl. 2:A, B, C).

Platters comprise one of the most common EB ceramic types. EB II platters from Beth Yerah exhibit a number of combinations of form and ware. One type of platter which occurred frequently in the EB II levels at Beth Yerah was made of a highly fired orange fabric. The fabric gives off a "ring" when struck and is appropriately called "metallic ware." The angle of the rim of the orange metallic ware platters is generally sharp and well defined. When the pot was in the leather hard stage it was continuously burnished on both the interior and exterior.

### B. *Orange Metallic Ware Platters with Tool-Cut Rim* (pl. 2:D).

A subgroup of the orange metallic platters is very common. In ware, form, and surface treatment the subgroup is identical to the above mentioned vessel type. After the platter had been burnished in the leather hard stage, however, a sharp instrument was used to incise a narrow groove below the exterior of the rim. These platters are referred to in this study as "tool-cut." At least one example had a pattern burnished interior. This burnish was executed on the natural fabric, not over a wash.

Compare: 'Ai (Callaway 1980, figs. 62:9, 68:9).

### C. *Orange Metallic Ware Platters with Red Wash* (pl. 2:E).

The simple orange metallic ware platters and the tool-cut metallic ware platters related to a third subgroup. Orange metallic ware platters both with and without a tool-cut groove are sometimes finished with a reddish-pink burnished wash that covers the interior and the rim exterior of the vessel (sometimes down as far as the groove).

54. P. Beck, "An Early Bronze Age 'Family' of Bowls from Tel Aphek," *TA* 12 (1985): 17–28.

Compare: 'Ai (Callaway 1972, figs. 36:7, 8; 60:3); Rosh HaNiqra (Tadmor and Prausnitz 1959, fig. 5:1); Tell Jamid (Glueck 1951, pl. 85:3, 7).

D. *Burnished Metallic Ware Platters* (pl. 2:F, G).

A group of metallic ware platters that appears to be unrelated to the orange metallic ware platters occurs in the EB II levels of Beth Yerah. The inverted rim is slightly thickened, but it tends to be longer than the standard platter. Unlike the orange ware of the previous platters, the fabric was originally a light buff color. The burnished portions of this group of platters turns gray in the firing process. Several sherds nearly identical to these from Beth Yerah were found at Tel Qashish. Rosh HaNiqra also may have an example of this ware from Stratum I. The ware description for the Rosh HaNiqra sherd describes its finish as a "gray slip."

Compare: Qashish (Ben-Tor et al. 1981, fig. 16:4); Rosh HaNiqra (Tadmor and Prausnitz 1959, fig. 5:10).

## Jars

A. *Everted Folded-Rim Metallic Ware Jars* (pl. 1:F).

Metallic ware jars are common in both EB II and EB III contexts at Beth Yerah. Judging from the thickness of the sherd walls, one form of metallic ware rim came from what was probably a very large type of store jar. The rims were everted and folded over. The jars were orange metallic ware. In most cases their bodies were probably combed.

Compare: Qashish (Ben-Tor et al. 1981, pl. 17:10); Hazor (Yadin 1961, pl. 154:17); Megiddo (Loud 1948, pl. 101:26, 27).

B. *Small Metallic Ware Jars* (pl. 1:G).

Small metallic ware jars were also found in the EB II. Like the larger jar rims, these rims were everted and folded over. The fabric varied from orange to brown. In rare cases, the surfaces of the jars were coated with a brown or white wash.

C. *Channeled Rim Jars* (pl. 1:H).

The small channeled rim jars found at Beth Yerah were all made from orange metallic ware. The rim was everted, flattened, and formed into a horizontal ledge around the top of the jar. This ledge was then slightly indented by pressure from a finger. A large version of the same jar form was made from a dark brown metallic ware. The rim on large jars is more thickened than the smaller vessels.

Compare: Tel Rekhesh (Gal 1980, fig. opposite p. 34); Mitham Shaḥal (Gal 1980, fig. opposite p. 24); Rosh HaNiqra (Tadmor and Prausnitz 1959, pl. 5:22 [stance?]); Yarmuth (Miroshedji 1988d, pl. 24:12, 13).

Holemouth Jars (pl. 2:J, K).

Generally, EB II holemouth jars from Beth Yerah were made of a reddish-brown fabric that was highly fired. The ware was hard and brittle. Although holemouth jars are notoriously poor diagnostic sherds, a few examples of the most common EB II forms are represented here. The rims of these holemouth jars are thickened. Potters' marks consisting of incised geometric diagonal or vertical lines are not uncommon. Some holemouth jars are thickened and then flattened, either with a finger or sharp instrument. This technique was also used at Qashish (Ben-Tor et al. 1981, fig. 16:9). Some holemouth rims from the upper phases of both trenches may foreshadow the EB III ceramic traditions.

### Light Faced Painted Ware (pl. 1:I, J, K, L, M, N, O, P)

Several fragments of Light Faced Painted Ware were found at Beth Yerah. The fabric of most of these sherds was greenish-white with black painted geometric decoration. One sherd (pl. 1:M) was reddish-pink in color, with a weak white wash covering its exterior and with a red painted geometric design. Although there is no painted decoration on the juglet base, it is included in this category because of its light greenish-white fabric. The forming marks are quite visible on the interior of this base and suggest a closed form. At least two undecorated juglets with a similar greenish-white fabric were found in the nearby Kinneret tomb. One sherd from Beth Yerah may have come from a small jar. One fairly large fragment bore part of a loop handle. This type of small loop handle was also found on one of the Light Faced Painted Ware juglets from the Kinneret tomb. See *Chapter 3* below for details of this ware and its distribution.

### Red Polished Ware (pl. 1:Q)

Red polished ware from the EB II levels at Beth Yerah is primarily represented by fragments of bases, necks, rims, and vestigial handles. One reconstructed jug has a squat, almost globular body. The loop handle connects the shoulder of the vessel to the midpoint of a long tapering neck. These jugs have flat stump bases. Occasionally, the EB II jugs had high stump bases, but usually the bases were flat; the side walls flared out and up to the belly of the vessel.

One type of jug was made of brown or buff standard ware that was sometimes covered with a red or brown wash. On some jugs the wash was burnished, either continuously or with distinct vertical strokes. Occasionally, metallic ware jugs, usually gray or brown, were highly burnished. Neck-handled jugs similar to the Beth Yerah example were found in the Kinneret tomb, the Lebea tomb, and Byblos. Part of a similar jug was found in the upper EB levels at Arad.

Compare: Kinneret (Mazar, Amiran, and Haas 1973, fig. 5:15–19); Arad (Amiran 1978, fig. 1); Lebea (Guigues 1937, fig. 10); Byblos (Dunand 1954, pl. 206).

## EB III POTTERY FROM BETH YERAH

### Small Bowls

#### A. *Simple Bowls* (pl. 3:A, B, C).

Simple hemispherical bowls were generally made of buff fabric. The walls of these bowls were very thin, and their interiors were slipped with either a brown or red wash which was also applied just over the rim exterior. The slipped area was often highly burnished. Thicker, simple rimmed hemispherical bowls were also found in EB III contexts. The bowls were made of buff fabric.

Often these small bowls functioned as lamps. In at least one case the rim was pinched to hold a wick, many of the small bowls had traces of charring. Some of the lamps were hemispherical, others had flat bases, and at least one had a string-cut base.

#### B. *Small Bowls with Inverted Rims* (pl. 3:D).

In form, the small bowls with inverted rims are not appreciably different from their EB II counterparts. Whereas most of the EB II bowls of this type were metallic ware, only two EB III bowls are metallic ware. Both of the EB III metallic ware bowls were made of a red fabric and bore traces of burnish. The other bowls with inverted rim were buff standard ware with red or brown wash on their interior.

#### C. *Simple Bowls with Pattern or Radial Burnish* (pl. 3:E).

A very common vessel in the EB III layers at Beth Yerah was a small simple bowl made from buff standard ware. The interior of these bowls were covered with a brown or red wash. This type of bowl was

closely related to the simple slipped bowls discussed above, but these bowls were radially or pattern-burnished on their interiors. These pattern-burnished bowls are closely associated (both in style and stratigraphic provenience) with the platters that were decorated with red pattern-burnished wash on buff fabric.

Compare: Byblos (Dunand 1952, pls. 4, 5); 'Ai (Callaway 1972, fig. 59:1, 4); Jericho (Hennessy 1967, pls. 8:84; 9:86); Hesi (Fargo 1979, pl. 1:18).

#### D. *Carinated Bowls* (pl. 3:F).

A carinated bowl found in Trench M was quite different from the EB II metallic carinated bowls. The EB III bowl was made of a buff fabric with a red slip on its interior. The bowl was horizontally burnished on the exterior and radially burnished on the interior. This form is rare in EB contexts, but similar bowls come from EB levels at Hazor and Yarmuth.

Compare: Hazor (Yadin 1961, pl. 155:3); Yarmuth (Miroschedji 1988d, pl. 41:1, pl. 42:3).

## Large Bowls

#### A. *Large Shallow Bowls* (pl. 4:C, D).

The large shallow bowls are invariably made with a buff fabric and covered on their interiors with a red or brown wash. While at least some bowls were simply covered with the wash, other bowls were either radially burnished or burnished with a combination of horizontal and radial strokes.

Compare: Yarmuth (Ben-Tor 1975, fig. 6:22; Miroschedji 1988d, pls. 41:5; 43:2, 3); Lachish (Tufnell 1958, pl. 63:321); Megiddo (Loud 1948, pl. 6:18).

#### B. *Large Shallow Bowls with Flattened Inverted Rims* (pl. 4:E).

Large shallow bowls with flattened inverted rims were made from a buff fabric. Their interiors were red-washed, and they either remained unburnished or were burnished radially.

#### C. *Deep Bowls* (pl. 4:F, G, H).

Most of the deep bowls were made from a buff fabric and most were characterized by a weak brown, red, or orange wash. At least one bowl was spouted. The deep bowls generally exhibit the same variety of treatment that was found on the platters with a concavity below rim exterior. Some deep bowls were left plain, with no traces of wash. Other deep bowls were covered with a wash on their interiors, and in two cases the bowls were radially burnished. A number of these vessels were scraped or grooved below the rim exteriors.

A variant of these deep bowls is a thinner-walled deep bowl with an inverted rim. Two of these bowls had slightly corrugated exteriors.

Compare: Megiddo (Loud 1948, pls. 104:12; 106:11; 108:9, 11); Beth Shan (FitzGerald 1935, pl. 8:23); Jericho (Hennessy 1967, pl. 10:97; Kenyon 1960, pls. 43:6; 51:1); Lachish (Tufnell 1958, pls. 60:195; 65:376); Tell Beit Mirsim (Dever and Richard 1977, pl. 1:1); Yarmuth (Miroschedji 1988d, pls. 28:4; 32:17).

## Simple Platters

#### A. *Standard Ware Platters* (pl. 4:A).

The platter remained a popular form in EB III and illustrates direct ceramic continuity from the previous period. There were discernible developments, however. The simple platter forms of EB III were made of buff fabric. They were often covered with a red wash on the interior and rim exterior, and occasionally they were scraped below the rim exterior.

Compare: Jericho (Hennessy 1967, pl. 7:68); Mitham Shaḥal (Gal 1980, fig. opposite p. 24); Tel Rekhesh (Gal 1980, fig. opposite p. 34).

#### B. *Platters with a Concavity Below Rim Exterior* (pl. 4:B).

Platters with a concavity below the rim exterior are usually made of a buff standard ware. In most cases the interior of these platters is covered with a red or brown slip. Most of the Beth Yerah platters of this type are decorated with either pattern or radial burnish on their interior. Pattern burnished platters are common in EB III from Hazor in the north to Tell el Hesi in southern Palestine. These platters are diagnostic for EB III.

Compare: Hazor (Yadin 1961, pls. 154:11, 12; 155:4–6); Beth Shan (FitzGerald 1935, pls. 5:20; 8:20, 25); Megiddo (Loud 1948, pls. 97:50–52; 106:10); Jericho (Hennessy 1967, pls. 6:63; 8:76; 9:85); ‘Ai (Callaway 1972, fig. 59:27; Callaway 1980, figs. 109:7, 9; 111:1); Hesi (Fargo 1979, fig. 7); Yarmuth (Ben-Tor 1975, figs. 6:23; 11:1; Miroschedji 1988d, pl. 28:9,10); Lachish (Tufnell 1958, pl. 63:322).

#### Vats (pl. 4:I)

The vats from Beth Yerah were generally made from a buff or brown fabric. They were well fired, and in some cases their exteriors were lightly combed. Some of the more well-preserved vats had bold diagonal streaks of gray, brown, and red wash on the exterior of the vessels. (See pl. 9:B, C, D) At least one vat was spouted, and another had at least one broken loop handle. The interiors of the vats from the olive oil factory were very rough. Many medium-sized basalt grits were intentionally left exposed on the interior of the vessels. For a detailed description of the possible function of these vats see *Chapter 3* below.

Compare: Byblos (Dunand 1952, pl. 5); Mitham Shaḥal (Gal 1980, fig. opposite p. 24); Beth Shan (FitzGerald 1935, pl. 5:1; 9:18); Qishyon (Cohen-Arnon 1981, fig. 6); Megiddo (Loud 1948, pl. 106:9); Yarmuth (Ben-Tor 1975, fig. 11:6, 7; Miroschedji 1988d, pl. 35:3); Tell Beit Mirsim (Dever and Richard 1977, pl. 1:11); Hesi (Fargo 1979, fig. 8); Lachish (Tufnell 1958, pls. 62:273–276; 63:313).

#### Double Vessels (pl. 9:A)

One half of a double vessel was found in the olive oil factory in Trench H-K. The form is identical to one from Stratum XVII at Megiddo. Both examples have flat bases. Round-based double vessels were found at Byblos and ‘Ai.

Compare: Byblos (Dunand 1952, pl. 4); Megiddo (Loud 1948, pl. 106:2); ‘Ai (Callaway 1980, pl. 127:1); Yarmuth (Ben-Tor 1975, pl. 6:18, 19; Miroschedji 1988a, fig. 12); Sa‘idiyeh (Tubb 1988, fig. 35:7).

#### Jars

##### A. *Channeled Rim Jars* (pl. 4:J).

The channeled rim jars of EB III differ both in ware and form from those of the EB II phases. The earlier ware was mainly orange metallic and the form was much thinner and more “ledge-like” at the rim.

Compare: Hazor (Yadin 1961, pl. 154:7, 23); ‘Ai (Callaway 1980, fig. 132:22); Jericho (Hennessy 1967, pl. 10:99 [?]); Yarmuth (Ben-Tor 1975, fig. 8:2, 5); Tell Beit Mirsim (Dever and Richard 1977, pl. 2:9).

##### B. *Flared Rim Jars* (pl. 4:L).

Flared rim jars were found only in EB III contexts. They are of light buff fabric with very weak traces of a thin brown or red wash on the jar exterior.

### C. *Everted Folded Rim Metallic Jars* (pl. 9:E, F).

Combed metallic ware was common in EB III phases, but few jar rims were found in the trenches presented here. The rim form of the small jars actually changed very little between EB II and EB III. The great size reached by these jars can be seen in the jar from Trench H-K (pl. 9:H).

Compare: Mitham Shaḥal (Gal 1980, fig. opposite p. 24).

### Holemouth Jars (pl. 4:L, M).

Rims of EB III holemouth jars tend to be much more squared-off than those of the EB II holemouth jars. There was also a change in fabric between the two periods. The earlier holemouths were usually very dark brown and quite brittle. The later holemouth jars were made of a light buff fabric.

One form that appears almost diagnostic of EB III (only one sherd was found in an earlier EB II context) is a holemouth with an inverted “knob” rim.

Compare: Hazor (Yadin 1961, pl. 154:25); Mitham Shaḥal (Gal 1980, figs. opposite pp. 24, 34); Hesi (Fargo 1979, fig. 4:3–5, 9, 15); Tell Beit Mirsim (Dever and Richard 1977, pl. 2:1).

### Red Polished Ware (pl. 3:G, H).

Red polished ware was also found in EB III contexts. One jug type had a high stump base. The other jug type was more globular with a vestigial handle. Both jug types seem to have been used side by side, but the proportion seems to change in the Beth Yeraḥ material. Many more high stump bases were found in the EB III levels.

A form which can be called a “semi-stump” base, halfway between a flat stump base and a high stump base, was also found. At least one collared jug came from an EB III context. See *Chapter 3* below for a more detailed discussion of this ware.

### Model Furniture (pl. 6).

Several pieces of model furniture were discovered in the Beth Yeraḥ trenches. One fragment of what may have been a model bed was decorated with red paint and was perfectly flat (fig. 6:A). Another piece was made in the form of a leg (fig. 6:B). The top of the piece was flat, and it was painted with what must have been a crisscross design. The upper part of the leg was broken, but it originally extended both forward and backward. This leg may have been part of either a model chair or bed. Two additional fragments were probably corners of models beds (fig. 6:C, D).

Two pieces of model furniture were found at ‘Ai. Hennessy felt they were imports from Mesopotamia, but the Beth Yeraḥ pieces were probably made locally (Hennessy 1967, pl. 77).

## Khirbet Kerak Ware

### A. *Small Bowls* (pl. 5:A, B).

Shallow bowls with walls that are slightly everted, inverted, or vertical are usually monochrome. The most predominant color is red, but some are brown. The whole vessel is covered with red wash and then highly burnished on both interior and exterior. The base of these bowls is gently curved, often with a small omphalos approximately 2 cm in diameter located in the center of the base. There are variants in technique. A few bowls of this type have the black exterior and red interior more common on other Khirbet Kerak forms. Some examples of this type have an appliquéd design, usually consisting of one or two oblique ridges on the exterior wall of the vessel.

**B. *Small Sinuous-Sided Bowls* (pl. 5:C, D).**

The size and depth of these vessels vary. This type was not as numerous in the excavations as the preceding group. All examples examined so far show the technique that is distinctively associated with Khirbet Kerak ware. All have red or brown interiors, and this color extends over the rim exterior. The exterior of the body of these vessels is black. All show a high degree of burnishing on both interior and exterior. These bowls often have small knobs projecting from the carinated section of the vessel.

Sinuous-sided vessels, which might more properly be termed cups rather than bowls, have strap handles that extend from the rim to the carinated midsection of the body.

**C. *Large Deep Bowls* (pl. 5:E, F).**

The forms of the deep bowls vary greatly. Most are carinated to some degree, although the angle of the carination is somewhat dependent upon the curve of the upper portion of the body of the bowl. Some of the deep bowls have upper bodies that are almost vertical or even slightly inverted. These vessels tend to have a more gentle carination.

The second type of bowl has a much more flared upper body, which results in a sharper carination. Both bowl types usually have the bicolored red and black treatment. The variation in technique and execution is quite great in these vessels. The interior of these bowls can be red, brown, buff, light orange, and pink. The exteriors range from light gray to black. Some of the bowls have only one color on both interior and exterior (usually buff or brown). A number of bowls are highly burnished, while others have a quite dull finish. Several pieces have shown traces of appliquéd geometric designs on the bowl exterior.

**D. *Holemouth Jars* (pl. 5:G).**

Khirbet Kerak Ware holemouth jars are very rare. Two examples have been found at Beth Yerah, however. Both have red interiors and black or gray exteriors. Khirbet Kerak Ware holemouth jars have also been found at Hazor (unpublished) and in the 'Amuq (Braidwood and Braidwood 1960, fig. 283:2). They seem to be as rare at those sites as they are at Beth Yerah.

**E. *Lids* (pl. 5:H, I).**

The assemblage of Khirbet Kerak Ware is known not only for its pottery vessels, but also for certain distinctive elements which are not duplicated in other Early Bronze Age assemblages. This assemblage is the only one that contains easily identifiable lids. Most of the lids are gray or yellowish-gray. Some are brown, however, and one lid is red on the interior and black on the exterior. The lids are generally surmounted by pierced knobs so that a string could be passed through the hole. The lid could then be tied onto the vessel or lifted up from the pot by a string.

**F. *Pot Stands* (pl. 4:N).**

Stands are usually red on both interior and exterior. They are highly burnished on the exterior and less so on the interior of the stand. A corrugated set of two or three bands is often added to the base. Some examples have knobs on the interior of the stands that served to stabilize the vessels placed in them. Stands are sometimes incised with geometric designs along their bases. These incisions are often filled with white paste.

**G. *Andirons* (pl. 7:A, B).**

The Khirbet Kerak Ware andirons are usually interpreted as small portable hearths. They are formed of a rough gray fabric and are semi-circular in shape. One andiron from Beth Yerah has a handle. The front posts of these objects often bear anthropomorphic features.

## SUMMARY

Despite the limited lateral exposure of the numerous excavations at Beth Yerah and the largely unpublished results of these excavations, it is possible to gain some idea of what the site was like during the third millennium. The EB I period seems to be characterized by essentially two stages of architectural

development. The dwellings of the first stage consisted of circular structures or pits which served the first inhabitants as foundations for circular huts or tents and storage. The second stage of EB I produced rectangular and possibly apsidal or ellipsoidal structures constructed from mudbrick. It is clear that EB I occupation spread over the entire site. Every probe trench that reached virgin soil turned up EB I material, most showing at least some evidence of architecture. By EB I the whole site was already occupied, and it was undoubtedly the largest site in northern Palestine.

Occupation in the EB II and EB III periods seemed to cover most of the areas examined, although the depth of deposit varied, as did the quality of preservation of the architectural features. The EB II–III dwellings were constructed of mudbrick on basalt foundations. The streets surrounding the large granary in the northern portion of the tell were straight, and were approximately 2.50 m wide. Excavations in the central portion of the tell revealed a straight street which ran for at least 20 m and which was bordered by buildings on both sides. A stone paved street, also approximately 2.50 m wide, was found at the southern extremity of the tell.

The discovery of an olive oil processing “factory” in Trench H-K of The Oriental Institute’s excavations gives us a glimpse of the daily life of the inhabitants of Beth Yerah. The processing installation will be discussed fully in *Chapter 3* below, but the vessels found on the floor within the structure certainly point to some sort of specialized function.

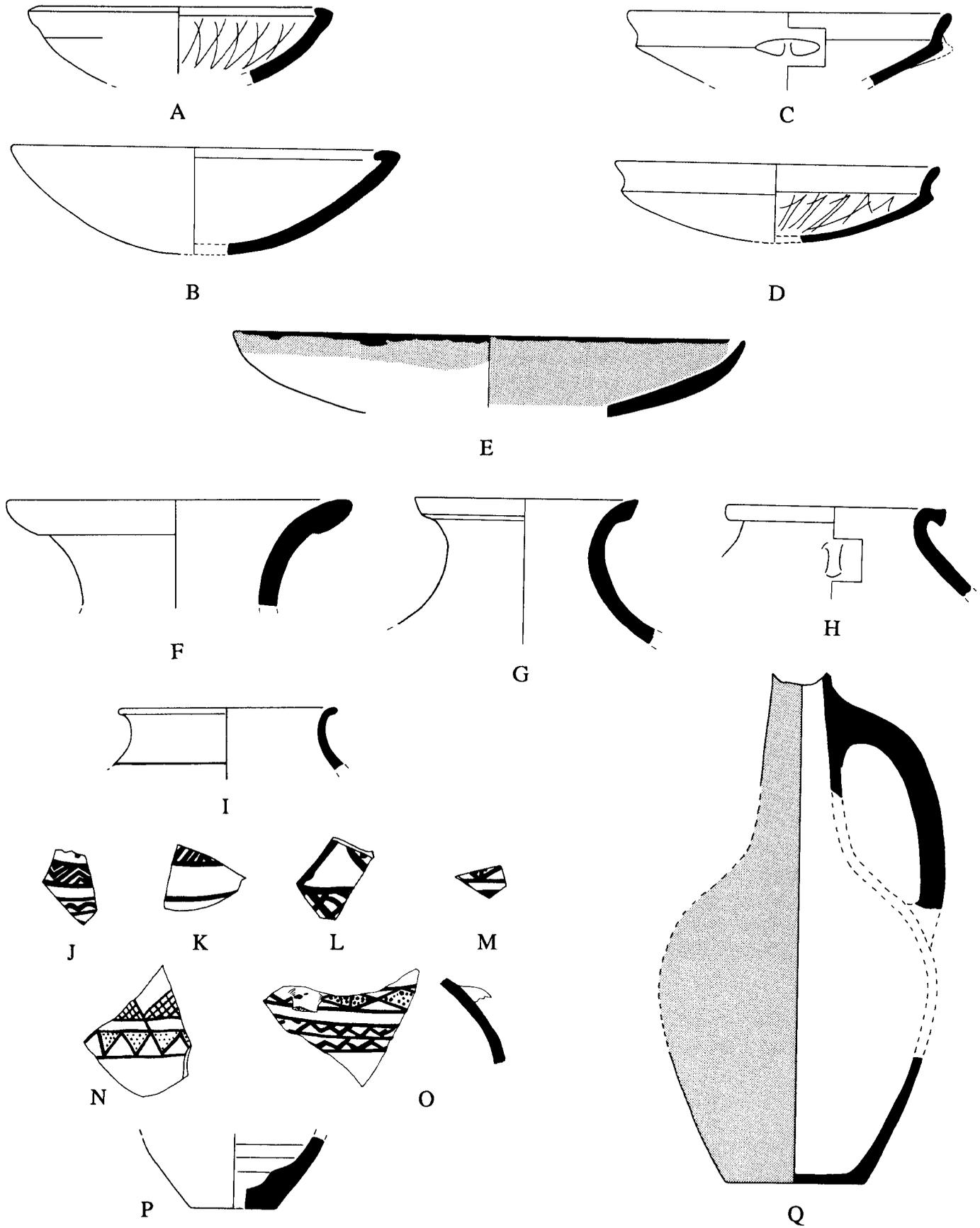
The huge granary at the northern end of the tell was the scene of public activity in the EB III period. The excavations in the central and southern portions of the tell have revealed mainly domestic structures. Finally, the very existence of a public granary of such enormous size indicates not only town planning, but also economic and social planning. Such a structure, unmatched so far at any other Early Bronze Age city, indicates a high level of organization and undoubtedly reflects a strong central authority.

The topography of the site has in large part determined its architectural history. The most reliable evidence suggests that over the millennia the southern shore of the Sea of Galilee has receded. The exit of the Jordan River was once just north of the tell itself. In effect, then, the site was a peninsula on the east side of the Jordan. Its northern and western flanks were protected by the Jordan River, and its eastern side was bordered by the Sea of Galilee. Its southern and southeastern edges would have been defenseless, however, and it is exactly at this point that an 8 m thick mudbrick wall that dates to the Early Bronze Age was discovered. No traces of other defensive walls have been found along the outer edges of the tell.

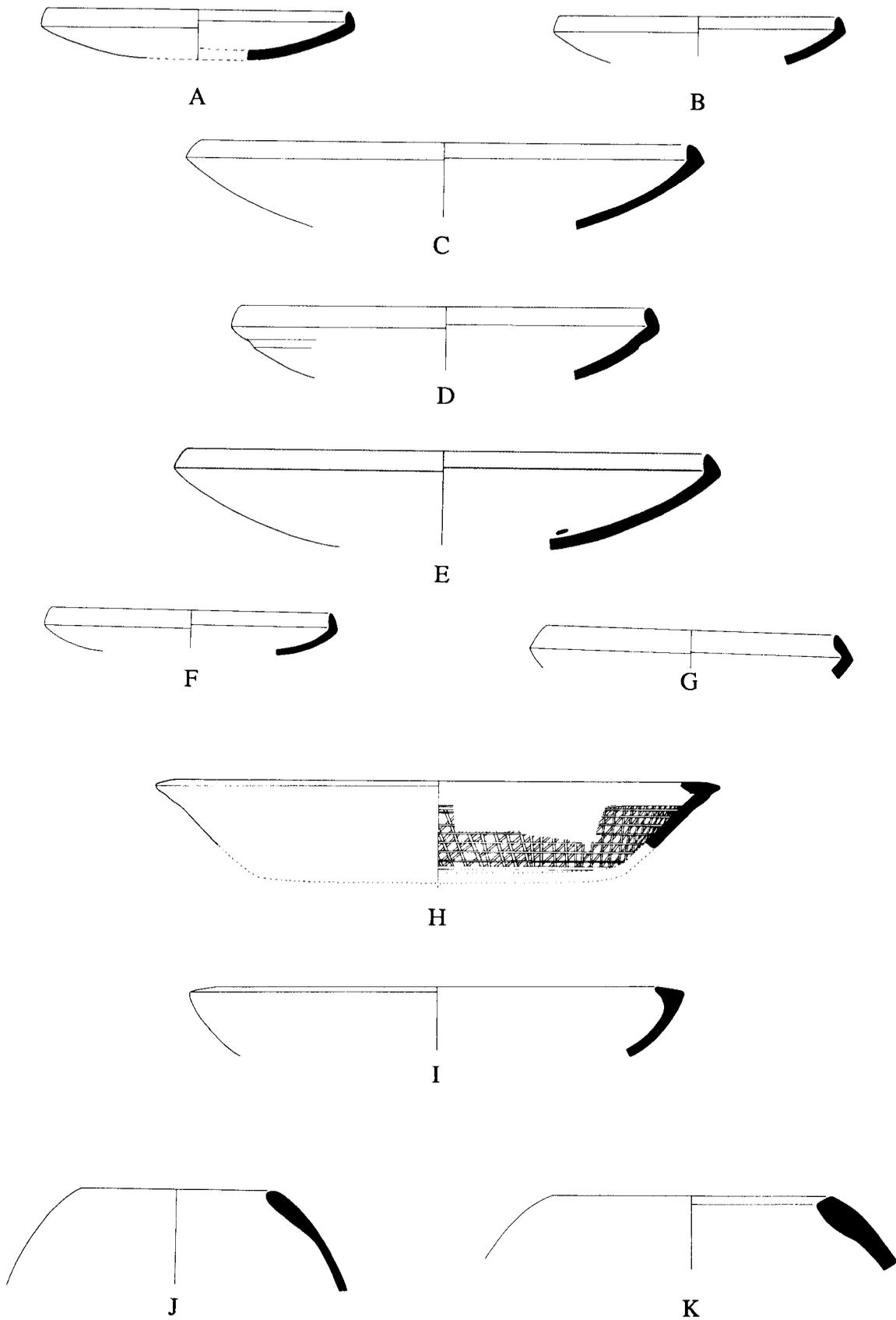
The analysis of ceramic material from the site illustrates that Beth Yerah was involved in the mainstream of Early Bronze Age commerce. The abundant presence of Red Polished Ware jugs and combed ware jars possibly indicates a role in the oil or wine trade, and certainly puts it in a class with the other major sites of Palestine and with Byblos and the north Syrian sites.

The discovery of stratified Light Faced Painted Ware also helps tie Beth Yerah chronologically to Egypt, as well as culturally with other Early Bronze Age sites in southern Palestine and Syria. Khirbet Kerak Ware helps to coordinate the relative chronology of northern Palestine with the Syrian sites of the Orontes Valley and Anatolia in the EB III period. The ceramic material from the Beth Yerah excavations further refines the corpus of the more standard forms and wares of the EB III, and the correlation of these standard EB III wares with those from other Palestinian sites helps define the regional and interregional ceramic indicators of the EB III.

PLATE 1

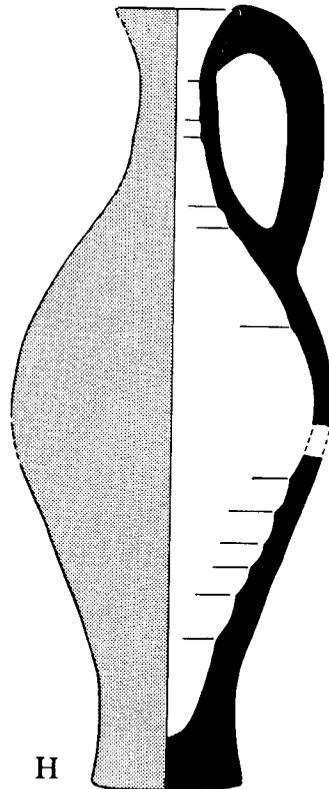
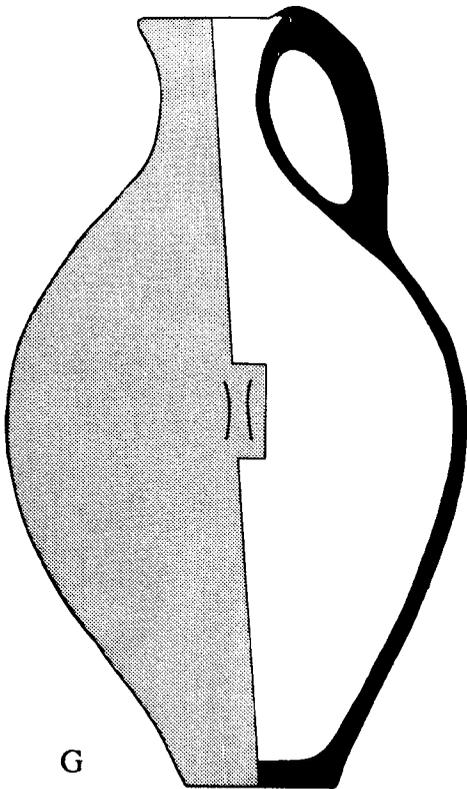
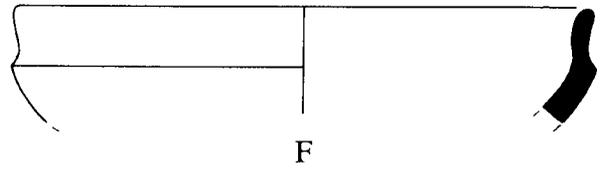
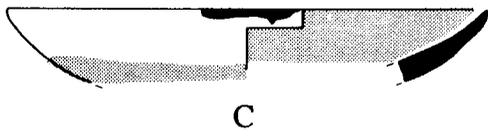
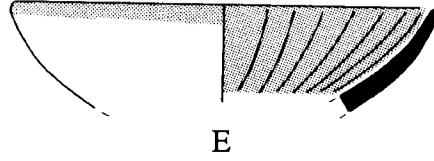
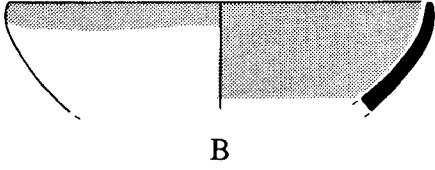
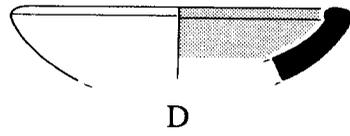
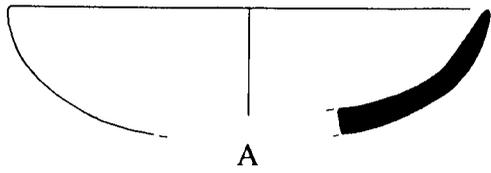


Beth Yerah, Early Bronze Age II Pottery. Scale 2:5.

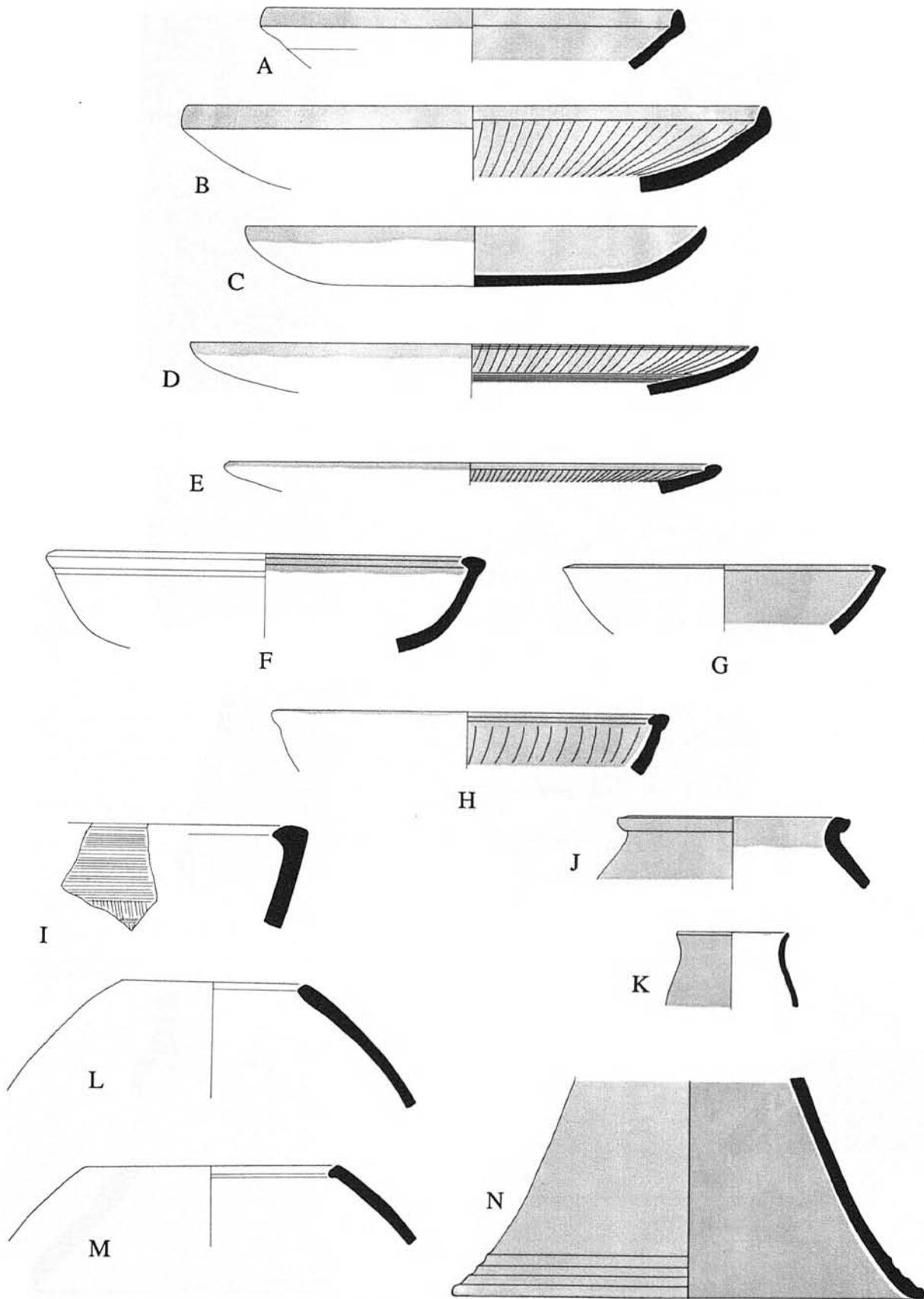


Beth Yerah, Early Bronze Age II Pottery. Scale 1:5.

PLATE 3

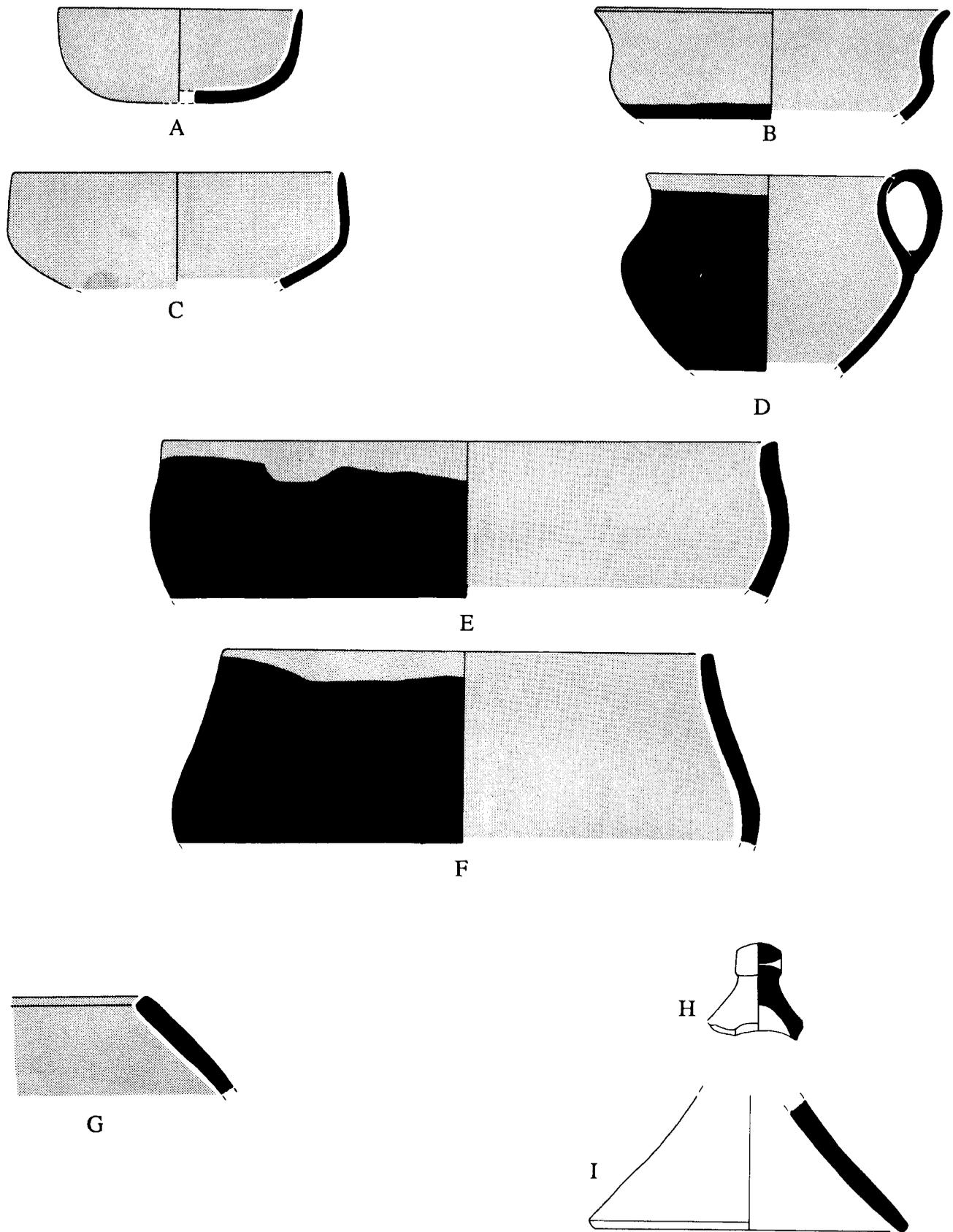


Beth Yerah, Early Bronze Age III Pottery. Scale 2:5.

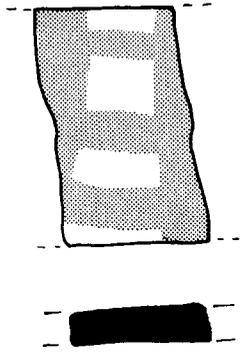


Beth Yerah, Early Bronze Age III Pottery. Scale 1:5.

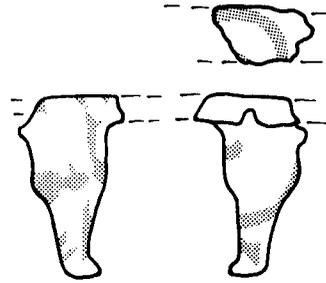
PLATE 5



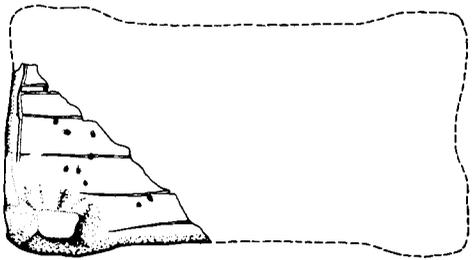
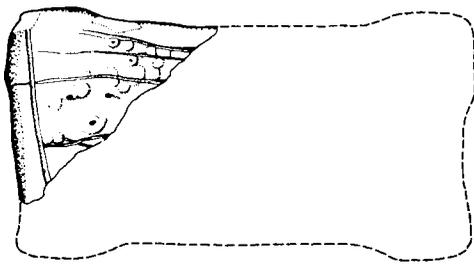
Beth Yerah, Early Bronze Age III Pottery, Khirbet Kerak Ware. Scale 2:5.



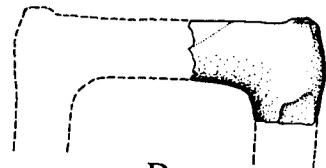
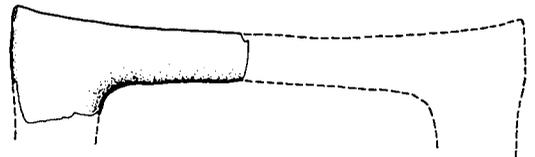
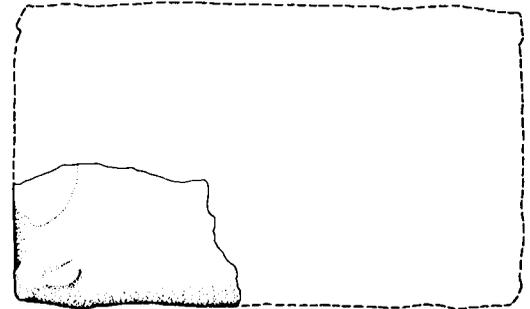
A



B

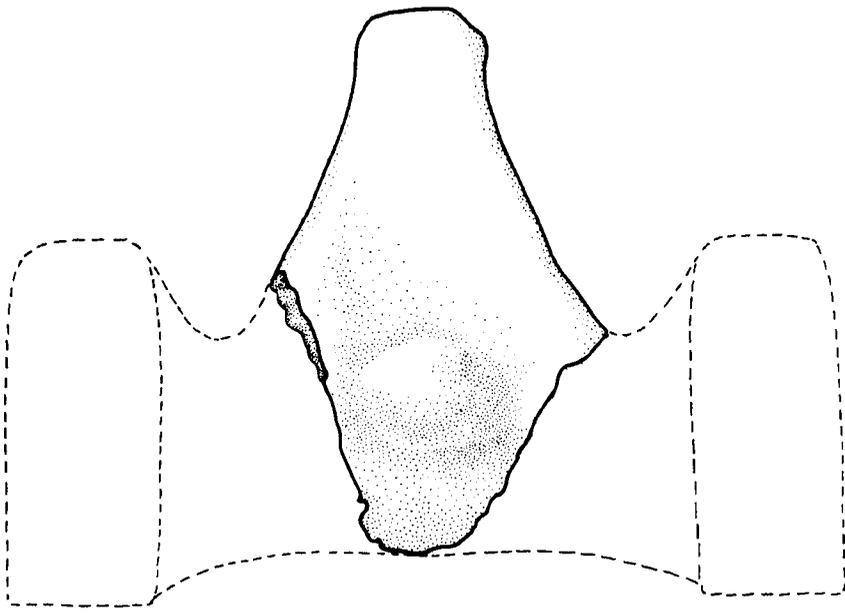


C

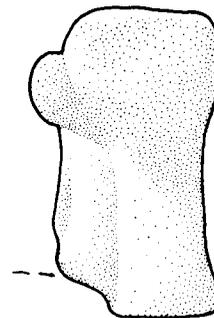
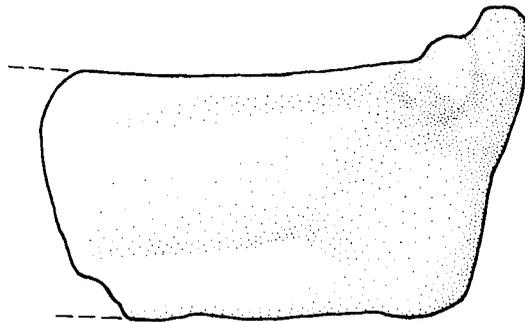
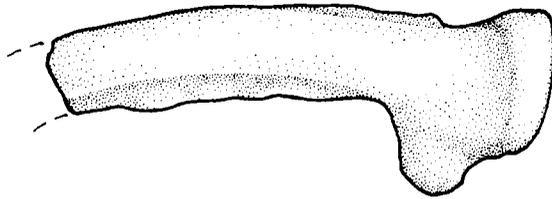
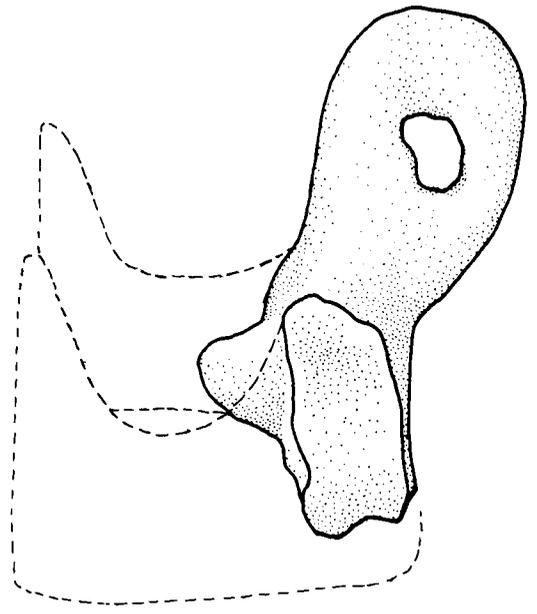


D

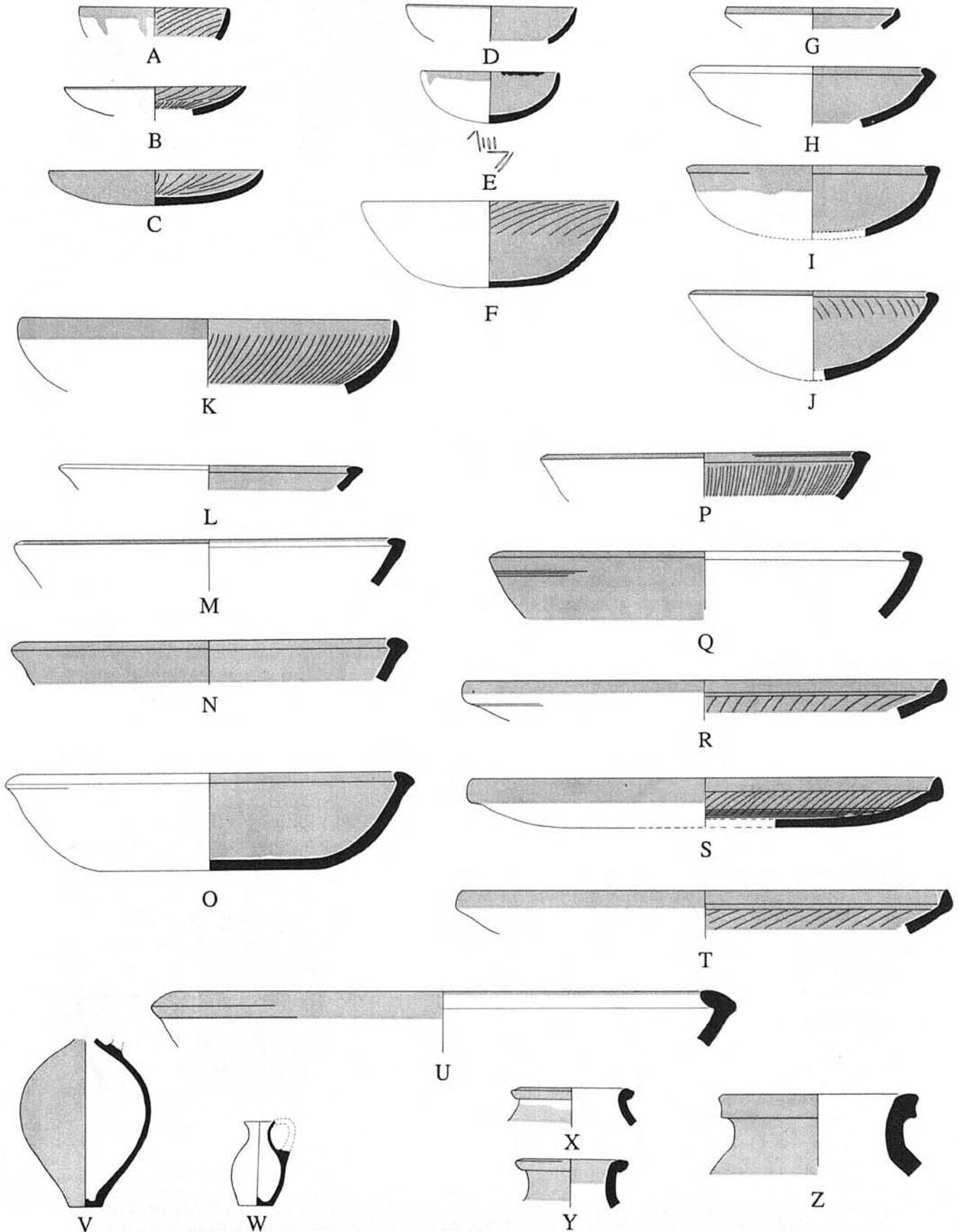
PLATE 7



A

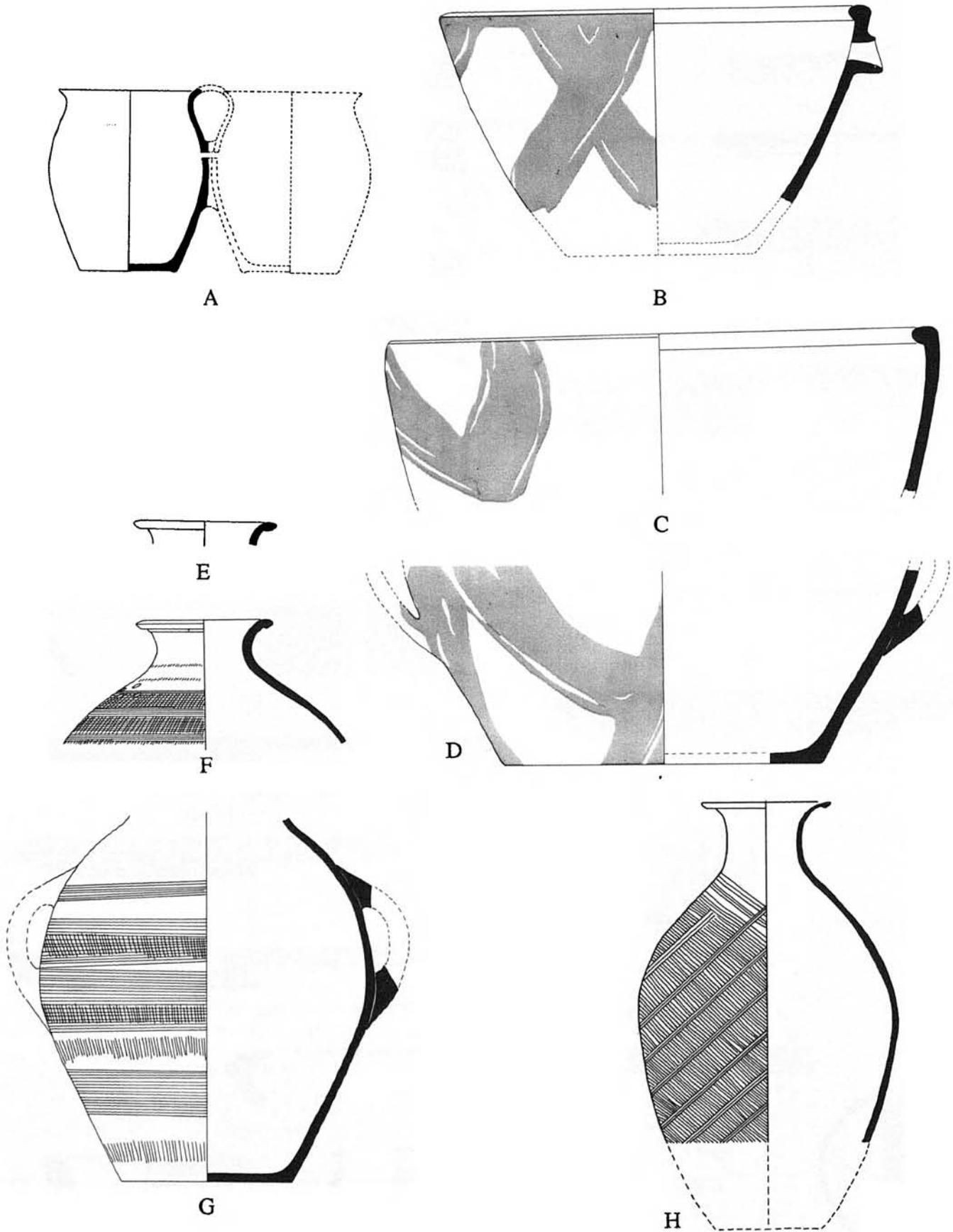


B



Beth Yerah, Trench H-K, Early Bronze Age III Pottery from the Olive Oil Factory. Scale 1:5.

PLATE 9



Beth Yerah, Trench H-K, Early Bronze Age III Pottery from the Olive Oil Factory.  
Scales: (A-G) 1:5, (H) 1:10.

## CHAPTER 3

# CONTEXT AND CONTACTS

### TERMINOLOGY

Although the chronological subdivisions of Early Bronze Age Palestine seem well established, it is important to be explicit about the assumptions that are built into the chronological system. A general scheme of periodization is usually the result of a combination of elements, the most important of which include foreign correlations with well-dated deposits, superimposed stratigraphic deposits at sites which exhibit long-term occupation, typological developments in ceramics, and, occasionally, help from scientific dating techniques.

Because this volume focuses primarily on the EB II–III periods, i.e., the bulk of the Early Bronze Age, a brief discussion of terminology is in order. Although much excavation has been conducted at sites with remains from this period, the division between EB II and EB III remains somewhat ambiguous because it is based on a ceramic development that is relatively continuous, with few sharp breaks. Also, the ceramic distinction may not be equally detectable from north to south. Therefore, the most reliable chronological divisions are those based on external traits that can be shown to be successive chronologically.

### EB II

The major EB II subdivisions within Early Bronze Age terminology originate with the influential 1937 thesis of G. E. Wright, a detailed work on ceramic chronology that has stood the test of time remarkably well. In Wright's 1937 volume, he described the transition from EB I to EB II as "sudden."<sup>1</sup> He did not attempt to subdivide EB II into an earlier and later phase and was content to put forth the approximate synchronism between EB II and the First Dynasty of Egypt.

The primary proof for this synchronism, of course, rested on the foreign ware found in the tombs of the First Dynasty at Abydos and Saqqarah. These Red Polished Ware pitchers were also found in EB II contexts in Palestine. In addition to the Red Polished Ware indicators, Wright mentioned the appearance in Palestine of the typical EB platters, stump based vessels, and combed metallic ware. The end of EB II was simply defined by the beginning of EB III, recognizable by the appearance of Khirbet Kerak Ware.

Further work by Amiran followed the same general criteria for describing the EB II period. She did not subdivide the period and used the same indicators that Wright suggested: platters, Red Polished Ware, Light

1. G. E. Wright, *The Pottery of Palestine from the Earliest Times to the End of the Early Bronze Age* (Baltimore: Johns Hopkins, 1937), p. 69.

Faced Painted Ware, and combed metallic ware jars.<sup>2</sup> The only indicator which Amiran suggested might be an internal marker within EB II is a Red Polished neck-handled jug.<sup>3</sup>

The evidence for subdivisions of the EB II period remains wholly dependent on internal stratigraphic subdivisions at individual sites. At Jericho, the evidence from Square E III–IV was fragmentary, but Hennessy illustrated the broad platters “characteristic of EB II.”<sup>4</sup> EB II at Jericho is isolated primarily by a stratigraphic break at the beginning of the period. The end of the period was defined only by the appearance of “true EB III forms.” Hennessy subdivided some of the EB II Jericho material excavated by Garstang. The most important piece was the handleless jug or bottle with the raised collar around the base of the neck<sup>5</sup> that he compared to a bottle from a First Dynasty tomb at Abydos<sup>6</sup> and suggested that it, and the vessels associated with it, should be dated to early EB II. Generally, however, Hennessy did not subdivide EB II. Some forms are limited to EB II, but within the period one cannot make temporal distinctions.

The Early Bronze Age strata published from ‘Ai provide a most complete and reliable sequence on which to base ceramic chronology. At least three architectural phases should be assigned to EB II: Phases III, IV, V.<sup>7</sup> Callaway subdivided EB II into two phases, EB IIA and EB IIB, based on the sequential building phases at ‘Ai.

The EB II ceramic repertoire at ‘Ai ranges from small brown metallic ware carinated bowls<sup>8</sup> and Red Polished jugs with vestigial handles in Phases III and IV to two complete juglets of Light Faced Painted ware in Phase V. Callaway detected little change or development within his EB II pottery forms.<sup>9</sup> At ‘Ai, then, Light Faced Painted Ware provides a firm chronological tie to Egypt of the First Dynasty, but the internal subdivisions of EB IIA and EB IIB were based solely on local stratigraphy and cannot serve as a useful subdivision to apply to Palestine as a whole.

## EB III

While EB II terminology is rooted in a firm correlation with Egyptian chronology, the EB III period is primarily based on internal developments and relative chronology. The ceramic marker *par excellence* for EB III is the distinctive assemblage known as Khirbet Kerak Ware. Wright, in his original study of Early Bronze Age Palestine saw Khirbet Kerak Ware as characteristic of EB III.<sup>10</sup> He related the ware to new groups of people coming from the north. Although the Khirbet Kerak Ware assemblage is clearly related to a ceramic tradition that extends into eastern Anatolia and the Caucasus, the closest direct connections are with the ‘Amuq sites, Phase H, excavated by The Oriental Institute east of Antioch in the Turkish Hatay.<sup>11</sup>

2. Amiran, *Ancient Pottery*, pp. 58–66; see also H. Kantor, “The Relative Chronology of Egypt and Its Foreign Correlations before the Late Bronze Age.” The most recent revision of these correlations will be published by H. Kantor, “The Relative Chronology of Egypt and Its Foreign Correlations before the First Intermediate Period,” and L. Stager, “The Periodization of Palestine from Neolithic through Early Bronze Times,” in R. Ehrich, ed., *Chronologies in Old World Archaeology* (Chicago: University of Chicago Press, forthcoming).
3. R. Amiran, “The Date of the End of the EB II City of Arad,” *IEJ* 28 (1968): 183.
4. Hennessy, *Foreign Relations*, p. 20.
5. *Ibid.*, p. 22 and n. 119.
6. *Ibid.*, pl. 43:6, 8.
7. Callaway assigned his Phase III to Early Bronze IC, but it more properly belongs in Early Bronze II. See details in D. Esse, “A Chronological Mirage: Reflections on EB IC in Palestine,” *JNES* 43 (1984): 317–30.
8. J. Callaway, *The Early Bronze Age Citadel and Lower City at ‘Ai (et-Tell)* (Cambridge, MA: ASOR, 1980), p. 83 and fig. 61:36.
9. *Ibid.*, pp. 122, 123.
10. Wright, *The Pottery of Palestine*, p. 72.
11. R. Braidwood and L. Braidwood, *Excavations in the Plain of Antioch I: The Earlier Assemblages: Phases A–J. OIP 61* (Chicago: University of Chicago Press, 1960). See also the review article by M. Tadmor, “Contacts between the ‘Amuq and Syria-Palestine,” *IEJ* 14 (1964): 253–69.

In 1937 the distribution of the ware was not fully known; a few sherds had been found at Tell Regev, Gezer, and Jericho, but the main deposits then available were from Beth Yerah and Beth Shan. The actual distribution in terms of number of sites has expanded a great deal, for Khirbet Kerak Ware has been found as far south as Tell el Hesi. Wright was aware, however, that this ware was typical only in northern Palestine. Thus, the use of Khirbet Kerak Ware, with its limited geographical distribution in the southern Levant, as the major defining characteristic of the third subphase of the Early Bronze Age has raised legitimate methodological questions.

Although Lapp also referred to Khirbet Kerak Ware as the defining characteristic of EB III, he stressed the continuity of pottery traditions within EB II–III, with the only break being the appearance of Khirbet Kerak Ware.<sup>12</sup> Lapp stressed that there was no evidence that the producers of Khirbet Kerak ware were responsible for “any kind of disturbance of the homogeneous features of EB IC–III.”

Both Wright and Lapp, then, emphasized the continuity of ceramic traditions throughout the EB II and III periods. Although there was a gradual development in forms, the basic determining factor for subdivision was the intrusion of an obviously foreign pottery tradition. This intrusion was restricted mainly to northern Palestine, and often correlations between EB III strata excavated in the south and the north must be subject to some flexibility.

Much of the recent work on the Early Bronze Age has subdivided the EB III period into two or three subphases. Most of these subdivisions are based on superimposed building phases from two sites, ‘Ai and Jericho.

Early Bronze III ceramic forms at Jericho include: bowls of Kenyon Type A3a, i.e., bowls with a concavity below the rim exterior, tall narrow stump bases, spike based juglets, and pattern-combed ware, although the combed ware is found in EB I through EB III.

According to the publication of the Jericho strata by Hennessy, the EB III period can be subdivided into EB IIIA and EB IIIB based on the stratigraphy from Squares E III–IV. Phase D signals the beginning of EB IIIA, while Phase C marks the first phase of EB IIIB.<sup>13</sup> Hennessy traces an internal development in forms, including bowls with sharply in-turned rims (Kenyon Type B), flat-based bowls with curved walls and “rolled rims” as well as broad shallow platters. The closest parallels for the EB IIIB were with the ‘Ai sanctuary which both Hennessy and Callaway dated to the latter part of EB III.<sup>14</sup> Hennessy does admit, however, that even though much of the material is late in EB III, there is enough that is similar to earlier EB deposits (Jericho Tomb F4 and Beth Shan XII) to indicate an extended period of use for the sanctuary. Khirbet Kerak Ware was found in tomb deposits of both EB IIIA and EB IIIB.

Callaway also subdivides EB III into EB IIIA and EB IIIB. Although he makes ceramic distinctions between the phases, the primary division is stratigraphic. Sanctuary A at ‘Ai was originally constructed for use as a residence in Phase VI. By Phase VII it was remodeled and used as a sanctuary, to which an altar and cultic assemblage on the floor of the chamber attest. Callaway thus designated the original building in Phase VI as EB IIIA, and the Sanctuary A, Phase VII, became EB IIIB.<sup>15</sup> In the sanctuary area, only two possible Khirbet Kerak Ware forms were found in the more recent excavations, and Callaway calls both “imitation” Khirbet Kerak Ware.<sup>16</sup> EB IIIA at ‘Ai, based on ceramic parallels, was comparable to EB IIIA at Jericho.

EB IIIB at ‘Ai was highlighted by more than just the remodeling of Building A into Sanctuary A. The Phase VI temple (“Palais”) on the acropolis was limited to the central rectangular temple building, and the

12. Lapp, “Palestine in the Early Bronze Age,” in J. Sanders, ed., *Near Eastern Archaeology in the Twentieth Century: Essays in Honor of Nelson Glueck* (Garden City, New York: Doubleday, 1970), p. 110; contrast this sober assessment with the great spectacle of social upheaval limned by Woolley in his description of the “Khirbet Kerak folk”; L. Woolley, *A Forgotten Kingdom* (Baltimore: Penguin, 1953), pp. 31–33.

13. Hennessy, *Foreign Relations*, p. 7.

14. *Ibid.*, p. 25.

15. Callaway, *‘Ai Sanctuary*, p. 253.

16. *Ibid.*, p. 258, and fig. 60:8,11. Callaway follows the lead of Kenyon in referring to “imitation” Khirbet Kerak ware. See K. Kenyon, *Excavations at Jericho*, vol. 1 (Jerusalem: British School of Archaeology), fig. 43:25.

city's fortifications were strengthened by the addition of Wall A1. In some places, this addition made the city wall 8 m thick.<sup>17</sup>

Callaway tied the EB III strata (Phases VI–VIII) to Phases D and C at Jericho. Phase VIII in the sanctuary area was primarily ceramic and consisted of all the material from the floors of the sanctuary. It was during Phase VII that actual Khirbet Kerak Ware was found at 'Ai.<sup>18</sup>

The Jericho and 'Ai strata seem to parallel each other. Both sites show a major stratigraphic change or development in EB III, which then was divided into EB IIIA and EB IIIB. The problem, of course, arises when EB IIIA–B terminology is extended to other sites.<sup>19</sup>

In comparing the approaches just mentioned, it is clear that there is a fundamental difference between the definition of EB III by ceramic indicators and a definition by stratigraphic features. Wright defined the EB III period by stating that it began with the introduction of Khirbet Kerak Ware, its most characteristic feature.

Callaway and Hennessy took the discussion one step beyond the definition and determined, based on stratigraphy at 'Ai and Jericho, that there should be two main phases in the EB III period. This concept of EB IIIA and EB IIIB is now used by most scholars who discuss the period. Obviously ceramics other than Khirbet Kerak Ware were used at northern Palestinian sites, and the establishment of EB III pottery types in the north should prove helpful in phasing the EB III sites of southern Palestine in a more comprehensive framework.

At least three vessels of "imitation" Khirbet Kerak Ware were excavated in Phase VI at the 'Ai citadel. All three bowls were red burnished and were somewhat similar to the sinuous sided bowls from Beth Yerah and Beth Shan. Very broad, shallow, flat based platters were also found in this phase. Callaway reported that Hennessy found this vessel type only in EB IIIB, although the 'Ai examples are earlier. Phases VII–VIII at 'Ai also yielded examples of Khirbet Kerak Ware forms.<sup>20</sup> Two forms were typical sinuous sided bowls and a new form, a one handled cup, was also paralleled in Tomb F2 at Jericho. Probably the most distinctive indicator of the EB IIIB at 'Ai, however, was the flat based wide bowl with sharply inturned rim.<sup>21</sup>

Fargo used EB IIIA–B terminology in her analysis of the recently excavated material from Tell el Hesi. Fargo dated the Hesi pottery primarily to EB IIIA, on the basis of parallels to Hennessy's EB IIIA at Jericho and Callaway's Phase VI at 'Ai.<sup>22</sup>

Dever and Richard also collected a series of traits belonging to EB IIIB pottery based on their reevaluation of Tell Beit Mirsim Stratum J. Typical EB IIIB forms are spike bases, knob rim platters, downward slanted rims and even flattened hammer rims. Tell Beit Mirsim J was originally classified by Wright as EB IV. Since EB IV now has a much different connotation than Wright's original formulation, Dever and Richard placed Stratum J directly in EB III and called it EB IIIB.<sup>23</sup>

Ben-Tor used the terms EB III and EB IV for material that has been described usually as EB IIIA and EB IIIB. He considered his EB IV phase to be Early Bronze III, post Khirbet Kerak.<sup>24</sup> He thus ascribed Stratum II at Yarmuth to his EB IV, and he dated Stratum III to EB III. Stratum III produced the few Khirbet Kerak Ware sherds found at Yarmuth. His primary comparative material for his EB IV phase comes from the terminal EB III phase at 'Ai, the upper levels of Tomb A at Jericho (A0–A2) and Tell Beit Mirsim Stratum J.

17. Callaway, 'Ai Sanctuary, p. 292.

18. Ibid., p. 305. See also R. Amiran, "Khirbet Kerak Ware at 'Ai," *IEJ* 17 (1967): 185, 186.

19. For a much too ambitious attempt to force local stratigraphy subdivisions from 'Ai and Jericho on material as far distant as the 'Amuq, see J. Callaway, "New Perspectives on Early Bronze III in Canaan," in R. Moorey and P. Parr, eds., *Archaeology in the Levant* (Warminster, England: Aris and Phillips, 1978), p. 49.

20. Callaway, 'Ai Citadel, p. 193.

21. Ibid., fig. 127:7–23. 'Ai Phase VIII provides what is perhaps the best example of a late EB III assemblage.

22. V. Fargo, "Early Bronze Age Pottery at Tell el Hesi," *BASOR* 236 (1979): 38. See also V. Fargo, "Settlement in Southern Palestine during Early Bronze III" (Ph.D. diss., University of Chicago, 1979), pp. 196–99, for a summary of indicators that are used to distinguish EB IIIA from EB IIIB in southern Palestine.

23. For a detailed description of the terminological problems concerning EB IIIB and EB IV, see W. Dever and S. Richard, "A Reevaluation of Tell Beit Mirsim Stratum J," *BASOR* 226 (1977); see also S. Richard, "Toward a Consensus of Opinion on the End of the Early Bronze Age in Palestine-Transjordan," *BASOR* 237 (1980): 6–8.

24. A. Ben-Tor, "The First Season of Excavations at Tell Yarmuth," *Qedem: Monographs of the Institute of Archaeology*, vol. 1 (Jerusalem: Hebrew University, 1975), p. 71 and n. 24.

It is apparent that what Ben-Tor refers to as EB IV is what Hennessy, Fargo, Dever, and Richard refer to as EB IIIB.

Albright attempted his own version of an Early Bronze III chronology in 1965. He suggested that the period be subdivided into three phases: A) before the introduction of Khirbet Kerak Ware, B) during the domination of Khirbet Kerak ware in the north, and C) after the decline of the Khirbet Kerak Ware culture and during the Egyptian Sixth Dynasty.<sup>25</sup> Albright's EB IIIA was dependent on viewing the last phase of 'Ai as contemporary with the Third Dynasty of Egypt. He dated the stratum to this period because of the alabaster vessels found in Sanctuary A. Callaway has shown successfully, however, that the material from the sanctuary actually was a collection of vessels from different periods and should be dated according to the latest vessel types, not the earliest. Albright's contention that no Khirbet Kerak Ware was found at 'Ai was also proved mistaken.<sup>26</sup> This undercut his attempt to put the latest phase at 'Ai before the "main southward sweep of this pottery." His definition of EB IIIC as the post Khirbet Kerak Ware phase was too vague to attract any adherents to his new terminology.

## STRATIGRAPHIC AND CERAMIC CONTEXT IN NORTHERN PALESTINE

### INTRODUCTION

Most terminological issues bearing on EB chronology are based on the major extensive excavations at 'Ai, Jericho, Arad, and Megiddo. More recent excavations at Bab edh-Dhra', Lahav, Tell el Hesi, and Yarmuth, in addition to smaller scale operations at 'Ain Besor, are contributing much to the elaboration of EB ceramic chronology in southern Palestine. Recent excavations at EB II-III sites in northern Palestine have been few, however, and have consisted more of trial trenches and probes than extensive clearance. The following pages, contain a brief survey of the results of the excavations at Early Bronze Age sites in northern Palestine. Ultimately these excavated sites must then be incorporated into the more general picture of regional settlement patterns that existed in the Early Bronze Age.

### Megiddo

In general, EB chronology in northern Palestine rests upon the older excavations at Megiddo, sometimes correlated with the mixed Beth Shan strata.<sup>27</sup> Because of the chronological assumptions made by the heavy reliance on excavated material from Megiddo, it is crucial that the site's stratigraphy and ceramics be reexamined. The vertical stratigraphy at Beth Yerah provides an important ceramic cross-check on both the Megiddo pottery and the interpretation of the nature of the EB settlement at Megiddo.

The limited area of exposure in area BB at Megiddo (the only area in which Early Bronze Age material was reached) and the lack of any major destructions in the city during the third millennium and latter part of the fourth millennium, has led to an inordinate amount of confusion and controversy over the published results of the excavations. Without further excavation below the main cultic structures of area BB and more extensive lateral exposure to the north, west, and south, it is unlikely that many of the important questions about the site will be resolved.

The Early Bronze Age strata were published in enough detail, however, to invite later revision by archaeologists. K. Kenyon wrote a detailed critique of the Megiddo excavations and revised the Early Bronze Age strata by establishing a series of architectural phases that combined various elements of the published

25. W. F. Albright, "Some Remarks on the Archaeological Chronology of Palestine before about 1500 B.C.," in R. Ehrich, ed., *Chronologies in Old World Archaeology* (Chicago: University of Chicago Press, 1965), p. 52.

26. Amiran, "Khirbet Kerak Ware at 'Ai."

27. G. Loud, *Megiddo*, vol. 2, OIP 62 (Chicago: University of Chicago Press, 1948), hereafter *Meg.*, vol. 2.

strata.<sup>28</sup> An influential analysis was also published by I. Dunayevsky and A. Kempinski in which they report the results of test trenches excavated in 1966 under the auspices of the Hebrew University.<sup>29</sup>

The following brief review of the Megiddo strata will summarize the major chronological phases of Megiddo. The stratum designations of the excavators have been retained to maintain continuity with the earlier terminology. Some of the main architectural features have been reassigned, however.

After each stratigraphic summary, the ceramic evidence will be reviewed and correlated with the architecture. The ceramic evidence for dating the Megiddo strata has often been questioned. In table 2 loci have been ranked according to reliability. Category 1 is the most reliable group. This category includes ceramics found on plaster or stone floors in rooms bounded by walls associated with those floors. Category 2 refers to pottery that came from loci that were bounded, but the floors were either not recorded or were of beaten earth. Category 3 consists of pottery that did not come from floors or from inside well-defined rooms. In some cases, unpublished field photos will contribute to the re-ordering of the architectural phases.

### Stratum XIX Architecture

Stratum XIX presents few architectural problems. A large broadroom temple, 4050, dominates the area (see *Meg.*, vol. 2, fig. 390). The temple was at least 4 m wide and a minimum of 12 m long (see fig. 6). A possible second temple extended to the north, 4047, although it was heavily damaged by later Early Bronze Age terrace construction. Extending 10–20 m east of the temple complex was a broad paved courtyard that followed the natural slope of the bedrock down to the east. At least two phases of courtyard pavements were detected. A series of stepped stones formed a gentle ramp on which one ascended the slope in the direction of the temple. Human and animal figures were incised on these stones, which the excavators refer to as the “picture pavement.”

### Stratum XIX Ceramics

#### *Category 1*

The three loci in Category 1 all seem to represent the same horizon. Locus 4008 contained a basalt whorl, a limestone macehead and thirteen incised paving stones. The most diagnostic indicators came from Locus 4050, the well-defined floor of the southernmost “twin temple.” The primary indicators among the ceramic material consisted of a great number of Chalcolithic cornets and buff bowls with red decoration. A section of pavement in the courtyard in front of the temple (Locus 4064) contained both cornets and Gray Burnished Ware, but the Gray Burnished Ware assures a date at least as late as EB I.

#### *Category 3*

The loci in this last category represent two main periods, Chalcolithic/Early Bronze I and EB III. The best and most representative collection of the Chalcolithic/Early Bronze I period seems to be from an area just west of Temple 4050. This locus contains one cornet, several examples of Gray Burnished Ware, and at least one jar rim type that is securely dated to EB I (*Meg.*, vol. 2, pl. 97:23–25). This “bow rim” is paralleled by numerous examples from coastal EB I contexts<sup>30</sup> and is found at Qashish, En Shadud, Megiddo, and Beth Yerah.<sup>31</sup>

28. K. Kenyon, “Some Notes on the Early and Middle Bronze Age Strata of Megiddo,” *EI* 5 (1958): 51–60.

29. I. Dunayevsky and A. Kempinski, “The Megiddo Temples,” *ZDPV* 89 (1973): 161–87.

30. R. Gophna, “The Settlement of the Coastal Plain of Eretz Israel during the EB Age” (Ph.D. diss., Tel Aviv University, 1974) (Hebrew).

31. A. Ben-Tor, Y. Portugali, and M. Avissar, “The First Two Seasons of Excavations at Tel Qashish,” *IEJ* 31(1981): fig. 17:18; E. Braun, *En Shadud*, BAR International Series 249 (Oxford, 1985), figs. 23:8–12; 34; and 35.

At least two groups of pottery do not fit into a Chalcolithic/EB I ceramic horizon. One group (not published) is clearly out of place in the early context. A glance at figure 7 illustrates an assemblage that dates to EB III.<sup>32</sup> The pithos rims, one of which shows signs of combing, with incised rope decoration around the neck, are often found in EB III contexts (e.g., Hesi, Lachish, and Yarmuth). The flat based, string-cut bowl, combed ware, pattern burnished sherds and platter with a slight concavity below the rim exterior also indicate a date in EB III. The most obvious intrusive object, however, is the omphalos base of a small red Khirbet Kerak Ware bowl.

Table 2. Ranked Loci from Megiddo, Strata XIX–XV.

<i>Stratum</i>	<i>Category 1</i> Plaster, Stone Floors	<i>Category 2</i> Beaten Earth Floors	<i>Category 3</i> General Fills	
XV	4040 5192	5195	S=4017 N=4114 S=5161 NE=5162 SW=5173 N=5184 =5192	N=4040 =5161 N=5162 N=5168 =5184 S=5191 E=5192 E=5195
<b>EARLY BRONZE III</b>				
XVI	4037	4001 4023 4038 5163 5201 5222	3177 E=4037 E=4038 S=5198 =5200 SE=5221	=4037 N=4038 =5193 =5199 E=5221
<b>EARLY BRONZE III</b>				
XVII	3177 4042 5203	5210	3177 4017 E=4042 N=5203 N=5210	E=3177 W=4017 S=4042 =5210 S=5210
<b>EARLY BRONZE III</b>				
XVIII	4049	4014 4034 4057 4058	E=4014 E=4033 =4045 W=4045 W=4058	N=4033 NW=4034 E=4049 S=4057 N=4113
<b>EARLY BRONZE II</b>				
XIX	4008	4047 4064 4050	=4008 SW=4008 E-4008A N=4008A N=4047	E=4008 W=4008 -4064 W=4050 S=4047
<b>EARLY BRONZE I</b>				

For the Megiddo locus numbers, a '-' indicates that a find spot was "near or directly under the locus but in an earlier stratum"; a '+' indicates that a find spot was "near or directly above the locus in a later stratum"; and, an '=' indicates that a find spot was "reasonably near that locus and in the same stratum." Letters in front of any of these signs indicate compass directions (Loud, *Meg.*, vol. 2 [Text], p. 4).

32. Several of the sherds from figures 7 and 8 were published as coming from Locus N=4033, Stratum XVIII, although they were not originally labeled as such.



Figure 6. Megiddo, Photograph of Temple 4050, Stratum XIX. View to the Southwest.

The field records indicate that this group of sherds comes from E-4008A. Figure 8 also illustrates a group of sherds from the same context. The small red Khirbet Kerak Ware bowl on the right hand side of the photo is unmistakable. This would place them just east and lower than (i.e., down the slope) the Chalcolithic/EB I "picture pavement." This location is just west of the large city Wall 4045 and indicates the depth to which there was EB III disturbance in the area west of the wall.

The second group of intrusive sherds comes from Locus S=4047. This locus is in the area of the northernmost of the "twin temples," where the area was extremely disturbed by the construction of the terrace Wall 4114 in the EB III period. The ceramics found here witness the great disturbance caused by the building of this terrace wall. A number of platters with red wash, a concavity below rim exterior, and sometimes pattern burnish are intrusive (*Meg.*, vol. 2, pl. 97:50-54). In addition, at least two stump bases look out of place (*Meg.*, vol. 2, pl. 96:8, 9). Rather than view these vessels as representative types belonging to Stratum XIX, they seem to represent intrusions caused by the construction of terrace Wall 4114 in Strata XVII-XVI in the EB III period.

Thus, the ceramics from Stratum XIX form two fairly distinct groups. The early pottery was predominantly Chalcolithic and EB I, but the later intrusive pottery includes a number of EB III forms, including two pieces of Khirbet Kerak ware. The building of terrace Walls 4114 and 4045 may be dated by the presence of EB III material in what must have been either their foundation trenches or construction fill.



Figure 7. Megiddo, Photograph of Sherds from E-4008A (Field Negative 4338), Stratum XIX. Scale 1:2.



Figure 8. Megiddo, Photograph of Sherds from E-4008A (Field Negative 4375), Stratum XIX. Scale 1:2.



Figure 9. Megiddo, Photograph of Wall 4045, Stratum XVIII. View to the Southeast.

## Stratum XVIII Architecture

The dominant feature of Stratum XVIII was the broad (approximately 4.5 m thick) stone wall (4045) which the excavators viewed as a free-standing defense wall and which was built in two phases (see fig. 9). The first phase, as published, apparently had a number of small dwellings attached to the exterior of the wall, and the second phase consisted of a widening and strengthening of the exterior wall (4045B) which filled in and covered the small rooms attached to the wall exterior.

A broad defensive wall with a series of rooms attached to its exterior would certainly comprise a breach of security. In her revision of the Megiddo strata (Stratum XVIII = Phase C), Kenyon argues that a wall with rooms attached to the exterior would not be suitable for use as a defensive wall, and thus it was probably originally intended to be a terrace wall.<sup>33</sup> She also points out that the much higher foundation level of the supplementary wall (4045A), attached at an angle to 4045, indicates that Wall 4045 was probably not free standing on its western face (*Meg.*, vol. 2, fig. 154). The rest of the walls shown on the published plan of Stratum XVIII make no coherent plan, and, as Kenyon stresses, the absolute heights of these partial structures are at "appreciably different levels, confirming the impression of the plan that there are three unrelated structures ... this suggests a comparatively long period covered by a series of scantily preserved remains."<sup>34</sup>

The pottery evidence from Stratum XVIII contains a large amount of EB III material. The relative scarcity of forms from the EB II period strengthens Kenyon's conviction that there was minimal occupation on the tell during this period. Of course one must bear in mind the relatively small area of exposure of Early Bronze Age remains in area BB at Megiddo (approximately 2,475 m<sup>2</sup>) compared with the rest of the mound.

One of the areas investigated by Dunayevsky and Kempinski was the southern end of Temple 4050, assigned by the original excavators to the Chalcolithic/EB I and Stratum XIX (see fig. 6). The clearance by Dunayevsky and Kempinski of the southern portion of this temple revealed that its southern wall was attached to a thick wall that served as the southern boundary to a temenos east of the temple.<sup>35</sup> There they discovered a plastered floor above the south wall of the temenos, which they assigned to the first phase of Stratum XVIII. On the plastered surface was a body sherd of a Light Faced Painted Ware jug.<sup>36</sup>

Although Kenyon discounts the use of Wall 4045 as a city wall, its massive proportions certainly would classify it as potentially serving that purpose. The height of the wall, especially when approaching from the east, in combination with the original slope of bedrock would not preclude its effectiveness for defensive purposes. The main objection seems to be the small buildings that were attached to the exterior of the wall.<sup>37</sup> The problem then, is to determine whether these small external buildings were contemporary with Wall 4045 or simply covered by it at a later date.<sup>38</sup>

The massive Wall 4045 was constructed in large segments, rather than in one continuous line. Such construction techniques are not unknown in Early Bronze Age architecture.<sup>39</sup> Somewhat similar techniques have been found at Bab edh-Dhra', Arad, Jericho, Ta'anach, and 'Ai. Unfortunately, contemporaneity of Wall 4045 with the external buildings simply cannot be established from the evidence of the published material. It is difficult to determine from photographs whether the wall partially covers some of the rooms of these buildings or the buildings only abut the wall. In other words, it is impossible to determine which came first. There is no doubt, however, that Wall 4045 did not cut these buildings.

It is apparent, both from the section of the area and from the photo in *Meg.*, vol. 2, figure 155 that the second phase of this wall (4045B) was widened at the expense of these external buildings, but did not destroy the foundations. It might be argued that the first wall did the same thing to pre-existing buildings slightly to

33. Kenyon, "Some Notes on Megiddo," p. 52\*.

34. *Ibid.*, p. 53\*.

35. See Dunayevsky and Kempinski, "Megiddo Temples," fig. 4, for reconstruction of this area.

36. *Ibid.*, p. 168.

37. Kenyon, "Some Notes on Megiddo," p. 52\*.

38. See also F. Brandfon on this problem in "The Earliest City Wall at Megiddo," *TA 4* (1977): 79–84.

39. The segmented construction can clearly be seen in the plan of the wall published in *Meg.*, vol. 2, fig. 392, as well as in the photographs *Meg.*, vol. 2, figs. 152, 153.

the west. One of the areas outside the wall, portrayed as a solid projection on the schematic plan of figure 391 (just north of Locus 4057), is actually open. The plan would seem to suggest a double row of rooms with a common back wall, which may once have been located along this eastern slope.<sup>40</sup> No information on the relationship between these rooms and the large segmented Wall 4045 is given in the publication, however.

The walls (including the small room of Locus 4065) of Stratum XX are beneath the Wall 4050, and they bear no relationship in orientation to the walls outside of 4045, so one can conclude that at least these external walls were later than Stratum XX. Nothing of Stratum XIX was preserved in this area. When this wall was built cannot be precisely determined, for there is no direct connection with any of the various buildings and walls depicted in the published plan of Megiddo Stratum XVIII but the ceramic evidence discussed below would certainly argue for an EB III date.



Figure 10. Megiddo, Photograph of Building 4033 and Slope, Stratum XVIII. View to the Southeast.

Dunayevsky and Kempinski maintain that Wall 4045 was indeed a true city wall but admit the contemporaneity of the small scale buildings attached to the wall exterior. These developments are assigned to Stratum XVIII, just as the original excavators had asserted. The only other building preserved behind this city wall was 4113, which has been labeled a temple, although there were no artifacts recovered from this building.<sup>41</sup> Their main argument is that during Strata XIX and XVIII (both phases) Megiddo was primarily a

40. For a similar double row of rooms arranged along a mound's perimeter in the Early Bronze Age, see A. Ben-Tor, Y. Portugali, and M. Avissar, "The First Two Seasons of Excavations at Tel Qashish," p. 155, fig. 12.

41. That is not surprising considering the extremely close juxtaposition of 4113 on Temple 4050; see *Meg.*, vol. 2, fig. 157.

cult area and a walled citadel, with little occupation on the rest of the tell.<sup>42</sup> Further excavation, of course, would be needed to support such a claim.

It seems, then, that Stratum XVIII was simply the result of counting architectural phases up from the bottom, and down from the top. There is almost no direct connection between any of the various architectural units, and it represents a composite of features that do not seem to bear any relationship to one another. The issue was complicated, of course, by the slope of the bedrock in this area. That the slope was compensated for by the builders of these features can be seen in the photo of Building 4033 (see fig. 10). The foundations are deeper at the eastern portion of the building than the western end, showing an attempt to level off the floors within the building. Unfortunately, the slope was seldom successfully traced by the excavators. Part of the problem for this period also lay in the fact that the area was excavated out of phase. One photo (*Meg.*, vol. 2, fig. 156) shows that the area that caused the most problems in relating east to west in the Early Bronze Age levels was precisely that point where the massive terrace Wall 4114 was located. Thus, by the time most of the area west of 4114 had been cleared, the contemporaneous areas to the east of 4114 had already been removed, in some cases down to bedrock. The relationship between these areas could only be reconstructed on paper.

### Stratum XVIII Ceramics

#### *Category 1*

The only locus in Category 1 is the interior of one of the paved rooms attached to the exterior of Wall 4045. The finds within the room include a flint sickle blade, a clay spoon, two pieces of worked bone (one of which had a carved ram's body on the head), and a fragment of carved alabaster. An almost complete one handled jug with red wash on the exterior was also discovered. One sherd of horizontally combed ware was found along with a flat based straight sided platter with ledge handle. This collection of material is not easily datable. It could belong to either EB II or EB III. This group represents an assemblage from a domestic room.

#### *Category 2*

In Category 2, Locus 4014 also represents a small room attached to the exterior of Wall 4045. Although one jug base (*Meg.*, vol. 2, pl. 101:7) could date to the EB II period, the other sherds from this locus could easily be dated to EB III. At least one broad shallow bowl comes from this locus (*Meg.*, vol 2, pl. 102:20) along with a pierced center section from a double vessel similar to the example published from Stratum XVII (*Meg.*, vol. 2, pl. 106:2). One flat based platter is similar to examples found in the upper levels of the stages (*Meg.*, vol. 2, pl. 102:23). The description of FN 4356, which illustrates some of the material from this locus, reads "all these sherds are made from the same cream buff ware which typified the later stages of Megiddo." This locus produced two almost complete pithoi, one of which had an impressed rope decoration around the neck, and a large round bottomed holemouth jar. No sherds conclusively date this material, but the tendency toward flat based platters, broad shallow bowls, and stump bases tends to place it more in EB III. There is certainly nothing in the assemblage that is found solely in EB II.

A partly destroyed room next to 4014 and 4049, Locus 4058, yielded a holemouth jar similar to that found in Room 4014, a jar neck covered with thin white wash, one pithos neck with incised rope decoration (*Meg.*, vol. 2, pl. 105:11), and at least three platters. The platters were made of a cream buff ware with a red wash and lattice burnish on the interior.

#### *Category 3*

An important locus in the third pottery category is W=4058. Although this category is reserved for loci which are the most unreliable (because no floors or walls delimit them), there is an indication that the material from this locus came from beneath Wall 4045. The field description of FN 4350, which contains sherds from W=4058 indicates that the sherds were found "below the early city wall" (see fig. 11). Whether this cryptic note means that the sherds were found beneath 4045 or the later thickening of the wall (4045B)

42. Dunayevsky and Kempinski, "Megiddo Temples," p. 168.

cannot be determined. The platters from Locus W=4058 are all shallow with flattened bases and slightly rounded rims. Five of the sherds are covered with a red wash on the interior and are pattern burnished. They are all possible EB III examples. This group provides a *terminus post quem* for at least city Wall 4045B and possibly Wall 4045 itself.



Figure 11. Megiddo, Photograph of Sherds from Locus W=4058 (Field Negative 4350), Stratum XVIII. Scale 1:2.



Figure 12. Megiddo, Photograph of Sherds from Locus E=4033  
(Field Negative 4365), Stratum XVIII. Scale 1:2

Two loci west of Wall 4045 deserve description. Locus E=4033 (shown in fig. 10) combined material found east of a well-preserved room (4033) assigned to Stratum XVIII. The discussion of Megiddo stratigraphy has shown that there was a noticeable slope in this area in ancient times, and the builders of Room 4033 compensated for this slope. Because of the lack of stratigraphic control, the Megiddo excavators no doubt mixed much of this material. All of the material excavated in the area east of Room 4033 was

sealed by the massive Building 3177, however. This area was directly below plastered courtyards and the paved roadway and stairs that bordered the east wall of Building 3177. Thus they give a *terminus post quem* for the construction of Building 3177.

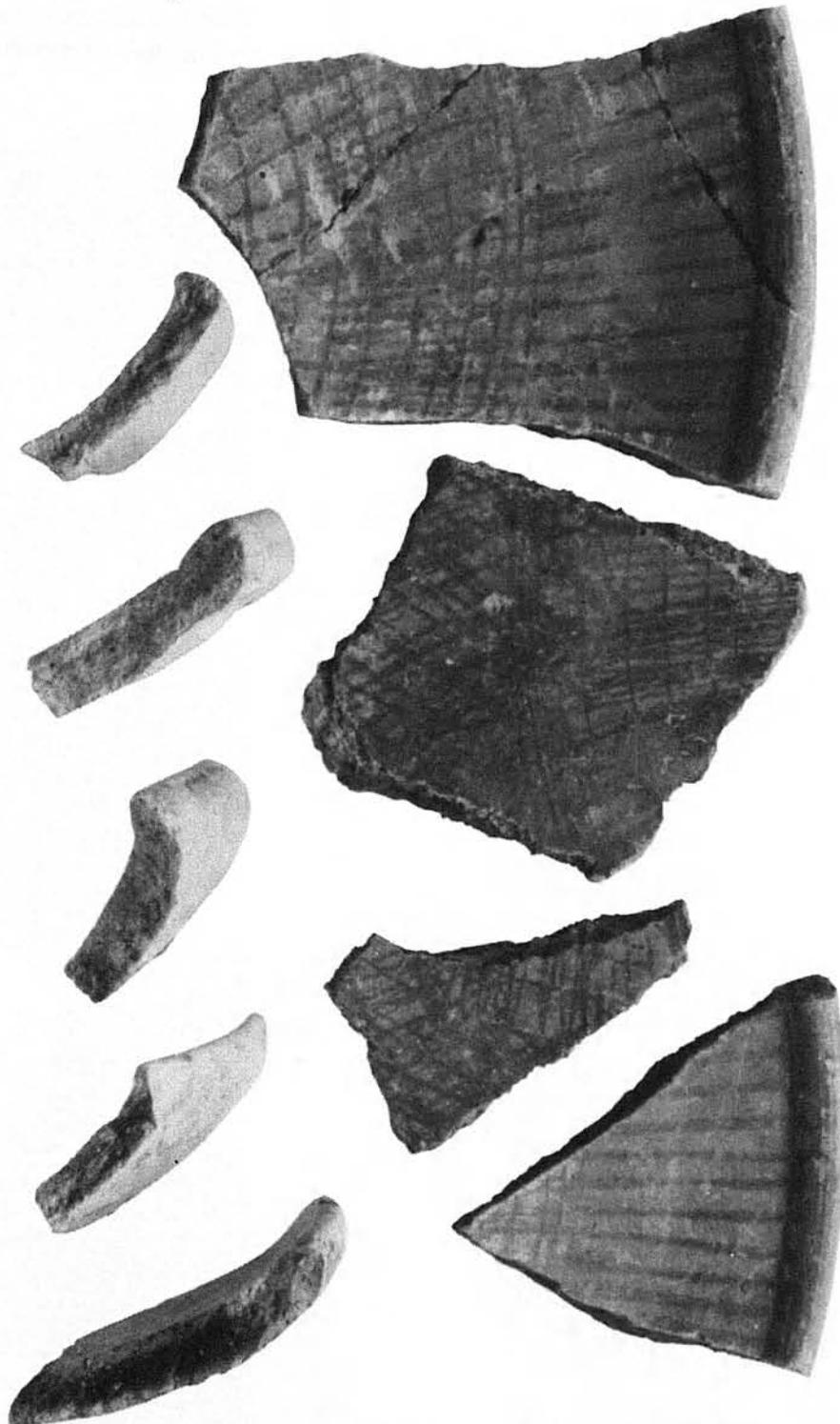


Figure 13. Megiddo, Photograph of Sherds from Locus E=4033 (Field Negative 4366), Stratum XVIII. Scale 1:2.

The repertoire exhibited from locus E=4033 (see figs. 12 and 13) falls mainly in the EB III period. The high stump base, platters with a concavity below rim exterior, pattern burnish on red wash, and a few flat based platters among both the published and unpublished sherds make an EB III date plausible. The presence

of at least one Khirbet Kerak Ware sherd (*Meg.*, vol. 2, pl. 102:18), taken in combination with the rest of the sherds makes it unlikely that this area should be taken as a homogeneous EB II assemblage. In fact, there is very little in the assemblage that could even be seen as EB II (this Khirbet Kerak Ware sherd should be noted along with those from E-4008, discussed with Stratum XIX architecture and shown in figs. 7 and 8). Thus, these Khirbet Kerak Ware sherds found at very low levels in the area just west of Wall 4045 strengthen an EB III date for the wall's construction.

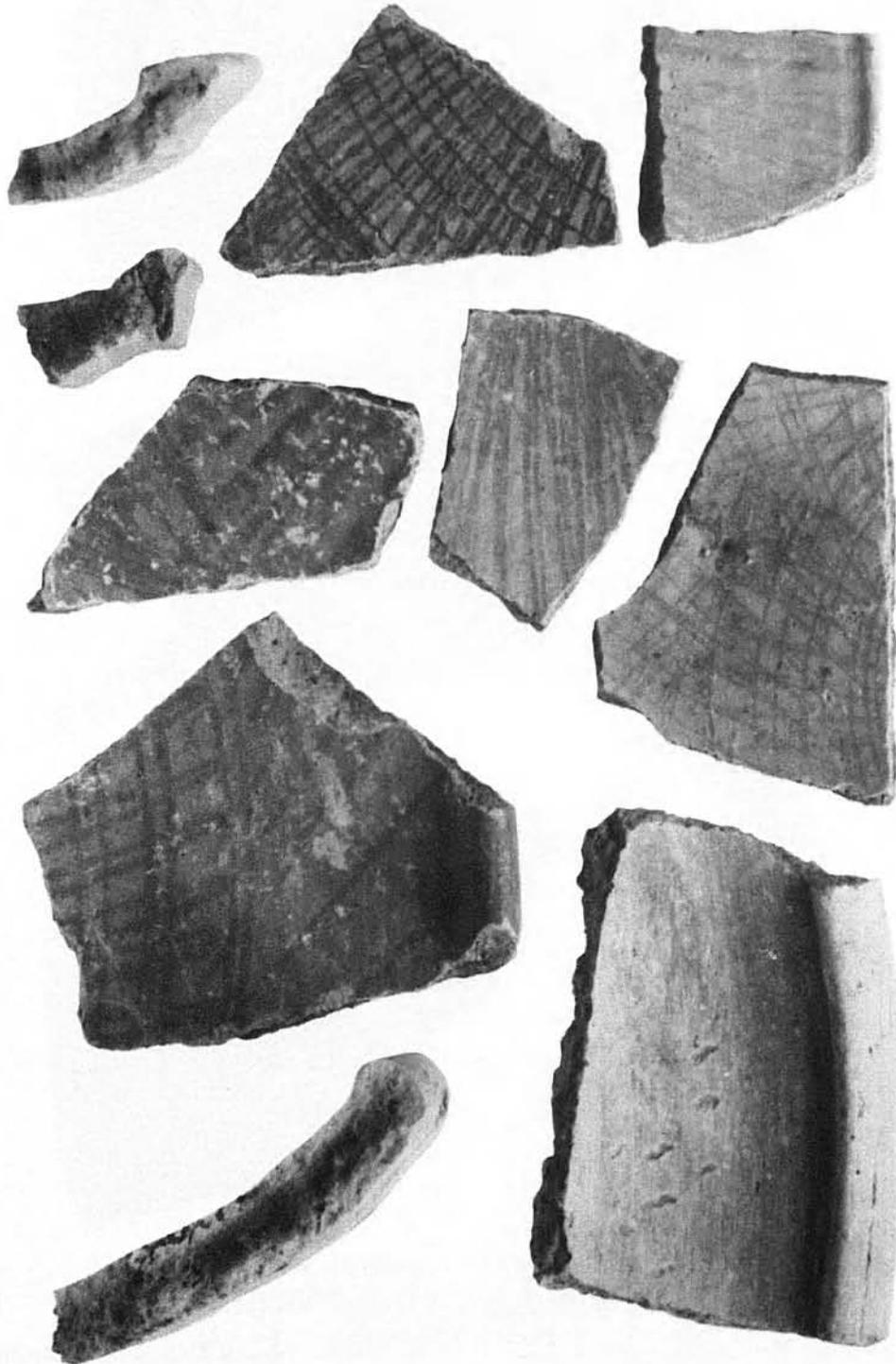


Figure 14. Megiddo, Photograph of Sherds from Locus W=4045 (Field Negative 4349), Stratum XVIII. Scale 1:2.

No clear stratigraphic division was made between pottery found west of city Wall 4045 (see fig. 14) and east of Building 4033. These loci must represent approximately the same stratigraphic horizon, since no features (walls, floors etc.) were preserved between Building 4033 and the city wall. Figure 14 represents material from the base of Wall 4045. Broad shallow bowls, pattern burnish on red wash, and the string-cut bowl slightly corrugated on the exterior all point to an EB III date.

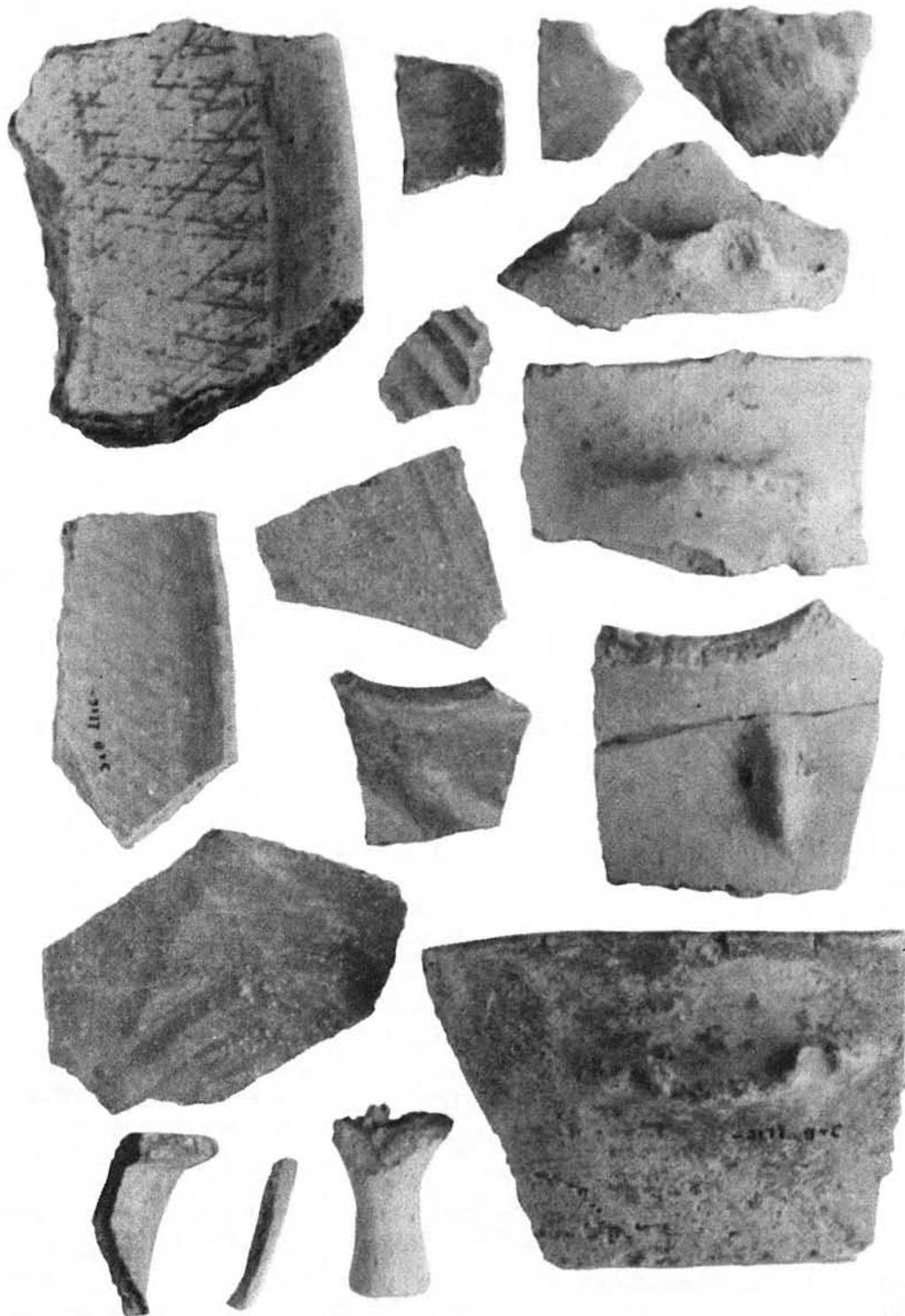


Figure 15. Megiddo, Photograph of Sherds from below Palace Complex 31777 (Field Negative 4339), Stratum XVIII–XVI. Scale 1:2.

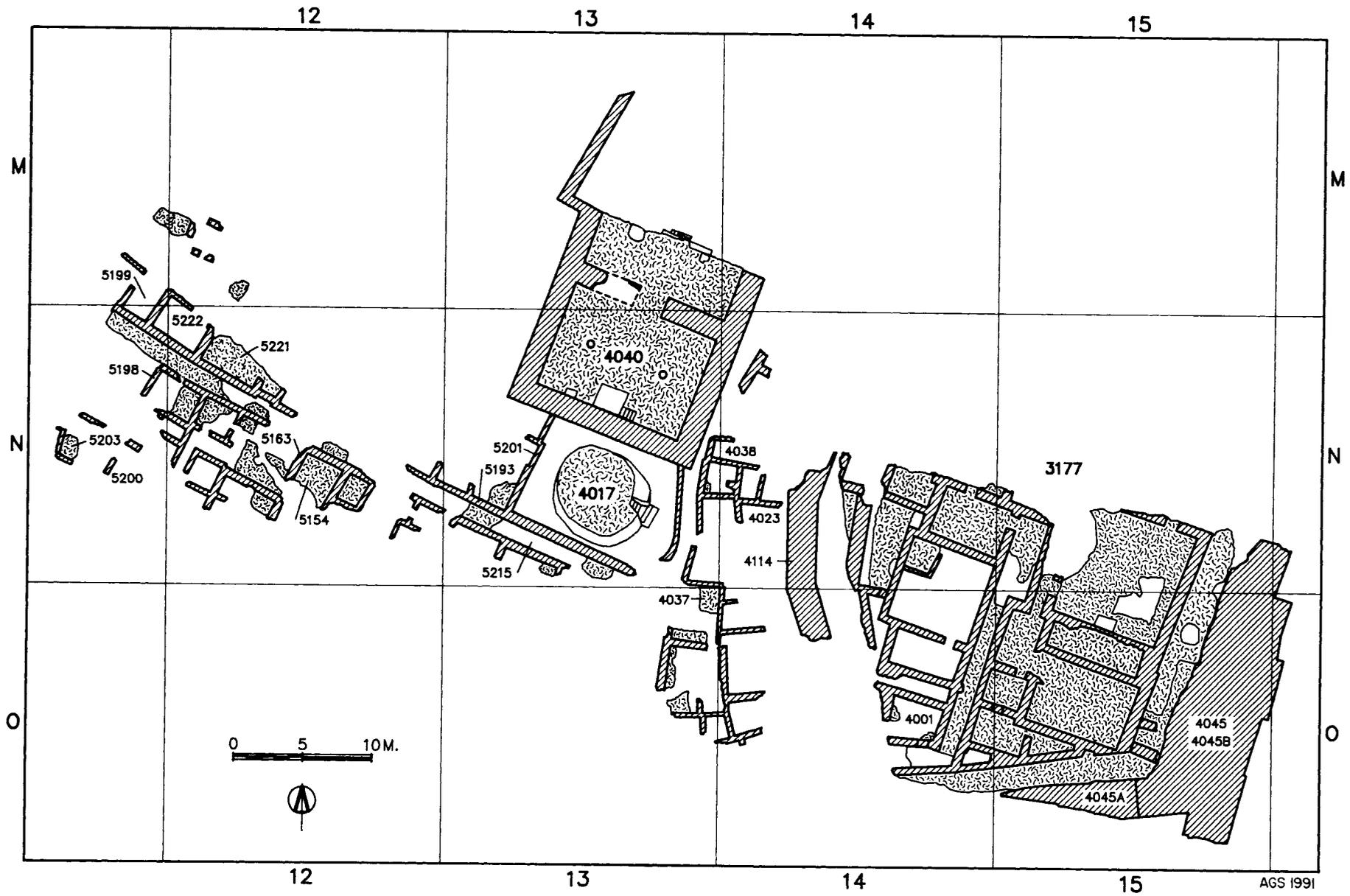


Figure 16. Megiddo, Plan of Strata XVII-XVI. Combines Elements from Published Plans of Strata XVII, XVI, and XV.

A third group of sherds comes from below Building 3177. The standard repertoire is represented in figure 15. Broad shallow bowls, pattern burnish on red wash, stump bases, and flat based vertical walled platters with ledge handles are all found below the floors of the building.

A large quantity of pottery was recovered from Stratum XVIII, and the bulk of the material dated to EB II–III. Although distinctions between EB II and EB III pottery are at times difficult to draw, most of the forms from the fills near the broad 4045 wall were typical of the EB III period, and the presence of Khirbet Kerak Ware sherds strengthen that date.

The lack of a coherent plan, the absence of large quantities of distinctively EB II ceramics, and the peculiar arrangement of rooms on the exterior of the massive Wall 4045, all point to the conclusion that Wall 4045 was constructed in the following phase, Strata XVII–XVI. The EB II occupation in Area BB at Megiddo was not distinguished by well-preserved architecture. It is likely that a perimeter belt of houses was constructed along the eastern edge of the mound, but the extensive constructions of the following period certainly destroyed much of the Stratum XVIII remains.

#### Strata XVII–XVI Architecture

Strata XVII and XVI are considered as a unit in the following discussion of the architecture.<sup>43</sup> Although the original excavators demonstrated that substantial rebuildings took place from one stratum to the next, the character of the architectural units remained identical.<sup>44</sup> The changes appear to be structural more than conceptual. Thus both strata are illustrated on a combined plan (see fig. 16).

The impressive public buildings of Strata XVII–XVI, including Temple 4040, Altar 4017, and Palace 3177, were constructed on a substantial fill held in place by a system of terraces which transformed the steep slope at the edge of the mound into a level area suitable for extensive building.

The large Wall 4045 was the easternmost terrace constructed to allow the leveling of the area directly to the west, which enabled the construction of Building 3177. A second terrace wall, Wall 4114, was sunk in the western portion of Square N 14 and was at least 2 m thick. The difference in level between buildings west of Wall 4045 and the small rooms on the east side of this wall is about 5 m, indicating a massive amount of fill west of the “city wall.”

The complex of rooms located between the terrace wall (4114) and the circular altar are fairly well preserved, but their eastern limits are all truncated on approximately the same line. Kenyon dismissed this fact as a probable result of erosion when terrace Wall 4114 collapsed, and there are, indeed, several reasons for viewing the Wall 4114 as a terrace wall. The difference in floor level between Locus 4042 west of the wall and the pebble floor of room 1 in Building 3177 east of the wall is slightly over 2 m. The distance spanned from west to east is only 10 m. The schematic section of Area BB illustrates quite well the degree of slope from west to east, especially in the Early Bronze Age levels. There also is some indication of a slight shift in orientation in the Locus 4042 chambers to accommodate the curve of Wall 4114.

Kenyon’s proposal that the Wall 4114 shown on the plan for Stratum XV was actually a terrace wall for the earlier phases has merit, but it was not the first time this idea had been suggested. The Megiddo excavators discussed such a possibility when trying to deal with the extremely complicated stratigraphy in this area (a glance at *Meg.*, vol. 2, fig. 157 shows how incredibly complex and intertwined the various strata were at this point). The excavators felt that if the wall had indeed been an earlier terrace wall, it was most likely to be assigned to Stratum XVII. The drop of over 2 m in a distance of approximately 10 m provides a good argument for terracing.<sup>45</sup>

43. This is roughly equivalent to Kenyon’s Phase D, “Some Notes on Megiddo,” p. 53\*, fig. 1.

44. *Meg.*, vol. 2, figs. 159, 161. See also p. 73, where they note that these changes were only minor.

45. The primary dilemma in viewing wall 4114 as a terrace wall built early in the development of area BB at Megiddo is its relationship to the western room and courts of Building 3177 and even its possible interference with the walls of Building 3160, drawn in Stratum XV. Any analysis of the situation cannot avoid the fact that the broad wall of 4114 seems to cut rooms or courtyards which belong to these large buildings. It is for this reason that 4114 was suggested as dating from Stratum XV, i.e., after the construction of these two large building complexes. The original wall 4114, however, does not seem to have disrupted the architectural complex of Building 3177. The

Although it is difficult to determine the nature and function of the earlier phases of Wall 4045, it is somewhat easier to describe the later phases of use. Whatever the original intent of its builders, by Stratum XVII Wall 4045 had become a terrace wall that supported the fill on which was built the palace complex 3177.

The earliest paved levels of the street running east of Building 3177 are ascribed to Stratum XVI by the excavators, as are most of the floors within the building itself. Clearly, the street underwent several surfacings and phases. The street's surface was lime and crushed plaster and overlapped at least part of terrace Wall 4045. Later the street was resurfaced with the same material, and a series of steps were added to the south end of the exposed area. In a third phase, the street was resurfaced with stone paving which covered the lower three steps. All of these pavings and surfacings covered part of Wall 4045.

The total area covered by the preserved (and exposed) remains of Building 3177 is approximately 500 m<sup>2</sup>, which makes it the largest single residential construction yet uncovered in Early Bronze Age Palestine. Finds within the building were scarce, and thus it is difficult to determine the function of this complex of rooms, but its great size and location close to the major cultic area of the altar and Temple 4040 make it likely that it was a palace.

Another of the major features which Kenyon places in Phase D is the circular altar (4017; see fig. 17). It is clear from the various changes in the altar and its temenos walls that the altar was used during successive periods. Both the original Megiddo excavators and Kenyon suggested that the altar was the original focus of this cultic area, with Temple 4040 and the others added later.

This was confirmed by the recent excavations along the southern wall of Temple 4040, both inside and outside the wall. Kempinski and Dunayevsky demonstrated that the altar had once been surrounded by a temenos wall on all sides, not just on the west, east, and south. The northern temenos wall of the altar was discovered beneath the southern (or back) wall of Temple 4040. This strengthens the view of the primacy of Altar 4017 in this cultic area. The succeeding phase included the altar and Temple 4040. This second phase of temenos wall was then attached to the southern wall of 4040.

Strata XVII and XVI, therefore, should be considered as essentially one major stratum, with minor architectural changes and surfacings of some streets and courtyards. The tremendous area of exposure, the lack of stratigraphic precision in determining the slopes and terraces, and the paucity of ceramic material from these strata force one to rely on the few loci in the published material. There can be little doubt, however, that Strata XVII and XVI should be assigned to EB III.<sup>46</sup>

## Stratum XVII Ceramics

### Category 1

The only vessel found on the floor in Room 4042 was a large complete vat (*Meg.*, vol. 2, pl. 106:9) with streaks of wash decorating the vessel exterior. Room 4042 was located in the complex of rooms east of the large circular altar 4017. The vat is very similar to the examples from Beth Yerah, dated to EB III. The floor in a room at the western end of the exposed portion of the roadway leading away from the altar yielded an almost complete Khirbet Kerak Ware bowl (*Meg.*, vol. 2, pl. 106:8), a cream buff flat based bowl (*Meg.*, vol. 2, pl. 106:13), a holemouth jar, and a large jar with two loop handles (*Meg.*, vol. 2, pl. 5:7).

---

development which seems to have done the most damage is the widening of 4114, probably undertaken to strengthen this terrace. This would be even more plausible considering the massive building projects in the cultic area directly to the west. Again, the date of this addition cannot be precisely fixed, but it had to have been after the construction of Building 3160, which is attributed to Stratum XV, since it cut one of the thick walls parallel to the westernmost wall illustrated in the revised plan of the Building 3160 (illustrated here in fig. 18).

46. A conclusion also reached by Kenyon, "Some Notes on Megiddo," p. 55.

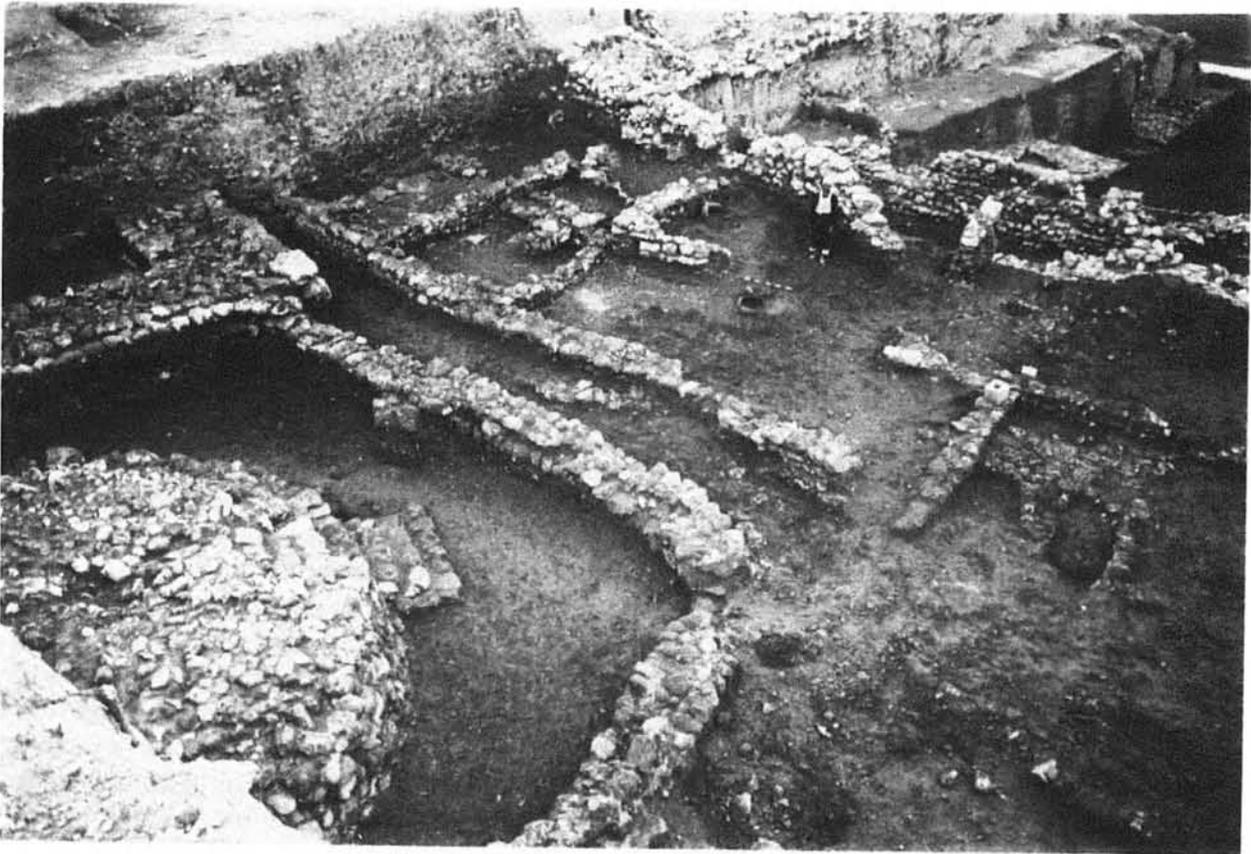


Figure 17. Megiddo, Photograph of Altar 4017, Strata XVII–XVI. View to the Northeast.

### *Category 2*

The only locus in the second category (5210) was also found west of Altar 4017. It contained at least one Khirbet Kerak Ware sherd. Although the sherd is not illustrated, it was red and black with part of a vertical fluted decoration. An almost complete platter with pattern burnish and a small jug were also found in this locus.

### *Category 3*

Sherds from Building 3177 all date from EB III. The repertoire included much combed metallic ware, pattern burnished platters, and at least one sherd of a fluted Khirbet Kerak Ware deep bowl (*Meg.*, vol. 2, pl.107:27).<sup>47</sup> The emphasis on a large number of pattern combed sherds in Locus S=4042 (*Meg.*, vol. 2, pl. 107: description of no. 34) is particularly noteworthy considering the proximity of the group to Room 4042, which contained the large deep vat.

There is very little doubt that Stratum XVII should be dated to EB III. Khirbet Kerak Ware was found in the context of all three categories.

47. The field negative (FN 4344) that illustrates these sherds is labeled as coming from -3177 D and E. There is thus a question about whether this material is really Stratum XVII or belongs with the Stratum XVIII sherds below Building 3177. All of the sherds classified as 3177 on *Meg.*, vol. 2, pl. 107 are found on FN 4344.

## Stratum XVI Ceramics

*Category 1*

The most secure locus in the first category is the northeast corner of Room 4037. The room is located in the complex of rooms just east of Altar 4017. A small pattern combed jar, two deep platters with inverted rims (one of them with a flat base, the other with a rounded one), a shallow platter bowl, and a shallow bowl with plain rim were all found on the stone paved floor of Locus 4037. This group is clearly EB III. The shallow bowl with plain rim is paralleled at Lachish in the EB III deposits (Tufnell 1958, pls. 63:304; 64:341).

*Category 2*

The second category of Stratum XVI is represented by a number of loci. Locus 4001 is a room at the southern edge of Building 3177. Five bowls with string-cut bases were found on the floor of this room. Three of the bowls were coated with a cream slip. The photograph of one of the bowls shows an almost corrugated surface (*Meg.*, vol. 2, pl. 108:7). This corrugation appears on many small bowls at Megiddo and was recorded on bowls from lower levels. The corrugated exterior is also found on EB III bowls from Lachish (Tufnell 1958, pls. 58:85; 59:150, 151). Both groups of corrugated bowls from Lachish and Megiddo had string-cut bases.

Locus 4038 is found in the complex of rooms east of Altar 4017.<sup>48</sup> This locus yielded a stump based jug, a round bottomed holemouth jar, two large store jars with loop handles and a very large, shallow platter with inturned rim. Among the sherds was a fragment from one small Khirbet Kerak ware red shallow bowl. One of the stump bases (*Meg.*, vol. 2, pl. 109:3) is very similar to some of the stump bases found at Beth Yerah.

Locus 5163 is located along the south edge of the street west of the altar. One globular jug and a corrugated string-cut base of a bowl were found. The corrugated bowl was a type similar to the five bowls found in Locus 4001.

*Category 3*

Building 3177 yielded very little material in the Stratum XVI level, but at least one globular jug, one flat based inturned rim platter with ledge handle and one pithos neck with incised rope decoration were found within the building. The inturned rim on the platter is similar to the knob rim found on a rounded platter from Beth Yerah and from the late EB III Stratum J at Tell Beit Mirsim.<sup>49</sup> At least one Khirbet Kerak ware sherd, from a small red and black sinuous sided bowl, was found in the rooms just east of the altar (in Locus =4037).

Several of the loci located along the road west of the altar yielded EB III material. A very large jar with four small lug handles on its upper shoulder was found in Locus S=5198 (*Meg.*, vol. 2, pl. 6:7). This jar is closely paralleled by one from EB III Lachish (Tufnell 1958, pl. 62:296), although the Lachish jar is horizontally combed. Locus =5199 produced a broad shallow bowl with red wash on the interior and a close radial burnish (*Meg.*, vol. 2, pl. 110:7). Two deep, flat based, vertical walled platters with ledge handles were found in Locus E=5221.

All of the material from this third category should be dated to EB III. The parallels with other EB III strata, both from Megiddo and other sites, leave little room for doubt concerning the general date. Khirbet Kerak Ware was found in two rooms of the complex of rooms east of the altar. It was also found in the group of rooms flanking the roadway west of the altar. The stratigraphy section has emphasized the fact that Building 3177 remained in use through Stratum XVI. The remodeling and raising of some floor levels did not affect the overall plan of the building. The same may be said concerning the complex of rooms east of altar

48. Room 4023, in the same complex of rooms east of altar 4017, contained four cooking pots, all of which were intrusive from the MB IIA Stratum XIV level. These pots have vertical side walls, and an applied rope decoration below the rim. Two have a row of punched holes between the rim and the rope decoration, but the holes do not pierce the side wall completely. In fig. 17 (see *Meg.*, vol. 2, fig. 176), a curved wall from Stratum XIV is clearly visible (directly behind the man posing in the photograph). This curved wall and the oven are probably associated with the four Middle Bronze Age cooking pots.

49. Dever and Richard, "A Reevaluation," fig. 1:1.

4017. The rooms flanking the roadway west of the altar also belong to the same plan. These rooms changed little between Strata XVI and XVII. Therefore these two strata should be treated as one unit.

The ceramic analysis confirms this view of the stratigraphy. Khirbet Kerak Ware appears in both strata. Broad shallow bowls and broad shallow platters with radial burnish are found in both strata. Another type of platter which is common in both strata is the flat based vertical walled vessel, which usually has ledge handles attached to the side. This vessel type is very common at Megiddo and is frequently found in the material from the Megiddo Stages.

The repertoire of forms found on the floors of Stratum XVII and Stratum XVI is also familiar in earlier contexts at Megiddo. Many of these forms also come from the area just west of the city Wall 4045 (mainly Loci W=4045 and E=4033). The loci from this area are assigned to Stratum XVIII, but ceramically there is very little to distinguish between Stratum XVIII material and the pottery from the two later strata. Sherds from below the large Building 3177 are also indistinguishable, in the main, from sherds from Strata XVIII or XVII–XVI. The presence of at least three sherds of Khirbet Kerak Ware from these fills below 3177 also indicates that the material is primarily EB III.

The sherds found below Wall 4045, or at least below its later addition 4045B, also indicate an EB III date. Due to the nature of excavation, a date for this Stratum XVIII city wall cannot be conclusively established. What is known, however, is that EB III material is found at the lowest levels (“at the base”) of this wall. There is no published or unpublished material associated with this wall that demands an EB II date. Whatever the construction date of Wall 4045, there was clearly either a massive fill or a massive disturbance during the EB III period.

Whether any substantial EB II construction was located west of the wall is unknown (except for possibly the nicely built walls below Temple 4040, *Meg.*, vol. 2, fig. 391, Square N 14). The only good loci and well preserved buildings west of the wall from an earlier stratum are the Stratum XIX temples. The substantial fills west of city Wall 4045 were placed there for the support of the large Building 3177. Wall 4114 served as a terrace wall supporting the complex of rooms to its west.

The date of the Stratum XVIII buildings (4033, 4113) and the large walls northwest of them cannot be determined from ceramic evidence. Some of the material excavated (e.g., the sherd of Light Faced Painted Ware) points to at least some EB II occupation, but the buildings may have been completely destroyed and/or covered with fill during the subsequent EB III period.

#### Stratum XV Architecture

The published plans of Stratum XV are almost totally different from those of the previous two strata, with the exception of altar 4017, which continues with little change. They include all three of the massive temples (4040, 5192, and 5269), Altar 4017, and Building 3160 (see fig. 18). The walls of Building 3160 are even more substantial than those of 3177, but the former covers less area. The primary features are two large well-built stone stairways which ascend from east to west, facilitating traffic to the cult area (see fig. 19).<sup>50</sup>

Stratum XV roughly coincides with Kenyon’s Phase E. The most obvious difference is that Kenyon felt that the altar had gone out of use by this phase and Temple 4040 had not yet been built. While she saw the altar as the first cultic feature of the area, she felt that it was followed by the “twin” megaron temples (5192 and 5269). She saw Temple 4040 constructed later in the EB IV/MB I period, only after the altar and the other two temples had gone out of use.

50. The original excavators referred to Building 3160 as an incomplete building and emphasized its two massive stairways, “which from their massive proportions and their mean rise must certainly have provided access to the temple area rather than to higher levels of this building of few rooms, which then become a sort of propylaeum” (*Meg.*, vol. 2, p. 84). The revised version suggested by Dunayevsky and Kempinski is that the stairs gave access to an “enclosed citadel” which included the three temples and a palace which was transferred, evidently, to the area north of the temples. Dunayevsky and Kempinski, “Megiddo Temples,” p. 172.

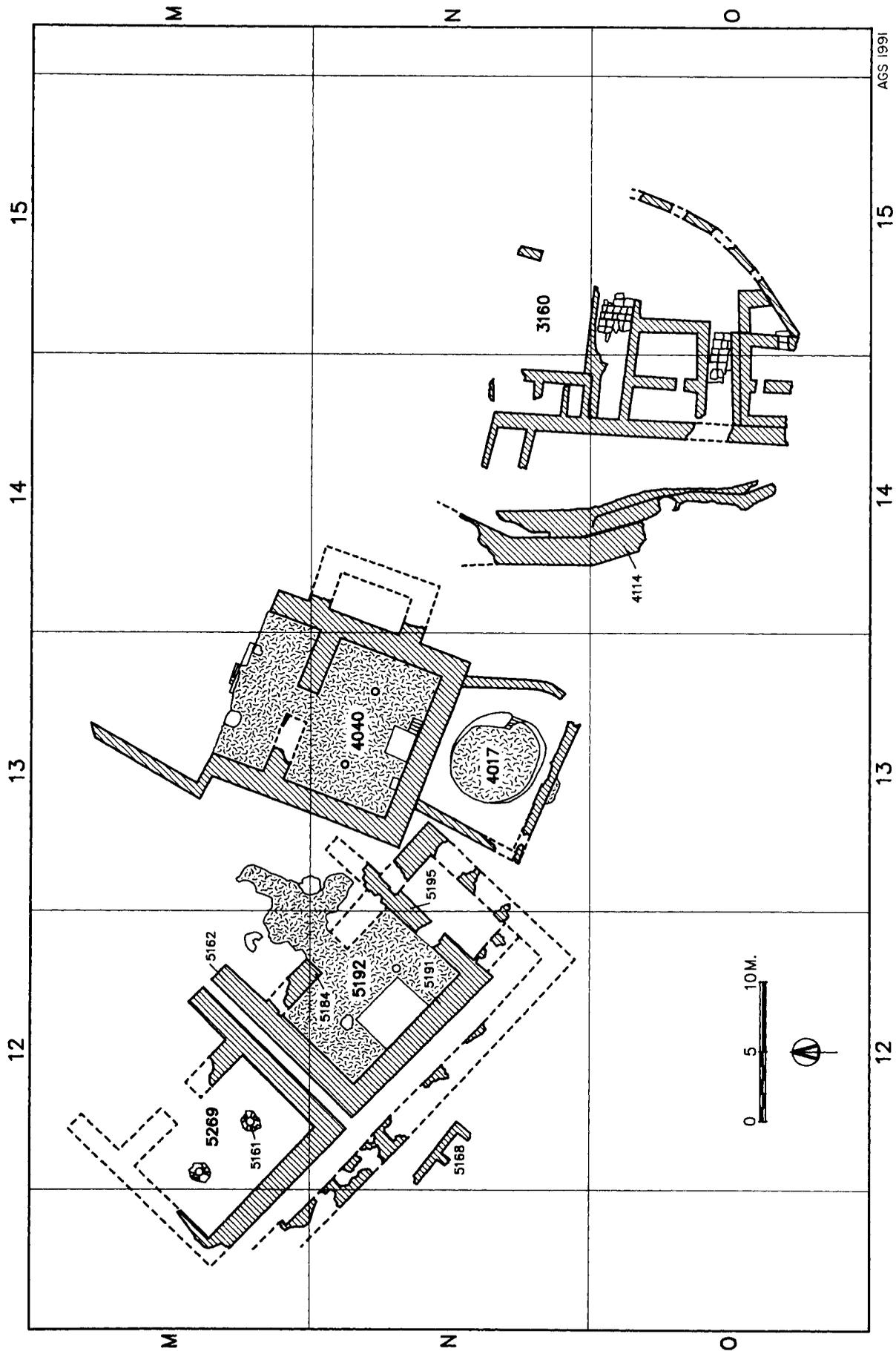


Figure 18. Megiddo, Plan of Stratum XV. Combines Elements from Strata XV and XIV.

The goal of the Hebrew University excavations was to establish the order of construction of these temples and also to date them if possible. By sinking a trench between Temple 4040 and Temple 5192, they determined beyond a doubt that Temple 4040 preceded its neighboring temple. They discovered a wall (Wall A) which was attached to 4040 along its west wall at an angle perpendicular to the 4040 wall. This perpendicular wall ran west beneath the easternmost wall of 5192. Thus Kenyon's reconstruction of the sacred area of Phase E was invalidated, and the published plans of Stratum XV are preferable to her reconstruction. The third and last phase of this Early Bronze Age cult complex included all three temples as well as the circular altar, i.e., all the features found on the original plan of Stratum XV.

There is no doubt that Temples 5192 and 5269 postdated the street flanked by domestic dwellings shown on the plans for Strata XVII and XVI. A massive wall ran parallel to their south walls to form a temenos.

The dating of Stratum XV is beset with problems because most of the pottery from the stratum came from intrusive tombs.<sup>51</sup> Kenyon decided on the basis of some of the published pottery forms that Stratum XV (i.e., her Phase E) was to be dated to EB-MB (EB IV/MB I in this volume). She admitted there was cause for skepticism in ascribing such massive building projects to a period which was distinguished by its lack of substantial architecture.<sup>52</sup>

The paucity of published material is a problem in any attempt to date a stratum from this site. It is clear, however, that the material illustrated is from the Early Bronze Age proper, EB IV/MB I, and MB IIA. Thus Stratum XV must also be analyzed on a locus by locus basis. The published architectural plans of Stratum XV are much more reliable than Kenyon's reconstructed Phase E. Although she refers to a Phase F, she does not illustrate it. It is presumably marked only by the original form of Temple 4040, which becomes diminished in her succeeding Phase G. By this phase, however, all links with the Early Bronze Age have been lost.

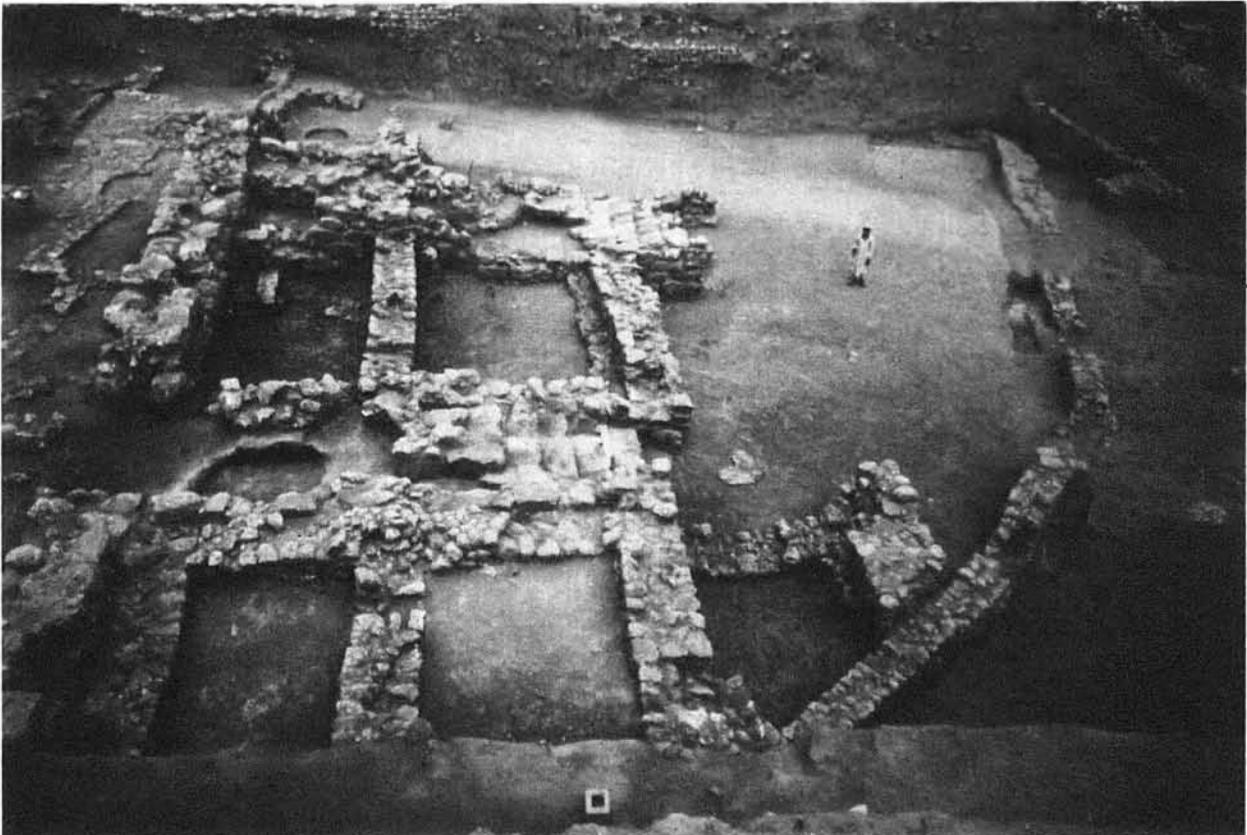


Figure 19. Megiddo, Photograph of Approach to Sacred Area, Stratum XV.

51. Kenyon, "Some Notes on Megiddo," p. 57. Also note that her MB I equals traditional MB IIA.

52. *Ibid.*

## Stratum XV Ceramics

*Category 1*

The only loci in this category are Temples 4040 and 5192. Although Temple 4040 was constructed in Strata XV or XVII–XVI during the EB III period, it may have continued in use through Stratum XIV as well. The finds on the floor are not datable to the Early Bronze Age; they probably represent the last use of the temple in Stratum XIV. A simple ivory cylinder is the only find recorded from the floor of Temple 5192.

*Category 2*

The only vessel from the second category comes from the subsidiary room built next to Temple 5192. A jug, probably originally a globular shape with a definite stump base, belonged to EB III.

*Category 3*

The third category is a mixed group. Some loci are EB II; others are EB IV/MB I or MB IIA.<sup>53</sup> Locus S=4017, just south of the altar, yielded a large combed ware jar with loop handles and a flat based shallow platter. They probably date to EB III. A large combed ware jar was also found in Temple 5269 (Locus =5161). Both combed ware jars had elaborate potter's marks. Just south of Temple 5269 was the base of a very large pattern combed metallic store jar (SW=5173).

Temple 5192 also yielded at least one possible EB III vessel. A convex sided goblet was found near this temple (Locus =5192). The goblet is similar to those from 'Ai Sanctuary A and Beth Shan Strata XI and XII. The subsidiary room just east of the temple contained, in addition to the stump based jug, a very large (0.75 m diameter) shallow platter, with red wash and pattern burnish on the interior.

Because of the close superposition of strata in this area, transitions between periods are difficult to define. There is, however, compelling evidence that the large Temples 5192, 5269, and 4040 were all in existence in Stratum XV and that they were constructed in EB III. The Temple 4040 may have been constructed earlier than 5192 and 5269, but all three date to the EB III period.

## 'Afulah

'Afulah was excavated by E. L. Sukenik in 1926 in a brief three week salvage operation. Sukenik directed a second short season of excavations in 1937.<sup>54</sup> Nine areas were cleared during the second season. Seven of the trenches were located in the vicinity of the town water tower. At least some Early Bronze material was recovered from these seven trenches. The total area excavated was over 200 m<sup>2</sup>, and virgin soil was reached in most of the trenches. The depth of deposit averaged about 2 m. Most of the published Early Bronze Age pottery dated from Early Bronze I, but the site also produced a good collection of Khirbet Kerak Ware vessels from two of the trenches.

In Trench E two burials (15 and 16) contained Khirbet Kerak Ware. The assemblage from Burial 15 included a large metallic jar (over 0.60 m in height), a large platter (over 0.80 m in diameter), as well as Khirbet Kerak Ware. In addition to the large and small sinuous sided bowls and small Red Polished Ware bowls, Burial 15 also contained a large pot stand with corrugated exterior and at least one knob from a cooking pot lid.<sup>55</sup> Burial 16 contained only Khirbet Kerak Ware. This ware was also found scattered through the debris of the lower part of the trench. Trench F also yielded some sherds of Khirbet Kerak Ware, one of which joined a fragment found in Trench E.

The small amount of material published from 'Afulah makes it difficult to describe Early Bronze Age occupation with any precision. No evidence can be adduced for EB II occupation, and the small exposure on

53. EB IV/MB I loci in Stratum XV are N=4040, NE=5162, S=5191.

54. E. L. Sukenik, "Archaeological Investigations at 'Afula," *JPOS* 21 (1948): 1–79.

55. *Ibid.*, pls. 10:1, 10, 12, 13, 18; 11:1, 4, 8, 9.

the tell does not allow much to be said about the EB III occupation.<sup>56</sup> The range of types present in the Khirbet Kerak Ware is important, however. Although most of this pottery came from two burials, the presence of corrugated and incised stands, the small and large bowls, and the knobbed cooking pot lids all probably indicate that it was more than simple chance or trade that brought the vessels there. Combed ware and stump bases help fill in the picture of the EB III occupation at 'Afulah.<sup>57</sup>

Another salvage excavation was undertaken by M. Dothan in 1951.<sup>58</sup> Dothan made his soundings in the southern part of the mound, and he encountered Early Bronze Age material in at least two portions of his trench (75 m by 10–15 m). The EB III levels are placed in 'Afulah Stratum VIII. Dothan found no evidence of EB II occupation. No structures were preserved from EB III, but he did find "typical" EB III vessels and Khirbet Kerak Ware.<sup>59</sup>

## Tel Qashish

Excavations reaching the Early Bronze Age levels at Tel Qashish were directed by Amnon Ben-Tor. More than 325 m<sup>2</sup> were exposed and virgin soil was not reached. Most of the exposure was of Early Bronze II and III levels, with small probes producing EB I material. There were three EB phases at Qashish. Phase 3 is the uppermost EB stratum and is composed of an alley that runs parallel to the edge of the site. The alley is flanked by small domestic dwellings. Two or three steps led down into the rooms, indicating that their floors were slightly below the road level. Several clay ovens were discovered in these rooms. This phase was dated to EB III.<sup>60</sup>

Phases 4–5 were treated as a unit. Although the buildings were larger with thicker walls, the general orientation of the structures was similar to those of the later Phase 3. Domestic structures flanked both sides of an alley. This earlier alley also ran parallel to the edge of the mound. Ben-Tor dates the pottery from these levels to EB III. Most of the material illustrated, however, finds its closest parallels in EB II material from Beth Yerah. Included among similar forms from Beth Yerah are EB II indicators like channeled rim jars, platters with a groove cut below the rim exterior, simple platters, and high fired buff bowls with burnish. Qashish Phase 5 also produced a metallic ware jug with a collar on its shoulder (not at the base of the neck). This is similar to the jug found by Petrie in the tomb of Djer at Abydos.<sup>61</sup>

The most recent excavations at Qashish have shown that houses from the EB I period were founded on bedrock. Evidence for olive, wheat, and vetch was recovered from this period, as well as a cylinder seal impression depicting a procession of animals, similar to those from En Shadud and Megiddo.<sup>62</sup> The EB II–III levels at Qashish were marked by the construction of a substantial (3 m wide) city wall, large amounts of metallic ware, and many cylinder seal impressions.

56. Although Dothan assigns the combed ware from the Sukenik excavations to EB II, he does not give supporting evidence for this date; see M. Dothan, "'Afulah," in M. Avi-Yonah, ed., *Encyclopedia of Archaeological Excavations in the Holy Land*, vol. 1 (Englewood Cliffs, New Jersey: Prentice-Hall, 1975), p. 33.

57. Sukenik, "Archaeological Investigations," pl. 12:26–31.

58. See M. Dothan, "'Afulah," *'Alon* 5–6 (1957): 22, 23 (Hebrew), for preliminary phasing.

59. Idem, "'Afulah," *EAEHL*, p. 34.

60. Ben-Tor, Portugali, and Avissar, "Excavations at Tel Qashish," p. 164. Although the date of Phase 3 is given as EB II, it must be a typographical error because Phase 3 is the uppermost stratum, and the two strata below Phase 3 are dated to EB III. I would like to thank A. Ben-Tor for allowing me to study the Qashish sherds in detail.

61. It is similar to that in W. F. Petrie, *Abydos*, vol. 1 (London: Egypt Exploration Fund, 1902), pl. 8:5.

62. A. Ben-Tor and R. Bonfil, "Tel Qashish, 1984/1985 Seasons," *ESI* 6 (1987–88): 106; see also H. Bernick and R. Greenberg, "Tel Qashish, 1987 Season," *ESI* 6 (1987–88): 108 and plan.

## Ta'anach

Ta'anach (Ta'annek) was first excavated in the years 1902–4 by a German team under the direction of Ernst Sellin. Although little information on the Early Bronze occupation at the site can be extracted from Sellin's report, it is clear that he did reach EB levels. Very few vessels are illustrated from his report, but a good collection of pattern-combed ware was found in the "underground rooms" below what he referred to as the "fortress of Ishtarwashur."<sup>63</sup>

The function of these two rooms carved into bedrock is not known. They were approached by steps that were also hewn into the rock, and the trench formed by these steps was roofed over with massive stone slabs 1.75 m long, 0.70 m wide, and 0.70 m thick.<sup>64</sup> Albright and Wright agreed on a date of EB II or early EB III for the Ta'anach pottery.

The subterranean structure found by the German excavators was in the north central portion of the tell. When P. Lapp began a series of three campaigns at the tell, work was planned for two areas.<sup>65</sup> The Bronze Age remains were reached along Ta'anach's west slope and all along its southern tip. Substantial fortifications were uncovered in both areas, but lateral exposure was greater at the southern excavations.

The fortifications at Ta'anach's south end were defined by four subphases. The earliest defense wall was 4.20 m wide with a projecting tower built against its exterior. The tower was roughly rectilinear, although the curve of the main defense wall was followed by the curve of the tower's exterior wall. The tower walls were 2 m thick and enclosed a chamber that measured 8.0 × 3.5 m.<sup>66</sup> The wall's turn to the north to run along the west edge of the mound was obscured by many additions and rebuildings of the southern fortifications.

The second phase of the southern defense works was marked by a wall of approximately the same width as the first city wall. Traces of a tower abutted the exterior of the new wall, and the excavators cleared at least 36.0 m of its length. This phase of the wall was built with a segmented, or sectional, technique of construction similar to that used at Megiddo, Tell el Far'ah (N), and Jericho.<sup>67</sup> The third phase of the defense system "involved a purposeful raising and thickening of the defensive line." The level was raised by dumping thick layers of huwwar both inside and outside of the second phase wall. This tipped fill formed a very steep slope on the exterior of the new defenses.

All of the upper part of the third phase of the defenses was obliterated by the final Early Bronze fortification at the southern tip of the tell. There was evidence, however, of a walkway between the city wall and a revetment wall that ran parallel to the wall. This walkway had a stairway with six steps that led to a lower level. A similar walkway between an earlier EB II wall and a new outer face was found at 'Ai at the beginning of the EB III ('Ai Phase VI).<sup>68</sup>

The final phase of fortification was strengthened by a massive tower that measured almost 10.0 m × 20.5 m. This tower was placed directly on the main defense wall of the second phase (Wall 28).<sup>69</sup> Similar towers just inside the fortifications were also found at EB III 'Ai (25.0 m × 7.5 m) and Tell Yarmuth (31.5 × 12.0 m).<sup>70</sup>

63. E. Sellin, *Eine Nachlese auf dem Tell Ta'annek in Palästina*, Denkschriften der Kaiserlichen Akademie der Wissenschaften in Wien 50 (Vienna: Hölder, 1905), p. 41, fig. 39.

64. *Ibid.*, p. 38, fig. 35. See also W. F. Albright, "A Prince of Ta'anach in the Fifteenth Century, B.C.," *BASOR* 94 (1944): 15, n. 10. Albright was convinced that there was such similarity between this construction technique and that found in the funerary pit of Djoser's Step Pyramid complex at Saqqarah, that the Ta'anach "hypogeum" must also have been constructed during the period of the Third Dynasty of Egypt.

65. P. Lapp, "The 1963 Excavations at Ta'annek," *BASOR* 173 (1964): 4–44; *idem*, "The 1966 Excavations at Ta'annek," *BASOR* 185 (1967): 2–39; *idem*, "The 1968 Excavations at Ta'annek," *BASOR* 195 (1969): 2–49.

66. Lapp, "The 1966 Excavations," p. 3.

67. *Idem*, "The 1968 Excavations," p. 9, n. 14, for references.

68. *Ibid.*, p. 11; and see Callaway, *'Ai Citadel*, p. 147.

69. Lapp, "The 1968 Excavations," p. 12.

70. Callaway, *'Ai Citadel*, fig. 96; and P. de Miroschedji, "Tel Yarmut, 1980: Notes and News," *IEJ* 31 (1981): 121–24; *idem*, "Tel Yarmut, 1987: Notes and News," *IEJ* 38 (1988): 194–99.

The city wall phases along the west side of the tell did not completely duplicate the phases recognized at the southern tip of the tell. There is little doubt, however, that the western defenses were constructed in roughly the same sequence and time period as those in the south, i.e., EB III.

The importance of this western area lay in its partial exposure of Early Bronze Age domestic units. Lapp divided this area into two major phases, the earliest of which was violently destroyed. Each of these major phases had at least two subphases. The construction of the earliest major phase was on bedrock, and Lapp dated this to the latter part of EB II. The walls were substantial, and two copper axeheads, three juglets, and three carved bone handles were recovered from this phase.<sup>71</sup> The second major phase of the domestic area was also marked by a series of rooms that were contiguous. At least five ovens were discovered in this small area. A Khirbet Kerak Ware sherd was found in one of the walls from this phase, and thus Lapp dated it to EB III.

Lapp's dating of the Ta'anach strata to late EB II–early EB III agrees with that suggested by Albright and Wright. Lapp notes that the total number of Khirbet Kerak Ware sherds found at Ta'anach could not represent more than thirty vessels and asserts that Khirbet Kerak Ware could not have been made at Ta'anach.<sup>72</sup> Khirbet Kerak Ware from Ta'anach, however, was not limited to small monochrome bowls like those found at many of the sites farther south. Like Megiddo, Ta'anach also yielded some of the larger coarser bowls commonly found at Beth Yerah, Beth Shan, 'Afulah, and Shuneh. There is no mention of any of the other objects from the Khirbet Kerak Ware repertoire (i.e., lids, stands, or andirons).

Much of the Ta'anach pottery is directly comparable to the material from Beth Yerah. In particular, the small brown and gray carinated metallic bowls from Ta'anach are similar to those found at Beth Yerah. Metallic platters with a tool-cut groove below the rim exterior are also found at both sites. Those from Beth Yerah are dated to EB II. A more precise comparison of forms between Ta'anach and Beth Yerah cannot be made until the Ta'anach material is published.<sup>73</sup>

## Beth Shan

The Early Bronze Age levels at Beth Shan were excavated by a team from The University of Pennsylvania in 1933, directed by G. M. FitzGerald. After reaching the Middle Bronze Age levels in the southeastern quadrant of the mound, FitzGerald placed a small sondage, approximately 24 m by 16 m, in this area in order to reach virgin soil.<sup>74</sup>

Level XIV may have been the latest EB I stratum at Beth Shan. Very little pottery is published from this level, but FitzGerald notes that platters are found for the first time. The most common jar had a "short neck and heavy rim," with red and brown lattice painted decoration on the exterior (probably a large Grain Wash Ware jar). Spouted bowls and vases with narrow spouts were also typical of this level. Gray Burnished Ware was often recovered from Level XV, but none was found in Level XIV.<sup>75</sup>

Three well-built rooms were found at the northern end of the trench in Level XIII. FitzGerald speculated that they were possibly part of a larger building. One of the buildings contained a circular grain bin with a stone floor. This building had been destroyed by fire, and one of the rooms was filled with broken store jars that still contained the charred remains of beans, lentils, and barley mixed with wheat.<sup>76</sup> The jars were generally decorated with streaks of red or brown wash. One fragment had combing on the shoulder and was covered with a red slip. Two juglets with stump bases and "high loop handles attached to long necks" were

71. Lapp, "The 1968 Excavations," p.16.

72. *Ibid.*, p. 4.

73. I would like to thank A. Glock, who allowed me to examine some of the Early Bronze Age pottery from Ta'anach.

74. G. M. FitzGerald, "Excavations at Beth-Shan in 1933," *PEFQS* (1934): 123.

75. G. E. Wright, "The Archaeology of Palestine," in G. E. Wright, ed., *The Bible and the Ancient Near East: Essays in Honor of William Foxwell Albright* (Garden City, New York: Doubleday, 1965), p. 99, chart 2.

76. FitzGerald, "The Earliest Pottery," p. 13 and n. 8. The analysis was done at the Department of Botany of the Hebrew University.

found, but FitzGerald may have been referring to Red Polished Ware jugs. He noted pattern burnished decoration on platter interiors. The small amount of pottery published does not allow for a more specific date within EB II.

Level XII consisted of separate building periods. The lower building phase yielded pottery that closely resembled that from Level XIII. In his first report on the Early Bronze Age material from Level XII, FitzGerald stated that Khirbet Kerak Ware came mainly from the upper phase of Level XII. In his later discussion of the pottery, however, he implied that Khirbet Kerak Ware came from both phases of Level XII.<sup>77</sup> The architecture of Level XII was characterized by “small and insignificant” buildings.

Level XI also seems to have been composed of “insignificant buildings,” since FitzGerald felt that the two building phases of this level required “no very detailed description.”<sup>78</sup> None was given. The earlier phase of Level XI was filled with Khirbet Kerak Ware. The later phase of Level XI was mixed with Middle Bronze Age material, but the bulk of the pottery of Level XI was similar to Level XII. Levels XII and XI at Beth Shan are generally dated to EB III. Certainly the range and quantity of Khirbet Kerak Ware vessel types, from small monochrome bowls to the large sinuous sided bowls with black and red, makes it likely that Khirbet Kerak Ware was produced at Beth Shan. This impression is strengthened by the presence of the accessories of the Khirbet Kerak Ware assemblage, namely knobbed lids, andirons, and corrugated stands. The standard forms of this period are generally comparable to the forms from Beth Yerah itself. Unfortunately, the paucity of illustrated forms does not allow a more elaborate comparison.

## Hazor

Early Bronze Age strata were only reached in two areas at Hazor. In Area A the remains of EB houses were cut by the foundations of a large wall from the Middle Bronze Age. Although exposure was very limited, at least three Early Bronze Age strata were discovered, with no traces of any EB I material. Clearance of the Iron Age water system in Area L during the 1968 season revealed a small area of intact Early Bronze Age stratigraphy. This area consisted of a part of a room, with a plastered brick bench next to one of the walls. The room was filled with a large number of well-preserved Khirbet Kerak Ware vessels.<sup>79</sup> Much Khirbet Kerak Ware was also found in Area M during the 1968 season.<sup>80</sup>

Yadin dated the material from Stratum XXI to EB II. This conclusion rests on the date of a complete globular jar with two loop handles on its shoulder. The date of the jar has been challenged by Dever and Richard, however, who cite a close parallel from Tell Beit Mirsim Stratum J, which they date to EB III.<sup>81</sup> At least three Khirbet Kerak Ware vessels were found associated with this stratum, but Yadin has suggested that they actually should be placed with the Stratum XX material. The closest parallel for one of the platters of Stratum XXI is with a platter dated to EB III at Beth Yerah.<sup>82</sup>

Stratum XX clearly belongs to the EB III period. The published pottery from Stratum XIX is also marked by vessels that belong to the EB III period, including Khirbet Kerak ware. In his summary of the Hazor excavations, Yadin refers to a “post Khirbet Kerak phase” of EB III.<sup>83</sup> He assigns this “post Khirbet Kerak phase” to Stratum XIX. This would force the already published material from Stratum XIX back with the pottery from Stratum XX.

77. Cf. G. FitzGerald, “The Earliest Pottery of Beth-Shan,” *Museum Journal* 24 (1935), p. 15 and idem, “Excavations at Beth-Shan,” p. 130.

78. Idem, “Excavations at Beth-Shan,” p. 132.

79. Y. Yadin, *Hazor*, The Schweich Lectures of the British Academy (London: Oxford University, 1972), p. 119.

80. I would like to thank S. Geva for having granted me permission to examine the Early Bronze Age sherds from Hazor.

81. Dever and Richard, “A Reevaluation,” p. 2 and fig. 1:12.

82. Y. Yadin et al., *Hazor*, vol. 3–4 (Jerusalem: Magnes, 1961), pl. 154:4. This platter, like those from Beth Yerah, has a very deeply cut groove below the rim exterior.

83. Idem, *Hazor*, Schweich Lectures, p. 120 and n. 2.

Area L yielded the most complete and varied assemblage of Khirbet Kerak Ware with small convex monochrome and sinuous sided bowls and large deep bowls with black exterior and red interior. At least two very large potstands were found, one of which had geometric incisions filled with white paste etched along its base. The assemblage included lids and even a holemouth jar done in Khirbet Kerak style, similar to two examples from Beth Yerah (see *Chapter 2*).

The pottery associated with the Khirbet Kerak Ware from Area L was similar to the EB III assemblage from Beth Yerah. There were several examples of large vats, usually buff or pinkish fabric, with light combing on the exterior. The combing was usually just horizontal. Large shallow bowls with radial burnish were present, as well as typical EB III platters with a concavity below the rim exterior and radial or pattern burnish. Area L also produced metallic store jars, many of them combed. Several of the combed ware jar necks were encircled with an impressed collar. A fair number of channeled rim jars were also found in Area L. One of the pot stands from Hazor had a ledge projecting from the interior, fairly near the rim. This ledge is comparable to a ledge or knob on a stand from Beth Shan, and from Beth Yerah.<sup>84</sup>

Most of the pottery from the post Khirbet Kerak Ware phase is unlike anything from Beth Yerah. It has few parallels in any of the published Early Bronze Age material from Palestine. Its most typical vessels are jars with fairly globular bodies. Most of the exteriors of these vessels were horizontally combed, and often they were decorated with diagonal stripes of thin red wash. At times the red wash was simply applied in blobs. The platters and bowls seem to be thicker, and the rims are thicker and less elongated than the typical EB III platters. The relationship of this group of ceramics to the material already published from Stratum XIX is not clear. It is not yet possible to determine if this assemblage will have more than a very limited regional significance until excavations at other sites have yielded similar material. The EB III ceramics from Hazor are very closely related to the ceramic repertoire of Beth Yerah.

### Tel Requet (Kh. Quneitra)

M. Prausnitz conducted a small salvage operation at Khirbet Quneitra in 1957.<sup>85</sup> The site is located approximately 1.5 km north of Tiberias. Prausnitz excavated a trench that measured 40 m by 4 m. Most of the remains dated to the Early Bronze Age, with the first occupation of the site in the EB I period. The pottery from the EB I settlement was mostly red slipped, burnished, and Grain Wash Ware.

Prausnitz dated the second stage at Quneitra to EB II based on Red Polished "Abydos" type jugs recovered from the site. One type of ware, red slipped, burnished, and painted, deserves special mention. A design of triangles filled with dots and bordered by wavy lines, all drawn with white paint, was found on a number of sherds. Although the design is similar to the decorated sherds of Light Faced Painted Ware, the technique is almost reversed.

Amiran published a vessel from Beth Yerah and attributed it to the EB III period by analogy with a juglet from Jericho. She described the technique of white on red as "derivative and reminiscent of the EB II painting traditions,"<sup>86</sup> but it more likely dates to EB III. The Jericho juglet was only decorated with dots, and had no triangles or wavy lines.

The second stage of architecture was marked by rectangular rooms formed by mudbrick walls on stone foundations. Stone pillar bases were found in the rooms, the courtyards were paved with stones approximately 0.50 m in diameter, and mortars and pestles were found on the paving. Two of the upper levels of the trench yielded Khirbet Kerak Ware bowls of various sizes. Prausnitz placed the material in the same general horizon as that from Beth Yerah, Beth Shan XI–XII, 'Afulah, and Megiddo. Among the small finds were a polished green stone axehead and a bone tube with geometric incisions.<sup>87</sup>

84. FitzGerald, "The Earliest Pottery," pl. 7:7. The Beth Yerah sherd is not illustrated here.

85. M. Prausnitz, "Khirbet Quneitra, 1952," *Alon* 5–6 (1957): 35, 36 (Hebrew).

86. R. Amiran, "The Painted Pottery Style of the EB II in Palestine," *Levant* 6 (1974): 67.

87. The tube is illustrated in Prausnitz, "Khirbet Quneitra," pl. 4.

### Rosh HaNiqra (Kh. Musherifa)

Rosh HaNiqra was excavated by M. Prausnitz and M. Tadmor in 1951 and 1952.<sup>88</sup> The lower area of the tell was primarily composed of remains from the earliest part of the EB I period. The high ground of the site yielded remains from EB I through the EB IV/MB I transition period. In the upper part of the site, fairly substantial fortifications and a gate were excavated. The fortifications were only preserved in most places to a height of one or two courses, but the size of the building stones was roughly 0.50 by 0.50 m. The wall was faced with these large stones, and the core was filled with rubble.

The gate was designed on the "bent-axis" principle. Although Helms disputes the details of the suggested reconstruction of the gate, his reconstruction also depicts a bent-axis plan.<sup>89</sup> The gate was approached along a stepped stone ramp that passed directly alongside the city wall for at least part of its length. The gate at Tell Yarmuth was also approached by a ramp constructed next to the city wall.<sup>90</sup> The ramp at Yarmuth was plastered, and the whole area was dated to EB II or III. The gate at Rosh HaNiqra was more elaborate, however, and Tadmor and Prausnitz point out that it is the earliest example of a bent-axis gate in Early Bronze Age Palestine. Stratum I was restricted to the highest part of the mound.

The pottery of Stratum I is dated to the EB II–III period. No Khirbet Kerak Ware was found in the actual excavations, but several sherds were found on the surface. Large metallic ware pithoi with combed decoration were recovered in addition to a large number of platters. One of the platters had a groove cut below the rim exterior and was red-slipped and burnished. This type appears at Beth Yerah in EB II contexts. At least one example of a channeled rim jar may be present.<sup>91</sup> One of the vessels from Rosh HaNiqra may be a vat.<sup>92</sup> It is labeled a holemouth jar, but its sharply inverted rim and light combing on the exterior suggest that it may have functioned as a vat.

### Tell Qishyon

In 1977 and 1978 Carmela Cohen and Ruth Amiran directed excavations at Tell Qishyon.<sup>93</sup> Early Bronze Age ceramics were recovered in both areas of excavation, but the pottery dated to the EB I and III periods only. No EB II occupation has been discovered at Qishyon. Strata I and II were both assigned to EB III. Stratum I, the latest occupation level, was severely damaged by erosion and the effects of modern cultivation. Several paved floors were preserved, however, and a large Khirbet Kerak Ware pot stand was found on one of the floors. The excavators also discovered a large vat on a floor from Stratum I.

Stratum II also was composed of paved floors and small domestic structures. The presence of Khirbet Kerak Ware dated this stratum to EB III. The large pot stand, the large and small bowls, the sinuous sided bowls, the knobbed cooking pot lid, and the sherds with incised and filled geometric decoration all placed this Khirbet Kerak Ware from Qishyon with the comparable assemblages from 'Afulah, Beth Shan, Hazor, Shuneh, and Beth Yerah. The pottery found with the Khirbet Kerak Ware also was typical of the EB III period, although none of it was illustrated. Platters, metallic ware, and pattern combed ware were all found in

88. M. Tadmor and M. Prausnitz, "Excavations at Rosh Hanniqra," *Atiqot* 2 (1959): 72–88.

89. S. Helms, "The Early Bronze Age Gate at Ras en-Naqura (Roš ha-Niqra)," *ZDPV* 92 (1976): 1–9.

90. Miroshedji, "Tel Yarmut, 1980," p. 123 and fig. 1; idem, "Tel Yarmut, 1986," fig. 1; idem, "Données nouvelles sur le bronze ancien de Palestine: Les Fouilles de Tel Yarmouth," *Académie des Inscriptions and Belles-Lettres* (Paris: Boccard, 1988), fig. 5 for photograph of gate.

91. Tadmor and Prausnitz, "Excavations at Rosh Hanniqra," fig. 5:22.

92. *Ibid.*, fig. 5:30. A pattern combed holemouth is known, however. See O. Tufnell, *Lachish*, vol. 4 (London: Oxford University Press, 1958), pl. 63:315.

93. R. Amiran and C. Cohen, "Tel Qishyon: Notes and News," *IEJ* 27 (1977): 164, 165; see also C. Cohen-Arnon and R. Amiran, "Excavations at Tel Qishyon (A Preliminary Report)," *EI* 15 (1981): 205–12.

the EB III context. Cohen and Amiran emphasize the similar occupational history of 'Afulah and Qishyon. Both sites were occupied in EB I, had gaps in EB II, and were reoccupied in EB III.<sup>94</sup>

### Qadesh Naphtali

A very limited sounding was made at Qadesh Naphtali in 1953 directed by Y. Aharoni.<sup>95</sup> The total area of the site is about 10 ha. It is located in a valley about 6 km in length, and is the largest tell in Galilee. The site is actually composed of two areas which are divided by a modern road. Aharoni located his trench in the northeast portion of the southern tell, precisely where the road cut through the edge of the site. He reports that almost half of the tell was Early Bronze Age, and indeed the depth of deposit reached 5.25 m.

Excavation of the step trench revealed a thick mudbrick defense wall which measured over 5.40 m wide and was dated to the "early level of the Early Bronze Age."<sup>96</sup> No detailed information about the ceramic indicators associated with this wall was given. The pottery was simply described as typical red slipped and burnished sherds, pierced lug handles, and flat bases. One Khirbet Kerak Ware sherd was found with the pottery associated with the wall, but the nature of this limited sondage precludes the use of the sherd as a chronological indicator. Aharoni noted that there was combed ware and much Khirbet Kerak Ware in the EB III levels of Qadesh Naphtali.<sup>97</sup> All three phases of the Early Bronze Age seem to be represented at this site. The few Khirbet Kerak ware types illustrated from Qadesh include a small monochrome bowl, at least two sherds of large bowls decorated with circular appliquéd designs and one knobbed cooking pot lid.<sup>98</sup>

### Tell esh-Shuneh

Salvage excavations at Tell esh-Shuneh were carried out in 1953 by J. Mellaart and H. de Contenson and in 1984–1985 by C. Gustavson-Gaube.<sup>99</sup> Shuneh is 1 km in length, 10 m high, and is presently covered by two modern villages. The trench excavated by de Contenson yielded Chalcolithic, EB I, and EB II ceramics. Although EB III material was abundant on the site surface, de Contenson's area produced no trace of that phase. He dated his Level IV to EB II. This level included at least two hard packed floors. The amount of published material is small, and there are few indicators that would force an EB II date. Most would fit comfortably into EB I, although two red burnished platters, and three "black" burnished platters may support de Contenson's date. Three of the sherds are pattern burnished.<sup>100</sup>

Mellaart's trench produced a large quantity of Khirbet Kerak Ware. He described his EB material as a "thick deposit," and the Khirbet Kerak Ware as present in "enormous quantities."<sup>101</sup> Khirbet Kerak Ware from Shuneh includes all types. The small monochrome bowls are ubiquitous. Sinuous sided bowls, large

94. Cohen-Amnon and Amiran, "Excavations at Tel Qishyon," p. 211.

95. Y. Aharoni, "Archaeological Survey," *Yediot* 17 (1953): 126–37 (Hebrew); idem, "Trial Excavations at Qadesh-Naphtali," *Yediot* 17 (1953): 158, 159 (Hebrew); idem, "Kadesh Naphtali," *IEJ* 3 (1953): 263; idem, *The Settlement of the Israelite Tribes in Upper Galilee* (Jerusalem: Magnes, 1957 [Hebrew]).

96. Idem, "Archaeological Survey," p. 131; and idem, "Trial Excavations," p. 158.

97. Idem, *Settlement of the Israelite Tribes*, pp. 10–12.

98. *Ibid.*, pl. 6:12, 14, 16, 17, 19.

99. J. Mellaart, "Archaeological Sites Endangered by the Yarmuk and Jordan Irrigation Scheme and Recommendations for Work to be Done," *ADAJ* 6–7 (1962): 129–57; H. de Contenson, "Three Soundings in the Jordan Valley," *ADAJ* 4–5 (1960): 12–98; see also C. Gustavson-Gaube, "Tell esh-Shuna North 1984: A Preliminary Report," *ADAJ* 29 (1985): 43–87 and idem, "Tell esh-Shuna North, 1985: A Preliminary Report," *ADAJ* 30 (1986): 69–113, although the most recent excavations only revealed material from Chalcolithic and EB I.

100. de Contenson, "Three Soundings," p. 29.

101. Mellaart, "Archaeological Sites Endangered," p. 132. I would like to thank A. Leonard, Jr. for his willingness to show me his unpublished drawings of the pottery from Mellaart's soundings.

deep bowls with appliquéd design, and stands, both corrugated and plain, were found in Level V. Knobbed lids, lids with incised geometric design, and andirons were discovered at the site. The complete range of types from Shuneh Level V indicates that the ware was probably manufactured at the site. Khirbet Kerak Ware was predominant in the material I have seen. More detailed comparisons must await final publication. The EB II levels from Mellaart's trench (Level IV) also did not yield any pottery which was directly comparable to that from Beth Yerah.

## SUMMARY

Although much of the material reviewed here is either incompletely published or not published at all, certain correlations can be made between the ceramic finds from Beth Yerah and those from the other sites of northern Palestine. EB II pottery comparable to that from Beth Yerah was found at Tel Qashish Phases 4–5, Ta'anach, and Rosh HaNiqra Stratum I. The EB II period in northern Palestine is not well known, and more ceramic refinement is necessary before the period can be fully understood and subdivided. At Beth Yerah, EB II material was found directly below levels that contained Khirbet Kerak Ware, and thus its attribution is certain. Moreover, the clear comparisons made between much of the Beth Yerah material and the EB II pottery from 'Ai show that the same cultural sequence can be observed at both sites.

The EB III levels in northern Palestine are most clearly represented by Phase 3 at Tel Qashish, Strata I and II at Tel Qishyon, Hazor XIX–XXI, Shuneh V, and the upper levels of Ta'anach. At Megiddo, most of the pottery from Stratum XVIII, all of the pottery of XVII–XVI and at least some of the pottery from Stratum XV is characteristic for EB III. The best comparative material south of the region is from Jericho Phases A–F, 'Ai Phases VI–VIII, Tell Beit Mirsim J, Tell el Hesi, Yarmuth, and Lachish.

## CULTURAL CONTEXT

### REGIONAL SUBSISTENCE AND INTRAREGIONAL TRADE

Although the recent excavations at Beth Yerah have not yielded botanical evidence, the local agricultural base during the third millennium can be reconstructed from a number of sources. In the open courtyard of the large granary excavated by Mazar a great many burned bones and carbonized olive pits were found near the ovens.<sup>102</sup> Olives and peas were grown in the Golan heights as early as the Chalcolithic period.<sup>103</sup> In the sixteenth century A.D., olive production was primarily located in the Galilean hills and the hill country of Samaria (see *Chapter 1*). The soils and warm climate of the Jordan Valley between the Sea of Galilee and the Beth Shan Valley were simply not conducive for the growing of olives, but they were well suited for the raising of grain crops. Nineteenth-century eyewitness accounts record that the predominant crops in this area were grains. With suitable cultivation techniques, it is possible to grow olives in the Jordan Valley (they are grown today in Jericho and Beth Shan), and they may have been grown at Bab edh-Dhra'.<sup>104</sup> Although olives were most certainly an important part of the diet at these Jordan Valley sites, it is probable that they were not grown intensively in immediate proximity to the settlements and that the olive/grain exchange was an important element in the intraregional economy.

At Beth Shan, evidence for both cereals and pulses was found in Early Bronze Age contexts. The large pithoi broken on the floor of a Stratum XIII house contained beans and lentils, as well as barley and wheat.<sup>105</sup> The most plentiful crops recovered in the excavations at Bab edh-Dhra' were barley, wheat, grape, fig, lentil,

102. Mazar, Stekelis, and Avi-Yonah, "The Excavations at Beth-Yerah," p. 227.

103. C. Epstein, "A New Aspect of Chalcolithic Culture," *BASOR* 229 (1978): 27–45.

104. D. Zohary and P. Spiegel-Roy, "Beginnings of Fruit Growing in the Old World," *Science* 187 (1975): 320; D. McCreery, "The Nature and Cultural Implications of Early Bronze Agriculture in the Southern Ghor of Jordan" (Ph.D. diss., University of Pittsburgh, 1980), pp. 94, 95.

105. FitzGerald, "The Earliest Pottery," p. 13.

and flax, with smaller quantities of chickpea, pea, broad bean, date, olive, and almond represented in the sample. McCreery has shown that the Early Bronze Age agricultural system was dependent on simple gravity-flow irrigation that used local spring water. Helbaek has suggested this sort of irrigation for both Bab edh-Dhra', based on the large seed flax, and for Tell Sukas on the Syrian coast, based on the large uniform size of the wheat kernels and the absence of weeds typically found in dry farmed samples.<sup>106</sup> There is little doubt that gravity-flow irrigation, much like that at Bab edh-Dhra', was also practiced in the northern Jordan Valley along the wadi bottoms and on the alluvial fans where the wadis debouched into the valley floor.

A large number of flints of the Canaanite blade type were found in The Oriental Institute excavations at Beth Yerah, and a number of them showed evidence of sickle sheen. Many of the blades were not retouched, and it is probable that they were originally traded as blanks and then were retouched when needed.<sup>107</sup>

The agricultural subsistence base at Beth Yerah was supplemented by fishing in the Sea of Galilee. Objects probably used as net weights have been found in The Oriental Institute excavations. These objects were of a fairly uniform size and were always well smoothed. A number of large stone objects which may have served as anchors have been found in the vicinity of Beth Yerah.<sup>108</sup> The anchors were pierced by a single large biconical hole. The great size of some of these "anchors" makes it unlikely that they were actually functional, and they may have been used for cultic purposes.<sup>109</sup> Their date ranges from EB II (found in stratified excavations at Beth Yerah) to what was probably a secondary use in an EB IV/MB I tomb.

Pastoralism also played an important part in the economy of the inhabitants of Beth Yerah. Specialized camps in the hills of Galilee and the Golan served the needs of the transhumants during the summer (see *Chapter 4*). Links between Beth Yerah and the Golan were particularly strong, as evidenced by the presence of combed metallic ware jars with geometric seal impressions at several of the pastoral camps or "enclosures" in the Wadi Samakh route up to the Golan. The similarity in design between the ubiquitous impressions from Beth Yerah and those from the Golan strongly suggests close ties between the two areas.<sup>110</sup> No osteological report has yet been prepared on the Beth Yerah excavations, but the evidence from other Early Bronze sites indicates that sheep, goats, and cattle were common in the EB. A number of figurines from Beth Yerah clearly depict cattle. A bowl from Mazar's excavations had the heads of two horned bovines modeled on the rim, and a holemouth jar from The Oriental Institute excavations bore the outline of a bull in low relief on its base.<sup>111</sup>

Without the aid of contemporary written sources it is very difficult to determine the nature of the internal economic organization of Beth Yerah and its hinterland. The three primary means of economic exchange are reciprocity, redistribution, and market exchange. Although at different levels all three systems could have operated, at times even within the framework of the same overall organization; redistribution and market exchange are the two most likely to have been applicable to the city of Beth Yerah. The city provides the best archaeological evidence in all of Palestine for a central organization with at least some power of

106. D. McCreery, "Paleobotany," in W. Rast and R. T. Schaub, "Preliminary Report of the 1979 Expedition to the Dead Sea Plain, Jordan," *BASOR* 240 (1980): 52, 53; Hans Helbaek, "Les Grains carbonisés de la 48ème couche des fouilles de Tell Soukas," *AAS* 11/12 (1961-62): 185, 186.
107. S. Rosen, "The Analysis of Early Bronze Age Chipped Stone Industries: A Summary Statement," in P. de Miroschedji, ed., *L'Urbanisation de la Palestine à l'âge du Bronze ancien*, BAR International Series 527 (Oxford: BAR, 1989), pp. 199-222; see also R. Neuville, "Notes de préhistoire palestinienne," *JPOS* 10 (1930): 206.
108. S. Wachsmann and K. Raveh, "Underwater Investigations by the Department of Antiquities and Museums: Notes and News," *IEJ* 28 (1978): 281-83; see also M. Kochavi, "A Built Shaft Tomb of the Middle Bronze Age I at Degania A," *Qadmoniot* 6 (1973): 50-53 (Hebrew).
109. H. Frost, "The Stone Anchors of Byblos," *Mélanges de l'Université Saint Joseph* 45 (1969): 429. Anchors have been found in cultic contexts at Byblos and Ras Shamra. Of the twenty-one full-sized anchors recovered in the Byblos excavations, thirteen were found in cultic contexts. In one instance, six chalk anchors were used as the first step of a flight of stairs leading to the "Tower Temple." The backs of the anchors had never been finished, indicating that they were never meant to be seen, and thus their use as steps was probably not secondary. They were dated by Dunand to approximately the twenty-third century B.C.
110. Ben-Tor, *Cylinder Seals*, p. 107.
111. Mazar, Stekelis, and Avi-Yonah, "Excavations at Beth Yerah," pl. 19; V. Sussman, "A Relief of a Bull from the Early Bronze Age," *BASOR* 238 (1980): 75-77.

redistribution. The massive granary (1,200 m<sup>2</sup>) excavated by Mazar is a valuable clue to the economic importance of the city in the Early Bronze Age. Kempinski has suggested that it had the potential of holding at least 800 tons of grain.<sup>112</sup> Unfortunately, the difference between a redistributive and a market exchange system is impossible to determine archaeologically in the absence of texts. Renfrew notes, however:

accompanying the exchange, in the case of redistribution, is a central organization within whose functioning the economic function is embedded. In the physical sense, redistribution implies the physical reception and disbursement of the goods by the central authorities and hence the provision of considerable storage facilities, as in the Minoan-Mycenaean palaces.<sup>113</sup>

Although Beth Yerah surely participated in interregional and international trade, it is at the level of intraregional trade that the city's existence comes into focus most sharply. How does one explain the existence of such a large site, clearly one of the most prominent sites in northern Palestine, in an area that is not particularly well known for its agricultural fertility (at least by Early Bronze Age standards) or its outstanding natural resources?

The diversity of its resource base and the practice of a successful mixed economy did not allow Beth Yerah to remain simply a tightly bound self sufficient village. Beth Yerah was a place of central importance in northern Palestine. Although its great size may have been partially due to its location on one of the major international trade routes, the site achieved its real prominence because of its location straddling the border between two major eco-zones: the Mediterranean and the Irano-Turanian steppe. Rather than stagnate with self sufficiency, the city became a true focal point, the nexus between two very diverse ecological zones with different potentials.

The development of crop specialization in the third millennium provided the impetus for the growth of urban centers like Beth Yerah. Intraregional exchange occurred between the hill country, which produced olives and other fruits, and the plains and valleys which provided wheat and barley.

The advantages of redistribution over reciprocity, in terms purely of efficiency, as indicated above, when a large proportion of the total per capita produce is to be exchanged, are considerable. In such a case a redistributive center is to be expected, located at or near the point of intersection where ... subregions meet.<sup>114</sup>

The general nature of crop specialization in an area like northern Palestine with varied topography, soils, access to water, and climatic conditions in such a relatively small area can best be understood as "economic rent."<sup>115</sup> Specialization of agricultural production occurs when several subregions all have the capability of producing crops sufficient for subsistence, but inherent fertility, suitability of soils, or climatic constraints make the production of one crop more efficient than another. An exchange system is then developed to facilitate the sharing of the results of this resource exploitation. This process is basically endogenous, and hence intraregional.

## INTERREGIONAL TRADE

Although there probably was a certain degree of interregional trade, it is unlikely that interregional agricultural exchange was a major economic force in the development of urban centers. Most of the Levant exhibited the same topographical (highland/lowland) and climatic (Mediterranean/Irano-Turanian) diversity.

112. Kempinski, *The Rise of an Urban Culture*, p. 29.

113. C. Renfrew, "Trade as Action at a Distance," in J. Sabloff and C. C. Lamberg-Karlovsky, eds., *Ancient Civilization and Trade* (Albuquerque: University of New Mexico, 1975), pp. 11, 52.

114. *Ibid.*, p. 29.

115. M. Chisholm, *Rural Settlement and Land Use* (Chicago: Aldine, 1968), pp. 15-24.

Thus, at least in terms of agricultural production, there was probably little need for sophisticated exchange mechanisms to distribute agricultural products between regions that boasted the same potential.

That was not the case, however, for products that were the result of regional diversity. Trade in copper may have been active between sites in southern Sinai and sites like Arad in the northern Negev. At the site of Nabi Salah in Sinai, copper pellets were found on a floor of one of the EB II houses. Also found in a number of rooms were copper implements (an axehead and square-cut awls).<sup>116</sup> Petrographic analysis of the ceramics from the Sinai site showed that the content of the clay from Nabi Salah and Arad was identical. The Sinai site also yielded mother of pearl rhomboid buttons with two holes pierced in them that were identical to a button from Arad. Since the excavations at Nabi Salah, awls, refined copper pellets, and a rhomboid shell button have been found at other south Sinai sites.<sup>117</sup> Some sort of economic relationship between these southern Sinai sites and sites in southern Palestine must have existed. Small sites with a layout similar to that of Nabi Salah were also discovered throughout the Negev, forming a link between the Sinai and south Palestinian sites.<sup>118</sup>

Interregional trade in flint implements may also have occurred during the Early Bronze Age. The most common type of flint tool found in the Sinai and Negev sites is the fan scraper made of tabular flint. These fan scrapers were known as early as the Chalcolithic period but continued to be produced in the Early Bronze Age. Schick has noted that sixty-four scrapers were found at Arad and an equal number were excavated at Jericho. Although they have been found at Tell el Far'ah (N) and Beth Yerah, they are generally considered more scarce in the northern part of Palestine.<sup>119</sup> In addition to the fan scraper's easily identifiable shape, the white or yellow cortex is usually left on the implement and in many cases bears an incised decoration. This is true of tabular tools from Sinai to Beth Yerah. This tool may have been used more for butchering than for scraping.<sup>120</sup>

Although Canaanian sickle blades outnumbered the Ghassulian type scrapers at Arad, such was not the case at Bab edh-Dhra' and the EB sites south of Arad. The Canaanian blade was clearly a minor tool type in the Bab edh-Dhra' flint assemblage. All of the blades were made of a light tan chert different from the darker local flints. The Canaanian blade type has been found as far north as the Syrian 'Amuq, and its limited representation at Bab edh-Dhra' may indicate the point where it became a rarer trade item than it was at Arad. Schick concludes that the fan scrapers and Canaanian blades were most likely manufactured in workshops by specialized craftsmen<sup>121</sup> a view which has been confirmed by Rosen.<sup>122</sup> Rosen has suggested that there were several village production centers. Prismatic blade cores used in the manufacture of Canaanian blades have been recovered from Lahav, Gezer, Sidon-Dakerman, and Har H̄aruvim, but only Lahav and Har H̄aruvim, on the western end of the Jezreel, have yielded more than two blade cores. It is likely that production of the Canaanian blade was practiced at several specialized regional centers.

116. I. Beit Arieḥ, "An Early Bronze II Site at Nabi Salah in Southern Sinai," *TA* 1 (1974): 144–56; see also R. Amiran, Y. Beit Arieḥ, and J. Glass, "The Interrelationship between Arad and Sites in Southern Sinai in the Early Bronze Age II," *IEJ* 23 (1973): 193–97. For an elaboration on the role of the copper trade in the urban development of Arad, see O. Ilan and M. Sebbane, "Copper Metallurgy, Trade, and the Urbanization of Southern Canaan in the Chalcolithic and Early Bronze Age," in Miroshedji, ed., *L'Urbanisation de la Palestine*, pp. 139–62.
117. For the most recent excavations in southern Sinai, see I. Beit Arieḥ, "An Early Bronze Age II Site near Sheikh 'Awad in Southern Sinai," *TA* 8 (1981): 95–127.
118. I. Beit Arieḥ and R. Gophna, "Early Bronze Age II Sites in Wādi el-Qudeirāt (Kadesh Barnea)," *TA* 3 (1976): 142–50; idem, "The Early Bronze Age II Settlement at 'Ain el-Qudeirāt (1980–1981)," *TA* 8 (1981): 128–35; see also R. Cohen, "Tel Esdar, Stratum IV," *IEJ* 28 (1978): 185–89.
119. Schick locates the possible source for tabular flint scrapers in the Wadi Fallik in Sinai; see T. Schick, "Flint Implements," in Amiran, *Early Arad*, p. 62 and n. 149; Rosen suggests an equally plausible location in the western Negev; S. Rosen "Tabular Scraper Trade: A Model of Material Cultural Dispersion," *BASOR* 249 (1983): 79–86.
120. M. McConaughy, "Chipped Stone Tools," in W. Rast and R. T. Schaub, "Preliminary Report of the 1979 Expedition to the Dead Sea Plain, Jordan," *BASOR* 240 (1980): 53.
121. Schick, "Flint Implements," p. 62.
122. S. Rosen, "The Canaanian Blade and the Early Bronze Age," *IEJ* 33 (1983): 26–28. See also idem, "The Analysis of Early Bronze Age Chipped Stone Industries."

Although there was probably little agricultural exchange, the metal and flint industry show some signs of specialized production and interregional trade. Another limited group of objects was probably produced in a specialized workshop (or workshops) and most likely represents a certain degree of interregional trade. At least four ivory carvings depicting the head of a bull have been found in Palestine. Jericho, 'Ai, and Beth Yerah have all produced the small heads carved in the round. The head from 'Ai is dated to EB II.<sup>123</sup> Those from Jericho and Beth Yerah have been assigned to EB III.<sup>124</sup> At Jericho, a stone bull's head very similar to the ivory piece was discovered and also dated to EB III. The location of the workshops that produced these fine works is not known, but the close relationship between 'Ai, Jericho, and Beth Yerah should be underscored, for it was also evident in the ceramic repertoire of the three sites.

Interregional contacts between southern Syria and northern Palestine were undoubtedly common, but the nature of the exchange relationship is still very obscure. Two distinct vessel types found at Byblos may be related to some pieces from Beth Shan. Dunand classed the first type from Byblos as a subgroup of the combed ware jars. This class is mainly distinguished by its small size. His primary example is a small jar (0.12 m high) of red fabric with pattern combing on its upper body and horizontal combing below its two loop handles to its base. The description of this jar indicates that the combed areas were filled with a white material. Whether this was a slip or simply a lime incrustation as Dunand has suggested is not known.<sup>125</sup>

Dunand relates this jar to a deposit of small jars which range in size from 0.08 to 0.14 m. This deposit contained 416 of these jars or "amphorettes" and was dated by Dunand to the end of the Egyptian Sixth Dynasty.<sup>126</sup> Some of the illustrated jars show signs of combing, but none have pattern combing like the small jar just mentioned. In the red painted decoration on the jars, eleven categories of motifs have been distinguished. Little is known of the jars' context, but they were found in Levees XXI–XXX. Reisner and Smith were aware of this cache when they discussed the Giza combed ware, but they rejected the similarity in form with the Giza jars because of the great disparity in the relative sizes of the jars from Byblos and those from Egypt<sup>127</sup>. Two jars which seem to belong to this "amphorette" class were found in the excavations at Beth Shan in Level XII.<sup>128</sup> The jars are between 0.10 and 0.15 m tall. Both have pronounced loop handles similar to those from Byblos. Unfortunately, this level was badly mixed and contained pottery from EB IV/MB I and MB II as well as from EB III (Khirbet Kerak Ware and pattern burnished platters and bowls).

Another class of vessels found at Beth Shan is decorated in a manner similar to a jug from Byblos. The Beth Shan group includes bowls and jugs, decorated with a red burnished slip.<sup>129</sup> Herringbone decoration, zigzag lines, and dots in triangles are painted on bands that were left unslipped. Although Amiran classified them as Khirbet Kerak Ware, they resemble Khirbet Kerak Ware neither in form nor decoration.<sup>130</sup> They seem to be most closely related to the jug from Byblos which was also covered by a red slip. Three bands were left unslipped on the upper part of the jug body.<sup>131</sup> The bands were decorated with dotted triangles.

These two small groups of pottery form a tenuous link between Beth Shan and Byblos. The cultures of northern Palestine and southern Syria certainly communicated with one another, but again, the extent of interregional exchange was probably very limited, for the agricultural resource base of the two regions was almost identical.

123. Callaway, *'Ai Citadel*, p. 124.

124. A. Ben-Tor, "An Ivory Bull's Head from Ay," *BASOR* 208 (1972): 24–29. Two bulls' heads carved in bone have also been recovered at Arad and Yarmuth; see *ibid.*, p. 29, fig. 3 and Miroschedji, *Yarmouth I*, pl. 48:1.

125. M. Dunand, *Fouilles de Byblos*, vol. 1 (Paris: Geuthner, 1939), pl. 148: no. 3815.

126. *Ibid.*, pls. 78, 79: nos. 4582–4907. See also O. Negbi, "Contacts between Byblos and Cyprus at the End of the Third Millennium B.C.," *Levant* 4 (1972): 98–110, especially pp. 104, 105, 109.

127. George A. Reisner and William Stevenson Smith, *A History of the Giza Necropolis*, vol. 2 (Cambridge, MA: Harvard University Press, 1955).

128. FitzGerald, "Excavations at Beth-Shan," pl. 5, bottom row: far right and third from left.

129. *Idem*, "The Earliest Pottery," pl. 7:9, 12–14, 18; and *idem*, "Excavations at Beth-Shan," pl. 6: fig. 2.

130. Amiran, "The Painted Pottery Style," p. 67.

131. M. Dunand, *Fouilles de Byblos*, vol. 2 (Paris: Librairie d'Amérique et d'Orient, 1954), pl. 83: no. 18133; see also Amiran, "The Painted Pottery Style," p. 67 and pl. 26, and the discussion by Negbi, "Contacts between Byblos and Cyprus," p. 105.

## INTERNATIONAL TRADE: CONTEXT AND CONTACTS

While intraregional and interregional trade set the tone for subsistence in the third millennium, it was international trade that exerted a profound effect on Levantine culture and probably even social and political organization. Under the impetus provided by international trade the delicate equilibrium of the agricultural/pastoral economy characteristic of EB I (see *Chapter 4*) shifted to the more specialized economy required for international exchange in the EB II–III periods.

Foreign trade was an exogenous force that greatly influenced the major decisions about land use. Far-reaching political and social consequences, in addition to maximization of resource potential (i.e., profit), were to accrue from increased international trade during the Early Bronze Age.<sup>132</sup> Although trade undoubtedly affected the social and economic systems of trading partners who approached one another as equals, it had an even greater influence on those who approached the exchange from two distinct and unequal levels. Renfrew acknowledged the problem when he distinguished the interaction which occurred between “primary civilizations” from that which occurred between “primary” and “secondary” civilizations. He was interested in the effects that a trade relationship had upon a culture that was less highly differentiated than its trading partner.<sup>133</sup>

Renfrew described one aspect of the process as “emulation, where the acquisition of exotic prestige items by the individuals who control the supply strengthens the development of a social and political hierarchy. The “secondary civilization” then adopts the source society’s values and social procedures (although they are presumably altered to fit indigenous patterns).

Tracing values and social procedures in the archaeological record is not an easy task. There is little doubt, however, that contact between primary and secondary civilizations must have had a tremendous influence on the less developed society. Prestige value of the products exchanged is an important factor in any discussion of the interaction between trading partners; it is essential to both parties in order for the exchange to be initiated, and the prestige value of an object can become embedded in the social system.<sup>134</sup>

Stager has suggested that one of the primary reasons for the importation of the agricultural products from the Levantine coast was the prestige value of the wines and precious oils that were produced in the region so ecologically diverse from Egypt.<sup>135</sup> The investment of capital, labor, and time in the production of potential cash crops such as olives and grapes was a direct outgrowth of the burgeoning international market of the Early Bronze Age economy, a market that was not conceivable before the demand by the newly organized hierarchy that developed in Egypt at the end of the fourth millennium.

The evidence for trade with Anatolia is much less direct. Ben-Tor has shown the possible connections with Lerna by a comparative analysis of geometric cylinder seal impressions from that site with those from northern Palestine.<sup>136</sup> Bone tubes decorated with incisions also have affinities with Anatolian and Syrian examples. In Palestine they have been found from Tell el Hesi in the south to Tel Dan in the north.<sup>137</sup> Ceremonial stone axeheads were found in an EB III context in the ‘Ai “palais.” They are related to similar

132. See R. McC. Adams, “Anthropological Perspectives on Ancient Trade,” *Current Anthropology* 15 (1974): 244.

133. Renfrew, “Trade as Action at a Distance,” p. 22. See now also D. Esse, “Secondary State Formation and Collapse in Early Bronze Age Palestine”, in Miroshedji, ed., *L’Urbanisation de la Palestine*, pp. 81–96.

134. Renfrew, “Trade as Action at a Distance,” p. 37; see also Adams, “Anthropological Perspectives,” p. 242.

135. Stager, “The Firstfruits of Civilization,” pp. 172–87. Stager suggests that by the Early Bronze Age: “the Levant was supplying the Egyptian elite with some of these luxury products. Probably imported wines and oils were already in demand for banquets and offerings. These sumptuary items must have conferred a measure of prestige on those who could afford them ... .” (p. 175).

136. Ben-Tor, *Cylinder Seals*, pp. 96–99.

137. See Hennessy, *Foreign Relations*, pl. 77; P. Parr, “Palestine and Anatolia: A Further Note,” *Bulletin of the Institute of Archaeology* 1 (1958): 21–23; For the tubes from Tell el Hesi, see J. Ross, “Early Bronze Age Structures at Tell el Hesi,” *BASOR* 236 (1979): 19 and fig. 11; see also A. Biran, “Tel Dan: Five Years Later,” *BA* 43 (1980): 172; Fargo, “Settlement in Southern Palestine,” pp. 218–21; Miroshedji, *Yarmouth I*, pl. 48:3, 4.

axeheads found in Anatolia as far west as Troy.<sup>138</sup> The small gold roundel found in the tomb at Kinneret is stylistically similar to the gold pins found at Alaca Hüyük, despite the chronological discrepancy.<sup>139</sup> Contacts with Anatolia and northern Syria are clearly illustrated by the Khirbet Kerak Ware assemblages found in northern Palestine.

With the exception of Khirbet Kerak Ware, which was not the product of a trade relationship, the connections between Anatolia and Palestine are either very general (seals, bone tubes) or extremely specific (stone axes). Neither extreme, however, provides the sort of evidence needed to postulate continuing and influential trade relationships. General diffusion or a “trinket trade” could be the result of only sporadic and non-institutionalized contacts. Whether the exchange was direct or the result of “down-the-line” trade is not known. The distribution of bone tubes and axeheads may have been the product of down-the-line land-based trade. The intermediate links between the seal centers of northern Palestine and the Argolid (Lerna) are not as well documented.<sup>140</sup> Boats capable of sailing from the Argolid to the Levant were in existence by the mid-third millennium as shown by models of long-boats found at Aegean sites.<sup>141</sup> As noted earlier, however, trade contacts with Anatolia were probably very limited in scope, both in frequency and quantity of goods exchanged.

On the other hand, during the EB II–III period, trade with Egypt was anything but sporadic. The Levantine exports of wine, oil, and timber to Egypt are evident both from archaeological recovery and from Egyptian textual sources. Trade with Palestine can be demonstrated most clearly by a review of three major vessel categories, common to both Syria and Palestine, that were found in Egyptian tombs: Red Polished Ware jugs, Light Faced Painted Ware, and combed ware jars.

## Red Polished Ware

An important link between Syria-Palestine and Egypt is a class of vessels called “Red Polished Ware.”<sup>142</sup> Unlike the large group of combed wares which predominate in Old Kingdom contexts, the Red Polished Ware vessels seem to cluster in the First Dynasty. Their distribution ranges from Egypt to as far north along coastal Syria as Tell Sukas,<sup>143</sup> and Qal‘at er-Rus.<sup>144</sup>

Helck follows Reisner and Smith by dividing the “Syrian” vessels found in Egyptian contexts into two groups.<sup>145</sup> One group is generally defined as having one handle (the Red Polished Ware). The other group has two handles. This sort of division worked for Reisner because almost all of his two handled vessels were combed; thus the division, although set up by “handles,” was in reality divided by “ware.” Helck’s scheme included the material from the earlier tombs, and his classification suffers a great deal because of the use of handles as a diagnostic feature. He also includes a number of vessel types that have vestigial handles or no handles whatsoever.

The predominant jug type has one handle and is usually red slipped and burnished. The ware descriptions are often absent or ambiguous in the reports of the early Egyptian excavations, but the type is usually

138. M. Prausnitz, “Ay and the Chronology of Troy,” *Eleventh Annual Report of the University of London Institute of Archaeology* (1955): 19–28.

139. Mazar, Amiran, and Haas, “An Early Bronze II Tomb,” pp. 183–86.

140. Ben-Tor, *Cylinder Seals*, p. 98.

141. C. Renfrew, *The Emergence of Civilisation* (London: Methuen, 1972), pp. 357, 358, 455.

142. Kantor, “Egypt and Its Foreign Correlations,” p. 15.

143. For an excellent example identical to those jugs from Syria-Palestine, see P. J. Riis, “L’Activité de la mission archéologique danoise sur la côte phénicienne,” *AAS* 11/12 (1961–62): 136 and fig. 5; see also A. Ehrich, *Early Pottery of the Jebel Region*, *Memoires of the American Philosophical Society*, vol. 13 (Philadelphia: American Philosophical Society, 1939), pp. 59–61.

144. See Ehrich, *Early Pottery*, pp. 27–29.

145. See W. Helck, *Die Beziehungen Ägyptens zu Vorderasien im 3. und 2. Jahrtausend v. Chr.*, rev. ed., *Ägyptologische Abhandlungen* 5 (Wiesbaden: Harrassowitz, 1971), pp. 28–34.

referred to as “red ware” or “foreign ware.” Although much of the local Egyptian pottery from the tombs was also called red ware, in most cases the imported ware is labeled as such.<sup>146</sup> Quantity and size are also difficult to determine, especially when the ware is typed and only the type numbers are referred to throughout the publication. The red polished category also includes handleless jugs or jugs that in some cases have two loop or vestigial handles on the body.<sup>147</sup>

A minimum of 117 Red Polished Ware jugs have been found in Egyptian tombs at Tarkhan, Helwan, Lahun, Giza, Saqqarah, and Abydos. At least ninety-eight jugs were found at Saqqarah, but fifty-six of them came from just one tomb,<sup>148</sup> Tomb 3506, dated to the time of Den. Of the fifty-six vessels from this tomb, forty-one were completely handleless (Helck’s Types O and P). This tomb included a number of different types, however. The one handled and handleless jugs are almost certainly coeval, and thus few chronological details can be gleaned from a detailed analysis of the types.

The lack of details about the size of the various Red Polished Ware jugs found in Egyptian contexts prevents definitive analysis. The histogram (figure 21) indicates, however, that the Red Polished Ware jugs for which size can be determined are fairly uniform. The major range of the vessels is from 0.21–0.35 m.

The Red Polished Ware jugs with flat base and handle springing from rim to shoulder were discovered in the tomb of Djer but go as late as the Fourth Dynasty, judging from the jug found in the tomb of Queen Hetepheres discovered at Giza.<sup>149</sup> The lack of Red Polished Ware jugs from later contexts may be an accident of discovery, however, since a relief dating to the time of Sahure clearly shows Red Polished Ware jugs (and bears) imported from an unspecified location in Syria-Palestine.<sup>150</sup>

Often one or two vestigial handles are attached to the upper body of the vessels. In southern Syria these vestigial handles appear on jugs from Lebea and Byblos.<sup>151</sup> In Lebea Tomb 6, a jug with a vestigial handle appears in association with a jug with long tapering neck and a handle attached halfway along the neck.<sup>152</sup> A vestigial handle is also located on a Red Polished Ware vessel from Byblos. This jug was found in a cache of Red Polished Ware ware, that included simple Red Polished Ware one handled jugs, as well as a jug with tall “narrow tapering neck and handle attached halfway along it” (at least one and perhaps two examples).<sup>153</sup> A very similar jug was also found in the EB II levels at Beth Yerah.

The resemblance between these Byblos and Lebea groups and the assemblage from Jericho Tomb A 108 will also be noted in the discussion of the combed ware from Dan and Lebea. Hennessy dates both the Lebea and Byblos groups to “Early Bronze I (?)” based on the assumption that Jericho Tomb A 108 dates to EB I.<sup>154</sup> The assignment of this Jericho tomb to early EB II eliminates the need to drop the Byblos and Lebea assemblages down into EB I. Amiran uses the neck handled jug as one of her indicators for dating Arad Strata I–II to sometime in the latter half of EB II,<sup>155</sup> but the early appearance of the neck handled jugs at these northern sites reduces its value as a chronological indicator.

146. Tests were run on samples of Red Polished Ware from Egypt and the Levant, and the Levantine origin of these vessels was confirmed; see J. B. Hennessy and A. Millett, “Spectrographic Analysis of the Foreign Pottery from the Royal Tombs of Abydos and Early Bronze Age Pottery of Palestine,” *Archaeometry* 6 (1963): 10–17.

147. Generally this vessel type forms Helck’s Types A–D, G–J, N–P, and U–W.

148. Walter Emery, *Great Tombs of the First Dynasty*, vol. 3 (London: Egypt Exploration Society, 1958).

149. G. Reisner and W. S. Smith, *A History of the Giza Necropolis*, vol. 2 (Cambridge, MA: Harvard University Press, 1955), pp. 64, 65; fig. 61 and pl. 46d.

150. L. Borchardt, *Das Grabdenkmal des Königs Sahure*, Wissenschaftliche Veröffentlichung der Deutschen Orient-Gesellschaft 26 (Leipzig: Hinrichs, 1913), pl. 3.

151. These are referred to as Type (a) in Hennessy, *Foreign Relations*, p. 50.

152. P. E. Guigues, “Lébé’a, Kafer-Garra, Qrayé, nécropoles de la région sidonienne,” *BMB* 1 (1937): fig. 10 for the tall narrow neck, and fig. 12 for the vestigial handle.

153. Dunand, *Byblos*, vol. 2, pl. 206: no. 18790; the tall necked jug is no. 18789.

154. The Byblos group cannot be assumed to date to EB I simply because the vessels were discovered “in the corner of a room immediately overlying the Eneolithic B levels . . .,” as Hennessy reports in *Foreign Relations*, p. 50.

155. Amiran, “The Date of the End of the EB II City of Arad,” pp. 181–84. See especially fig. 1:2.

Simple Red Polished Ware jugs begin as early as EB I. Ben-Tor has published two of these jugs from Tomb 4 at Azor.<sup>156</sup> This tomb is dated to the very end of the Early Bronze I and Ben-Tor refers to these jugs as probable “precursors of the Abydos jug.” These jugs also appear in some of the unpublished EB I tombs from Nahal Tabor. There is no example, however, of any Red Polished Ware jug with a vestigial handle on the body which pre-dates the EB II period.

The date for the groups from south Syria and Palestine is based on Egyptian evidence. Both Macramallah’s type S5 and type S6 from Saqqarah show a vestigial handle on the body of the vessel.<sup>157</sup> Unfortunately, the actual breakdown by tomb group of this cemetery does not specify presence or absence of this feature, so it is impossible to quantify this type. The tombs are dated generally to the reign of Den.<sup>158</sup> One example of a vestigial handle on the shoulder of a jug comes from the tomb of Djer at Abydos.<sup>159</sup> Vestigial handles also appear on the three Red Polished Ware jugs from Lahun.<sup>160</sup> In Palestine, vestigial handles are found on vessels from Arad in the south to Hazor in the north. Other published examples are from Megiddo, Kfar ʿAtʿa, and ʿAi.<sup>161</sup> Although the Megiddo example comes from the east slope and is thus difficult to date, it is attributed to Stages III–I and is probably EB III. The Arad jugs and juglets come from Strata I–II and are EB II. The Hazor jug dates to EB III (Stratum XIX). The Red Polished Ware jugs from ʿAi are attributed to Phase III and date to EB II. At Beth Yerah, these vestigial handles are found in levels from EB II through EB III.

Another feature that appears on these jug types is a raised collar around the base of the neck of the vessel. A discrepancy exists, however, between the bulk of the Syro-Palestinian evidence and that from Egypt. The only true neck collared jugs found in Egypt come from the Giza necropolis. Three are dated to the period from Khufu to halfway through the reign of Khafre.<sup>162</sup> A fourth vessel is dated to sometime between Khafre and Neferirkara (i.e., between mid-Fourth Dynasty and the early part of the Fifth Dynasty).<sup>163</sup> The three earliest jugs are covered with a cream slip, and the later jug was red polished. One earlier example of a collar comes from the tomb of Djer at Abydos, but this collar was on the shoulder of the vessel rather than around the neck.<sup>164</sup>

Most examples of collared jugs from Syria-Palestine are from the EB II period. A collared jug comes from Arad Stratum II. At least three examples come from Gezer, and all are dated to the EB II period, as are the jugs from Tell el Farʿah (N). All the Gezer examples have incisions on the raised cords located at the base of the jug necks. The one example from the stratified tell material at ʿAi is attributed to Phase IV, which is also EB II. A complete jug was discovered in Tomb G at ʿAi, but this tomb contained material from both EB I and EB II. A collared jug was found in the round charnel house A 56 at Bab edh-Dhraʿ. This tomb dated to the beginning of EB II.<sup>165</sup>

156. Ben-Tor, “Two Burial Caves,” fig. 6:20, 22 and p. 11, Type C.

157. R. Macramallah, *Un Cimetière archaïque de la classe moyenne du peuple à Saqqarah* (Cairo: Service des Antiquités de l’Égypte, 1940), pls. 45, 46. Using this volume for quantification is complicated by the fact that the written descriptions on pp. 12, 13 of his Type S do not match the illustrations on pl. 46.

158. *Ibid.*, photograph on p. 67 (jar on the left). See also p. 11 for date.

159. Petrie, *Abydos*, vol. 1, pl. 8:5. See also pl. 6:17 for another possible example.

160. W. F. Petrie, *Lahun*, vol. 2 (London: British School of Archaeology in Egypt, 1923), pl. 53:97c, d, e.

161. Amiran, *Early Arad*, pl. 25:1–12; pl. 26:18; pl. 27:8, 9, 14, 17, pl. 52:31; Yadin, *Hazor*, vol. 3–4, pl. 155:15; R. Engberg and G. Shipton, *Notes on the Chalcolithic and Early Bronze Age Pottery of Megiddo*, SAOC 10 (Chicago: University of Chicago Press, 1934), chart no. 3; the jug from Kfar ʿAtʿa is pictured in Amiran, *Ancient Pottery*, p. 58, photo 54; and Callaway, *ʿAi Citadel*, fig. 62:11, 19.

162. Reisner and Smith, *Giza*, vol. 2, p. 74, Tombs G 4340A and G 1233 Annex A.

163. *Ibid.*, Tomb G 2170A.

164. Petrie, *Abydos*, vol. 1, pl. 8:5. The collar can be seen more clearly in the photograph published in Amiran, *Ancient Pottery*, p. 62, photo 58.

165. Amiran, *Early Arad*, pl. 27:14; W. Dever et al., *Gezer*, vol. 2 (Jerusalem: Hebrew Union College, 1974), pl. 9:5, 6; Macalister, *Gezer*, vol. 3, pl. 79:13; R. de Vaux and A. M. Stève, “La Seconde campagne de fouilles à Tell el-Farʿah, près Naplouse,” *RB* 55 (1948): 555, fig. 4; Callaway, *ʿAi Sanctuary*, fig. 37:26; *idem*, *Pottery from the Tombs at ʿAi (et Tell)* (London: Quaritch, 1964), p. 41, pl. 12: no. 1451; and Rast and Schaub, *Southeastern Dead Sea Plain Expedition*, AASOR 46 (Cambridge, MA: ASOR, 1981), p. 115, fig. 19:1.

This type of collar seems to have been common at Megiddo. It was found in Stages IV–V and Stratum XVIII, which is mixed EB II–III. A collar also appears on a jug from Megiddo Stratum XVII, but unfortunately the published drawing is reconstructed from the collar up.<sup>166</sup> There is a possible example from Jericho Tomb A, but it is unclear whether this was a collar or simply marked the join between the neck and body of the jug.<sup>167</sup> One of the best examples of a collared neck jug comes from Garstang's upper EB levels at Jericho and has no handles whatsoever. This jug is similar to the collared jug with no handles from the Tomb of Djer at Abydos.<sup>168</sup>

At least two examples of collared rim jugs have been found at Beth Yerah. One was discovered in the excavation at Road Station 5 in an EB III context. The jugs from Beth Yerah most resemble the jugs from Megiddo and Byblos. At least three of the collared jugs are known from Byblos.<sup>169</sup> Two of the Byblos vessels seem to have been decorated with a trellis or net pattern burnish. The base of one of the jugs bearing a net pattern burnish is also published with this group. Body sherds of jugs with net pattern or trellis burnish have also been found at Beth Yerah.

### Light Faced Painted Ware

The Light Faced Painted Ware found by The Oriental Institute excavations adds to the growing corpus of this vessel type (fig. 20). Although no complete examples were found, the geometric motif painted on the sherds clearly put the Beth Yerah sherds in this rare category. The discovery of this ware in First Dynasty contexts at Saqqarah, Abusir el Meleq, and Abydos provides a secure chronological peg for the layers associated with Light Faced Painted Ware in Palestine.<sup>170</sup>

Generally Light Faced Painted Ware found in Egypt occurs in the form of jugs or juglets. The one handled jug form of this ware is similar to the form of the Red Polished Ware jugs, but the painted ware jugs are generally smaller. Although one of the jugs from Abydos is broken, it is complete enough to suggest an estimated height of around 0.26 m. The jug from Abusir el Meleq is approximately 0.23 m high. The three jugs from Saqqarah are about 0.14, 0.15, and 0.16 m high. All the Egyptian examples have one handle that is attached to the rim and the shoulder of the vessel.

There are two exceptions to the jug form of the Light Faced Painted Ware vessels from Egypt. One is from Abydos<sup>171</sup> and the other from Saqqarah.<sup>172</sup> Both are in the form of globular jars, with several small loop handles just above the midpoint of the jar bodies. Both jars seem to be about 0.20 m in height. Both also have motifs that are similar to those painted on the one handled jugs, including bands of dotted pendant triangles and parallel bands bordered with zigzag lines.

166. Loud, *Megiddo*, vol. 2, pl. 5:1 and photograph on pl. 106:1.

167. J. Garstang, "Jericho: City and Necropolis," *LAAA* 19 (1932): pl. 5:6.

168. Cf. idem, "Jericho, City and Necropolis," *LAAA* 22 (1935): pl. 27:24 with Petrie, *Abydos*, vol. 1, pl. 8:2.

169. M. Dunand, "Remarques sur la céramique archaïque des pays cananéens," *Berytus* 3 (1936): 145, fig. 1, upper right hand corner; see also idem, "Byblos au temps du bronze ancien et la conquête amorite," *RB* 59 (1952): pls. 3 and 4.

170. For complete references to the Egyptian material, see Kantor, "Egypt and Its Foreign Correlations," pp. 15, 16 and fig. 5; see also Amiran, *Early Arad*, pp. 51, 52.

171. E. Amélineau, *Les Nouvelles fouilles d'Abydos, 1895–1896* (Paris: Leroux, 1899), pl. 13; see pl. 2 for a jug of Light Faced Painted Ware.

172. W. Emery, *Archaic Egypt* (Harmondsworth, England: Penguin, 1972), pl. 33.

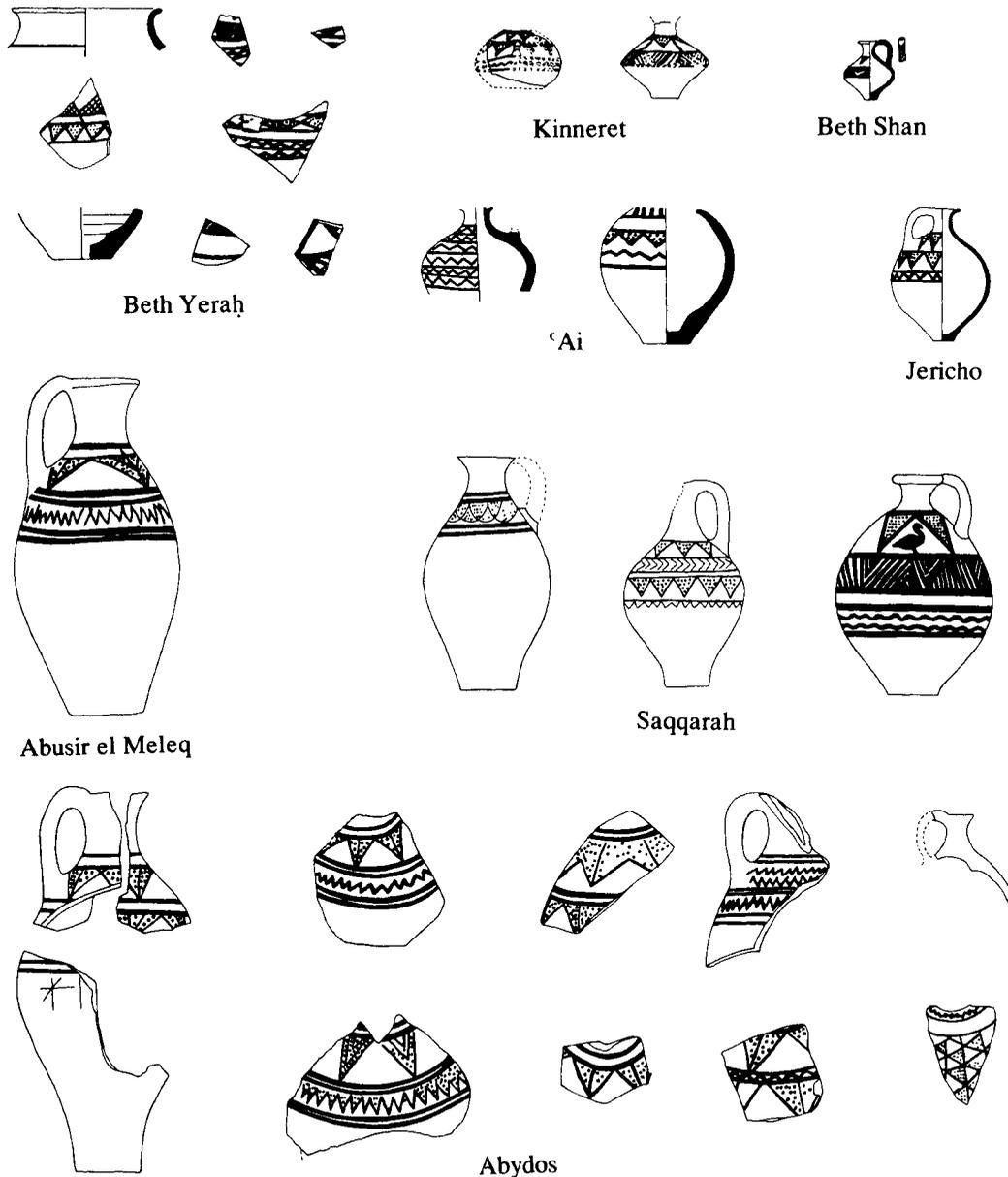


Figure 20. Light Faced Painted Ware. Scale 1:5.

The most comparable set of vessels to these jar forms comes from Arad, in southern Palestine.<sup>173</sup> Arad has yielded the greatest number of complete vessels of Light Faced Painted Ware in all of Syria and Palestine (at least nine are published in the first volume of the final report). All of the Arad vessels are jars, and Amiran has divided them into three general sizes: small, medium, and large. Although she does not specify the criteria for these groupings, the smallest jars are around 0.15–0.16 m, the medium jars range from 0.25–0.34 m, and the largest jars are 0.47–0.49 m in height. Most of the small and medium jars have small loop or vestigial handles on the vessel body, like the Egyptian jars. The two large Arad jars have ledge handles. No complete jars of Light Faced Painted Ware have been found anywhere in northern Palestine, but a possible fragment of one has been excavated at Beth Yerah (pl. 1:J). Although only one of the black painted lines is preserved on this fragment, the ware is greenish white and identical to that of the other confirmed pieces of Light Faced Painted Ware at Beth Yerah. The wide mouth of this fragment makes it highly likely that it is a small jar rather than a juglet.

173. Amiran, *Early Arad*, pls. 28–30, 33.

The forms of the examples from other sites in Palestine vary. The form and size of the two juglets from 'Ai<sup>174</sup> are roughly comparable to the juglet found in Jericho Tomb A 127.<sup>175</sup> The Jericho juglet is approximately 0.095 m high. The two 'Ai juglets are slightly larger, but their size is closer to the Jericho vessel, for instance, than to the 0.27 m high Light Faced Painted Ware jug from Abydos.

The form and size of the examples of Light Faced Painted Ware found in northern Palestine are much different. The small juglet from Beth Shan<sup>176</sup> is more biconical in form than the 'Ai and Jericho juglets. It is only 0.04 m tall. The small juglets from the Kinneret tomb<sup>177</sup> are not much larger than the Beth Shan juglet. One of the Kinneret juglets is biconical. The other is more globular, with at least one small loop handle on the juglet body. Two small juglets, one of which is squat, biconical, and handleless, were found with the two Light Faced Painted Ware juglets. These two vessels bore no painted designs, but both were made of a greenish white fabric with no slip and no burnish.<sup>178</sup> The greenish white fabric is characteristic of the stratified examples from the nearby tell.

Other than what may be the small jar, there is no indication what the forms of the stratified Light Faced Painted Ware of Beth Yerah might have been although the thickness of the vessel walls indicate they were certainly from small vessels. The geometric motifs can be related to other sites (fig. 20). The motif of alternating suspended and upward projecting triangles from Beth Yerah is similar to one of the Kinneret juglets and identical to the small Beth Shan vessel and the juglet from Saqqarah. Another motif which appears for the first time outside of Egypt is the bisected pendant dotted triangle. This motif is found on the jug and sherds from Abydos<sup>179</sup> and also on the jug from Abusir.

The motifs of the Beth Yerah juglets place them firmly within the time frame of the Egyptian First Dynasty. Although the small size of these vessels may indicate a "degeneration" or a later date, it might also simply reflect a local tradition or different function.<sup>180</sup> There is little similarity in form between the vessels from northern Palestine and Arad, but they are clearly decorated with the same general technique. Whether this difference is chronological, regional, or functional is not yet known.

## Combed Ware

The problems posed by the "foreign ware" found in the Egyptian tombs of the First Dynasty and later are inextricably bound to the conceptions and misconceptions about a class of jar that is usually termed "combed ware." It is clear that the general distribution of combed ware can be plotted from Egypt all through Palestine and along coastal Syria at least as far north as the sites in the 'Amuq. The importance, both for chronological and cultural purposes, of identifying the point of origin of the combed ware jars found in the tombs cannot be overestimated. It is obvious that these vessels were imported from Syria-Palestine, but their precise point of origin is not known.

Although form is important in any discussion of this ware, the surface treatment becomes paramount in tracking its distribution. The ceramic category characterized by combing, can be subdivided by the presence or absence of white slip.

174. Callaway, 'Ai Sanctuary, fig. 45:10, 11.

175. Kenyon, Jericho, vol. 1, p. 88, fig. 25:34.

176. G. M. FitzGerald, *Beth-Shan Excavations 1921-1923: The Arab and Byzantine Levels* (Philadelphia: University of Pennsylvania, 1931), pl. 30:1.

177. Mazar, Amiran, and Haas, "An Early Bronze II Tomb," fig. 7:1, 2.

178. *Ibid.*, pp. 179, 180, figs. 5:11, 6:22.

179. At least four sherds had this decoration; see W. F. Petrie, *Royal Tombs*, vol. 2 (London: Egypt Exploration Fund, 1901), pl. 54.

180. Mazar, Amiran, and Haas, "An Early Bronze II Tomb," p. 183; and Amiran, "The Painted Pottery Style," p. 67. Amiran asserts that the "tiny versions of vessels painted in this style are a late development, or perhaps degeneration."

## Combed Ware in Palestine

The surface treatment of combed ware in Palestine varies by region. In Prausnitz's early study, he noted that the combed ware of Palestine was not slipped.<sup>181</sup> Hennessy contrasted that fact with the combed ware from the Giza necropolis.<sup>182</sup> The jars found at Giza were all coated with a heavy cream slip "and therefore similar to other known examples." In describing the ware, Smith emphasized that the combing was done before the slip was applied. The jars also were pebble burnished over the slip, and the slip was so heavy and thick that it almost completely obliterated the combed decoration.<sup>183</sup>

Fargo demonstrated that there was a definite tendency to apply a thick white slip on combed ware vessels at Tell el Hesi and other sites in southern Palestine, just as was done in coastal Syria.<sup>184</sup> Thus, a fairly clear line of demarcation separates southern and northern Palestine when the distribution of slipped and non-slipped combed ware is plotted.

Most combed ware sherds from Tell el Hesi were white slipped. At Tell Yarmuth many of the pithoi were coated with a white lime wash, although at least one combed ware jar was treated with a brown slip.<sup>185</sup>

Albright's descriptions of the combed ware from Tell Beit Mirsim Stratum J did not specify whether the jars had been slipped.<sup>186</sup> Dever and Richard's reexamination of the pottery of Stratum J revealed both metallic ware pattern combed sherds and a large number of heavy store jar wares with simple or crisscross body combing.<sup>187</sup> At least two pithoi had incised rope decoration and white slip.

A thin white slip was also found on pithoi from Lachish. At least four of these large jars were coated with this white slip, and the slip covered combed decoration in at least two cases. Three pithoi were listed as having a "cream surface," although their fabric was red. Whether these cream surfaces were the result of a thick white slip cannot be determined from the publication. The large complete pithos from Lachish was not white slipped.<sup>188</sup>

Although white or "lime" slip was found on jars and pithoi from Arad, there were very few occurrences of combed ware sherds and none of complete combed vessels.<sup>189</sup> In addition, Amiran notes that none of the combed ware sherds were metallic ware; "the ware is that of the jars, fairly thick walls and 'soft' firing."<sup>190</sup>

White slip, made from a lime base, is often found on the exterior of bowls as well as jars at 'Ai.<sup>191</sup> High-necked rolled-rim jars were most commonly coated with a white slip.<sup>192</sup> Good examples of large pithoi with everted rolled rims come from 'Ai Phase VII (EB III). The exterior of most of these jars is covered with a thick white slip. A number of jar necks bear incised rope decoration as well.<sup>193</sup> Although form and decoration (at least according to exterior slip) put the 'Ai jars in the same tradition as those from Hesi and Lachish, there is no published example of combed ware from 'Ai.

Combed ware from sites in the north show a much lower occurrence of white slip. None of the sherds or vessels illustrated from the Early Bronze levels at Megiddo are described as having any white slip applied to their exterior. Two exceptions may possibly be seen in the photographs of pithoi with incised rope decoration

181. M. Prausnitz, "Abydos and Combed Ware," *PEQ* (1954): 92.

182. Hennessy, *Foreign Relations*, p. 84.

183. Reisner and Smith, *Giza*, vol. 2, Appendix 1, pp. 74, 75.

184. Fargo, "Settlement in Southern Palestine," pp. 146, 147.

185. Ben-Tor, "Tell Yarmuth," p. 68 and fig. 9:1.

186. W. F. Albright, "The Excavation of Tell Beit Mirsim, vol. 1A," *AASOR* 13 (New Haven: ASOR, 1933), p. 60 and fig. 1:2; idem, "The Excavations of Tell Beit Mirsim, vol. 1," *AASOR* 12 (New Haven: ASOR, 1932), p. 5.

187. Dever and Richard, "A Reevaluation," p. 10, pl. 1:5-7. For the pithos with white slip, see fig. 2:13, 14.

188. Tufnell, *Lachish*, vol. 4, pl. 62:296.

189. Amiran, *Early Arad*, pls. 15-17.

190. *Ibid.*, p. 47.

191. Callaway, *'Ai Sanctuary*, p. 109.

192. *Ibid.*, fig. 27:24, 25.

193. Idem, *'Ai Citadel*, fig. 132:14, 18.

on their necks. The ware description does not indicate a white slip but the photographs show definite light patches on the sherds. This may simply be the result of concretion and not slip, however.<sup>194</sup>

The material from Beth Yerah also corroborates the view that white slip was primarily a southern phenomenon. Only one jar from the Chicago excavations had obvious traces of a thick white slip. One other jar rim had what may have been a very thin white wash on its exterior. Most combed sherds were either pink, red, or gray, and were highly metallic. A minority of combed sherds were of a buff soft ware. There were also two examples of a well-levigated highly fired ware with a very light orange slip. Three complete combed ware jars are published from Bar Adon's excavations at Beth Yerah.<sup>195</sup>

At least one combed ware jar with small incisions around its neck has been recovered from the Early Bronze Age levels at Tel Dan.<sup>196</sup> Its form is more globular than most other examples of combed ware jars or pithoi. The exposure of the Early Bronze Age levels has been very limited at Dan, but this combed ware jar was found on a floor in a very small probe. The form of the jar is certainly unique when compared to the known combed ware jars and pithoi from Palestine. It fits quite well, however, with a class of vessels from Tomb 6 at Lebea, just east of Sidon. Three squat globular jars were found in this tomb, and although there is no mention of combing, it is clear from the photographs that the three jars were combed.<sup>197</sup> The combing is generally horizontal and does not exhibit the fine vertical and horizontal patterns of the Tel Dan jar. The large jar from Lebea is 0.25 m in height and the two smaller versions of the jar are 0.17 m and 0.14 m.

The similarity in form between the Lebea combed ware jars and the jar from Dan may date the jar from Dan to EB II. The fine pattern combing on the jar from Dan might suggest a slightly later date, but it is unwise to apply chronological importance to quality of combing.

Hazor has two published examples of combed ware. Neither example is from a pithos, however, and one of the pieces is from a later (EB IV/MB I) context.<sup>198</sup> No white slip is mentioned. There are unpublished examples of very large combed ware pithoi with red fabric. These pithoi are highly fired and metallic. Hazor also has combed ware with impressed rope decoration around the neck.

The standard combed ware pithoi were also found at Rosh HaNiqra Stratum I. The jars had elongated bodies, flat bases, and strongly flared rims. Like most other pithoi, the bodies were handmade and the rims were turned on the wheel. These vessels of Stratum I were usually metallic with a combed exterior. No white slip is mentioned.<sup>199</sup>

### Combed Ware in Syria

An analysis of the combed ware from Syria yields inconclusive results about the prevalence of a white slip on these vessels. Hennessy suggests that the combed ware vessels in Egypt originated from Byblos because jars from Byblos were covered with a thick white slip.<sup>200</sup> No complete combed ware jars have been published from Byblos, but several combed sherds with seal impressions are illustrated. One of the clearest examples shows a seal impression depicting a file of animals in a tête bêche arrangement on a pattern

194. Loud, *Megiddo*, vol. 2, pl. 105:10, 11.

195. Amiran, *Ancient Pottery*, p. 59, photo 52, pls. 17:15; 18:13.

196. Biran, "Tel Dan," p. 173.

197. Guigues, "Lébé'a," fig. 8 and fig. 12 for photographs.

198. Yadin, *Hazor*, vol. 3-4, pl. 300:13, 14.

199. Tadmor and Prausnitz, "Rosh Hanniqra," p. 77.

200. Hennessy, *Foreign Relations*, p. 84, n. 268. A discrepancy exists, however, for in this reference Hennessy actually refers to Ras Shamra. Epigraphic evidence would certainly seem to support a Byblos origin for many of these jars. Neutron Activation Analysis provides support for this suggestion as well. Samples of vessels found in tombs from Giza cluster with a sample from Byblos. See D. Esse and P. Hopke, "Levantine Trade in the Bronze Age," in J. Olin and M. J. Blackman, eds., *Proceedings of the 24th International Archaeometry Symposium* (Washington, D.C.: The Smithsonian Institution Press, 1986), pp. 327-39.

combed vessel.<sup>201</sup> Another seal impression was found at the base of a jar neck. The red fabric of the vessel was combed and metallic. The seal impression was of the figure of an antelope.<sup>202</sup>

Two pattern combed sherds bore elaborate appliquéd designs of deer. The fabric in both cases was brownish red.<sup>203</sup> A third example of combed ware with appliquéd design shows what may be a representation of some sort of vegetation on the combing. Just above the combing was an impressed cord which seems to have encircled the neck of the jar.<sup>204</sup>

A fragment of a jar with horizontal and oblique combed bands also exhibited an impressed cord at the base of the neck just above the combed decoration.<sup>205</sup> Another finely combed sherd was refashioned into a disk.<sup>206</sup>

One of the closest parallels for an almost complete combed ware jar from Byblos comes from an Egyptian tomb at Giza (G 1220A).<sup>207</sup> The Giza jar had only one handle and had broad horizontal combing on its exterior, although Smith felt the technique was closer to reserved slip than the combing found on the two-handled jars of his Type LIV. The combed ware jar from Byblos also had only one handle, from the upper shoulder to the neck, just as the Giza jar. The Byblos jar was 0.30 m in height, dark reddish brown in color, and the horizontal combing was “whitish.” Inside the jar were ashes and remains of barley. A similar, but larger (0.55 m high), one-handled combed ware jar was found at Ras Shamra.<sup>208</sup>

Recently, Mazzoni has suggested that a small appliquéd ram’s head on certain combed ware jars may offer a clue to tracing the path of these vessels.<sup>209</sup> She cites the appliquéd design that appears on the body of a combed ware jar found in Tomb G 7330A of the Giza necropolis. This tomb was dated by Reisner and Smith to the Fourth Dynasty with a range from Khufu to mid-Khafre.<sup>210</sup> Mazzoni makes the case that this jar was exported from Byblos, since at least two jar fragments bearing the same appliquéd rams’ heads were found there.<sup>211</sup>

Although the jar found at Giza may well have originated from the port at Byblos, such an assumption cannot be made simply on the basis of these appliquéd rams’ heads. The distribution of these motifs is wider than has previously been thought, and the function of these marks is still uncertain. Mazzoni suggests that they were “trademarks,” but whether they marked origin, destination, contents (e.g., quantity or quality), or manufacturer is not known. Such a phenomenon may perhaps be equated with cylinder seal impressions often found on combed ware jars in northern Palestine.

A similar appliquéd design was discovered at Megiddo in Stratum XVIII.<sup>212</sup> Although the identification of a ram’s head is not as clear as the Byblos and Giza examples, the Megiddo piece is certainly similar. The sherd from Megiddo is described as pink-buff, burnished, and with a combed finish. It could be dated to either EB II or EB III. It was found in one of the rooms east of and abutting the first phase of the city wall (4045).

A small appliquéd animal head was found attached to the shoulder of a jar discovered in the early excavations of Sellin and Watzinger at Jericho.<sup>213</sup> The horns were curved downwards just as the previous

201. Dunand, *Byblos*, vol. 1, pl. 133: no. 3232.

202. Idem, *Byblos*, vol. 2, pl. 195: no. 15631.

203. Idem, *Byblos*, vol. 1, pl. 175: nos. 4120, 4933.

204. Idem, *Byblos*, vol. 2, pl. 211: no. 18022.

205. Ibid., p. 790, fig. 911: no. 15667.

206. Ibid., pl. 211: no. 14105.

207. Dunand, *Byblos*, vol. 1, pl. 160: no. 3828; Reisner and Smith, *Giza*, vol. 2, p. 74, pl. 52b.

208. C. Schaeffer, “Les Fondements préhistoriques d’Ugarit,” *Ugaritica*, vol. 4 (Paris: Geuthner, 1962), p. 203, fig. 16.

209. S. Mazzoni, “Giza ed una produzione vascolare di Biblio,” in S. F. Bondi, S. Pernigotti, F. Serra, and A. Vivian, eds., *Studi in Onore di Edda Bresciani* (Pisa: Giardini, 1985), pp. 317–35.

210. Reisner and Smith, *Giza*, vol. 2, Appendix 1, illustrated in fig. 80, pl. 53d.

211. Dunand, *Byblos*, vol. 1, fig. 297: no. 5824, which Dunand dated to Early Bronze I or II; idem, *Byblos*, vol. 2, pl. 211: no. 9792, which also was pattern combed.

212. Loud, *Megiddo*, vol. 2, pl. 105:7.

213. E. Sellin and C. Watzinger, *Jericho: Die Ergebnisse der Ausgrabungen*, Wissenschaftliche Veröffentlichung der Deutschen Orient-Gesellschaft 22 (Leipzig: Hinrichs, 1913), p. 98, fig. 68.

pieces. Giving the sherd a precise date is out of the question, but it does seem to have come from the Early Bronze Age levels at Jericho. Garstang also discovered an appliquéd animal head in his excavations at Jericho.<sup>214</sup> The appliquéd, a bucranium rather than a ram's head, came from Layer IV or V which was dated to EB II.

By far the largest group of these appliquéd animal heads comes from 'Ai. Callaway discovered a sherd with this decoration at Site C.<sup>215</sup> The find spot was dated to his Phase VII or EB IIIB. The sherd itself came from a large jar made of light brown medium coarse fabric with a white slip on the exterior. The ram's head appliquéd appeared on at least five other sherds from the earlier excavations at 'Ai conducted by Marquet-Krause. Two of them (1195, 1252) were found in the lower city, not far from Callaway's Site C. A third (1407) was found in Sanctuary A. A fourth (738) was found in an Early Bronze Age context on bedrock, and a fifth example was found in Tomb C (547).<sup>216</sup> One of the sherds is described as a "potter's mark" by Wagner.<sup>217</sup> At least three of the 'Ai sherds date to EB III.

Two similar fragments of appliquéd decoration were found at Lachish.<sup>218</sup> One of the decorations was found on a two-handed jug. The other was on a sherd, and the vessel type could not be identified.

Combed ware was common at sites along coastal Syria. At Tabat el Hammam, combed ware sherds were made from a red orange clay and fired so that it was hard and brittle.<sup>219</sup> The technique of combing was typical of many of the examples from the south, with vertical strokes interrupted by horizontal bands smeared with the finger. At Tabat el Hammam, one of the large combed ware jars was set into the floor, so that only the rim projected above the floor. This practice was also found at Tell Tayinat in the 'Amuq, where there were several instances of combed ware being set into the floors.<sup>220</sup> Combed ware sherds were also recovered from Tell Simiriyan, located about 5 km northeast of Tabat el Hammam.<sup>221</sup>

Pattern combed ware was also found further north along the Syrian coast at Qal'at er-Rus and Tell Sukas. It first occurred in Layer XV at er-Rus, and Ehrich reports that the fabric color varies from buff, to green, to a light golden brown (the result of a slip). Some examples were covered with a cream slip.<sup>222</sup>

The combed ware from Qal'at er-Rus was occasionally marked by nicks cut into the upper shoulder or neck of the vessel. Even more interesting were the appliquéd designs attached to the vessel surface, a technique similar to that practiced at Byblos and farther south in Palestine. The one published example of this technique from Qal'at er-Rus depicts an eye which has been attached to the body of a combed ware jar.<sup>223</sup> No complete forms are published, but the main forms seem to be large storage jars. Ehrich mentions that some jars with open necks were combed on both the interior and exterior.

Combed ware was fairly common in the Early Bronze Age levels exposed at Ras Shamra. The most common jar form was ovoid with a flat base and the combing was most often a combination of horizontal and alternating oblique or intersecting lines, with no indication of a white slip.<sup>224</sup>

Combed ware was found in the 'Amuq but not in great quantities. It was usually classified within the brittle orange category, according to the excavator's terminology. The earliest appearance of combing was found in Phase G. In this phase one loop handle bore traces of pattern combing,<sup>225</sup> although it was only

214. Garstang, "Jericho: City and Necropolis, Sixth Report," *LAAA* 23 (1936): 23, pl. 37:13

215. Callaway, *'Ai Citadel*, fig. 139:34.

216. For references, see *ibid.*, pp. 193, 194.

217. N. Wagner, "Early Bronze Age Houses at 'Ai (et Tell)," *PEQ* (1972): 22, 23, fig. 12:16.

218. Tufnell, *Lachish*, vol. 4, pl. 18:67, 68; see also pl. 17:32.

219. R. Braidwood, "Report on Two Sondages on the Coast of Syria, South of Tartous," *Syria* 21 (1940): p. 203, pl. 23:2.

220. *Ibid.*, p. 203.

221. *Ibid.*, p. 216, fig. 27:2 and fig. 21:14.

222. Ehrich, *Jebeleh Region*, p. 30. Combed ware is classified as Ehrich's type 12.

223. *Ibid.*, p. 33, pl. 16, fig. 12:6.4.

224. J.-C. Courtois, "Contribution à l'étude des civilisations du bronze ancien à Ras Shamra-Ugarit," *Ugaritica*, vol. 4 (Paris: Geuthner, 1962), p. 429, fig. 18.

225. Braidwood and Braidwood, *Excavations in the Plain of Antioch*, vol. 1, fig. 233:12.

“lightly comb impressed.” Phase H produced a few examples of comb impressed ware, but two are considered as coming from the same vessel. One good example of combed ware appeared as late as Phase J, but there is no indication of the quantity of these sherds that might have been found at this late stage of development.<sup>226</sup>

The problem concerning the actual purpose of combing vessels has not been satisfactorily resolved, nor has the practice of covering the vessels with a white lime slip. Amiran suggested that pattern combing improved the quality of the ware.<sup>227</sup> Dever and Richard felt that the combing helped the “white slip to adhere, a customary treatment of pithoi throughout Early Bronze.”<sup>228</sup> Fargo also refers to the white slip and suggests that it served to seal the vessel’s surface.

The preceding discussion has shown that the appearance of white slip on combed ware jars is not as widespread as combed vessels without slip. The technique probably was not originally used to help a slip adhere to a vessel, although it may have served that function in some cases. Whether the combing improved the quality of the ware is also questionable. Combing appears both on thin metallic, highly fired, well-leigated ware as well as on heavier thicker sherds. In some cases, these heavy sherds are from the large open vats, but in other cases they may have come from large heavy jars. It is possible that the white slip may have served as a sealant on a number of jars, but it is clear that most combed ware vessels from northern Palestine and Syria were in need of no such sealant. Although the use of combing was certainly widespread during the Early Bronze Age, its function remains an enigma.

#### Combed Ware in Egypt

Any study of combed ware found in Egypt must be dependent upon the comprehensive work by Helck. Chronologically, Helck’s jar type S appears to be the earliest.<sup>229</sup> It is perhaps not a coincidence that this body type most closely resembles the jars from Tel Dan and Lebea. These jars have been dated to early EB II (or the equivalent of the First Dynasty) independent of the Egyptian evidence. Unfortunately, the upper body of the squat globular jar from the Tomb of Djer is broken, but the body type is similar to the early Palestinian examples.<sup>230</sup>

It is instructive to note the quantity and distribution of these combed jars, both geographically and chronologically. Admittedly, the total is only approximate because only fragments of some examples were recorded, but a minimal estimate of these “two-handled oil jars” is fifty-six vessels. Of these fifty-six, a total of forty-seven jars came from the Giza necropolis. The rest were found mainly at Abydos, Naqada, and Matmar. By far, the greatest number of combed vessels appeared in the Fourth Dynasty and later.

The smaller jugs, of red polished type, seem to have a more even geographical distribution. The largest number of vessels of this type is concentrated at Saqqarah. The second largest number came from Giza (5), but that number is suspect because it includes types K and L, which should not be included in this group. The greatest number of vessels from the group came from tombs dating to the First Dynasty.

There are a number of questions raised by the discrepancy between both the archaeological and the geographical distribution of these two vessel types. At some point between the First and Fourth Dynasties there was a radical shift in the common trade vessel which passed from Palestine to Egypt. The earlier part of the period was dominated by jugs that may generally be described as Red Polished Ware. Most of these vessels were one-handled, although a number (Helck’s types N, O, and P) had no handles. By the Fourth Dynasty, the Red Polished Ware jugs are less evident in the archaeological record, and combed vessels appear in Egypt much more frequently. It is entirely possible that the temporal discrepancy between these two types is due to accidents of discovery. On the other hand, such a shift may be significant.

226. *Ibid.*; Phase H sherds can be seen in plate 38:8, 9, 11, and the Phase J sherd is illustrated in figure 341:6.

227. Amiran, *Ancient Pottery*, p. 59.

228. Dever and Richard, “A Reevaluation,” p. 10.

229. Helck, *Die Beziehungen*, p. 31 and chart on p. 33.

230. Petrie, *Abydos*, vol. 1, pl. 8:6.

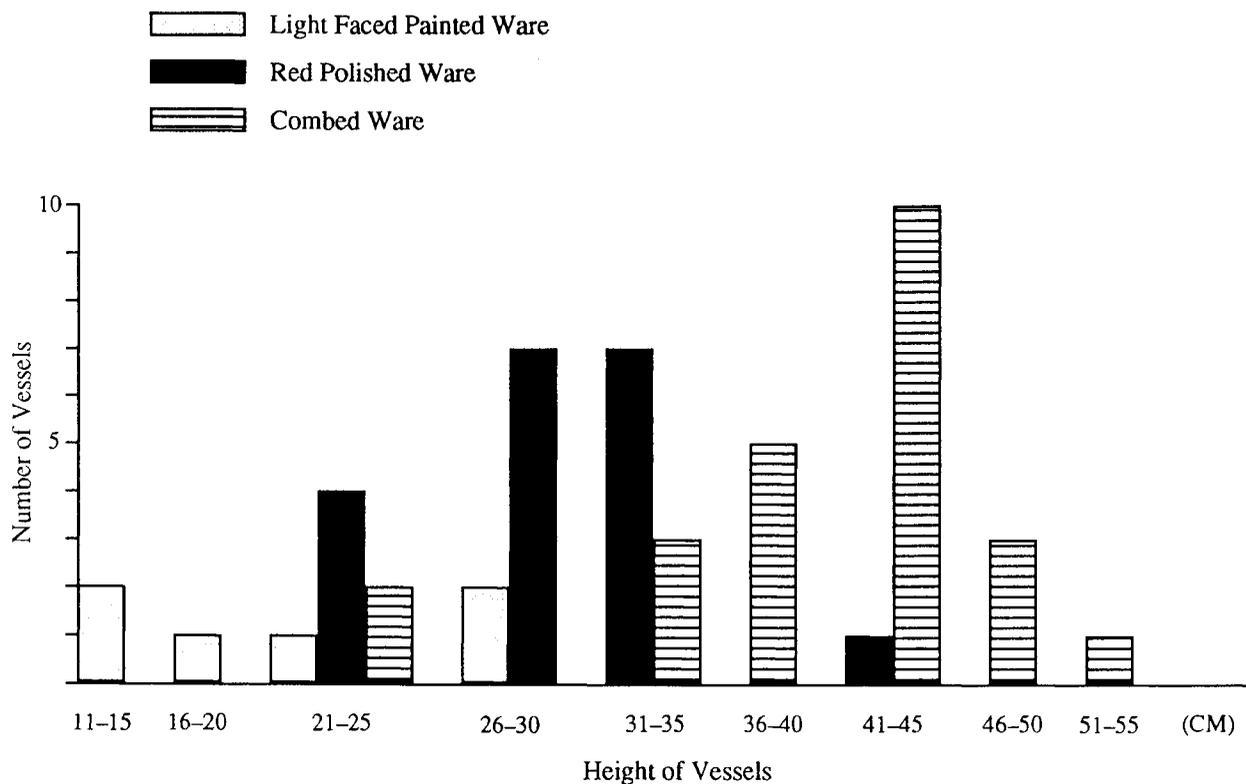


Figure 21. Relative Sizes of Light Faced Painted Ware, Red Polished Ware, and Combed Ware Found in Egypt.

Two possibilities for such a chronological distribution of types might be suggested. There may have been a shift in the demand for the sort of product that was shipped in them. In other words, whatever was shipped in Red Polished Ware jugs gradually became either less available or less in demand by the Egyptians. By the Fourth Dynasty, then, the decline in the trade of the product carried in the Red Polished Ware jugs began to be offset by an increase in the demand for whatever product was exported to Egypt in the combed ware jars. This of course assumes that generally one product (e.g., wine) was transported in Red Polished Ware jugs, and another (e.g., oil) was reserved for combed ware jars.<sup>231</sup> There was no parallel shift in popularity in Palestine, however. Despite temporal morphological changes, no significant shift from Red Polished Ware jugs to combed ware can be documented. Both vessel types were common in EB II and EB III.

A second suggestion requires a less rigid assignment of particular commodities to particular vessel types. The shift from Red Polished Ware jugs to combed ware jars may reflect a change in the Early Bronze Age transportation system. The combed ware jars found in Egypt do not reach the pithos proportions of many of the combed ware jars in Palestine. The range of the combed ware jars from Giza is from 0.23 m to 0.43 m high.<sup>232</sup> The Red Polished Ware jugs are usually smaller than the combed ware jars and thus would be easier to transport overland or in small coast hugging boats (see fig. 21).

Evidence exists for an overland route between Egypt and Palestine during the Early Bronze I period. Oren's survey of sites in northern Sinai revealed a series of campsite occupations stretching from the Egyptian Delta to Gaza.<sup>233</sup> These sites lay along the main overland route from Egypt to southern Palestine and were dated by Oren primarily to the EB I-II periods. Egyptian pottery, Narmer serekhs, and clay sealings

231. L. Stager, "Agriculture," in *The Interpreter's Dictionary of the Bible, Supplementary Volume* (Nashville: Abingdon, 1976), pp. 11-13; see also L. Marfoe, "Between Qadesh and Kumidi" (Ph.D. diss., University of Chicago, 1978), p. 289 and n. 2.

232. Reisner and Smith, *Giza*, vol. 2, p. 75.

233. E. D. Oren, "The Overland Route between Egypt and Canaan in the Early Bronze Age," *IEJ* 23 (1973): 198-205.

have been found at southern Palestinian sites (e.g., Arad, Lahav, 'Ereini, and 'Ein Besor).<sup>234</sup> The Palestinian EB I pottery found at Maadi indicates that it was most likely one of the entrepôts serving the overland Egyptian-Palestinian trade routes.<sup>235</sup> This trade route probably did not end abruptly at the sites of southern Palestine. Egyptian objects in the burial caves at Azor and the long string of sites (in many ways similar to those in northern Sinai) along coastal Palestine, and perhaps as far north as Byblos, may indicate that northern Palestine was also a participant in the international exchange.<sup>236</sup> Stager has traced the occurrence of donkey burials in EB I–II and has suggested that Albright's "donkey caravaneers" were actively plying their trade a millennium before the EB IV/MB I period.<sup>237</sup>

An increased reliance on shipping would have allowed larger and heavier vessels to be transported to Egypt.<sup>238</sup> By EB III, the increase in shipping is documented in Old Kingdom records. "Byblos ships" reached a length of over 50 m and plied the coastal waters between Egypt and Byblos.<sup>239</sup> These great ships, with a carrying capacity sufficient to transport cedar timber, surely were responsible for the transport of the larger combed ware jars. Although there is no knowledge of Egyptian sea-going vessels prior to the Old Kingdom, it is likely that they were smaller, with less carrying capacity than the Old Kingdom vessels. The size of the ships and the regularity of trade with Byblos no doubt reflected the increasing involvement of the central Egyptian government in the Syrian-Egyptian trade. Thus, the ceramic shift from the smaller Red Polished Ware jugs to larger combed ware vessels may indicate a shift in the method of transportation, a direct result of increasing Egyptian centralized economic demand for the raw products of the Mediterranean coast. The Red Polished Ware jugs were still produced until the end of the Early Bronze Age, but the combed ware jars were more conducive to bulk shipment.

Marfoe provided convincing evidence that Egyptian trade with Syria-Palestine underwent a shift between the EB II and EB III periods. The paucity of Egyptian material in Palestine post-dating the EB II period might also indicate this shift, especially when compared with the Egyptian objects found at Byblos. A total of forty-nine royal inscriptions have been recovered at Byblos, the earliest of which is from the reign of Khasekhemwi. The Fourth, Fifth, and Sixth Dynasties were all represented, including seven inscriptions of Pepi II.<sup>240</sup> Nothing approaching the scale of Old Kingdom relations with Byblos has yet been found in Palestine.<sup>241</sup>

234. See R. Gophna, "Egyptian Immigration into Southern Canaan during the First Dynasty?" *TA 3* (1976): 31–37. For an exhaustive list of the material evidence, see A. Ben-Tor, "The Relations between Egypt and the Land of Canaan during the Third Millennium B.C.," *Journal of Jewish Studies* 33 (1982): 4, 5.

235. Kantor, "Egypt and Its Foreign Correlations," pp. 13, 14; see most recently I. Rizkana and J. Seeher, *Maadi*, vol. 1 (Mainz am Rhein: von Zabern, 1987); see also the Palestinian pottery from Minshat Abu Omar; K. Kroeper and D. Wildung, *Minshat Abu Omar* (Munich: Lipp, 1985). The southernmost limit of Syro-Palestinian vessels in this period is Nubia; see B. Williams, *The A-Group Royal Cemetery at Qustul: Cemetery L*, Oriental Institute Nubian Expedition, vol. 3 (Chicago: The Oriental Institute, 1986), pp. 78–80, fig. 48.

236. Ben-Tor, "Two Burial Caves," p. 29 and R. Gophna, "The Settlement of the Coastal Plain." For Byblos, see K. Prag, "Byblos and Egypt in the Fourth Millennium B.C.," *Levant* 18 (1986): 59–74.

237. Stager, "The Firstfruits of Civilization," n. 3; idem, "The Periodization of Palestine," for a discussion of the shift from the overland to the sea route between EB I and EB II.

238. Hennessy, *Foreign Relations*, p. 72.

239. J. Wilson, "Egyptian Historical Texts," in J. Pritchard, ed., *Ancient Near Eastern Texts* (Princeton: Princeton University Press, 1969), p. 227.

240. L. Marfoe, "Between Qadesh and Kumidi," p. 274 and fig. 13. For a convenient list of the names of the Egyptian kings found at Byblos, see also M. Saghieh, *Byblos in the Third Millennium B.C.* (Warminster: Aris and Phillips, 1983), p. 99, table 8. For stone vessels, see H. Nelson, "Fragments of Egyptian Old Kingdom Stone Vases from Byblos," *Berytus* 1 (1934): 19–22.

241. Ben-Tor, "Relations between Egypt and the Land of Canaan," pp. 6–9; idem, "The Trade Relations of Palestine in the Early Bronze Age," *JESHO* 29 (1986): 20.

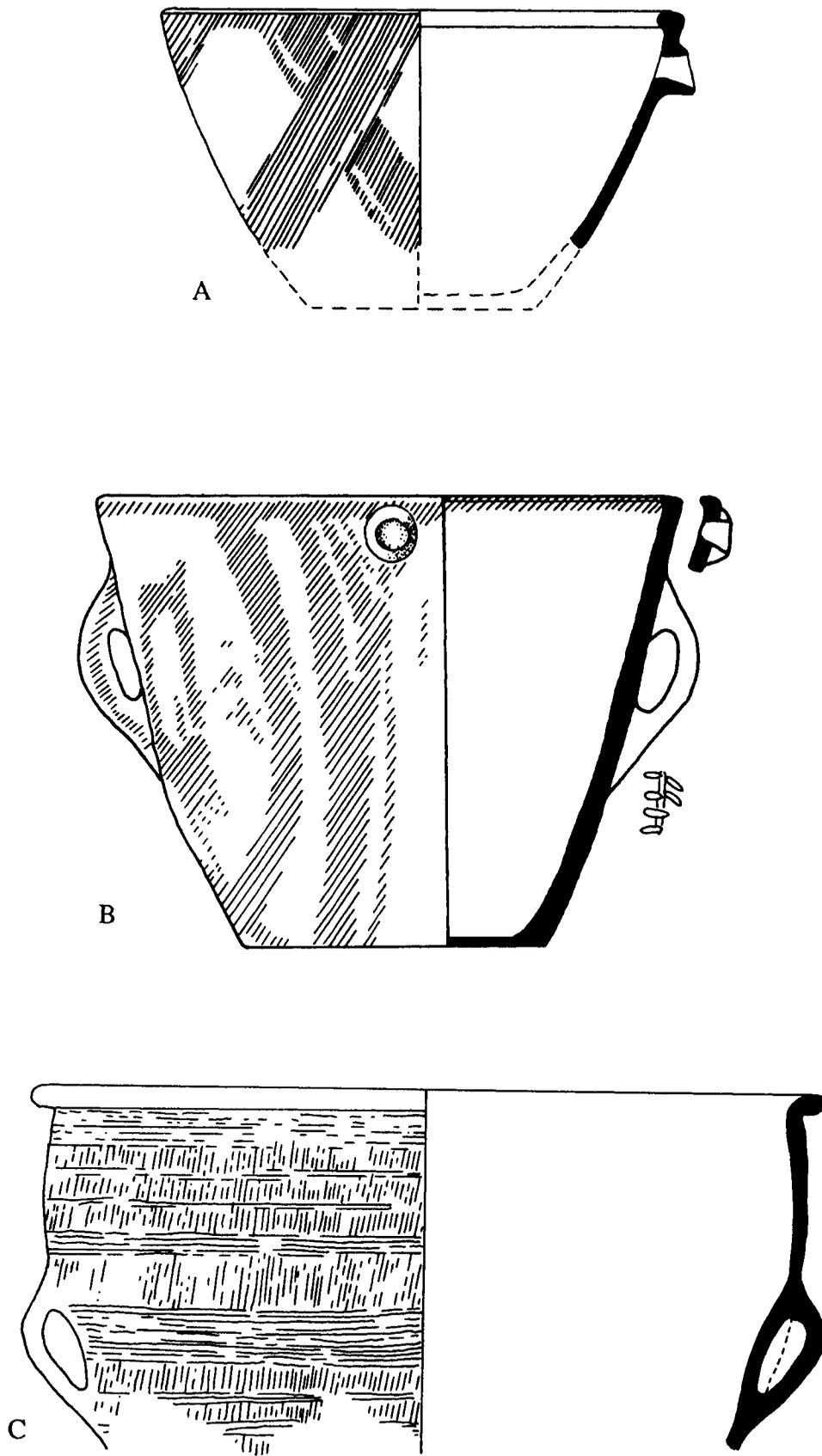


Figure 22. Vats and from Syria-Palestine: (A) Beth Yerah, (B) Megiddo (*Meg.* vol. 2, pl. 5:15), (C) Byblos (Dunand 1952, pl. 5). Scale 1:5.

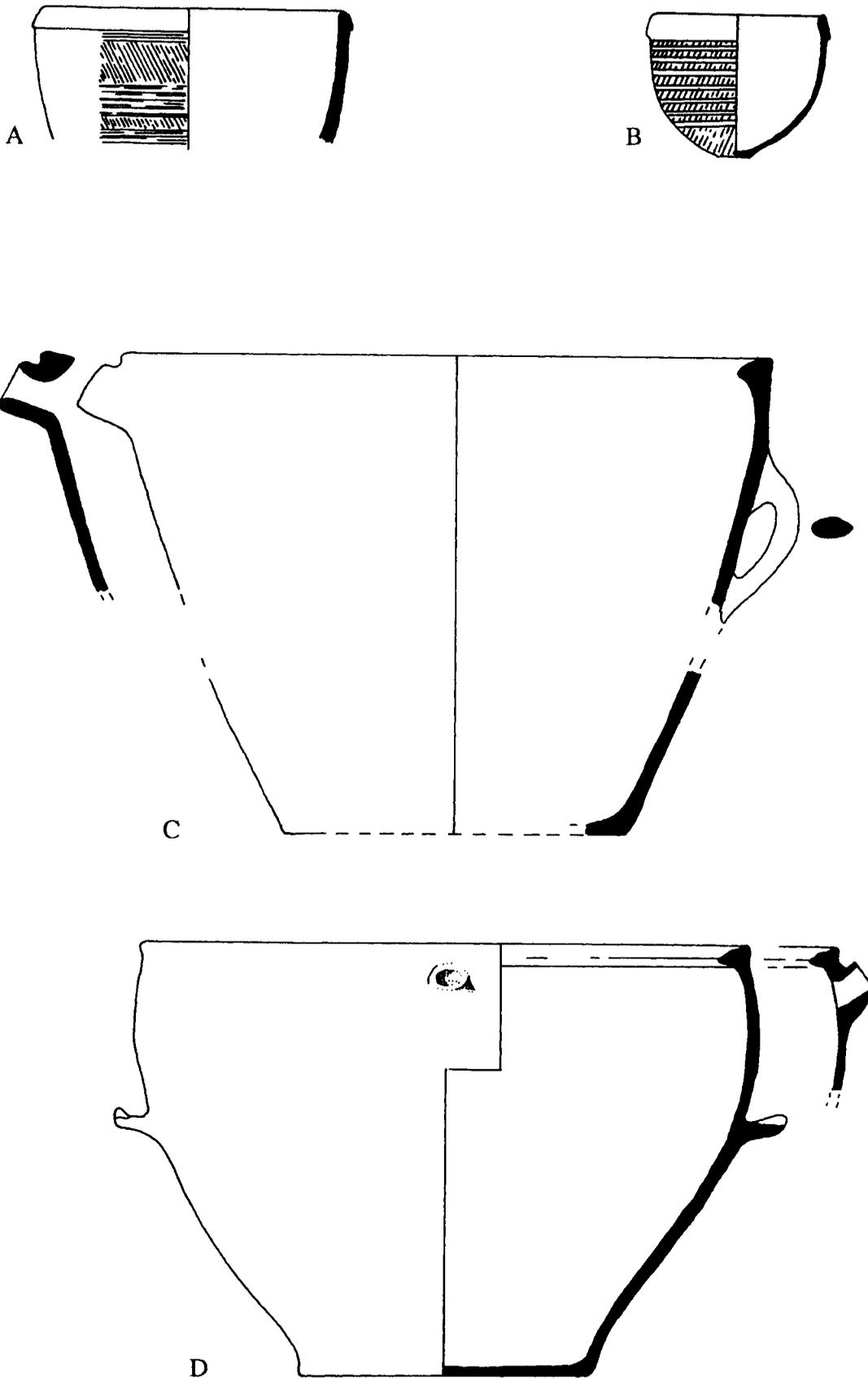


Figure 23. Vats and Combed Ware Bowls from Syria-Palestine: (A) Ras Shamra (Courtois 1962, fig. 19A), (B) Qatna (du Mesnil du Buisson 1935, fig. 33:208), (C) Qishyon (Cohen-Arnon and Amiran 1981, fig. 6), (D) Yarmuth (Miroschedji 1988d, pl. 35:7). Scale 1:5.

## Combed Ware Vats and the Olive Oil Industry

The presence of large vats as a subgroup in the Early Bronze Age ceramic repertoire of Syria-Palestine has been known for some time (figs. 22 and 23). These vats have been found at various sites ranging from southern Palestine (Tell el Hesi) to the northern Syrian coast (Ras Shamra). Form and surface treatment of the vats vary from site to site, but a fairly large number of examples have a surface that has been pattern combed, not unlike the surface treatment of the large store jars or pithoi. The general distribution of these store jars and vats seems to coincide.

### Northern Palestine

Although it is unlikely that the olive formed a major part of the cultivation investment of the city, examples of these olive oil separators have been found at Beth Yerah. At least four vats were found in one building (see pls. 8, 9). From these fragments it can be seen that these vats had flat bases, two loop handles and a smeared red wash applied to the exteriors of the vats. Although there is no deep combing on the vessel exteriors, the wet-smoothing process and some light combing does seem to have left some light vertical and horizontal striations. Next to these large vats was an enormous combed ware jar (see pl. 9:G). The interior surface of these vats is very rough because of large numbers of sharp small to medium grits of basalt that were purposely added to the clay. The exterior shows little trace of these grits because of the wet smoothing.

A complete spouted vat was found in Megiddo Stratum XVII (Locus 4042),<sup>242</sup> and its similarity to the Beth Yerah vats is striking (cf. fig. 22 with pl. 9:B, C, D). It was found in the complex of rooms just east of the circular altar and cultic area of this stratum. The Megiddo example has two large loop handles, and the diameter of its mouth is approximately 0.42 m. It is about 0.35 m deep, and the spout is located just below the rim. The fabric of this vessel is "pink-buff," wet-smoothed, and is distinguished by roughly applied smeared red bands. The rim is thickened and inverted. There is no indication that it was combed.

Two more sherds from Megiddo may belong to such vats. One of the sherds has a flattened horizontal rim. Although no spout is preserved, the exterior of this fragment is characterized by a fine pattern combing. Its diameter is 0.38 m, and its fabric is "pink-buff."<sup>243</sup> A second sherd has an inverted thickened rim and has a spout just below the rim exterior. Both these sherds come from Stratum XVIII, traditionally assigned to EB II. Their date in EB III is probable, however, since the same locus yielded at least one sherd of Khirbet Kerak Ware.<sup>244</sup>

A vat very similar to those from Beth Yerah and Megiddo was discovered in the small scale excavations at Tell Qishyon, located in the central Jezreel Valley not far from Mount Tabor. This site was occupied in the Early Bronze Age and was essentially abandoned until the transition period between the Late Bronze and Iron Ages. The vat was found in Stratum I of Area A, which dates to EB III. It should be noted that this stratum also produced a large Khirbet Kerak Ware pot stand, broken in situ on a floor (Locus 29).<sup>245</sup> The vat from Qishyon has a thickened inverted rim and at least one loop handle on its exterior. It is not complete, so there may have been a second loop handle. A spout was located just below the rim exterior. In addition to Khirbet Kerak Ware, there were numerous platters, combed ware, and metallic ware sherds found in this stratum.<sup>246</sup>

Beth Shan has yielded a few sherds that may belong to this category. The most likely example comes from Beth Shan XIII.<sup>247</sup> This piece has a thickened inverted rim with a spout just below the exterior. There is no information about its surface treatment or diameter, but FitzGerald reports that this type "was of frequent

242. Loud, *Megiddo*, vol. 2, pl. 5:15 and photograph on pl. 106:9.

243. *Ibid.*, pl. 102:13.

244. *Ibid.*, pl. 102:18.

245. Cohen-Arnon and Amiran, "Tel Qishyon," p. 209.

246. *Ibid.*, p. 211.

247. FitzGerald, "Earliest Pottery," pl. 5:1.

occurrence."<sup>248</sup> It is difficult to determine precisely the relationship between these vats and the three well-built rooms preserved by the destruction of Stratum XIII. In those three rooms were several large storage jars which held the remains of bean, lentils, and barley mixed with wheat. These storage jars were decorated with streaks of red or brown wash, but he notes "one, fragment, however, with a heavy rim had combed decoration on the shoulder as well as a red slip."<sup>249</sup>

The material from Beth Shan XIII is mixed, for it includes forms that could be dated from EB I through EB III. The platters that FitzGerald mentions as belonging to XIII,<sup>250</sup> as well as XII, certainly are more typical of EB III, and the small bowl<sup>251</sup> is most probably Khirbet Kerak Ware. In addition to the two stands,<sup>252</sup> he mentions that nearby he found fragments of an "expanding trumpet base" that was "coated with a red slip." This object may have been part of a Khirbet Kerak Ware stand. He also found combed ware sherds and two fragments of stump based juglets.

Another possible vat rim is illustrated in the assemblage of Stratum XI forms.<sup>253</sup> Although there is some question about how late Stratum XI continues, there is little doubt that it is at least partially dated to EB III. Dever and Richard have suggested that another vat can be seen in the published material of the Beth Shan excavations.<sup>254</sup> This vat also was assigned to Stratum XI.

Vats were also discovered at Hazor. At least four specimens of large vats were discovered in the 1968 excavations. Three of these had horizontal combing on their exterior surfaces. The Hazor rim profiles were close to the Beth Shan XI example and the vats from Beth Yerah.

#### Southern Palestine

Combed ware vats were first illustrated by Petrie in his publication of the pottery from Tell el Hesi in 1891.<sup>255</sup> He classed them with the rest of his "Amorite" pottery, and all of the examples that he illustrated were pattern combed. His ware descriptions ranged from drab gray to light brown to "white faced" brown ware. The latter description probably refers to the thick white slip common on vessels from Hesi.<sup>256</sup>

Fargo's recent treatment of the Hesi material has expanded the corpus of these vessels and also provided secure stratigraphic provenience for the vats in southern Palestine. Most of the vats were covered with a white slip. Many also had combed decoration and their context at Hesi is EB III.<sup>257</sup> The diameters from Hesi range from 0.30–0.50 m. The main features of the vats are a thickened inverted rim, and the usual defining feature of these vessels is a spout located just below the rim and ledge handles. Combed ware vats similar to the Hesi examples have been found at Lahav, and a sherd of one such vat was found at 'Ereini.<sup>258</sup>

A complete example of a combed ware vat was discovered in Albright's excavations at Tell Beit Mirsim.<sup>259</sup> The vat has two ledge handles placed halfway down the vessel's side walls and was 0.50 m in diameter. The rim is thickened into a knob, but the illustration of this vat shows that the rim protrudes more on the exterior of the vessel than toward the interior. Although an incomplete spouted example seems to be closer to the form of the Hesi vats, the complete vat with flat base has a "coarsely combed" exterior. This combed ware vat has a depth of approximately 0.30 m. Both vats from Tell Beit Mirsim were made of buff

248. Ibid., p. 14.

249. Ibid.

250. Ibid., pl. 8:20, 22, 23.

251. Ibid., pl. 5:16.

252. Ibid., pl. 4: 23, 24.

253. Ibid., pl. 9:18.

254. Dever and Richard, "A Reevaluation," p. 7.

255. W. F. Petrie, *Tell el Hesi (Lachish)* (London: Committee of the Palestine Exploration Fund, 1891), pl. 5.

256. Ibid., p. 41.

257. Fargo, "Settlement in Southern Palestine," p. 143 and fig. 32.

258. Sh. Yeivin, *First Preliminary Report on the Excavations at Tel 'Gat' (Tell Sheykh 'Ahmed el 'Areyny)* (Jerusalem: Department of Antiquities, 1961), pl. 5.

259. Albright, "Tell Beit Mirsim, vol. 1A," pl. 1:4 and p. 60.

fabric and were not slipped, although the spouted vessel (diameter 0.25 m) was pattern burnished on its exterior surface. The large vat was published by Dever and Richard to illustrate a “typical EB III form.”<sup>260</sup> These authors mention another vat fragment from Tell Beit Mirsim that is not published. Although they cite parallels from Beth Shan and Megiddo, it will be seen that a difference in form can be distinguished between the northern and southern vats or basins.

Similar vats are found at Lachish. The largest number of vats came from Cave 6013, which yielded at least four and perhaps five vats.<sup>261</sup> The same cave also produced at least ten pithoi. Of these pithoi, three are listed as having a cream surface, although the fabric of the vessels themselves was red. Two pithoi are specifically mentioned as being covered with a lime wash. One pithos was horizontally combed, and two additional pithoi bore both combing and lime wash. Two of the vats were pattern combed and one was horizontally combed.<sup>262</sup> The other two vats were not combed. Many of the pithoi found in these caves bore incised rope decoration around their necks. Two additional vats were found in Cave 6005 and two in Cave 6030.

A number of vats were found at Tell Yarmuth, located in the Shephelah about 5 km southwest of Beth Shemesh.<sup>263</sup> The form of the Yarmuth vats is different from the sites farther south (see fig. 23:D). The vats of Yarmuth have been subdivided by the size of their diameter (and perhaps they are also distinguished by their surface treatment). The smaller vats have an average diameter of 0.60 m, and their form appears to be similar to those already discussed from other sites, i.e., relatively deep in relation to their diameter. This variety does not seem to have been combed. The second type of vat has a much larger diameter (about 0.90 m) in relation to its depth (about 0.20 m). These vats were horizontally combed and had ledge handles. Ben-Tor dates the pottery assemblage from Yarmuth to EB III.

In Miroschedji's recent excavations at Yarmuth he cleared an area (Area C) with domestic rooms and installations inside the city wall. In one of the rooms, a deep vat was sunk into the floor.<sup>264</sup> A number of the vats from these excavations also had combing on their exterior and date to EB III.

Although not all of the vats are complete, the general dimensions of the vats from southern and northern Palestine are similar. They vary from 0.30–0.60 m in diameter and are approximately 0.30–0.35 m deep. The only type that is significantly different in form is that from Tell Yarmuth which has a much larger diameter offset by a shallower depth.

The vats from northern Palestine seem to be much more closely related to one another than to those from southern Palestine. In addition to loop handles, the smeared wash decoration on three of the vats from Beth Yerah and the one example from Megiddo is not paralleled so far by any southern sites. Combing is present on a number of examples from Beth Yerah, but the combed decoration is extremely light and can only be detected by close inspection. The vats from southern Palestine, when preservation permits, seem to have ledge handles rather than loop handles.

## Syria

One of the best examples of a combed ware vat (fig. 22:C) can be found at Byblos.<sup>265</sup> It possesses two loop handles, just as the vats from northern Palestine do. Its diameter is approximately 0.54 m. The exterior of the vat is covered with fine pattern combing, but there is no accompanying description of the ware to indicate presence or absence of a white slip. Its rim differs from the vat rims of Palestine. The Byblos

260. Dever and Richard, “A Reevaluation,” pp. 6, 7, fig. 1:11.

261. Tufnell, *Lachish*, vol. 4, pl. 62:274, 276, 290; pl. 64:351, 353.

262. *Ibid.*, pl. 62:274, 290; pl. 64:351.

263. Ben-Tor, “Tell Yarmuth,” Type V, p. 66.

264. Miroschedji, *Yarmouth I*, pl. 35:7. I would also like to thank P. Miroschedji for having shown me the pottery and plans of the latest excavations at the site.

265. M. Dunand, “Byblos au temps du bronze ancien et la conquête Amorite,” *RB* 59 (1952): pl. 5, lower right-hand corner.

example is horizontal, but it is everted rather than inverted. There is no trace of a spout in the published drawings.

Two different forms of combed ware have been discovered at Ras Shamra. Both combed ware jars and a type of open vessel were found in the vicinity of an oil pressing installation. As Fargo has pointed out, the presence of the Ras Shamra material next to oil presses may give a clue to the function of this combed ware.<sup>266</sup> In fact, Courtois notes that all around these presses were large jars which had been smashed in place. He divided them into two types: piriform jars and vessels with large mouths.<sup>267</sup> The latter seem to be some sort of bowl (see fig. 23:A). He records no evidence of spouts on these bowls. The pattern combing on the bowls and jars is clear and precise, and their fabric is a pinkish buff. These fragments were not only found around the presses, but in the basins themselves.

No diameter is given for the bowls from Ras Shamra but they appear from the published photograph to have been fairly large (ca. 0.50 m), and they probably would have been used in some capacity in the oil production process. The fact that these combed ware bowls and jars were found in and around the presses in such quantity must indicate some link between them.

Combed ware bowls very similar to those from Ras Shamra were discovered in a sondage cut by du Mesnil du Buisson at Qatna. This trench was placed on the terrace of the "Butte de l'Eglise," i.e., in the eastern portion of the city mound proper. It cut below the floors of the "Ancienne Eglise" and revealed a depth of deposit of 4.60 m above bedrock. Although no stratigraphic information is available, two goblets published by du Mesnil du Buisson show a remarkable similarity to the vessels from Ras Shamra (see fig. 23:B).<sup>268</sup> One of the goblets from Qatna was pattern combed on the interior as well as on the exterior. A reconstruction made from the published drawings indicates that the Qatna goblet is approximately 0.11 m in diameter.<sup>269</sup> The combed piece from Qatna is a goblet or bowl and is too small to be considered a vat, certainly when compared with the large vats of Palestine.

The presses found at Ras Shamra deserve a more detailed description. They consisted of two large stone slabs set side by side. Each slab was slightly tilted toward a receiving basin. There was a small notch or trough at the end of each slab to facilitate the draining of a liquid into the basins. The slabs were 1.95 m and 1.70 m in length. The north basin was 1.00 by 0.80 by 0.65 m (i.e., 0.50 m<sup>3</sup>), and the southern was 0.95 by 0.75 by 0.62 m in size (i.e., 0.44 m<sup>3</sup>). Both were carefully plastered. When excavated, they held more than combed sherds. In the northern basin, there was a large block of perforated limestone. Courtois refers to it as a "maillet," and it may have been used to crush the fruits on the stone slabs. The black and greasy earth recovered from the south basin contained olive pits.<sup>270</sup>

Reisner originally proposed that the combed ware jars found in the Egyptian tombs in the Giza necropolis had contained some sort of imported Syrian oil. The discovery of many of these combed ware jars and bowls in direct proximity to an olive press dating to the same period should give that theory more credence.

A press similar to those from Ras Shamra was excavated at Ta'anach. Lapp dated the press to the EB II-III periods, for although no pottery was associated with the press itself, the installation was sealed by a layer of earth containing only EB III sherds. This layer in turn was sealed by the lower revetment of a Middle Bronze Age glacis. The press was cut into sloping bedrock just outside the southern defenses of the EB period. A shallow rectilinear treading or crushing area measured 3.10 m in length, by 2.20 m on the east and 1.75 m on the west side. It averaged approximately 0.20 m in depth. Two conduits were cut in the rock at the lower end of this treading area. The liquid drained into a basin which measured 0.88 by 0.55 m. Plaster was found in one channel and in one basin.<sup>271</sup>

266. Fargo, "Settlement in Southern Palestine," p. 149.

267. Courtois, *Ugaritica*, vol. 4, pp. 420-31; see especially fig. 18.

268. Cf. R. du Mesnil du Buisson, *Le Site archéologique de Mishrifé-Qatna* (Paris: Boccard, 1935), p. 112, fig. 33:208 to Courtois, *Ugaritica*, vol. 4, fig. 19a. Note that Courtois describes an oil pressing installation at Qatna that was similar to the one from Ras Shamra, pp. 429, 430.

269. This measurement is based on the assumption that the line drawn in the publication is actually the center line of the vessel; this, however, is not made explicit in the publication.

270. Courtois, *Ugaritica*, vol. 4, p. 423.

271. Lapp, "The 1968 Excavations," p. 12 and fig. 8.

## The Olive Oil Factory at Beth Yerah

One of the areas worked by The Oriental Institute at Beth Yerah, Trench H-K, yielded a well-preserved building which may have had a specialized function. Judging from the assemblage of vessels found on its floors, the building may have been used to process olive oil (see fig. 23). The rectangular structure was subdivided into two rooms, and a large number of vessels resting on floors of packed earth were found in situ. Many of the vessels were restorable (see pls. 8, 9).

The fragments of at least four large vats came from this structure. A large number of medium-sized basalt grits were intentionally left exposed on the interior of several of the vats (the exterior was carefully wet-smoothed and showed light traces of combing). The exterior of these vats was smeared with streaks of red-brown wash, similar to examples from Megiddo.

Found with the vats were several combed ware storage jars. The largest storage jar was found with its stone lid still in place. On the floor of the same room with the vats and combed ware jars was a stone mortar. One half of a double vessel was also found on the floor. The assemblage illustrated from this industrial installation is most closely related to the EB III pottery from the rest of the site, although no Khirbet Kerak ware was found in these rooms.

The assemblage from this building strongly suggests that it functioned as an olive oil factory. Spouted and combed ceramic vats may have been an integral part of the processing of olives to produce olive oil.<sup>272</sup> In modern Greece, the olives are first soaked in hot water. They are then bruised or crushed, either by rolling a large stone over them or crushing them in a mortar.<sup>273</sup> The fruit is then placed in settling vats filled with water. When the oil floats to the top the water is drawn off through a spout at the bottom of the vat. Of course in the case of the Early Bronze Age vats, water could have been added to the mixture, causing the oil to rise to the top and flow out the spout. Forbes and Foxhall also cite the use of spouted vats in the separating process.<sup>274</sup>

The stone mortar in the Beth Yerah building could easily have been used to crush the olives. The vats would have been used to skim off the oil that floated to the surface after hot water was added to the olive pulp. The vat interiors at Beth Yerah were studded with small sharp grits, intentionally added to the vessel, perhaps to scrape or bruise the olive fruits when they were added to the vat. The function of the double vessel remains unknown, but it also must have been used in the oil extraction process. Double vessels have been found in association with vats at Beth Yerah, Megiddo, Tel Yarmuth, and Byblos.

The Beth Yerah facility may also provide a clue to solve an enigma at Tel Yarmuth. It is possible that the industrial area at Tel Yarmuth (Area H) was also used for processing olive oil. The assemblage is identical to that of Beth Yerah, consisting of mortars sunk into the floors, a basin, pithoi, and double vessels. The excavations also revealed at least four "kilns" that were "neither pottery nor metal kilns," but that may have served to heat large quantities of water.<sup>275</sup> The broad shallow vats at Yarmuth also could have been used in this procedure, for Columella reports that olive oil should be ladled from one large pan to another to help clarify the oil by aerating it and gradually eliminating the dregs.<sup>276</sup>

We know very little about the process of preparing vessels for receiving liquids destined for export in the third millennium. No tests have been run on residue left in any of the Red Polished Ware jugs from Egypt.

272. Fargo, "Early Bronze Age Pottery," p. 38; Stager, "The Firstfruits of Civilization," pp. 176, 177.

273. K. Vickery, *Food in Early Greece*, Illinois Studies in the Social Sciences, vol. 20 (Urbana, Illinois: University of Illinois, 1936), p. 52.

274. H. Forbes and L. Foxhall, "The Queen of All Trees: Preliminary Notes on the Archaeology of the Olive," *Expedition* 21 (1978): 37-47. For similar flotation techniques, see J. Kelso, *The Excavations of Bethel (1934-1960)*, AASOR 39 (Cambridge, MA: ASOR, 1968), p. 30; especially interesting is the presence of a large stone mortar for crushing the olives; O. Borowski, "A Note on the 'Iron Age Cult Installation' at Tel Dan," *IEJ* 32 (1982): 58. Flax was also processed by crushing and adding hot water to extract the oil; see D. Zohary and M. Hopf, *Domestication of Plants in the Old World* (Oxford: The Clarendon Press, 1988), pp. 113, 114.

275. Miroshedji, "Tel Yarmut, 1986," pp. 87, 88; idem, "Tel Yarmut, 1987," p. 198; for a photograph of a spouted vat, double vessel, and pithoi from Yarmut, see idem, "Données nouvelles sur le bronze ancien," fig. 12.

276. Columella, *De Re Rustica*, Loeb Classical Library (Cambridge, MA: Harvard University Press, 1954), 12.52.11, 12.

Some work has been done on two of the combed ware jars from Giza, however. One jar mouth was stoppered with a leather wrapped potsherd and then sealed with plaster, and other jars from Giza that were discovered with their seals intact were also sealed with mud or plaster.<sup>277</sup> The care taken to seal the vessel probably indicates that some sort of liquid was stored in them.

A least two combed ware jars contained resinous products. The tests on one of the jars by Lucas yielded a fragrant resin from a coniferous tree.<sup>278</sup> Smith suggests that the resin may have been mixed with another substance to form a fragrant oil.

It is clear from the descriptions written in the Roman period that the interior of pottery jars was routinely coated with pitch or resin. Great care was taken to line the interior of the jars before adding oil:

... the husbandmen of our own day ... have come to the opinion that it is enough to wash new jars thoroughly with liquid gum and, when they are dry, to fumigate them from below with white wax, that they may not take on a pallid colour or an evil odour. In their opinion this fumigation ought always to be carried out whenever new or old vessels are being treated and prepared for new oil. Many people, when once they have daubed their new jars and barrels with thick gum, are satisfied forever with one gumming, and certainly a vessel which has once absorbed oil does not admit of a second gumming; for the fatty nature of the oil rejects such matter as gum.

Columella, *De Re Rustica* 12.52.16, 17

Columella's description of the process for preparing and extracting olive oil and his advice on how to insure quality and quantity for the produce mirror the concerns of the third millennium inhabitants of Syria-Palestine as well. He was careful to specify the exact techniques necessary for producing first-class oil, and he added, almost as an afterthought, the techniques for processing olives of inferior quality for home consumption. Obviously, the economic or cash potential of the crop was uppermost in his mind.

The choice was always between subsistence or export, whether that exchange was intraregional, interregional, or international. Of course the choice did not always lie with the potential supplier, for sufficient demand needed to be generated before the necessary commitment to specialization in cash crops in quantities suitable for domestic consumption and export could be risked. A clear pattern of agglomeration, and possible indications of more intensive cultivation of specialized crops will be demonstrated in the analysis of settlement patterns. The trading relationship with Egypt, even if only on a primary to secondary civilization basis, created the impetus for urbanization in Palestine. The EB I settlements were numerous, and their inhabitants pursued diverse subsistence strategies, but it was the growth of interregional and international trade that took them beyond subsistence. In the case of a "secondary order" civilization like that of Palestine in the third millennium, foreign trade reinforced the development and maintenance of economic hierarchies and presumably social and political ones as well.

277. Guy Brunton, *Matmar*, British Museum Expedition to Middle Egypt (London: Quaritch, 1948), p. 45, pl. 37 (tomb 3209); see also Reisner and Smith, *Giza*, vol. 2, pp. 75, 76.

278. Reisner and Smith, *Giza*, vol. 2, p. 75.

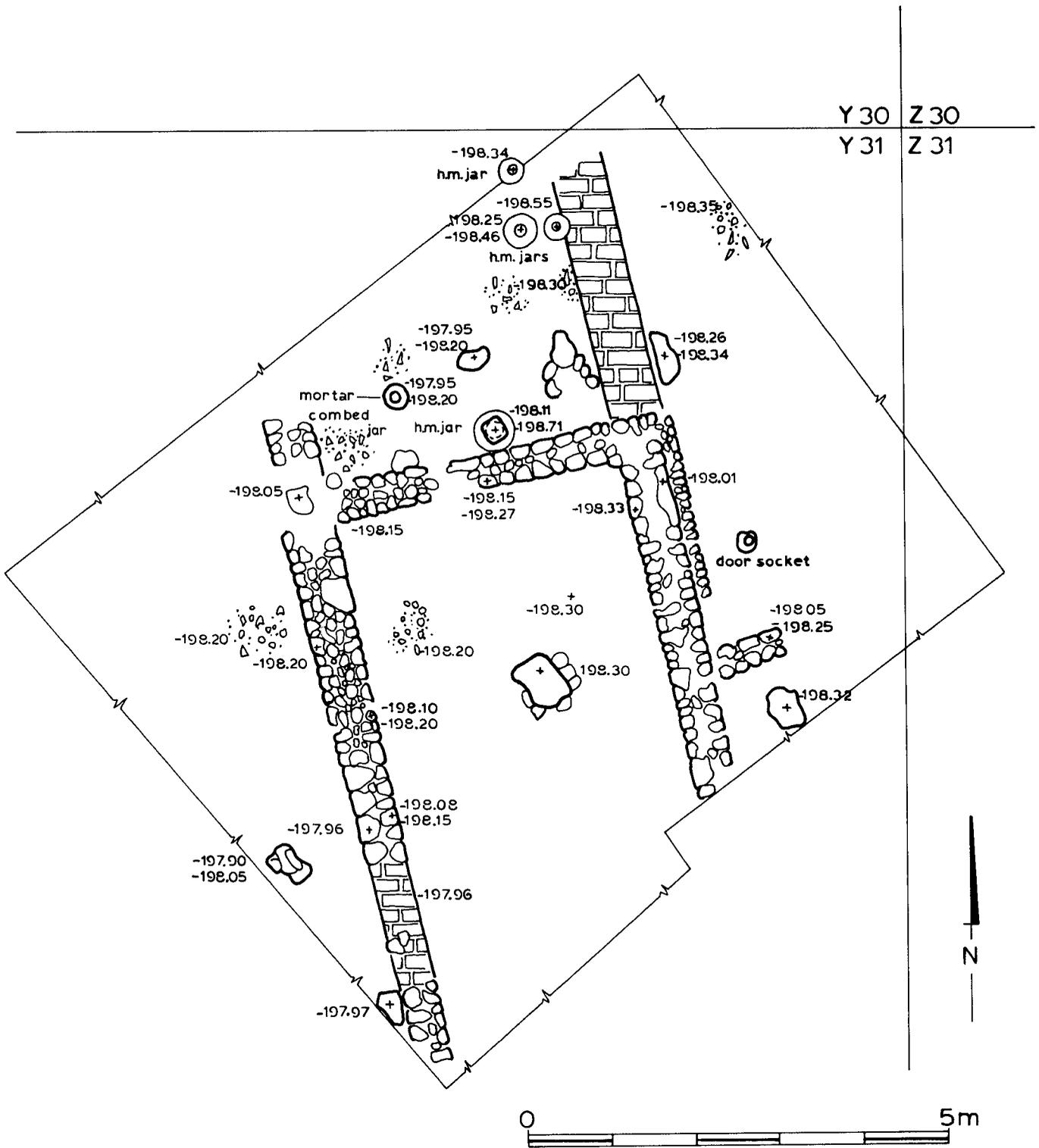


Figure 24. Beth Yerah, Plan of the Olive Oil "Processing Plant" in Trench H-K.



## CHAPTER 4

## SETTLEMENT PATTERNS IN NORTHERN PALESTINE

Much survey work has been done in the last fifty years in the various subregions of northern Palestine. Probably the first, and one of the most effective, systematic surveys was undertaken by the British School of Archaeology in 1922.<sup>1</sup> This survey represented an early attempt to analyze a specific region, in this case the plain of Akko, not only by locating and recording sites, but by sinking test pits into them to determine their full range of occupation. Even this method, eschewed by most surveyors today as too expensive and time-consuming, was not infallible. The excavators report that the test trenches at Tel Qashish turned up only Early Bronze Age material. Their trenches were placed only on the “eastern slope and the eastern side of the western bluff.” The most recent excavations at the site, conducted by Hebrew University, show that had the British excavated on the western bluff itself they would have revealed strata from the Middle Bronze Age, Late Bronze Age, and Iron Age I periods.<sup>2</sup>

One of the first scholars in Palestine to use settlement patterns to elucidate specific aspects of ancient trade routes and historical processes was A. Saarisalo. In two pioneering studies in the 1920s, Saarisalo studied the Akko plain and the eastern Lower Galilee.<sup>3</sup> In both cases he visited most of the sites in the two regions and gave a thorough, albeit very general, list of the periods of occupation observed at each site. Saarisalo was more an historical geographer than an archaeologist, but he wisely knew when to consult a specialist; thus his pottery collections were analyzed by W. F. Albright. Saarisalo’s study of settlements in the eastern lower Galilee was primarily concerned with the settlement and boundaries of the two Israelite tribes of Naphtali and Issachar and thus with the Iron Age. He did not ignore the Early Bronze Age, however, and he noticed that the ancient sites seemed to be located all along the route later known in Turkish times as the Darb el Hawarneh.

Although his statement that “there is not *one* Early Bronze Age settlement to be found in this region away from this route,”<sup>4</sup> needs to be modified, Saarisalo was looking for the right pattern. In the absence of texts, nearly the only way to locate ancient routes is to identify the settlements which must have originally been established along its path. Unfortunately, Saarisalo could not differentiate between the various subdivisions of the Early Bronze Age sites since the chronological sequence had not yet been established when he investigated the sites, so it is impossible to extract more specific information from his general categories. At a time when most archaeologists were concentrating on large single-site excavations, Saarisalo saw the benefit of an approach more regional in outlook. In his use of the presence or absence of sites to delineate ancient political boundaries and to discuss economic geography he was far ahead of his time.

1. J. Garstang, “Geography of the Plain of Acre,” *Bulletin of the British School of Archaeology in Jerusalem* 2 (1922): 10–17. See now a modified version of this method in Y. Portugali, “A Field Methodology for Regional Archaeology (The Jezreel Valley Survey, 1981),” *TA* 9 (1982): 170–88.
2. Ben-Tor, Portugali, and Avissar, “The First Two Seasons of Excavations at Tel Qashish,” pp. 137–64.
3. Saarisalo, “The Boundary Between Issachar and Naphtali,” pp. 23ff.; also idem, “Topographical Researches in Galilee,” *JPOS* 9 (1929): 27–40; also idem, “Topographical Researches in Galilee, II,” *JPOS* 10 (1930): 5–10.
4. *Ibid.*, p. 30.

More intensive and complete surveys were undertaken early in the 1950s. A general survey of many of the large sites in Galilee was begun by the Department of Antiquities.<sup>5</sup> A more concentrated survey effort was conducted by Aharoni.<sup>6</sup> Aharoni surveyed the central portion of Upper Galilee. He reported a line of Bronze Age settlements stretching from Rosh HaNiqra (Khirbet Musherifa) on the Mediterranean coast to Qadesh-Naphtali on the eastern rim of the Galilee, just above the Huleh Valley. Within his survey area, however, there were only two EB sites, five MB sites, and two LB sites. Site density increased in the Iron Age, with nineteen sites located in the survey area, while during the Roman/Byzantine period there were thirty-two sites in the central portion of Upper Galilee. Aharoni reports that the average size of the Iron Age sites was between 0.4–0.6 ha. Although size is not available for most of the Bronze Age sites mentioned by Aharoni in northern Galilee, at least one site (Qadesh-Naphtali) was 10 ha and two others were 3 ha (Tel Rosh, Tel 'Avdon). Aharoni's research interest was primarily centered on the process of Israelite settlement of the Galilee, and he did little interpretation of the settlement remains from the Bronze Age. Since his initial survey and his small test trenches at two of the Galilee sites, there has been no systematic survey of the Upper Galilee area.

In contrast, work in the Beth Shan Valley and the eastern Jezreel Valley has been continuous. Over the past forty years, Nehemiah Zori conducted extensive survey work and a number of small salvage excavations in the area.<sup>7</sup> Because Zori lived in the area which he surveyed, his work is probably as close to comprehensive as one might find. Even here, however, there are dangers, for extremely small sherd scatters can appear on the map as sites.<sup>8</sup>

The western Jezreel Valley has been surveyed more recently by A. Raban. Raban's survey covered both the southern and northern parts of the valley. The survey was thorough and included both major and minor sites in the valley itself, along its rim, and in the hilly areas bordering it.<sup>9</sup> The eastern half of the Jordan Valley was surveyed in 1975 by M. Ibrahim, J. Sauer, and K. Yassine.<sup>10</sup> Their survey area covered the area from the Yarmuk River, to as far south as the Wadi Rajib. For purposes of this study, sites are included that lay between the Yarmuk and approximately 5 km south of the Wadi Yabis. This is roughly the area east of the southernmost part of the Beth Shan Valley. A thorough survey of the northern Transjordanian highlands was also completed by S. Mittmann.<sup>11</sup>

By far the most comprehensive list of Bronze Age sites in Palestine was compiled by T. Thompson.<sup>12</sup> Thompson combined all published survey material with the site information on file on the Israeli and Jordanian Departments of Antiquities. His list is useful, for it gives us a general idea of the nature of the ancient settlement in areas that have not undergone systematic survey. Use of the information compiled in

5. Anonymous Author, "Survey Work," *Alon* 5–6 (1957): 9 (Hebrew).

6. Aharoni, "Galilee Survey," pp. 56–64; idem, *The Settlement of the Israelite Tribes in Upper Galilee*, p. 31; see also R. Amiran, "The Upper Galilee in the Early Bronze Age," in H. Hirshberg, ed., *All the Land of Naphtali*, The Twenty-Fourth Archaeological Convention, 1966 (Jerusalem: Israel Exploration Society, 1967), pp. 44–48 (Hebrew).

7. N. Zori, *The Beth Shean Valley*, 17th Archaeological Convention (Jerusalem: Israel Exploration Society, 1962) (Hebrew); N. Zori, *The Land of Issachar: Archaeological Survey* (Jerusalem: Israel Exploration Society, 1977) (Hebrew).

8. On several occasions I have had to contend with the category best described as "pot drop" in which only one pot was found from a particular period. I have included these "sites" on my site list but indicated their character in order to differentiate them from settlements. For this term, see R. McC. Adams, *Heartland of Cities* (Chicago: University of Chicago Press, 1981), pp. 43, 44.

9. A. Raban, *Archaeological Survey of Israel: Nahalal Map*, no. 28 (Jerusalem: Archaeological Survey of Israel, 1982); The Nahalal map covers the northern half of the western Jezreel Valley. I would like to thank A. Raban for having shared his survey results with me, both for the area included in the Nahalal map and for the unpublished results of his survey in the southern half of the valley which will be published as the *Archaeological Survey of Israel: Beth Ha'Emeq Map*, no. 32 by the Archaeological Survey of Israel.

10. M. Ibrahim, J. Sauer, and M. Yassine, "The East Jordan Valley Survey, 1975," *BASOR* 222 (1976): 41–66.

11. S. Mittmann, *Beiträge zur Siedlungs- und Territorialgeschichte des nördlichen Ostjordanlandes* (Wiesbaden: Harrassowitz, 1970).

12. T. Thompson, *The Settlement of Palestine in the Bronze Age*, Tübinger Atlas des vorderen Orients (Wiesbaden: Ludwig Reichert, 1979).

Table 3. Aggregate Chronological Distribution of Sites in Survey Area.

<i>Chalcolithic</i>	<i>Early Bronze</i>	<i>EB IV/MB I</i>
84	304	139

such a list, however, becomes a matter of trust in the validity of the original records. This trust can sometimes be misplaced, since some surveys are more reliable than others.

A site survey was also conducted by the author in November of 1979. During that month the survey team visited fifty-eight sites. The survey area roughly covered both the eastern and western portions of the Jezreel Valley. The composition of sites ranged from simple sherd scatters to large tells.

### SITE DENSITY

To gain a perspective on the nature of survey and the inherent dangers in using such material uncritically one should look at the results of my check on the surveys of Raban and Zori. Of the thirty-five sites in my survey that were assigned to either the EB or EB IV/MB I period by Raban, Zori, or Thompson, I detected no sherds from those periods at eleven (almost one-third). I also detected EB at three sites that had not previously been ascribed to the Early Bronze Age (sites 382, 383, and 384). These are essentially new sites. These figures give an idea of the possible margin of error in analyzing survey results.

The margin of error is a very important factor to keep in mind when analyzing raw survey data. The master list of sites shown in the *Appendix* (below) records a total of 410 sites. These sites are generated from a combination of all available survey results, Thompson's list compiled from Department of Antiquity files, and the brief notes published on salvage excavations. The breakdown of the site distribution by period of occupation shows a huge preponderance of EB sites in relation to Chalcolithic and EB IV/MB I sites (see tab. 3).

Any analysis of survey results requires more than a reference to gross counts of sites. Site surveys are useful when used to observe long term trends in settlement. These trends are generally proposed after comparing the number and distribution of sites of one period with another. A problem with this method, however, is that the records are not always directly comparable. Surveys done at different times, by different teams, and for different purposes, can yield very unequal results.

A comparison of the Chalcolithic period (fig. 25) and the Early Bronze Age (fig. 26) is a case in point. No one would deny that there was an increase in numbers of settlements from Chalcolithic to EB. This has been shown by archaeological research over all of Palestine. The distribution of these settlements in northern Palestine must be carefully checked, however. The complete lack of Chalcolithic settlement in Upper and Lower Galilee may not reflect archaeological reality. Early Bronze Age sites in coastal Galilee and in the mountainous interior were plotted only because they were listed in Thompson's site list. Although Thompson had access to Department of Antiquity files, his purpose was to search for Bronze Age sites. This means that he has presented a list that purposely avoids all reference to Chalcolithic material. The sites which are shown as having Chalcolithic occupation were discovered either through excavation, or the surveys of Raban, Zori, and the east Jordan Valley survey by Ibrahim, Sauer, and Yassine, all of which included every period and which involved on-site inspection.

The use of Department of Antiquities files to re-create settlement patterns requires a great degree of care.<sup>13</sup> Such variable data, collected over a period of years by various means and analyzed by many different people, should be used only at the impressionistic level.

13. Adams, *Heartland of Cities*, p. 43. Adams faced the same dilemma in his study of settlement systems in the central Euphrates flood plain. "To what degree do the reports permit an extension of survey coverage into regions beyond its own self-imposed limits?"

It is clear that Thompson realized the problems in using survey records from files. He described those problems in his introduction to the site list,<sup>14</sup> and he freely acknowledged the lack of consistency in the collection of data, and even conflicting data in some cases. He also noted the accidental or “chance” nature of the surface collections on many of the sites. Thus any individual site may appear or disappear from the survey site list and should not disturb the ultimate pattern established through “cumulative positive archaeological evidence corroborated by the ecological potentialities of the region.”<sup>15</sup>

Although Thompson was certainly aware of the dangers in using raw settlement data, he ran into problems when he attempted to generalize from simple “settlement patterns” to a “subsistence-settlement system.”<sup>16</sup> Such a progression requires a rigorous breakdown of settlement type and function. This sort of analysis is extremely complex and cannot be achieved solely by accumulation of large numbers of sites and comparisons of gross totals to ascertain continuity/discontinuity.

The pitfalls of over-generalizing can be shown in Thompson’s treatment of Early Bronze Age sites. Rather than listing the sites by the attribution found in the files, which sometimes specifies EB I, EB II, or EB III, he combined all of these subdivisions into a general EB category. As has been shown by excavation and survey in the past sixty years, however, all EB is not alike. The great change from relatively small unfortified villages to large population concentrations enclosed by fortification walls, i.e., a sign of urbanization, occurred precisely at the transition from EB I to EB II. Any clue of this tremendous economic, social, and political shift was effectively obscured by combining all the EB subphases into one undifferentiated category. Despite the problems involved in dividing the EB survey material into more discrete units, the results are worth the attempt. There is a consistent difference between the number and nature of EB I sites when compared to EB II–III sites. Admittedly, there are a fair number of sites that cannot be subdivided, either in published surveys or in my own survey. The general trend holds true, however, in all published surveys that make a distinction between EB I and EB II–III. Settlement pattern studies should supplement the knowledge gained from years of excavation. They must not be used in lieu of that knowledge.

Dever has shown that the problems are also very great when applied to the EB IV/MB I period. Dever listed “urban features” and compared the EB II–III with the EB IV/MB I period.<sup>17</sup> Although his list is schematic, it effectively shows the great discontinuity between EB II–III and the EB IV/MB I period. Although at times similar site distributions might indicate similar site functions, Thompson’s analysis of site distribution was skewed by combining EB I with EB II–III sites. As a consequence, Thompson’s assertions of continuity of function must be rejected.

For these reasons more detailed maps of the Jezreel and Beth Shan Valleys are presented in figures 27, 28, and 31. These maps were generated directly from the two surveys conducted by Zori (the Beth Shan Valley and Nahalat Issachar), Raban (the northwestern Jezreel Valley), and Gal (whose territory overlaps with both of Zori’s survey areas). The greatest problem with these maps, of course, is the disposition of the undifferentiated EB sites. Because these sites were included in the more comprehensive general map (fig. 26), they have been omitted in the more detailed maps.

## DEMOGRAPHY

Closely linked with settlement distribution and function are population estimates. Estimation of population size has become the subject of much debate in recent years. Demographic work for ancient Palestine has ranged from the Chalcolithic to the Roman periods, with numerous variations in approaches,

14. Thompson, *The Settlement of Palestine in the Bronze Age*, pp. 1, 2.

15. *Ibid.*, p. 3. See also a similar warning in R. Gophna and J. Portugali, “Settlement and Demographic Processes in Israel’s Coastal Plain from the Chalcolithic to the Middle Bronze Age,” *BASOR* 269 (1988): 21, n. 1.

16. For the term “subsistence-settlement system”, see F. Plog, “Settlement Patterns and Social History,” in Murray Leaf, ed., *Frontiers of Anthropology* (New York: Van Nostrand, 1974), pp. 68–91.

17. W. Dever, “New Vistas on the EB IV (‘MB I’) Horizon in Syria-Palestine,” *BASOR* 237 (1980): 35–64.

most of which use a standard multiplier or constant to arrive at a general population estimate.<sup>18</sup> These estimates require the archaeologist to serve as “census taker.” The estimate of population can shed light on possible subsistence strategies which may have been adopted to support the various levels of population through time. It also has the potential to yield valuable information about the rate of growth of the population from one period to the next. This rate of growth is especially helpful when dealing with urban evolution and decline, two phenomena that are clearly present in the EB I through the EB IV/MB I periods.

The study of demography can be viewed from the bottom up or from the top down. The first approach (from the bottom up) is based on the ability of the paleodemographer to establish the internal domestic layout of a settlement, to determine the amount of space within each domestic unit, and to multiply by a constant, usually derived from ethnographic research. This approach is heavily dependent on results from excavated sites with enough lateral exposure to determine the character and extent of domestic compounds. The second method (from the top down) is more suitably adapted to survey results, in which the surface area of the site is multiplied by a constant to arrive at a total population of the site. This method is pocked with methodological pitfalls.

It is obvious that the estimate of ancient population from silent archaeological remains involves what can best be described as a “leap of faith.” This leap requires accepting a set of assumptions that must be spelled out clearly, especially about the number of people who lived in a certain number of square meters in the typical house of the period. This number is usually viewed as a constant, although the number probably varied considerably through the lifetime of the house and from generation to generation.<sup>19</sup> With this constant, more assumptions must be made about the number of rooms in a particular compound or on a site in order to determine the population of the site.

One method proposes that a useful formula might be the “SRP approach,” where “S equals the number of settlements in a region, R, the number of rooms per settlement, and P, the number of persons per room.”<sup>20</sup>

The practical use of this formula, since very few sites are completely excavated, usually requires the use of another estimate, namely the SARP, where A equals the area of the settlement. The area of the settlement is required to estimate the number of rooms in order to apply the constant of population per square meter of living area. Stager has recently used the SARP approach in a detailed analysis of the rate of population growth and the changes in its distribution between the Late Bronze and Iron Ages.<sup>21</sup> This analysis was mainly limited to the central hill country of Palestine, where fairly extensive excavations of Iron Age compounds at such sites as ‘Ai, Raddana, Bethel, and Giloh have taken place.

In fact, at the regional survey level, most archaeologists are forced to multiply the number of sites by the area of the sites as an aggregate and then multiply by an assumed constant population figure per

18. For some relevant approaches to demography in ancient Palestine, see T. Levy, ed., *Shiqmim I*, BAR International Series 356 (Oxford: BAR, 1987), pp. 68–70; Gophna and Portugali, “Settlement and Demographic Processes in Israel’s Coastal Plain,” pp. 11–28; L. Marfoe, review of *The Rise of an Urban Culture*, by A. Kempinski, and *Early Arad*, by R. Amiran et al., *JNES* 39 (1980): 315–22; Y. Shiloh, “The Population of Iron Age Palestine in the Light of a Sample Analysis of Urban Plans, Areas, and Population Density,” *BASOR* 239 (1980): 25–35; I. Finkelstein, *The Archaeology of the Israelite Settlement* (Jerusalem: Israel Exploration Society, 1988); L. Stager, “The Archaeology of the Family in Ancient Israel,” *BASOR* 260 (1985): 1–35; M. Broshi and R. Gophna, “The Settlements and Population of Palestine during the Early Bronze II–III,” *BASOR* 253 (1984): 41–53; M. Broshi and R. Gophna, “Middle Bronze Age II Palestine: Its Settlements and Population,” *BASOR* 261 (1986): 73–90; and M. Broshi, “The Population of Western Palestine in the Roman-Byzantine Period,” *BASOR* 236 (1979): 1–10.
19. Naroll has suggested a figure of 10 m<sup>2</sup> per person per household; R. Naroll, “Floor Area and Settlement Population,” *American Antiquity* 27 (1962): 587–89; C. Kramer has arrived at a somewhat similar figure derived from her work among the Kurdish villagers in central western Iran; C. Kramer, “An Archaeological View of a Contemporary Kurdish Village: Domestic Architecture, Household Size, and Wealth,” in C. Kramer, ed., *Ethnoarchaeology* (New York: Columbia University, 1979), pp. 139–63.
20. A. Ammerman, L. L. Cavalli-Sforza, and D. Wagener, “Toward the Estimation of Population Growth in Old World Prehistory,” in Ezra Zubrow, ed., *Demographic Anthropology* (Albuquerque: University of New Mexico, 1976), pp. 27–61.
21. Stager, “The Archaeology of the Family in Ancient Israel,” *BASOR* 260 (1985), p. 21, tables 3 and 4.

hectare. The criticisms of the assumptions involved in estimating a constant population figure over time are well founded. There is absolutely no alternative, however, to adopting some sort of constant.<sup>22</sup> The use of a constant, of course, leads to great difficulties in dealing with issues such as population variability diachronically. For example, a 10 ha site of the EB II–III period conceivably could have been occupied for 600–700 years. Any estimate of population by using the actual area of the site makes an assumption about the “average” number of inhabitants through time.<sup>23</sup> These assumptions are unavoidable. The estimates can be useful mainly when used as a heuristic device, especially when discussing such factors in settlement studies as growth rates. They also help to put a “human face” on simple constructs of settlement hierarchies. They are in effect, however, a translation of rank-size hierarchies into terms of human population.

The data base for population studies of the Early Bronze Age is severely limited. Unlike the numerous available plans for Iron Age sites and for the residential areas of their sites, only one Early Bronze Age site in Palestine has been excavated extensively enough to provide a fairly large sample of residential units. The recent publication of the first five excavation seasons at Arad has given us some impression of what a residential quarter of a fairly large third-millennium city (10 ha) looked like.<sup>24</sup> The area of the main living rooms at Arad ranged from 11.4 m<sup>2</sup> to 37.4 m<sup>2</sup>. The total house area, including both roofed area and courtyards, ranged from 30.9 m<sup>2</sup> to 142.2 m<sup>2</sup>.<sup>25</sup> Marfoe discovered that the ratio of roofed area to courtyard is consistent among the different residential quarters. Although the ratio was constant, he distinguished variation in total size between two of the quarters (Areas H and K). Although roughly the same area was exposed during excavations, there were only half as many house complexes in Area K than in Area H. The houses and compounds of Area K were larger than those of Area H.

Kramer observed a similar phenomenon at a modern Kurdish village in Iran. She found that the total compound area of wealthy landed families was larger than that of landless families, although the ratio of roofed to unroofed space within a compound was similar between the two socio-economic classes.<sup>26</sup> On the other hand, there were roughly the same number of square meters per inhabitant in both groups (between 9–10 m<sup>2</sup> per person). The landed villagers tended to have a higher proportion of extended families, i.e., the more persons under one roof, the larger that roof had to be.

Recent archaeological work at Tel Qashish has exposed part of a residential area in excavations that covered an area of a little more than 300 m<sup>2</sup>.<sup>27</sup> The area of the individual dwelling units at Qashish in Phase 3 for the two rooms in each unit was approximately 18 m<sup>2</sup>. At this point, the limited exposure has yielded no evidence of social stratification.<sup>28</sup> There is also no evidence for a second floor in any of the Early Bronze Age excavations to date.

Stager has suggested that the composition of the average Iron Age nuclear family in the central hill country of Palestine was probably around four. Shiloh has calculated an impossibly high average of eight per family. Adams follows Russell in assuming a figure closer to 3.5 persons per family.<sup>29</sup>

22. See an interesting attempt at trying to allow for socio-economic differentials between sites of different sizes in Gophna and Portugali, “Settlement and Demographic Processes,” pp. 11–28. Unfortunately, this adds another apparently arbitrary set of constants, based on site size and not necessarily on site function.
23. Schumacher in his study of the Golan provided an excellent anecdote that illustrates the problem. He wrote “the family inhabit the same hut till the roof commences to fall in under the weight of the yearly increasing layer of clay. Then, with the cooperation of the relatives, another hut on another part of the ruins is built. This is the explanation of the many modern ruins found amongst the unrecognizable old ones in the same villages”; G. Schumacher, *The Jaulan* (London: Bentley, 1888), p. 43.
24. R. Amiran, *Early Arad*.
25. L. Marfoe, review of *Early Arad*, p. 318, table 1.
26. Kramer, “Archaeological View of a Contemporary Kurdish Village,” pp. 154, 155.
27. Ben-Tor, Portugali, and Avissar, “Excavations at Tel Qashish,” p. 155, fig. 12.
28. Remains of a much larger building associated with a city wall of EB II date are now coming to light, however. Ben-Tor and Bonfil, “Tel Qashish, 1984/1985 Seasons,” p. 106. Also see Bernick and Greenberg, “Tel Qashish, 1987 Season,” p. 108.
29. Stager, “The Archaeology of the Family,” p. 18; Shiloh, “The Population of Iron Age Palestine,” p. 29; and Adams, *Heartland of Cities*, p. 144.

The available data will simply not allow more detailed treatment of population for northern Palestine in the Early Bronze Age. The SAP or number of sites  $\times$  area  $\times$  population approach is probably the only reasonable option. Even disregarding the problems inherent in locating sites and accurately measuring their size with a reasonable degree of correspondence with the actual ancient site area, there is no consensus about the number of persons per hectare that should be used in this equation.

The average number of persons per hectare of settled area may vary considerably. Town lay-out can have a great effect on any attempt at establishing population by ignoring the presence of large public structures such as granaries, administrative buildings, or temples. In the Early Bronze Age this can cause a legitimate concern. Note that virtually the entire area of the 2,475 m<sup>2</sup> of the EB III levels exposed at Megiddo was filled with public buildings or temples.<sup>30</sup> The largest exposed area at Beth Yerah revealed not domestic or residential quarters but a public granary. Thus there may in fact be a greater relative density in the villages than in the larger sites.

Adams arrives at an average figure of 125 persons per hectare or 100 persons per hectare on sites which had only two measurements (length and width).<sup>31</sup> This is to allow for the fact that most site areas are figured by a formula designed for rectangles (length vs. width), while in reality the sites rarely conform to this shape. Stager's estimate of population density for sites in Iron Age Palestine is roughly 200 persons per hectare. Marfoe suggests a similar median figure for Early Bronze Age Palestine based on the residential compounds at Arad (200–250 persons per hectare).<sup>32</sup> Since the population density is treated as a constant, however, the relative values of population when one site is compared with another will not change.

Any theory about the average population density of each site is made even more tenuous by the real difficulty of even measuring a site with any degree of accuracy. Not only are there usually only rough estimates of site sizes available, probably measured by pacing, but there is also very little control over which chronological period one is actually measuring.<sup>33</sup> The effect of several thousand years of near continuous occupation can distort, if not completely obscure, the actual size and morphology of a third millennium B.C. site.<sup>34</sup> We are on much safer ground when dealing with sites that had extensive EB occupation followed by more limited later occupation, such as Tel Qashish, Tel Qishyon, and Beth Yerah. As is common with most other surveys, larger and later sites will be more heavily represented. Small sites which were then occupied during later periods will be under represented.

Because of the effects of modern plowing, many sites not only are turned into sherd scatters, but also their horizontal "area" is actually extended. Thompson reports that Tell esh-Shammam (site 125) is a "large tell in the Jezreel Valley on the northwest bank of Naḥal Naḥalal." When I visited the site in 1979 it had totally disappeared. There was no sign of a tell; all that remained was a sherd scatter that stretched for hundreds of meters in all directions. A measurement of the sherd scatter would prove useless for purposes of estimating the size of the ancient Early Bronze Age site. The same can be said for Ḥorvat Shamot (site 279) which was also obliterated by modern deep plowing. This site yielded sherds spread out over more

30. See Gophna and Portugali, "Settlement and Demographic Processes" for an attempt to deal exactly with this kind of problem.

31. Adams, *Heartland of Cities*, pp. 69 and 349, n. 6

32. Stager, "Archaeology of the Family," p. 21; Marfoe, review of *Early Arad*, p. 320.

33. A very promising approach combining stratified random sampling techniques with small test trenches is being tried in connection with the Yoqneam Regional Project; see Portugali, "A Field Methodology for Regional Archaeology."

34. The problem is illustrated by the survey of the large site of Ḥorvat Deburah (site 138). It is located near the slopes of Mount Tabor and is estimated to be about 6.5 ha in size. The area is presently cultivated and a number of hillside terraces extend down the surrounding slopes. A large quantity of sherds were scattered over this cultivated area. EB I was found at the site but primarily on its southeastern side. Iron Age sherds were sparsely represented, but there were many Persian and Hellenistic sherds; in fact, Hellenistic sherds represent the predominant period found at Ḥorvat Deburah. How does one describe the size of the EB I settlement at Ḥorvat Deburah? It would seem that the best one can do is provide a maximum number. At least we can be assured that the site did not exceed 6.5 ha, although it was probably much smaller during the EB period.

than 1.5 ha. Obviously the site had been smaller in its original state but the plowing had artificially extended its boundaries.

Another problem when attempting to estimate population density purely by site size is the inability to differentiate between the varied functions which may have been performed by certain sites. Assuming that all sites were occupied by sedentary subsistence agriculturists is more obfuscatory than useful. A case in point is provided by the site of Mitham Shaḥal (site 211). It is clear that there were enclosure walls on the site. At the bottom of the slope were also remains of an EB I settlement. Gal estimates the size of the upper settlement to be approximately 4.5 ha and the lower site to be approximately 6–7 ha.<sup>35</sup> Their proximity and probable contemporaneity make it unlikely that these sites functioned independently. Much of the area within the walls was probably not built upon. Bedrock was exposed over much of the site and there were no observed occupation remains. Pottery was found mostly in the area of the destroyed lower wall. The paucity of architecture within much of the fortified area may suggest some sort of specialized function and certainly would distort population estimates based solely on area.

An even more dramatic example of the problem encountered when estimating population density by site size is the site of Tel Yosef (el Murkhan, site 273). The site has remains scattered over an area of approximately 96 hectares (or almost 1 km<sup>2</sup>). The date of this site is EB IV/MB I. Not only would this be the largest EB IV/MB I site known, it would be the largest site in all of Palestine. Clearly, this is impossible, and descriptions of the site reveal that it was a very dispersed occupation rather than a dense concentration of residential units.

Excavations conducted by the Department of Antiquities in 1954 at Tel Yosef revealed a building complex which included seven rooms, measuring 7.5 m × 9.5 m.<sup>36</sup> The walls were preserved to a height of only one course, and at the western end of the complex they were simply founded directly on the bedrock. The courtyard wall attached to this dwelling was traced for a length of at least 50 m, and there are indications that the courtyard itself was also partitioned. As a minimal estimate, this partitioned courtyard would have measured 20 m × 16 m. In a number of places, the bedrock was exposed on this hillside site. There are no traces of any sort of defensive wall, and the site probably functioned as a dispersed hamlet suitable primarily for subsistence level pastoralism and agricultural pursuits, rather than functioning in some sort of urban hierarchy or network.

Any population estimate that does not take into account site function and merely establishes population based on numbers of sites with their aggregate hectarage multiplied by a demographic constant is doomed to failure. This is especially true when analyzing a highly dissected landscape with ecological extremes such as ancient Palestine.

This statement has several implications. Any demographic explanation for social change can be as easily obtained by analyzing site size and site distribution, without the need for the intermediate stage of population estimates (arrived at purely by using a constant multiplier). Furthermore, very strict chronological controls must be exercised whenever population pressure is used to explain social change. Population variability is volatile even at extensively excavated sites within chronological subperiods (derived from ceramic criteria); population variability is even more suspect when applied to survey data.

The most fruitful line of inquiry in reconstructing a regional economy and social system then, lies not in the determination of aggregate population, but in determining the variations in settlement numbers, relative settlement sizes, settlement distribution, and settlement function. Archaeological excavations and site survey are ideally suited to provide these sorts of data.

In addition to size, therefore, some attempt at determining the “type” of site is necessary. Plog stresses two key concepts that were present in Gordon Willey’s pioneering work on settlement patterns in Peru: site type and settlement configuration.<sup>37</sup> If the type of site can be established, some clue to its function may be determined. The distribution of the settlements, or their “configurations,” can also give a clue to their function.

35. Z. Gal, *Ramat Issachar: Ancient Settlements in a Peripheral Region* (Tel Aviv: Hakibbutz Hameuchad, 1980) (Hebrew). See also idem, “H. Shaḥal Taḥit and the ‘Early Enclosures’,” *IEJ* 38 (1988): 1–5.

36. Zori, *The Land of Issachar*, p. 78, fig. 33 for plans.

37. Plog, “Settlement Patterns,” p. 71; see also Adams, *Heartland of Cities*, pp. 47–50.

To understand the function of different site types and to understand how and why they changed through time is, of course, the ideal goal of subsistence settlement studies. Plog's locational approach to settlement studies outlines a series of more explicit issues to be examined.

- 1) Density: number of sites per unit area.
- 2) Evenness: are sites evenly spaced or do they tend to cluster?
- 3) Agglomeration: to what extent is the population in a region distributed evenly among all sites or concentrated in a few sites?
- 4) Hierarchy: to what extent is a pattern of agglomeration associated with a full continuum of site sizes?

In addition, this framework should include references to function rather than remaining limited to size.

One of the first tasks in establishing these categories is to define the "boundaries" of the region and to establish the chronological framework within which these economic relationships take place. This is usually done by examining the degree of "integration" among sites. Integration is generally measured by analyzing the shared styles of artifacts among sites, for example, pottery types, seal impressions, and metallurgical technology.<sup>38</sup>

## INTEGRATION

Probably the first and simplest task of the archaeologist, when attempting to determine the degree of integration between sites, is to outline a set of cultural traits and the distribution of these traits. In the case of a regional approach to settlement patterning, this sort of distribution map can speak to the legitimacy of the boundaries of the survey. According to a number of diagnostic ceramic types, northern Palestine can be treated as a legitimate culturally bounded area. Northern Palestine provides examples of cultural patterning in all three major chronological and cultural subperiods of the Early Bronze Age: the proto-urban (EB I), urban (EB II-III), and the post-urban (EB IV/MB I).

Regional distinctions were common during the EB I period. The distribution of sites that have yielded sherds of "Grain Wash Ware" is a case in point. Albright first noticed the unique Grain Wash surface treatment on his survey of the Jordan Valley sites in the 1920s. He drew attention to "a curious type of 'band slip'," and he was aware of the regional limitations.<sup>39</sup>

Nelson Glueck also discussed the technique and distribution of "Grain Wash Ware." It was found not only at the lowland sites in the Jezreel, Beth Shan, Jordan, and Yarmuk Valleys, but also at many sites in the northern Transjordanian hill country. Glueck suggested that the southern boundary of the main distribution of the ware was a line that ran from Megiddo to el Husn in Transjordan. He listed only three exceptions to this boundary: one small sherd of possible Grain Wash technique was found at Khirbet el Metwi, 9 km northeast of Jerash, one sherd came from Shechem, in the heart of the Palestinian hill country, and a considerable amount was excavated at the site of Tell el Far'ah (N).<sup>40</sup>

The recent surveys in the Jordan Valley by Zori and Ibrahim et al. have pushed the southern boundary at least as far south as Tell Abu eṣ-Ṣuṣ (site 374).<sup>41</sup> Kochavi found Grain Wash Ware at Aphek, and it may

38. Plog, "Settlement Patterns," p. 80; see also G. Johnson, "Aspects of Regional Analysis in Archaeology," *Annual Review of Anthropology* 6 (1977): 479-508.

39. Albright, "The Jordan Valley in the Bronze Age," p. 29. See also p. 28, n. 55, where Albright compares Khirbet Kerak and Tel Qashish, "where such a characteristic type as the band slip is hardly represented at all."

40. R. de Vaux, "La Première campagne de fouilles à Tell el-Far'ah, près Naplouse," *RB* 54 (1947): 422; N. Glueck, *Explorations in Eastern Palestine*, vol. 4, pt. 1, AASOR 25-28 (New Haven: ASOR, 1951), p. 253; see also Wright, *The Pottery of Palestine*, pp. 44, 45.

41. Grain Wash Ware was recovered in the later levels of the EB I strata at Tell Um Hammad; see S. Helms, "Excavations at Tell Um Hammad, 1984," *Levant* 18 (1986): 36.

have been present at other sites in the hill country of northern Samaria.<sup>42</sup> Although the ware was found in the western Jezreel, it is less common in the Akko plain (see Ḥorvat Uṣa, site 60, however). Aharoni found Grain Wash Ware in his trial trench at Qadesh-Naphtali, but he remarked that it was rare.<sup>43</sup> It is clear that the Grain Wash Ware was primarily a northern phenomenon, which extended fairly far south in the Jordan Valley.

Grain Wash ware is, of course, not the only EB I “fossil indicator” to be found mainly in northern Palestine. Gray Burnished<sup>44</sup> or Esdraelon Ware is distributed from the extreme western reaches of the Jezreel Valley to Transjordan, at the site of Tell esh-Shuneh. Gophna found it at a number of sites on his survey of the coastal plain of Sharon.<sup>45</sup>

Gray Burnished Ware was discovered as far south as Tulul Abu el ‘Alayiq, south of the tell of Jericho.<sup>46</sup> It was found in significant quantities at Tell el Far‘ah (N) also. Within the group of Gray Burnished Ware bowls there were certain regional traits. Wright outlined the characteristics of the four basic types.<sup>47</sup> Although his chronological conclusions regarding these types have been called into question, there is little doubt that his regional distinctions had some merit. The similarity between simple shallow bowls with the sinuous band applied to the exterior from Beth Shan, Arqub el Dhahr, and Beth Yerah is striking.<sup>48</sup> The incomplete bowl from Megiddo Tomb 9, and the complete examples from Tell el Far‘ah (N) Tomb 3, have a similar but slightly more carinated profile.<sup>49</sup> Gray Burnished Ware has now been found as far north as Tel Teo in the Ḥuleh Valley and in fairly large quantities at the site of Yiftah‘el in the western Lower Galilee.<sup>50</sup>

Another type of EB I pottery must be derived from the Gray Burnished Ware technique. The bowls have a deep brown or red slip and are highly burnished. At Beth Yerah, this ware was produced after the floruit of Gray Burnished Ware. Its limited distribution probably indicates a local pottery production and distribution network.<sup>51</sup>

An indication of the poor extent of our knowledge of the northern coastal area (the Akko Plain) during the Early Bronze Age is the fact that only two sites have yielded Gray Burnished Ware. The small scale excavations at Ḥorvat Uṣa (site 60) and Beth Ha‘Emeq (site 45) have both turned up evidence of Gray Burnished Ware. It is thus difficult to generalize about the western and northern extent of Gray Burnished Ware, but there can be no doubt of its distinctly regional character. Its discovery at Tulul Abu el ‘Alayiq in the Jordan Valley near Jericho is evidence that the Jordan Valley was the meeting point of the southern and northern ceramic cultures. The valley served as a conduit through which primarily northern material cultural traits could be transmitted to the south. The reverse was also the case, as can be seen by the

42. M. Kochavi, “The First Two Seasons of Excavations at Aphek-Antipatris: Preliminary Report,” *TA* 2 (1975): 29.

43. Aharoni, *Settlement of Israelite Tribes*, pp. 10–12.

44. Hennessy, *Foreign Relations*; see especially pl. 28 for a schematic distribution map of Gray Burnished Ware (his Proto-Urban C).

45. Gophna, “The Settlement of the Coastal Plain.”

46. J. Pritchard, *The Excavation at Herodian Jericho, 1951*, AASOR 32–33 (New Haven: ASOR, 1958), pl. 37.

47. Wright, “The Problem of the Transition between the Chalcolithic and Bronze Ages,” *EI* 5 (1958): 40\*.

48. FitzGerald, “The Earliest Pottery,” pl. 3:4; P. Parr, “A Cave at Arqub el Dhahr,” *ADAJ* 3 (1956), fig. 13:24; and Beth Yerah, Trench L, in D. Esse, “A Chronological Mirage,” fig. 5A.

49. R. de Vaux and A. M. Stève, “La Deuxième campagne de fouilles à Tell el-Far‘ah, près Naplouse,” *RB* 56 (1949): 114, fig. 2; P. L. O. Guy, *Megiddo Tombs*, OIP 33 (Chicago: University of Chicago Press, 1938), pl. 10:1.

50. E. Eisenberg, “Tel Teo,” *ESI* 5 (1986): 107; also E. Braun, “Yiftah‘el—1986,” *ESI* 5 (1986): 113.

51. At Beth Yerah, The Oriental Institute excavators referred to this ware as “crackled” ware. See Aharoni, *Settlement of Israelite Tribes*, pp. 10–12; Amiran refers to this type as part of the northern culture; see Amiran, *Ancient Pottery*, p. 43; see now also D. Esse, “Village Potters in Early Bronze Age Palestine: A Case Study,” in A. Leonard, Jr. and B. B. Williams, *Essays in Ancient Civilization Presented to Helene Kantor*, SAOC 47 (Chicago: The Oriental Institute, 1989), pp. 77–92.

presence of a fairly substantial deposit of the primarily southern Line-Group Painted Ware in the burial cave at Arqub el Dhahr in northern Transjordan.<sup>52</sup>

Table 4. Distribution of Khirbet Kerak Ware Assemblage Components.

Site	Components of Assemblage*							
	1	2	3	4	5	6	7	8
Tel Dan (2)	×	×						
Rosh HaNiqlra (6)	×							
Qadesh-Naphtali (24)	×			×			×	
Hazor (37)	×	×	×	×	×	×	×	
Tel Reqet (102)	×							
Beth Yerah (155)	×	×	×	×	×	×	×	×
Lawiyah (75)	×			×				
Zeraqon	×			×				
Arqub el Dhahr	×				×	×		
el Fakhat (Glueck 98)	×			×				
Shuneh (250)	×	×	×	×	×	×	×	×
Nahal Tabor Cemetery	×	×						
Yaqush (230)	×	×	×	×		×	×	×
Tell Eṣṭaba (298)	×							
Beth Shan (300)	×	×	×	×	×	×	×	×
Kh. Ṣafṣafa (203)	×							
Qishyon (143)	×	×	×	×		×	×	
ʿAfulah (197)	×	×	×	×	×	×	×	×
Tell Regev (93)	×	×						
Megiddo (194)	×	×	×	×				
Taʿanach (257)	×	×	×	×				
ʿAin Jezreel (261)	×							
Yosef Ha Yashanah (276)	×							
Aphek	×							
Jericho	×	×	×					
ʿAi	×	×	×					
Bethel	×							
Beit Sahur	×		×					
Gezer	×							
Yarmuth	×	×						
Lachish	×		×					
Tell el Hesi	×	×						
Tell Nagila	×							
Lahav	×	×						
Bab edh-Dhraʿ	×	×						

\*List of Components

- |                                                                |                                    |
|----------------------------------------------------------------|------------------------------------|
| 1. Undifferentiated sherds (i.e., presence/absence of KK ware) | 5. Vessels with incised decoration |
| 2. Small simple bowls                                          | 6. Biconical stands                |
| 3. Small sinuous sided bowls                                   | 7. Knobbed cooking pot lids        |
| 4. Large bowls, often with fluted decoration                   | 8. Andirons                        |

52. Parr, "A Cave at Arqub el Dhahr." Several small vessels painted with vertical red lines were also found on the floor of a circular structure at Beth Yerah. They were found with a large complete Gray Burnished Ware bowl and a red-slipped loop-handled cup. Esse, "Chronological Mirage," figs. 4 and 5. For the term Line-Group Painted Ware, see Stager, "The Periodization of Palestine."

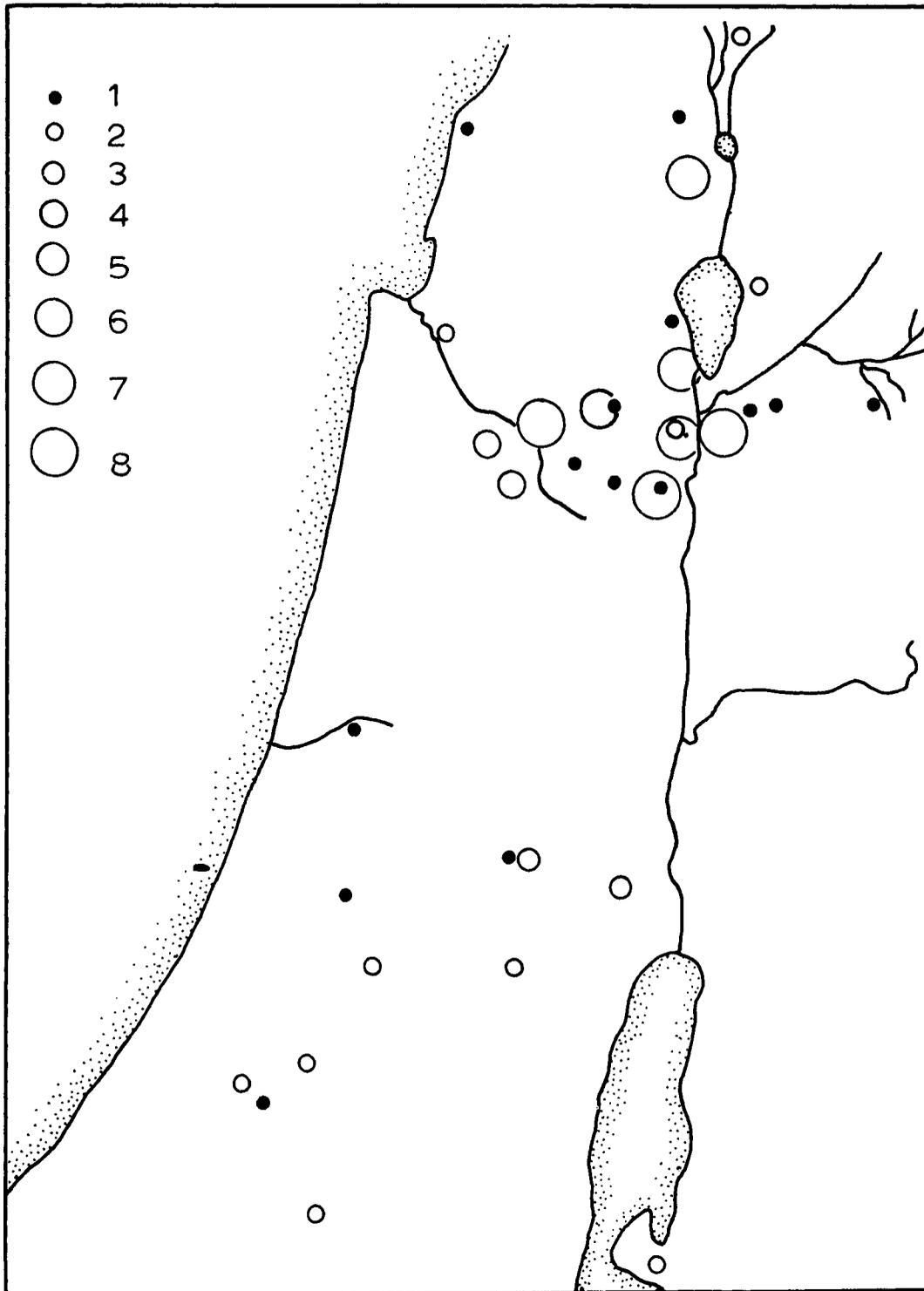


Figure 25. Distribution of Khirbet Kerak Ware by Components in Assemblage.

The specifically northern distribution of Gray Burnished Ware was never in doubt. An equally dramatic example of regional cultural patterning is the distribution of Khirbet Kerak Ware in EB III. This distinctive ware has already been discussed at length by numerous scholars. The distribution of this ware is well known.<sup>53</sup> It is found in quantity only in northern Palestine. South of Beth Shan the only occurrences of

53. Hennessy, *Foreign Relations*, pl. 62; and A. Ben-Tor, "Problems in the Early Bronze II-III" (Ph.D. diss., Hebrew University, 1968), map no. 4.

Khirbet Kerak Ware are small bowls, i.e., portable vessels. Thus, although figure 24 shows an extension of the range of this ware as far south as Lahav and Bab edh-Dhra<sup>c</sup>, there is every reason to treat Khirbet Kerak Ware primarily as a northern phenomenon.

The Khirbet Kerak Ware assemblage offers an ideal opportunity to test a slightly more refined approach to the “pots to people” argument. Rather than depending purely on quantitative data and distribution to illustrate the degree and range of influence of the Khirbet Kerak “folk” (as Woolley refers to them), I prefer to trace component parts of an assemblage.

Because of the sudden nature of the appearance of Khirbet Kerak Ware, the great variety of its assemblage and its completely non-Palestinian forms, it is possible to isolate the distinctive cultural elements of its repertoire. The list of cultural components of the assemblage can easily be compared with the Khirbet Kerak Ware assemblage found in the excavations at the northern Syrian <sup>c</sup>Amuq sites. By and large, the same elements are found in both regions.

Not just quantity, then, but range of type is important. Seven specific ceramic types may be distinguished in the Khirbet Kerak Ware assemblage in Palestine. It is clear from table 4 that the southern range of components in the overall Khirbet Kerak Ware assemblage is limited to small bowls of both simple or sinuous-sided type. The northern assemblage is sharply contrasted with that of the south. Probably the two most significant variables in the list are the andirons and the cooking pot lids. Although these objects are small and easily portable, they are not the sort of things that make good trade items. These two items give a more accurate impression of the centers of production of the Khirbet Kerak Ware assemblage and bring us closer to establishing the socio-cultural boundaries of the group. Common kitchenware, such as andirons and pot lids, is probably the best ceramic indicator of cultural identity. Culinary boundaries may reflect cultural boundaries, whereas trade items exchanged for prestige value may not have any intrinsic meaning for the host culture. This, then, is a case where moving from “pots to people” has some validity.<sup>54</sup> Figure 24 shows the “hierarchy of integration” that represents the number of individual elements of the assemblage present at each site.<sup>55</sup>

To what extent do the sites with Khirbet Kerak Ware illustrate the elements of a locational approach to settlement patterns? Are there signs of integrative evenness? The answer is yes and no. The distribution of Khirbet Kerak ware is extensive, for it is found as far north as Dan and as far south as Tell <sup>c</sup>Ereini. Within that range, however, there is a tendency to cluster. Certainly the heaviest concentration of sites with the ware is located in the eastern Jezreel Valley and on both sides of the Jordan Valley from Beth Yerah to Beth Shan. There is a significant gap in the north central hill country. From Bethel to Lahav it seems to have fairly even distribution.

It is at the level of “agglomeration” that an analysis of an assemblage is most helpful. The main task is to determine the extent to which a population in a region is either distributed evenly or concentrated in a few sites. Assuming that the presence of cooking pots and andirons reflect actual centers of production, one can see that the population of this particular assemblage does cluster in a few sites. <sup>c</sup>Affulah and Qishyon formed the western boundary of the sites with a high number of assemblage components. The large pot stand found on the floor of a residential unit at Qishyon and the pot stand and cooking pot lid discovered at <sup>c</sup>Affulah are good indicators that there were “Khirbet Kerak folk” living at those sites.<sup>56</sup>

The northernmost boundary in Palestine is clearly in the area of Hazor and Qadesh-Naphtali, but the large bowls found in Stratum K at Hama indicate that the primary movement of these people from north to south was through the Orontes Valley. The limited exposure of Qadesh-Naphtali would explain why the

54. Note the presence of Egyptian cooking pots at southern Palestinian EB I sites; see Gophna, “Egyptian Immigration,” pp. 31–37; Naveh also argued for the presence of Greeks at Meşad Ḥashavyahu at the end of the seventh century B.C.; see J. Naveh, “The Excavations at Meşad Ḥashavyahu,” *IEJ* 12 (1962): 89–113.

55. As with all archaeological evidence, arguments from silence, often due to either very limited excavation or “accidents” of discovery, are dangerous. It is significant, however, that there are only four published sherds from Qadesh-Naphtali, but one is a cooking pot lid and another is from a large fluted bowl. Further excavation there would probably reveal a much more substantial Khirbet Kerak Ware assemblage.

56. There is little doubt that Khirbet Kerak Ware was made locally in Palestine, a claim buttressed by Neutron Activation Analysis. See D. Esse and P. Hopke, “Levantine Trade in the Early Bronze Age: From Pots to Peoples,” p. 332.

range of types within the assemblage is so restricted. No Khirbet Kerak Ware has been found in situ at Dan, and the few small bowl sherds discovered there have come from the massive Middle Bronze Age ramparts surrounding the site.<sup>57</sup> The Early Bronze Age levels at Hazor were also reached in only a few very limited areas, but the range of types within the assemblage was substantial. This strongly suggests that Hazor was a major area of production. The same may be said regarding both quantity and range of type at the sites of Beth Yerah, Shuneh, and Beth Shan.

The only anomaly in the assemblage distribution was at 'Ai. In addition to the two types of small bowls, a small andiron was found there.<sup>58</sup> The andiron was found with other cultic objects from Sanctuary A. The findspot of this object and the presence of a small amount of Khirbet Kerak ware at 'Ai has led Callaway to suggest that there was a "pro-Khirbet Kerak cult" at 'Ai and that a group of new leaders who conquered the city at the beginning of EB IIIB had "a northern, or Khirbet Kerak, orientation." Although Callaway stopped short of suggesting direct political control, he did conclude that there was significant "Khirbet Kerak influence" on the inhabitants of Phase VII.<sup>59</sup> Generalizing such a degree of political control from the presence of a dozen or so sherds of Khirbet Kerak Ware and one andiron is going beyond what the weight of evidence will bear. This should especially be stressed in light of the fact that a relatively large area of the remains of 'Ai have been exposed. Callaway felt it was more circumspect to suggest "political influence" shown by the presence of Khirbet Kerak Ware at 'Ai, than to suggest the presence of Khirbet Kerak people at the site.<sup>60</sup>

Callaway is probably correct that there were no Khirbet Kerak settlers at 'Ai, but his assertion that there was northern political influence at the site is suspect. The portability of the objects found at 'Ai requires a more cautious approach when generalizing from material culture to higher levels of interaction, especially when dealing only with anepigraphic sources.

Whatever the nature of the relationship between Beth Yerah and 'Ai, the pattern shown for EB I was more sharply defined and extended by the EB III period. The Jordan Valley served as a major route for trade and interaction between northern and southern Palestine in EB III. The true nature of this interaction remains elusive, since the Khirbet Kerak Ware assemblage simply provides what might be called the "footprints" of the traders. It can also serve an important chronological function. But it cannot bring us closer to clarifying the nature of the interregional trade mechanism which surely operated between northern and southern Palestine.

Cylinder seal impressions provide another opportunity to examine the regional differentiation between northern and southern Palestine during the EB II-III period. Ben-Tor's synthesis of the various seal styles and his very complete corpus (as of 1975) provides a clear basis for isolating particular regional traits or artistic traditions. He classified the seal impressions into three major groupings. Class I comprises geometric designs: herringbone, zigzag lines, net patterns, lozenges, ladders, concentric circles, and spirals. Class II impressions depict animals of all sorts, including horned animals, lions, fish, birds, and snakes. Class III impressions show structures, often with human and/or some sort of bipedal animal (or humans with animal costumes) dancing in front of them.<sup>61</sup>

By far the most common type of sealing in third-millennium Palestine was the geometric motif of Class I. These sealings were most commonly impressed on metallic ware jars (65 percent), and two-thirds of all impressions were on combed ware vessels. Only 30 percent of the Class II impressions were found on metallic ware.<sup>62</sup> Five of the six Beth Ha'Emeq sealings were impressed on metallic ware and traces of combing were detected on four of the sherds.<sup>63</sup>

57. Personal communication from A. Biran. I thank him for having discussed the Early Bronze Age material at Dan with me and for having shown me the few sherds of Khirbet Kerak Ware which have been discovered there.

58. Callaway, *'Ai Sanctuary*, p. 303; see also Amiran, "Khirbet Kerak Ware at 'Ai," pp. 185, 186.

59. Callaway, "New Perspectives on Early Bronze III in Canaan," pp. 53, 54; see also idem, *'Ai Citadel*, p. 193.

60. Idem, "New Perspectives on Early Bronze III in Canaan," p. 54.

61. Ben-Tor, *Cylinder Seals*, pp. 47-60.

62. *Ibid.*, p. 41.

63. P. Beck, "The Cylinder Seal Impressions from Beth Ha'Emeq," *TA 3* (1976): 120, 121.

Most of the known seal impressions from Palestine have been either chance surface finds or from mixed fill. From the scanty evidence available, Ben-Tor dates the Class I geometric seal impressions to EB III.<sup>64</sup> Of the Class II impressions, four from Megiddo are EB I, and one from Beth Yerah is from what Bar-Adon terms EB IV. Of the two Class III seal impressions found in datable contexts, one from Rosh HaNiqra is dated to the EB III by the presence of Khirbet Kerak Ware in its stratum (Level I), and the second from Beth Yerah is dated by Ussishkin to EB III.<sup>65</sup> The latter impression was found in association with Khirbet Kerak Ware. The Beth Yerah seal impression is the only one that has been found in an undisturbed EB III context.

Most of the impressions were rolled on the jars at the point where the neck joined the shoulder. Unlike most Mesopotamian seals, which were used to seal the mud stoppers of jars or doorways, the Palestinian seals were used on the vessel itself while it was in the leather-hard stage.<sup>66</sup> The function performed by these seals is still unknown. The seals could have served simply as very elaborate potters' marks. Ben-Tor feels they may have been used to designate private ownership; in effect the individual "custom ordered" his own metallic combed ware jar.<sup>67</sup>

Whatever their original function, the distribution of the cylinder seal impressions dramatically illustrates a regional cultural boundary. The Jezreel Valley forms the southern boundary of the majority of Class I geometric seals. Because of the large quantity of seals found at Dan, Beth Yerah, Hazor, and the Lawiyah enclosure in the Golan heights, the centers of seal production must have been located toward the eastern side of northern Palestine. The Beth Ha'Emeq seal impressions and an increasing number of impressions found at Tel Qashish probably indicates a more dispersed tradition of seal carving.<sup>68</sup>

Fragments of seal impressions have been found at Bab edh-Dhra'.<sup>69</sup> Also, an impression of Type II was discovered at Numeira, a site which has shown no indication of any material earlier than EB III. There is no doubt, however, that these seals were primarily restricted in their distribution to northern Palestine, with only a few examples appearing in southern Transjordan.

The regional distribution of the cylinder seal impressions and Khirbet Kerak Ware shows the regional nature of two major cultural traits. Both are clearly northern regional phenomena.

There are some indications that another, more minor, subdivision may have existed even within northern Palestine. Amiran noted in her analysis of the surface material collected from Tel Rosh (site 17) in Upper Galilee, that there was a dearth of some of the most characteristic indicators common in Early Bronze Age Palestine. There were very few ledge handles, holemouth jars, or sherds with impressed rope decoration. There was no lack of other EB indicators such as small string-cut bowls, burnished bowls, platters, and Red Polished Ware. She concluded that the material culture of Tel Rosh is actually closer to that of Syria than to Palestine.<sup>70</sup>

Another strictly northern regional trait should be mentioned. During the EB IV/MB I, there was also a clear geographical division between certain ceramic types. Amiran first sought to clarify this geographical and chronological division.<sup>71</sup> Although her chronological conclusions were soon revised by Albright and

64. Ben-Tor, *Cylinder Seals*, p. 43. The EB III date is actually based only on three sherds. Seal ID-8 from Ta'anach comes from an EB locus that is impossible to date precisely, however. Seals IE-6,7 from Hazor were found associated with Khirbet Kerak Ware in what is described as "mixed Early Bronze Age material."

65. *Ibid.*, p. 45.

66. This phenomenon may represent a more widespread Syro-Palestinian tradition. Note that the EB IV levels at Ebla also yielded jars with sealings on the shoulder, similar to those from Byblos and northern Palestine; see S. Mazzoni, "Seal-Impressions on Jars from Ebla in EB I[V] A-B," *Akkadica* 37 (1984): 18-45.

67. Ben-Tor, *Cylinder Seals*, p. 101.

68. See, most recently, the report of many seal impressions from Tel Qashish, Ben-Tor and Bonfil, "Tel Qashish, 1984/1985 Seasons," p. 107.

69. The most recent report of seal impressions from Bab edh-Dhra' can be found in N. Lapp, "Cylinder Seals and Impressions of the Third Millennium B.C. from the Dead Sea Plain," *BASOR* 273 (1989): 1-15.

70. R. Amiran, "Khirbet Tell er-Ruweise in Upper Galilee," *EI* 2 (1953): 117-26 (Hebrew).

71. R. Amiran, "The Pottery of the Middle Bronze I in Palestine," *IEJ* 10 (1960): 204-25.

later by Dever, her general attempt to isolate the regional characteristics was a legitimate and successful first step toward defining the social and economic features of the EB IV/MB I landscape.<sup>72</sup>

It is beyond the scope of this work to discuss the technical details of the ceramic typology of EB IV/MB I or to discuss the problems of terminology.<sup>73</sup> There seems to be little doubt, however, that regional distributions exist during this period, albeit at different levels. Dever's families N (North) and NC (North Central) represent the northern manifestation of the EB IV/MB I ceramic tradition. His use of two terms, N and NC, indicates there may have been a regional division within northern Palestine itself. The northern elements, represented by deposits from Rosh HaNiqra, Hanita, Qadesh-Naphtali, and Ma'ayan Barukh are somewhat different from the north central group, found primarily in the Jezreel Valley, Lower Galilee, and el Ḥusn in Transjordan. Certain features of family NC (red slip and paint) are missing from the family N repertoire, suggesting "that the latter is basically much closer to Syria than family NC."<sup>74</sup>

The general trend in studies of this period is to view the EB IV/MB I ceramic material as a direct and close descendant of the EB III pottery tradition.<sup>75</sup> Although this observation is generally true, there is one ceramic type which has no antecedent in the "local" Palestinian repertoire. The Syrian gray painted teapots and "caliciform" goblets, first discovered in the Megiddo Shaft tombs, add to the growing list of cultural traits with a purely northern distribution. A number of sherds were discovered at Hazor in Stratum XVIII.<sup>76</sup> There is some evidence for the presence of gray teapot sherds on the tell at Beth Yerah as well.<sup>77</sup> Sherds of gray teapots with wavy white line decoration were also discovered in the EB IV/MB I stratum at Tell Bir el Gharbi (site 67) in the Akko plain.<sup>78</sup> By far the greatest quantity of these Syrian vessels was discovered in a cave located 500 m north of the site of Qadesh-Naphtali. At least ten teapots were discovered along with a variety of types including bowls, goblets, and bottles.<sup>79</sup>

The mechanism leading to the distribution of these vessels is still obscure. Dever views them purely as imports ("luxury goods") from the Orontes Valley 200 miles to the north.<sup>80</sup> There is no doubt that the technique of manufacture and the decoration are not related to contemporary local ceramics from the EB IV/MB I period. Even if we allow that the gray teapot ware is simply a Syrian import, an important point must not be lost. Once again, the Jezreel Valley serves as a boundary for a distinctly northern tradition.

A possible regional pottery production scheme was evident during the EB IV/MB I that was, in the main, limited to a distribution network with Megiddo on the western extremity, Tell Um Hammad as its possible southern boundary, and including Tel 'Amal, Tell 'Artal, Beth Shan, and Tell el Ḥusn, all relatively close in the Jezreel and northern Jordan Valley. The style, characterized by distinctive painted designs on relatively widespread EB IV/MB I forms such as bowls, teapots, and amphoriskoi, was distinctive enough to be easily isolated. Neutron activation analysis has indicated a possible location of the center of production near Tell 'Artal.<sup>81</sup>

72. W. Dever, "The 'Middle Bronze I' Period in Syria and Palestine," James Sanders, ed., in *Near Eastern Archaeology in the Twentieth Century* (Garden City, New York: Doubleday, 1970), pp. 132–63.

73. Richard, "Toward a Consensus," pp. 6–8.

74. Dever, "New Vistas," p. 46.

75. Richard, "Toward a Consensus," p. 20.

76. Yadin et al., *Hazor*, vol. 3–4, pl. 156:1–7.

77. A. Kempinski, personal communication; P. Bar Adon, "Beth Yerah," *'Alon* 5–6 (1957): 30 (Hebrew); see also E. Oren, *The Northern Cemetery of Beth Shan* (Leiden: E. J. Brill, 1973), p. 55, for reference to the tell material from Beth Yerah.

78. M. Prausnitz, "Tell Bir el-Gharbi (Yas'ur): Notes and News," *IEJ* 12 (1962): 143.

79. M. Tadmor, "A Cult Cave of the Middle Bronze Age I near Qadesh," *IEJ* 28 (1978): 20–24.

80. Dever, "New Vistas," p. 50.

81. O. Hess, "Middle Bronze I Tombs at Tell 'Artal," *BASOR* 253 (1984): 55–60; E. Oren, *The Northern Cemetery of Beth Shan*, fig. 19:1; and G. J. Wightman, "An EB IV Cemetery in the North Jordan Valley," *Levant* 20 (1988): 139–59. Some of the designs on the bowls are highly suggestive of basketry designs, a point made by Stager about the EB I Line-Group Painted Ware designs; see Stager, "The Periodization of Palestine." Elaborate painted designs were labor intensive and often indicate a "house-hold" production system. See a general discussion in Esse, "Village Potters in Early Bronze Age Palestine" pp. 86–90.

The line of sites located along the modern Israeli-Lebanese border also served as the geographical division between Dever's North and North Central ceramic groups of EB IV/MB I. It is unfortunate that there has been so little excavation in this upper Galilean hill country. Also, very little is known about the nature of settlement and material culture in the adjoining hill country of southern Lebanon. At this stage of research, the presence of a sub-region in the Upper Galilee must remain a tantalizing suggestion.

The shared ceramic styles and the distribution of cultural features such as seals in northern Palestine make it clear that the Galilee, the Jezreel Valley, the upper Jordan Valley, parts of northern Jordan, and the Golan Heights form a legitimate locus for a regional study. The boundary lines shifted and underwent expansion and contraction diachronically. They were also somewhat fluid depending on the nature of the particular cultural trait examined. There was no doubt, however, that there was a regional character in northern Palestine that was different from southern Palestine, and this difference was present to one degree or another in EB I, EB II–III, and EB IV/MB I.

The data reviewed here show that during the Early Bronze Age there were different levels of integrative evenness, integrative agglomeration, and integrative hierarchy, depending on which cultural traits and which chronological period one chooses to examine. These selected topics should be seen in the context of the settlement patterns from the various subphases of the Early Bronze Age.

## DISTRIBUTION AND GROWTH RATES

### THE CHALCOLITHIC PERIOD (4500–3500 B.C.)

The distribution of Chalcolithic sites in northern Palestine is shown in figure 25. The study of the Chalcolithic period is made extremely difficult by the relatively few excavated sites in Palestine, and the problem is especially acute in the north. Excavations at Ghassul in Transjordan and at the sites in the vicinity of Beersheva have provided a good corpus of comparative material. What is needed, however, are more excavations of sites like Meşer, located at the southwestern end of the pass that leads from the coastal plain through the mountains to Megiddo and the Jezreel Valley. The excavations at Meşer have revealed three strata.<sup>82</sup> The lowest stratum (III) consists of a house (13 m × 6 m), divided into two rooms, with pottery typical of the Ghassulian Chalcolithic. This stratum yielded V-shaped bowls, cornets, and churns. The two later strata contain red and Gray Burnished Ware, which Dothan terms Late Chalcolithic (following de Vaux). A more appropriate designation would be EB I. But the problem of this period is only partially one of terminology. There is a great difference of opinion among scholars about the degree of chronological and/or geographical overlap between the various Chalcolithic cultures.

Of the seventy-seven Chalcolithic sites plotted on figure 25, most are located at the western end of the Jezreel Valley or along the Jordan River within the 100 m below sea level contour. The greatest exception to that pattern is the large group of sites spread along the upper reaches of the wadis draining from the Golan heights into the Sea of Galilee.

Epstein has examined these Golan sites in some detail.<sup>83</sup> She classifies them as a phase of the Chalcolithic period, which extends north into the Huleh basin (and perhaps into Syria) and which may reach as far south as Tell Umm Hamad esh-Sherqi on the Wadi Zerqa. The architecture of the Golan sites generally is represented by a large rectangular house with basalt foundations and two rooms, with the entrance in one of the long walls. Other cultural remains are basalt hoes, perforated flint implements (including sickle blades), and basalt "pillar figures."<sup>84</sup> The ceramics were usually decorated with finger impressed rope bands and the repertoire included large pithoi and large krater-like vessels with spouts in addition to smaller bowls and juglets. At this early date the inhabitants were exploiting domestic olives and peas, as a charred olive branch (*Olea europa*) and carbonized pea seeds (*Pisum* sp.) were found in one of Epstein's excavations.

82. M. Dothan, "Excavations at Meşer, 1956," *IEJ* 7 (1957): 217–28.

83. Epstein, "A New Aspect of Chalcolithic Culture," pp. 27–45.

84. C. Epstein, "Basalt Pillar Figures from the Golan," *IEJ* 25 (1975): 193–201.

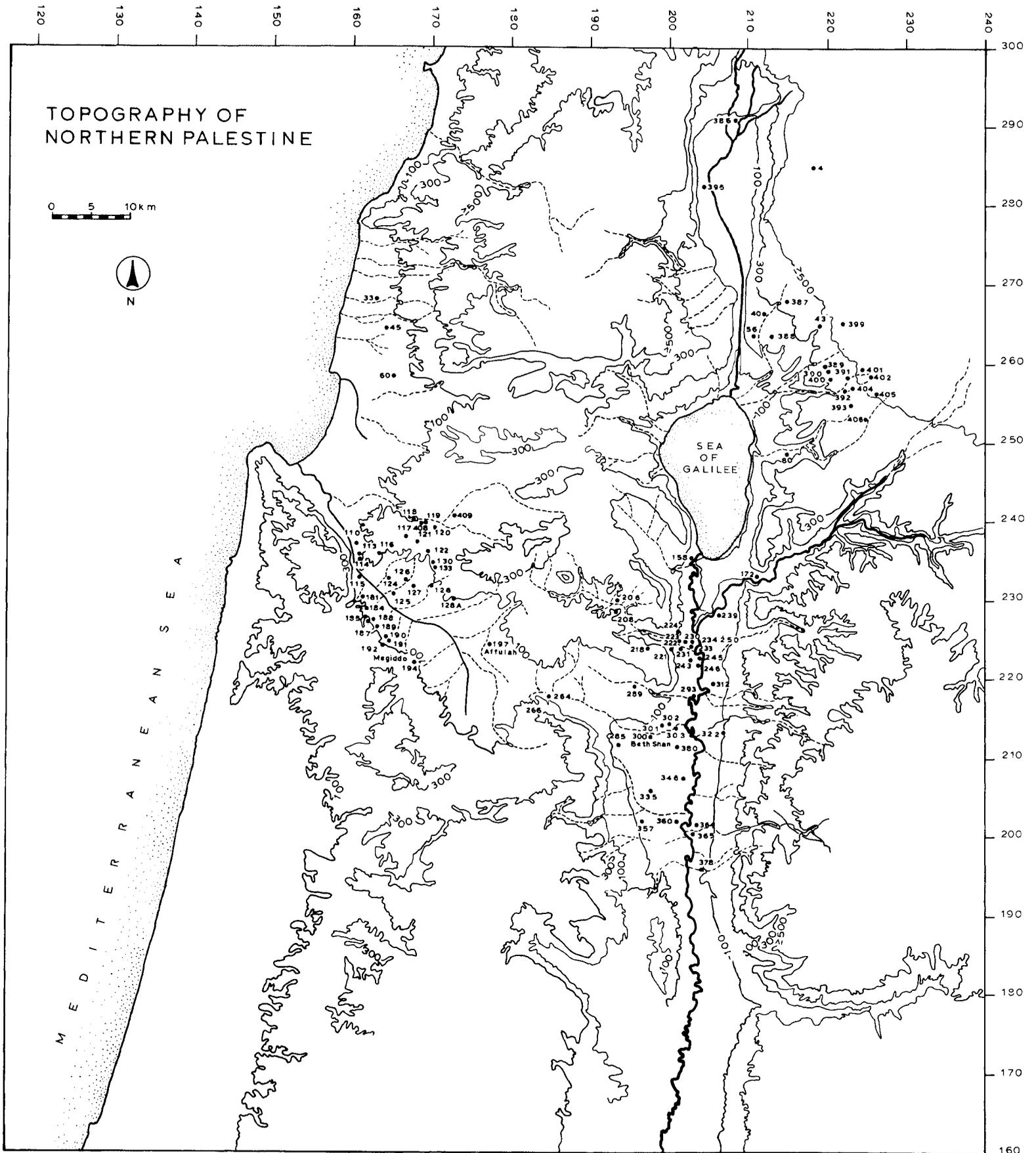


Figure 26. Chalcolithic Sites in Northern Palestine.

The lowest level of Beth Shan (Level XVIII and pits) yielded vessels similar in many respects to those from the Golan.<sup>85</sup> These vessels have affinities with Chalcolithic material from Umm Hamad esh-Sherqi, a site that was discussed at length by Glueck.<sup>86</sup> He illustrates the same sort of triangular rim with liberal applications of rope impressed decoration. The ware was also found as far north as Tell Turmus in the northern Huleh basin.<sup>87</sup>

A number of precautions must be taken when using the Chalcolithic site map. The sites from the files of the Department of Antiquities were not available because Thompson limited his survey of sites to just the Bronze Age. Thus the Chalcolithic and Early Bronze Age maps are not strictly comparable because the latter draws from a much larger data base. The only areas which can be compared on a more equal basis are those which were actually surveyed.

Even with this limitation, Raban's and Zori's surveyed areas were extensive, and the increase recorded in the number of sites from the Chalcolithic to the Early Bronze Age was substantial. With the exception of the Golan, the Chalcolithic sites certainly were more common on the colluvial-alluvial valley soils. The absence of settlement in the hills of Galilee may reflect a more systematic factor at work than the simple inadequacy of the data base. Aharoni's survey of the central Upper Galilee located no Chalcolithic sites whatsoever. Allowance must be made, of course, for the difficulty in locating small dispersed villages which may have subsequently been covered by larger villages or cities with more substantial architecture. The fact still remains that Aharoni found no Chalcolithic sherds on any of his sites.<sup>88</sup>

The debate over terminology is more than a simple inconvenience. In the case of the Chalcolithic period, the argument over distinguishing Late Chalcolithic from EB I may have skewed the settlement picture illustrated in figure 25. Generally the fossil indicators Zori labels as Chalcolithic are impressed rope designs and the basic components of the Ghassul/Beersheva horizon. His criteria are illustrated in his description of the Chalcolithic material at Munhatta (site 231).<sup>89</sup> He bases his identification on flints, loop and ledge handles, and red painted and flat rims with rope impressed decoration. The latter vessels are paralleled at Beth Shan XVIII. Zori also states that there were carinated Gray Burnished bowls from the Late Chalcolithic level at the site. He obviously was referring to ceramics which I have labeled EB I. Thus there is always a danger when the surveyor is not explicit about the sherds picked up on the survey.

The same warning is appropriate when using Raban's Nahalal survey.<sup>90</sup> One of the sites in figure 25 (site 133) was excavated. Raban lists the ceramics as coarse holemouth vessels slipped in red and/or brown, and various Gray Burnished Ware vessels, including deep bowls and carinated bowls with ear-like handles. Raban dates the assemblage to the Chalcolithic or the beginning of EB I.

Taking these precautions into account, there are certain reservations to be made before interpreting the Chalcolithic site distribution. At one end of the scale, Raban's south Jezreel survey lumped together Neolithic and Chalcolithic just as Ibrahim, Sauer, and Yassine did with their east Jordan Valley survey. This can only have the effect of inflating the number of Chalcolithic sites shown on the settlement map. At the other end of the scale, "site inflation" also occurred with the poorly defined transition between the Chalcolithic and Early Bronze I. If sites were categorized Chalcolithic primarily on the evidence of Gray Burnished Ware, the net result would be an artificially high number of Chalcolithic sites. The map is probably also somewhat misleading with the paucity of Chalcolithic sites along the coastal plain and in the

85. FitzGerald, "Earliest Pottery of Beth Shan," pl. 1.

86. Glueck, *Explorations in Eastern Palestine IV*, pp. 318-29, 505-11, pls. 100, 101, 156-60. See also S. Helms, "Excavations at Tell Umm Hammad esh-Sharqiya in the Jordan Valley," *Levant* 16 (1984): 49, fig. 15.

87. Y. Dayan, "Tell Turmus in the Huleh Valley," *IEJ* 19 (1969): fig. 4; Miroschedji has classified this group of ceramics as his "pré-urbaine D," which represents a continuation of Kenyon's scheme and expands it to include yet another regional type; P. de Miroschedji, *L'Époque pré-urbaine en Palestine* (Paris: Gabalda, 1971). An example may be illustrated from the Nahal Tabor area in the Jordan Valley; see Zori, *The Beth Shean Valley*, p. 136 and pl. 12:22.

88. Amiran found no Chalcolithic pottery at Tel Rosh either; see Amiran, "Khirbet Tell er-Ruweise." Braun reports some possible Chalcolithic or Pottery Neolithic sherds from a level below the EB I stratum at Yiftah'el in western Lower Galilee; Braun, "Yiftah'el—1986," p. 113.

89. Zori, *Beth Shean Valley*, p. 139, site 9.

90. Raban, *Nahalal Map*.

Ḥuleh Valley. These areas have not been intensively surveyed or published to the degree that the Jezreel and Jordan Valley have. We can say little about the density of sites in these areas, but the excavated sites at Beth Ha‘Emeq (site 45), Ḥorvat Uša (site 60), Tell Turmus, the newly excavated site at Tel Teo,<sup>91</sup> and the sites in the Golan excavated by Epstein prove that the area was certainly not a *tabula rasa*.

Because of the varying degree of precision in the surveys, estimations of size can be done only for a small percentage of the total number of Chalcolithic sites. The overburden from later occupation can be especially problematic for such sites.

The Chalcolithic sites were not distributed evenly across the Jezreel Valley. Since most of the Jezreel Valley has been covered by survey, it provides a standard against which the Early Bronze I sites can be measured. Sites cluster at the western extreme of the valley. Most of them seem to be located by the springs at the valley border or on the actual channels of the small wadis draining into the Qishon River. This preference for the springs along the valley border can be seen by observing the vast central portion of the valley with only one site (‘Affulah, site 197) located in it.

The absence of sites in the eastern Jezreel along the southern rim and the ‘Ain Ḥarod channel is even more apparent. Most sites seem to be evenly dispersed in a north-south line along the Jordan Valley. A few lie along the spring line on the western edge of the Jordan Valley, but almost all sites are located lower than the 100 m below sea level contour. The only true clustering of sites occurs at the mouth of the Naḥal Tabor.

#### THE EARLY BRONZE AGE (EARLY BRONZE I [3500–3100 B.C.],

#### EARLY BRONZE II–III [3100–2200 B.C.]

A glance at figures 25 and 26 confirms the dramatic increase in sites between the Chalcolithic and Early Bronze Ages. In terms of gross chronological periods, eighty-four Chalcolithic sites mushroomed into 304 EB sites. Very evident is the much greater geographical diffusion. Sites dot the length of the coastal plain. Settlement also was located along the rim of the Ḥuleh Valley. Although both Upper and Lower Galilee yielded traces of occupation, settlement is diffuse and mainly limited to a few sites located far up the wadis. The western Jezreel had a slight increase in the number of sites, but a much faster rate of growth is evident in the central and eastern Jezreel Valley. An increase in sites occurred along the route leading from the Jezreel, past Mt. Tabor, and across eastern lower Galilee to the Sea of Galilee. The small valley between ‘Affulah and Tell Qishyon was filled with small sites. The entrance to the eastern Jezreel around ‘Ain Jezreel (site 261) and ‘Ain Ḥarod saw an increase from one to twelve sites in the transition from Chalcolithic to Early Bronze.

What can only be termed an explosion in site density occurred in the Beth Shan Valley during this period. This increase in site density was not limited solely to the area along the Jordan River. During the Early Bronze Age, sites were fairly evenly distributed throughout the Beth Shan Valley as far as its western rim (along the 100 m below sea level line). A large increase in the number of sites occurred all along the three major wadis between Beth Shan and Beth Yerah. The increase in sites also was marked on the east bank of the Jordan River, with settlements strung along the wadi channels draining the Transjordanian highlands and leading to the Jordan River.

Yet it would be misleading to view the tremendous increase in sites as a long uninterrupted process of expansion and population increase. To treat the Early Bronze Age as a monolithic period and to simply compare the raw data of site totals with those of the Chalcolithic or Middle Bronze Ages would do a grave disservice to the potential of settlement pattern study. The great shift from what was basically a village culture to what can truly be considered an “urban” one occurred precisely between the subphases EB I and EB II, and ignoring this shift obscures the nature of the urbanization process. Although clear ceramic distinctions lie behind the EB I and EB II subphases, more general cultural reasons also exist for such a division; settlement patterns can illustrate one aspect of the discontinuity.

91. E. Eisenberg, “Tel Teo,” *IEJ* 37 (1987): 174, 175, fig. 1, and pl. 20B.

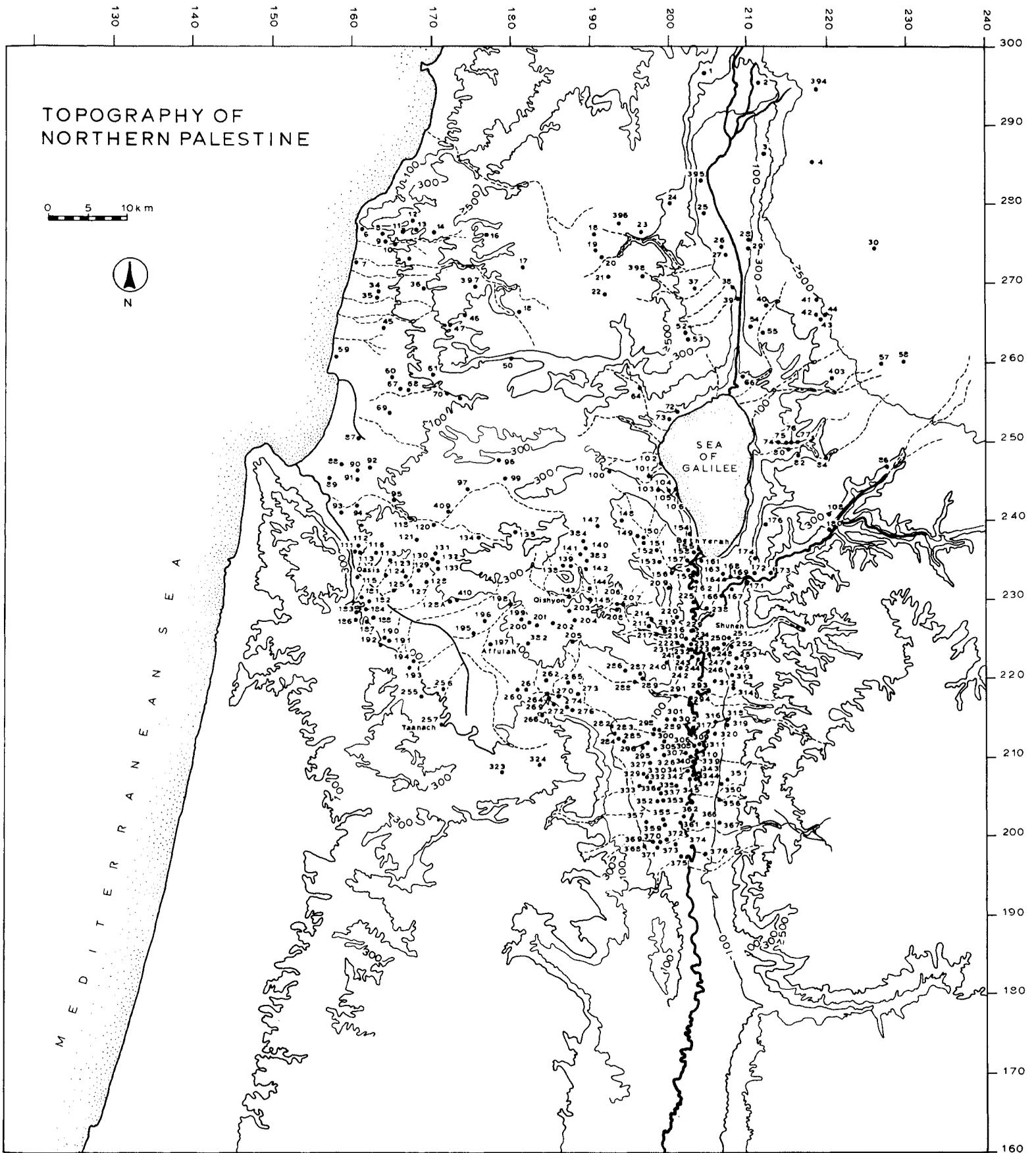


Figure 27. Early Bronze Age Sites in Northern Palestine.

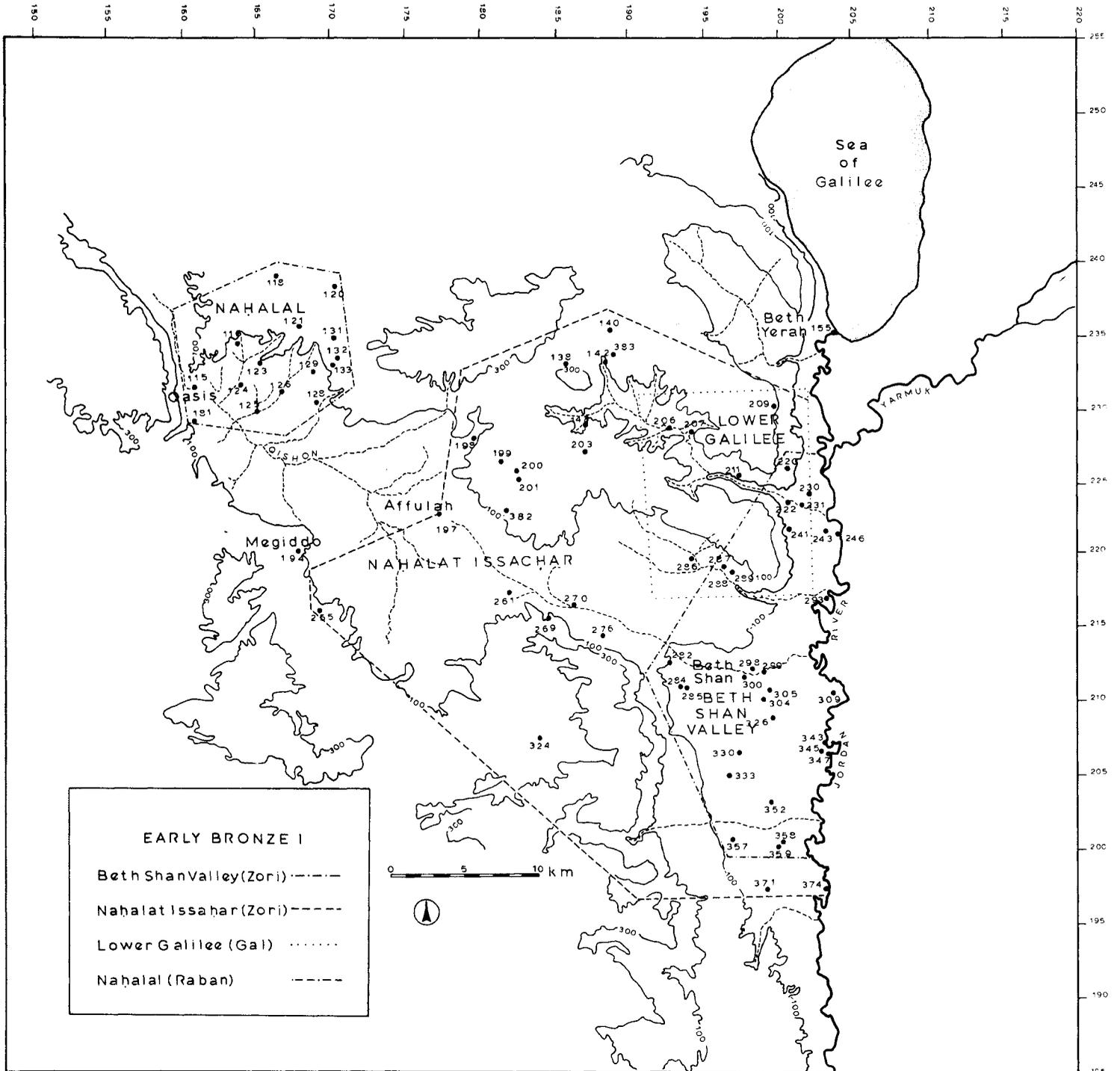


Figure 28. Distribution of Early Bronze Age I Sites (detail).



Table 5. Chronological Distribution of Sites in Survey Area by Subperiod.

Survey	EB I	EB II–III	EB IV/MB I
Zori (eastern Jezreel, eastern Lower Galilee, Beth Shan Valley)	48	15	40
Raban (northwestern Jezreel)	15	10	7
Raban (southwestern Jezreel)	35	6	7
Gal (eastern Lower Galilee)	7	2	6
Mittman (northern Transjordan)	33	28	11

Admittedly, one of the great problems in interpreting settlement pattern data is the difficulty in coping with change. Because of the imprecise nature of our chronological indicators, there are problems in determining a pattern when there is a great degree of volatility or variation through time.<sup>92</sup> Yet in spite of the difficulties inherent in detecting short term variability, it is precisely through settlement pattern analysis that we may glimpse the unfolding process of urbanization in Palestine. The analysis may be more descriptive than explanatory, but description is a necessary first step in understanding the causal elements of the process.

The geographical distribution of sites by chronological subperiods is illustrated in figures 27 and 28. To compare the EB I site distribution to that of the EB II–III period, a number of elements must be isolated. First, I have used only material from Raban (the Nahalal map), Zori, and Gal. These surveyors actually did the field work and analyzed the sherds.<sup>93</sup> I have thus introduced no archival data into this analysis. This has, I hope, reduced the chance of error from the comparison of sites that have been dated by different people and at different times. Thus the dating criteria for each of the three surveyed areas should be at least internally consistent.

The boundaries of the four surveys are shown in figures 27 and 28. Gal's survey area is completely within the boundaries of Zori's Nahalat Issachar and Beth Shan Valley surveys. The important shift to observe when interpreting the figures shown on table 5, however, is the relative change in numbers of sites between EB I and EB II–III. In the case of all five surveys collected here, the number of sites dropped between EB I and EB II. Even assuming that all twenty-nine of the undifferentiated sites from Zori's surveys might be dated solely to EB II–III (an extremely unlikely possibility), there would still be a slight decrease in number of sites between EB I and EB II. The accuracy of this pattern, keeping in mind that it illustrates *relative* change, is reinforced when other surveys in the area are examined. Mittman's survey of the northern Transjordan also shows a decrease in number of sites between these two periods.<sup>94</sup> In the case of Mittman's survey, the decrease was not as dramatic as that shown in Cisjordan but still present.

The portion of the valley east of the Jordan River shows the same trend toward a reduction of sites between EB I and EB II–III. Although the survey team led by Ibrahim, Sauer, and Yassine did not differentiate between the EB subphases in their published report, they mentioned a preponderance of EB I sites in the northern portion of their survey area.<sup>95</sup> Of course there was EB II–III occupation in the northern part of the Jordan Valley (e.g., the substantial EB III occupation level at Shuneh), but again the trend is confirmed. Thus EB I sites also seem to outnumber EB II–III sites east of the Jordan River.

Gophna's research along the Mediterranean coastal plain also showed a decrease in number of sites between EB I and EB II–III.<sup>96</sup> Gophna discovered a total of thirty-seven EB I sites in the coastal plain. By EB II–III that number had dropped to twenty-five, eleven of which were considered as "fortified" or at least

92. Adams, *Heartland of Cities*, p. 51; and Plog, "Settlement Patterns," p. 78.

93. All of Raban's Nahalal sites were differentiated between EB I, EB II, and EB III. None of his southwestern Jezreel survey material available to me in 1982 was subdivided. This material is to be published as the *Beth Ha'Emeq Map*, no. 32, a segment of the Israel Survey. The most recent figures shown here in table 5 are from the manuscript for the forthcoming map. Of the ninety sites dated to the EB by Zori in both of his surveys, twenty-nine were undifferentiated and could not be included in the chronological distribution.

94. Mittman, *Beiträge zur Siedlungs- und Territorialgeschichte*, pp. 256–64.

95. Ibrahim, Sauer, and Yassine, "East Jordan Valley Survey," p. 51.

96. Gophna, "Settlement of the Coastal Plain," pp. viii, ix, and pls. 23, 26.

Table 6. Site Size Distribution by Subperiod.

	<i>Chalcolithic</i>	<i>EB I</i>	<i>EB II-III</i>	<i>EBIV/MB I</i>
<i>Number of Sites in Sample</i>	25	52	24	70
Mean (ha)	2.83	3.31	4.84	3.54
Median (ha)	1.00	1.00	3.20	0.84

of "central importance." The most recent survey summary published for the coastal plain mentions many more sites. These results demonstrate a similar trend. A total of forty-two sites dating to EB I was reduced to thirty EB II-III sites.<sup>97</sup>

Although most of the EB I sites in the plains and the foothills of the Shephelah were small permanent agricultural settlements, a series of ephemeral campsites were located directly along the shore of the Mediterranean. The campsites were characterized primarily by sherd scatters and flints, with occasional traces of hearths and pits. In one of the pits, sherds and flint implements were found together with the bones of sheep, goats, cattle, pigs, and deer.<sup>98</sup> At least 12 of these campsites were discovered between the Yarkon and the Nahal Poleg, a distance of approximately 20 km.<sup>99</sup>

Very few cities were founded in EB II *de novo*. Most EB II sites in the survey area were originally founded in the EB I period. The decrease in number of sites between the EB I and the EB II-III periods, as seen in table 5, can be elaborated even further.

Table 6 shows the relative size of sites distributed through time.

Although the figures must be filtered through the "screen of imprecision"<sup>100</sup> attendant in all estimates of ancient settlement size, the general trend is complementary with that of table 5. Because of the problem of continuity of occupation between EB I and EB II-III sites, the median figures are probably more reflective of reality than the mean results. Most of the EB I sites in the size range above 4.0 ha were also occupied in EB II-III, thus it is difficult to know whether the size assigned to these large sites actually applies to EB I or both EB I and EB II-III.

The pattern is quite clear. Although the number of sites increased between Chalcolithic and Early Bronze I, their median size remained equal at 1.0 ha. This implies either a population increase or the "conversion of large numbers of formerly semisedentary folk into settled agriculturists, or more likely, both together."<sup>101</sup> The change in the settlement pattern between EB I and EB II-III was more apparent. Rather than the simple population increase suggested by the earlier pattern, there was a decrease in the number of settlements of the EB II-III period during which time the median size of the settlements actually tripled. What, in fact, occurred was not necessarily population increase but agglomeration.<sup>102</sup>

97. Gophna and Portugali, "Settlement and Demographic Processes," Appendix A. With this survey we have a surfeit of riches. Not only do the authors provide size and type of settlement, but they also subdivide the chronological periods (EB IA and EB IB, EB II, and EB III). If both phases of EB I are combined, the chronological distribution of sites is similar to the figures presented in table 5, with forty-two EB I sites, thirty EB II-III sites, and eighteen EB IV/MB I sites. The settlement trends discussed by the authors deserve further study, but they are beyond the scope of this treatment.

98. R. Gophna, "Archaeological Survey of the Central Coastal Plain, 1977," *TA* 5 (1978): 136-47.

99. The character of these small, ephemeral sites is quite similar to the small EB I encampments along the north Sinai coast described by Oren. It is likely that these coastal sites represent an extension of the overland trade routes which connected Egypt to Palestine and may have reached as far north as Byblos. Not all trade with Byblos had to be by sea, as Prag suggests. See some of the early Byblos-Egypt connections in Prag, "Byblos and Egypt in the Fourth Millennium B.C."

100. For this term, see Adams, *Heartland of Cities*, p. 50, where he refers to the use of survey data in the study of size hierarchies.

101. *Ibid.*, pp. 70, 72.

102. Kempinski compares this phenomenon to a process of forced centralization practiced by city rulers in seventh-century B.C. Greece; Kempinski, *The Rise of an Urban Culture*, p. 16, nn. 1 and 2. A similar trend was noted by Gophna and Portugali along the coast. They state: "The population growth from that period [EB II] can be seen clearly ... A simultaneous increase in the total built-up area is also clear, as is sharp decrease in the number of settlements. That is strongly indicative of the urbanization process, in which the

Settlement agglomeration is graphically apparent in table 6 and figure 29. During EB I, half the sites in the valleys were 1.0 ha or less. Once the 1.0 ha size was reached, there was a sharp drop in settlement and then a more gradual decrease in site number as site size increased. On the other hand, sites within the EB II–III period showed much less variation in size.

Population estimates based on the available data are simply not feasible for the survey areas. The selection of the sample of site-size distribution in table 6 was essentially random because only sites for which there was some sort of indication of size could be included in the list. Without a complete list of site sizes for the geographical area under study, there is little point in making a total population estimate. Enough sites were sampled, however, to treat the histograms of figure 29 as fairly reliable relative indicators of the settlement size hierarchy.

#### EARLY BRONZE AGE IV/MIDDLE BRONZE AGE I (2200–2000 B.C.)

The EB I to EB II–III pattern was sharply reversed in the transition from EB II–III to EB IV/MB I. Although the number of sites seems to increase in EB IV/MB I, the absolute number was probably no greater than that of the EB I period. (At least twenty-nine sites were not differentiated between EB I–III.) The relative pattern of figures 30 and 31 can be correlated easily with the pattern of site-size distribution illustrated in figure 29. The pattern of site-size distribution in the EB IV/MB I was remarkably similar to that of EB I. Not only does the relative size distribution of EB IV/MB I differ from that of EB II–III, but also both the mean and the median size reflect a radical shift. The mean site size decreases in this period from 4.84 ha to 3.54 ha. This figure is extremely misleading, however, because site 273, the EB IV/MB I site with a sherd scatter of 96 ha, disturbed the calculations. A more legitimate comparison is the decline in median site size of 3.2 ha in the EB II–III to 0.84 ha in EB IV/MB I.

The settlement pattern of the EB IV/MB I period was much more similar to that of the many smaller sites of the EB I period than to the distribution of the larger agglomerated settlements of EB II–III. Of the sites for which chronologically detailed data are available, seventeen showed continuity just from EB I to EB II–III. Only eight sites were occupied in all three periods. The EB I, EB II–III pairs were almost equaled by the number of sites that were occupied in both EB I and EB IV/MB I (15 sites).

Five of the eight sites that were occupied in all three periods were located in the northwestern Jezreel Valley (sites 115, 116, 123, 128, 132). This impression of continuity is strengthened by the fact that only three sites in this survey area were “one period” sites.

A sharp geographic distinction emerges between the areas which were occupied only in EB I and EB II–III and those which were occupied only in EB I and EB IV/MB I. Generally, the sites that showed continuity between EB I and EB II–III were located in the valley bottoms (sites 197, 261, 276, 298, and 300 in the Jezreel and along the Naḥal Ḥarod and sites 143, 207, 211, 222, 230, 241, and 246 in the drainage system of Naḥal Tabor). Settlements occupied both in EB I and EB IV/MB I were clustered in the Beth Shan Valley (sites 284, 300, 330, 343, 345, and 347) in addition to sites 198, 200, and 201 northeast of ʿAfulah.

---

population was growing during the first stage (EB IB). In a subsequent state (EB II), the population became concentrated in a smaller number of larger urban centers ...”; Gophna and Portugali, “Settlement and Demographic Processes,” p. 15. I would suggest that the increase in population they record is a result of their use of a higher “density coefficient” for medium-sized EB II sites than for sites in EB I. Population increase was not necessarily indicated, but population relocation certainly was.

SETTLEMENT PATTERNS IN NORTHERN PALESTINE

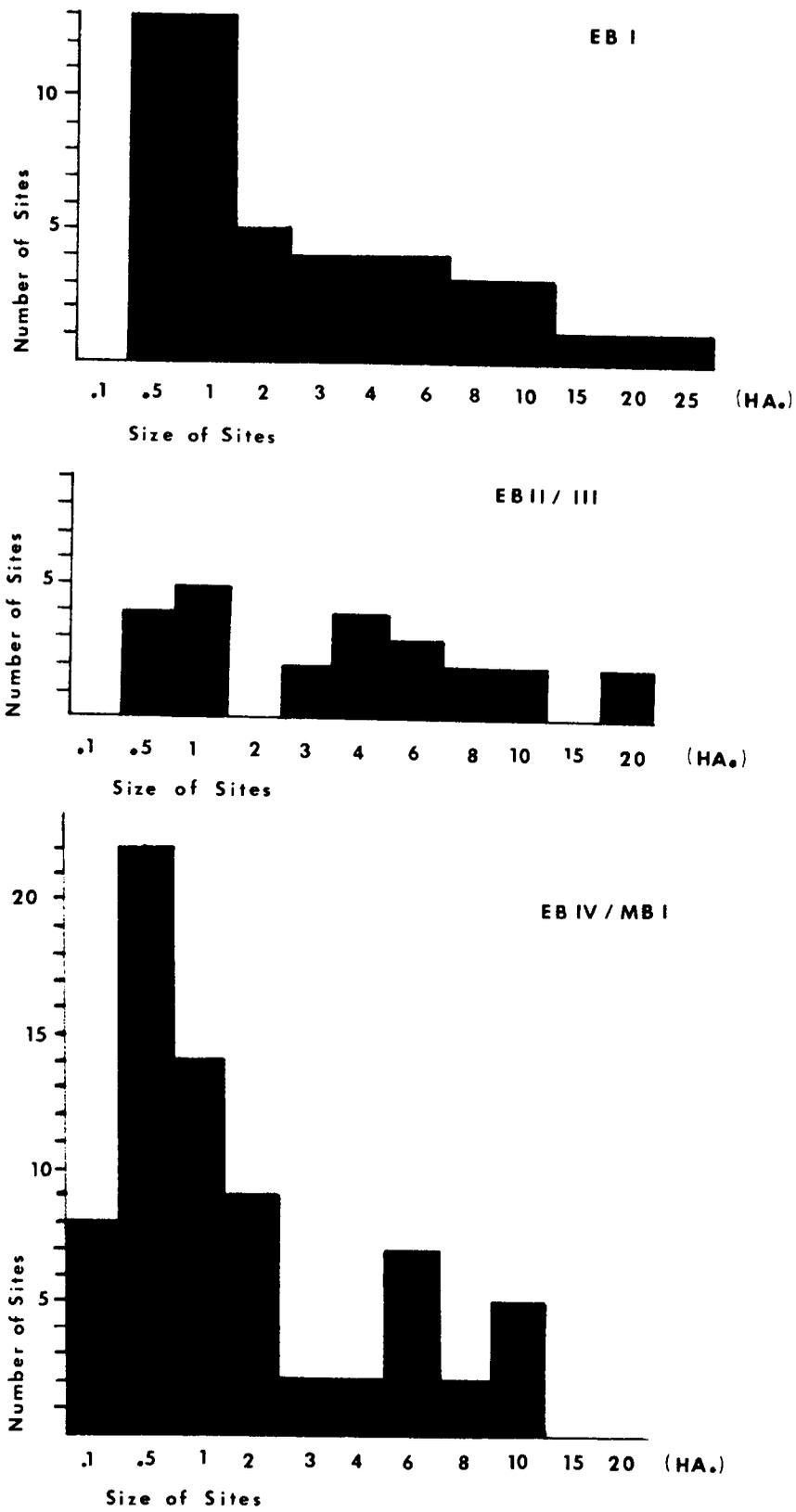


Figure 30. Histograms of Site Size by Subperiod.

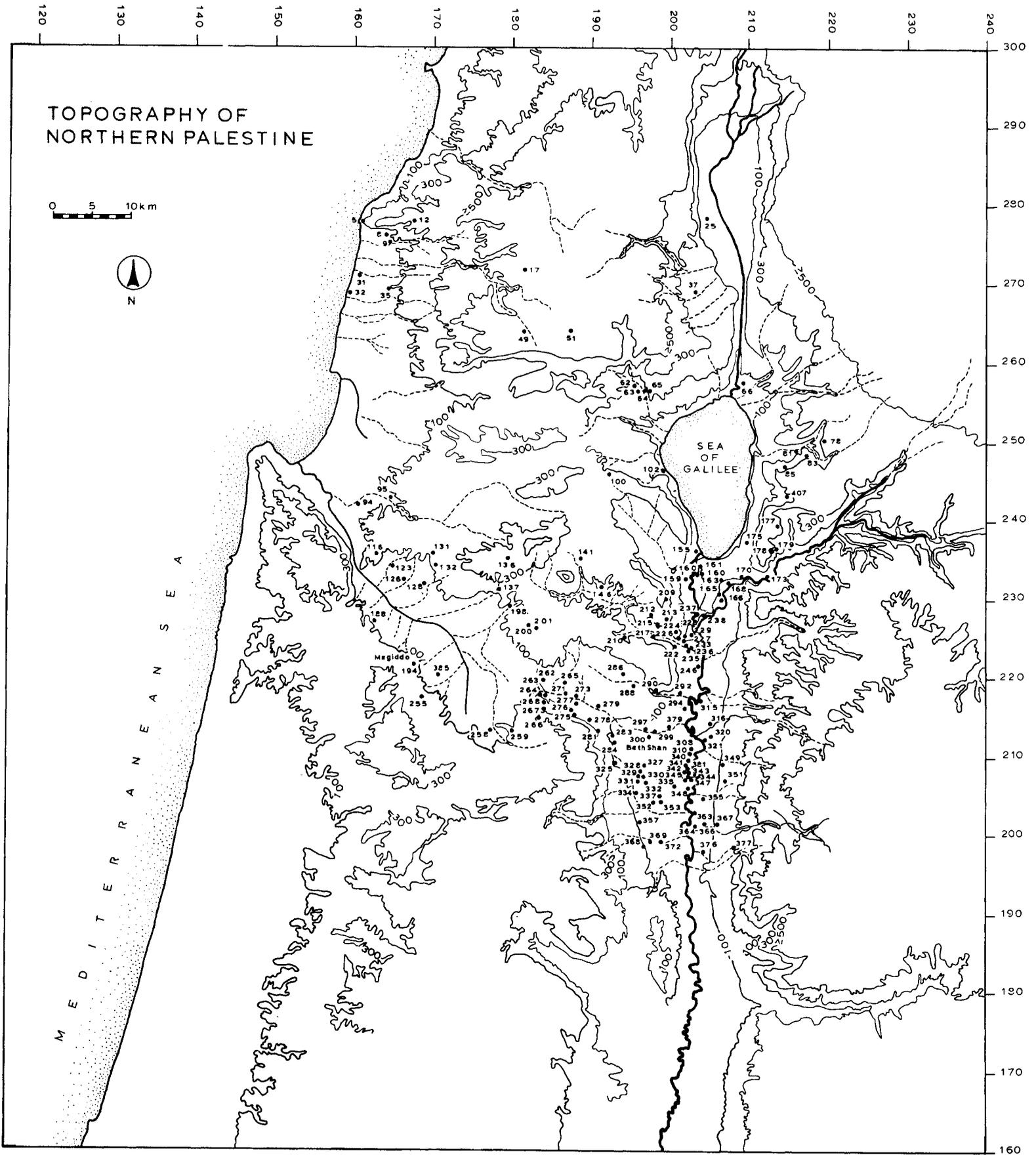


Figure 31. Early Bronze Age IV/Middle Bronze Age I Sites in Northern Palestine.

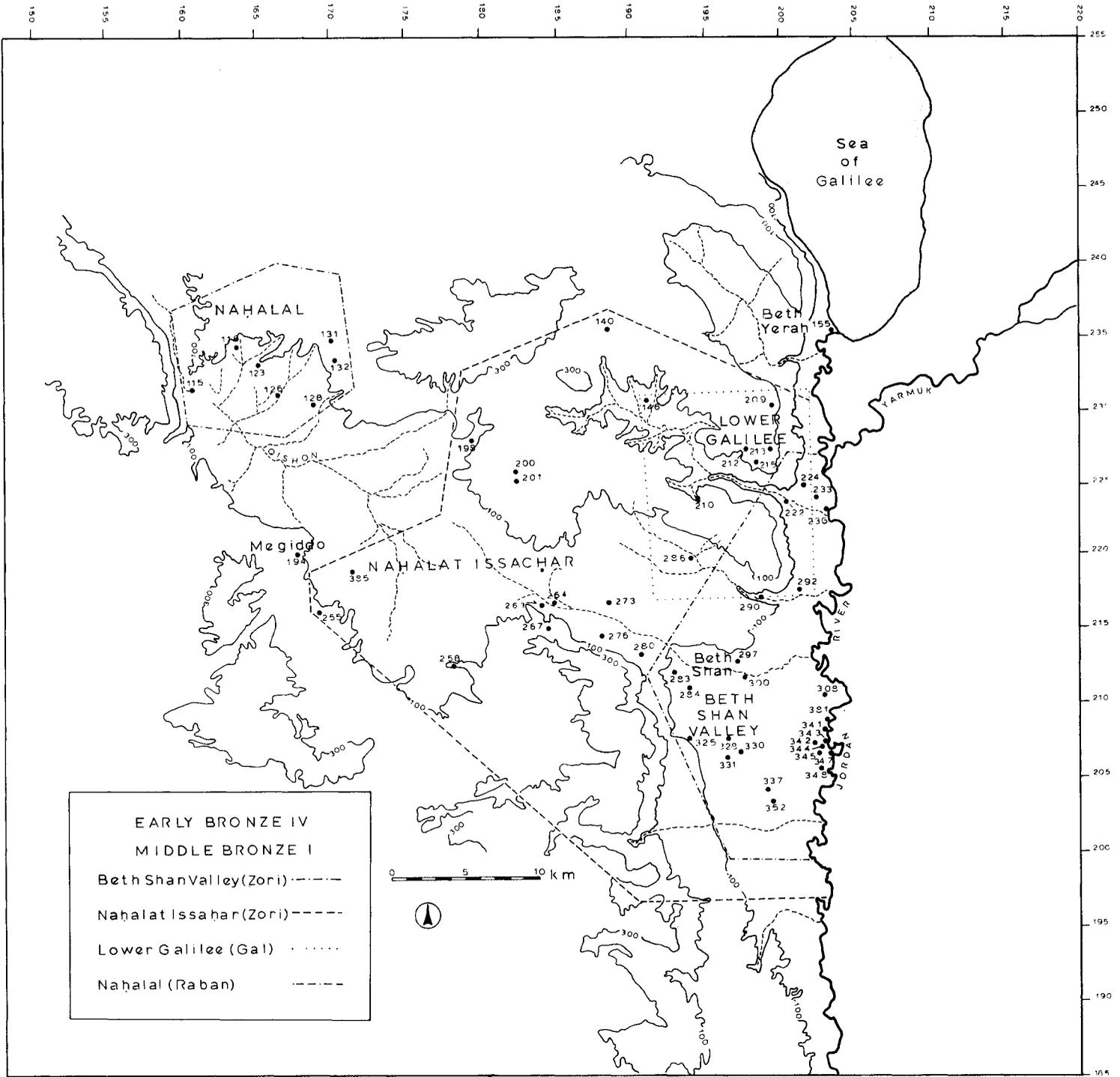


Figure 32. Distribution of Early Bronze Age IV/Middle Bronze Age I Sites (detail).

The larger picture (i.e., without limiting the description to sites originally founded in EB I) of settlement distribution generally corroborates the theme just sketched. The northwestern corner of the Jezreel was almost continuously occupied. The two areas with the most discontinuity were the Beth Shan Valley and Naḥal Tabor catchment. A large number of sites were present in the Beth Shan Valley in both EB I (nineteen sites) and EB IV/MB I (seventeen sites). A number of sites were located immediately next to the Jordan River, and the rest were fairly evenly distributed across the *Ghor*, up to the 100 m below sea level contour line. In contrast to this, only one EB II–III settlement was located along the Jordan River, and only one other possible EB II–III site (site 330) was recorded south of Beth Shan.

The pattern is different in the Naḥal Tabor catchment. Sites were located along the wadi bottom in both the EB I and EB II–III periods. Settlements clustered on the alluvial fan formed at the mouth of the wadi where it entered the Jordan Valley, and they followed its channel to the Jordan River. In the EB IV/MB I period, however, there was an increase in the number of sites located on the plateau between the Naḥal Tabor and Naḥal Yabneel at about the 100 m above sea level contour (sites 209, 212, 213, 215, and 224); the number of sites along the wadi channel decreased.

## FUNCTION

Site density, agglomeration, size hierarchy, and degree of integration (i.e., regional cultural patterns) are all phenomena that the surface surveyor can measure. Despite the problems of data recovery mentioned above, an acceptable degree of accuracy in the analysis is possible. Because of problems inherent in determining the size of any particular settlement at a specific time from surface evidence on a multi-period site, I have refrained from making general population estimates for the Jezreel, Jordan, and Beth Shan Valleys. The general trends of settlement from EB I through EB IV/MB I are reflected in the histogram of size hierarchy (fig. 29). The ratio of small to large sites is much greater in EB I and EB IV/MB I than in the urbanized period of EB II–III. A true socio-economic reconstruction is not possible, however, without integrating these site-size hierarchies with probable site function.

Determining site function leads the surface surveyor into dangerous territory. Debates about the function of individual sites in a general socio-economic system are common even with extensively excavated sites. Extrapolating individual site function from surface remains can be even more controversial. A program based solely on site survey data will meet with as much difficulty in assigning function to the sites as will one attempting to estimate accurately their population. Although the reliability of the data will vary widely because of the incomplete nature of data from site survey, attempts to describe and differentiate site function are necessary. The Early Bronze Age economy was based on more than simple agricultural production. Trading and stock herding were also important elements in the Early Bronze Age subsistence system.

The task of isolating general patterns of functional differentiation among sites in northern Palestine is not impossible. The best chance for distinguishing discrete functional differences lies in areas that exhibit marked discontinuity between chronological periods. Although there was a high degree of site continuity between EB I, EB II–III, and EB IV/MB I, the general trend illustrated in figures 27, 28, and 31 shows a pronounced decline in the number of settlements by EB IV/MB I in the Jezreel. During the Early Bronze Age, many sites were located along the spring lines at the southern rim of the valley northwest of Megiddo. Numerous sites were also located along the smaller feeder channels that drained the southwestern Lower Galilee and emptied into the Qishon River. By EB IV/MB I only one site (site 188) was located north of Megiddo along the southern rim of the Jezreel. The Qishon's feeder channels along the northern rim of the valley supported only one settlement on each channel (sites 123, 126, and 128). Despite the reduction in site density, probably illustrating a change in the economic system, there is little evidence for a change in site function. The EB IV/MB I sites were located in the same area as their predecessors; there were just fewer of them. In the northwestern Jezreel, change was more a matter of degree than discontinuity.

Discontinuity was present in the Naḥal Tabor catchment area, however. A large number of sites were located along the wadi bottom in the Early Bronze Age. A few EB sites were located up on the rim of the

wadi, but the majority were situated on the thin strip of alluvial soil directly next to the wadi channel. Their location would certainly have allowed a degree of simple gravity-flow irrigation. An even more drastic reduction in the number of sites occurred along the Naḥal Tabor between the EB II–III and the EB IV/MB I than was seen in the western Jezreel. Only when the wadi channel flowed through the Jordan Valley proper was the density of sites in the two periods virtually indistinguishable. The drop in site density was accompanied by a shift in site distribution.

That shift provides some indication of differentiated site function. In the EB IV/MB I period, a small cluster of sites was found on the plateau above and just north of the entrance of Naḥal Tabor into the Jordan Valley. At least five sites were established on the heights, only two of which had been previously occupied (site 209 in EB I, site 224 in the Chalcolithic). Esh Sheikh Muzeghit (site 209) is a small hill located high on the plateau overlooking the Naḥal Yabneel and the Jordan Valley. The site is primarily defined by the remains of basalt walls and the outlines of circular structures also made of basalt. Wadi ‘Ain el Qassib (site 212) was an open site with scattered remains of walls constructed with unhewn field stones. Although a small hill at the site measured about 0.1–0.2 ha, more wall fragments were observed over 100 m away on a small extension to the south. The total area of this dispersed site neared 0.8–1.0 ha.

Ḥorvat Hagal (site 213) was also an open site, which, unlike the other sites on this plateau, was not close to a spring (the nearest spring was 1 km away). The site was mainly discerned by the sherd scatter on its surface. ‘Ain Shaḥal D (site 215) was a very small hill upon which there were simply a scatter of unhewn stones and a few sherds. The small 1 ha site west of Kibbutz Gesher (site 224), located on a terrace overlooking the Jordan Valley, was also an open site with scattered remains of buildings made from both limestone and basalt. This small cluster of sites may represent a mode of settlement different from the many tells found in the alluvial valleys. All five sites were characterized by scattered remains, with no indication of nucleated settlement.

These sites may represent the residue of a pattern of vertical transhumance or herdsman husbandry. Sites up on the plateaus above fertile valleys may have served as seasonal camps for pastoralists who wished to take advantage of the spring/summer pasturage. With their basalt soils and their small springs, these plateaus were never prime agricultural land; there was no reason, however, why they could not have served as adequate pastures in addition to being intermittently cultivated. The scattered and dispersed nature of the remains of this cluster of camps suggest a specialized functional adaptation, most likely centered on seasonal pastoralist exploitation. This specialization may have been practiced in later periods, for sherds of the Middle Bronze and Late Bronze/Iron I Ages were found at most of the sites. No fortified tells were ever formed on the plateau, and it is likely that sites located there functioned similarly through all periods of use.

Pastoralists and farmers may have also occupied a string of non-nucleated sites in the Wadi Samakh, east of the Sea of Galilee. An alternate suggestion is that the sites may have been founded by groups based in the lowlands who sought to practice herdsman husbandry. Wadi Samakh served as a route up to the pasture lands of the Golan heights. The Lawiyah enclosure (site 75) was almost 1 km long and approximately 250 m wide. Sherds from EB II–III (several bearing seal impressions, see above) were scattered over the site. The enclosure was partitioned by cross walls and was located on a plateau looking over the wadi.<sup>103</sup>

Other Early Bronze Age sites in the Golan were almost all represented merely by scatters of sherds or fragmentary traces of buildings. Only one small tell site (site 80) yielded EB material. Virtually all the sites (sites 74, 75, 76, 80, 82, and 84) were located on the upper slopes or plateaus of the ridges flanking the Wadi Samakh.

The seals found at the Lawiyah enclosure (site 74) in the Golan heights are most closely paralleled by those from Beth Yerah. The proximity of the Wadi Samakh sites to Beth Yerah would have provided the inhabitants of the town with ready access to the pastures and fields of the Golan heights during the spring and summer.<sup>104</sup>

103. C. Epstein, "Early Bronze Age Seal Impressions from the Golan," *IEJ* 22 (1972): 209–17. Recent excavations have revealed that the main wall which restricts access to the plateau was 4 m wide, with the top course neatly leveled. See P. Beck and M. Kochavi, "The Land of Geshur—1987," *ESI* 6 (1987–88): 75.

104. See also Epstein, "Early Bronze Age Seal Impressions," p. 217; and Ben-Tor, *Cylinder Seals*, p. 107.

The enclosures may have been originally constructed during the Early Bronze Age to be used as animal pens. They also would have provided shelter for EB farmers who may have been growing olives in the cooler climate of the Golan heights. Epstein refers to other such enclosures in the Golan, and also classifies 'Ain Quniyye (site 394), an Early Bronze Age site in the northern Golan heights which also yielded two seal impressions, as originally an enclosure.<sup>105</sup> Site 44 was also probably an enclosure. A wall of large stones was erected to limit access to the site from the north. The ruins were located on the small ridge behind this wall, and the pottery associated with the fragmentary structures dated solely to the Early Bronze Age.<sup>106</sup> A similar layout has recently been exposed in limited soundings at Gamla. A large enclosure wall, dating to EB II, was erected along a spur projecting from the Golan plateau. The same location that made Gamla so formidable in the Roman period served the Early Bronze Age inhabitants.<sup>107</sup>

The EB II–III pattern was duplicated in the EB IV/MB I. Sites 78, 81, 83, and 85 (see the *Appendix*) were all sherd scatters or ruins consisting of fragmentary walls of structures. Probably the best-preserved ruin was site 85, which yielded only EB IV/MB I pottery. The surface bore traces of a cyclopean wall preserved to a height of three courses and surrounding the upper part of the site. Outside the wall to the southwest were several enclosures formed by a number of stone walls. There were no traces of buildings, but on a lower terrace there was a built stone circle.

Although there were certain similarities between the EB II–III and EB IV/MB I sites in the Golan, a major difference should not be overlooked. The EB II–III sites were located on plateau extremities, and they all seemed to have had fairly substantial blocking walls to restrict access. The EB IV/MB I sites were located on more gentle slopes, and, although they exhibited rough enclosure walls, there was no defensive character to their siting. The EB II–III enclosures then, seem to mimic the more politically centralized system of fortified urban lowland centers, while the EB IV/MB I sites may be more related to the open and dispersed lowland camps and villages in the Irano-Turanian steppe zone. This pattern would suggest that political centralization and control extended from the lowland urban centers of the Jordan Valley up into the highlands of the Golan during EB II–III.<sup>108</sup>

Open dispersed settlements and enclosures found along the ridges and plateaus above wadis were not limited to the Golan heights. Mitham Shaḥal (site 211) provides a good illustration of the enclosure type of site.<sup>109</sup> It was located above and on the northern rim of Naḥal Tabor. In layout, at least from surface exploration, it was very similar to site 44 in the Golan heights. The enclosure was located on a ridge that extended from the plateau to the north. Both the eastern and western slopes plunge steeply down to two parallel wadis. As with site 44, a wall cut across the northern end of the ridge and effectively isolated the area south of the ridge from the rest of the plateau. The wall was at least 2 m wide and was constructed with small unhewn field stones. Roughly 400 m up the ridge from the first wall was another enclosure wall which limited access to the ridge's southern extremity. The second wall used to advantage a natural topographical rise in order to form the "upper enclosure." Very few traces of buildings were visible, and bedrock was exposed in much of the area. The few building remains were found next to the enclosure walls and most of the pottery was in the vicinity of the lower wall.

105. Epstein, "Early Bronze Age Seal Impressions," p. 209.

106. For a drawing and photograph of the enclosure, see C. Epstein and S. Gutmann, "The Golan," in M. Kochavi, ed., *Judaea, Samaria, and the Golan* (Jerusalem: Archaeological Survey of Israel, 1972), p. 271, site 88. This site is also now known as Mitham Yitzḥaki.

107. S. Gutmann, "Gamla—1983," *ESI* 3 (1984): 26, 27; S. Gutmann and D. Wagner, "Gamla—1984/1985/1986," *ESI* 5 (1986): 38. See also Beck and Kochavi, "Land of Geshur," p. 78.

108. The concentration of these Bronze Age sites was in roughly the same area of the southern Golan where settled villages were located in the sixteenth and nineteenth centuries A.D. Schumacher reported that the southern Golan was stoneless and fertile, but "the villages are mostly built on the edge of the plateau, where abundant springs are to be found to this day." See Schumacher, *The Jaulan*, p. 20; see also the population and settlement map of Hütteroth and Abdulfattah, *Historical Geography of Palestine*, map 1. The economic link between the Golan and the Jordan Valley is borne out during the Roman-Byzantine period with a reference in the Talmudic literature to crops from Susita in the Golan being sold in the markets of Tiberias. D. Urman, *The Golan*, BAR International Series 269 (Oxford: BAR, 1985), pp. 141, 142.

109. Gal, *Ramat Issachar*, pp. 24–27, and figure opposite p. 33. See also Gal, "H. Shaḥal Taḥtit," fig. 2.

Pottery from both EB I and EB II–III was found. Some of the surface pottery was similar to the pottery found in the olive oil processing complex found in Trench H-K at Beth Yerah (see *Chapter 3* above and pls. 8, 9). The collection from Mitham Shaḥal included a large vat with basalt grits, a platter with red-burnished interior, and a rim from a very large store jar (the rim diameter is about 0.25 m) with a profile similar to the large combed ware jar found in the Beth Yerah complex. The site also yielded combed ware.

At least three sites are subsumed under the general name of Mitham Shaḥal (all are included in my site 211). At the base of the ridge were the ruins of buildings and terraces scattered over at least 6–7 ha. Many walls running parallel to the contours of the slope were visible and Gal found a great quantity of grinding stones scattered amidst the ruins. Judging from the nature of the ceramic evidence, the site reached its greatest extent in EB I. Another EB I site was located on a ridge parallel to Mitham Shaḥal and just west of the enclosure site. Although it was not physically connected to the larger enclosure, it was only a short distance from Mitham Shaḥal. Basalt mortars were found at the site, and the surface pottery was solely from EB I.

Although the Golan and the eastern Lower Galilee have produced the largest number of enclosures, more survey work will undoubtedly yield more sites that could have fulfilled this function. Recently, sites in the Wadi Far'ah have been discovered and briefly investigated that may be similar to the Golan and Galilee examples. These sites are also described as fortified enclosures.<sup>110</sup>

Although chronological indicators are often too imprecise to determine contemporaneity, it is reasonable to assume that Mitham Shaḥal illustrates the specialized function of archaeological sites within proximity of one another. At the base of the wadi, it was possible to support what was probably an open settlement by practicing subsistence agriculture on the narrow strip of alluvial soil along the wadi channel. Yields could have been increased by using a simple gravity-flow irrigation system which would have required minimal maintenance. Just up the slope was the walled enclosure which would have served as a protective corral or pen for domestic animals. These sites may have served a dual function. The combed jars, the large pithoi, and the vat may indicate that those who lived in these open sites also farmed the plateaus.

Although the basaltic soils of the eastern Lower Galilee and the Golan Heights were not optimal for olive growing, several villages located in these areas did grow olives during the sixteenth century A.D.<sup>111</sup> In the Golan, Schumacher commented on the relatively few areas in which olives were cultivated in the nineteenth century A.D., but he did stress that olives were grown in the area just east of the Sea of Galilee.<sup>112</sup> Soil and climate would certainly allow olive and grape cultivation if political and economic conditions were favorable. Thus, the traces of dwelling units observed on the surface may have provided shelter for the shepherds and farmers who grazed their flocks and cultivated crops on the broad plateau north of Naḥal Tabor and in the hills of the western Golan.

The similarity in both layout and topographical location between Mitham Yitzhaki (site 211: EB I, II–III), Mitham Shaḥal (site 44: non-differentiated EB), the Lawiyah enclosure (site 75: EB II–III), and Site 85 (EB IV/MB I) demonstrates the continuity of this site type. A mixed economy based on both agriculture and herding probably existed throughout the third millennium. Thus, these sites were an important component in the socio-economic system; their specialized function is attested not only by their relative

110. A. Zertal, "Har Menashe, Survey—1982," *ESI* 2 (1983): 43, 44.

111. Hütteroth and Abdulfattah, *Historical Geography of Palestine*, map 5. See especially the village of Bira (Z 2 on map 5) and description on p. 157 for the plateau above and north of Naḥal Tabor.

112. Schumacher, *The Jaulan*, p. 23. "These [olive groves] are cultivated by the inhabitants of Fik, and produce a good yearly crop, which supplies the surrounding country with olive-oil, so rarely met with in the Hauran." A graphic difference between the southern and northern Golan has been described by D. Urman in his study of the Golan during the Roman-Byzantine period. By plotting olive oil presses, wine presses, and stables, Urman showed that the southern Golan loomed large in olive oil production. In fact, olive oil and wine presses were limited to the southern Golan. Stables, mangers, and other signs of animal husbandry were predominant in the northern half of the Golan. Thus, not only was olive oil produced in the southern Golan during the Roman-Byzantine period, but also it was produced in sufficient quantities to be exported. The Golan supported intensive agriculture in the south but the north was primarily used as pasturage. Urman, *The Golan*, pp. 145–55 and especially fig. 54, pp. 158–62.

size, but also by the correlation between their location in distinct eco-zones and the presence of specialized architecture.

Because of the limitations of surface survey, it is not possible to make consistent distinctions between agricultural villages and pastoral enclosures or encampments. The relative proportion between these two functional categories is thus difficult to determine. Excavations at Tel Yosef (el Murkhan, site 273) have shown that in the EB IV/MB I period pastoralists' enclosures were not limited to the high plateaus of the Golan or eastern Lower Galilee. The complex of rooms and the large courtyards of the compound would have been ideally suited for the management of flocks of sheep and goats.

Mixed economies as practiced in the Levant are difficult to describe. Terms like "agricultural" or "pastoral" economies are not easy to defend when used to describe relatively simple economies based in climatic zones that allow a great degree of flexibility in subsistence pursuits. The ultimate decision to characterize a particular economy as predominantly agricultural or pastoral must rest on the relative proportion of the population engaged in such pursuits.<sup>113</sup> This proportion should be derived both from changes in settlement size and from shifts in settlement distribution. Discontinuities in settlement distribution, however, are most easily observed in marginal ecological zones that can support both subsistence strategies; these discontinuities remain the best indicator for detecting widespread shifts in either social structure or climate.<sup>114</sup>

The settlement pattern of the Beth Shan Valley shows a strong link between site location and site function. During the EB I period, eighteen sites were located south of the Naḥal Ḥarod and the tell of Beth Shan.<sup>115</sup> Of the seventeen sites for which there were measurements, the mean area was 1.3 ha and the median was 0.56 ha. The discontinuity between EB I and EB II–III was marked. Only two sites with EB II–III material were confirmed, and both were slightly less than 5.5 ha. By the EB IV/MB I period, sixteen sites were located in the Beth Shan Valley and the areas of fourteen of them are known. The mean site size was 1.54 ha, slightly more than in EB I; but the median site size was 0.37 ha, a figure less than that of the EB I period. Comparison of these figures with those of the general population of EB I and EB IV/MB I sites shows that in both periods sites in the Beth Shan Valley tended to be smaller than the average site elsewhere in northern Palestine. The mean size of Beth Shan Valley sites was less than half the size of their counterparts north and west. The median size of the Beth Shan Valley EB I sites was just slightly more than half of the size of other EB I sites, and the median size of the EB IV/MB I sites was less than half the size of EB IV/MB I sites located elsewhere. There was thus not only discontinuity of distribution between the EB I and EB IV/MB I periods on the one hand and the EB II–III periods on the other, but there was also a difference in size between Beth Shan Valley sites and sites from comparable periods elsewhere in the region.

These discontinuities may reflect functional differences between the sites of the Beth Shan Valley and most of the rest of the sites in northern Palestine. The EB I and EB IV/MB I sites are in most respects comparable. In both periods, sites clustered along the Jordan River and formed a more diffuse pattern on the rest of the valley floor. They were not limited to the high ground along the western rim of the valley and they did not seem to be restricted to the small channels crossing the Beth Shan Valley from the wadis draining the northern Samaria hill country. These small (non-nucleated) settlements probably served as the winter encampments of small groups of pastoralists and village agriculturists. In spring and summer, they took their flocks and herds up onto the plateaus of eastern Lower Galilee, Samaria, Transjordan, and the Golan Heights. The socio-economic system localized in the Beth Shan Valley in the EB I and EB IV/MB I periods was probably not so different from that observed by Burckhardt in the early nineteenth century (see

113. As Adams remarks, it was the "relative proportion of the population living in small or large communities that influenced the nature of the society"; idem, *Heartland of Cities*, p. 72. See also, for example, A. Khazanov, who attaches "greater importance to the ratio of pastoralism and agriculture in an economic system than, for example, the degree of mobility for the very reason that apart from mobile pastoralism, there are mobile forms of agriculture ..."; A. Khazanov, *Nomads and the Outside World* (Cambridge: Cambridge University Press, 1983), p. 19.

114. For a similar argument, see *ibid.*, pp. 33 and 44.

115. I have limited my sites to those from Zori's survey, since he actually collected and analyzed the pottery. He also differentiated between the Early Bronze subphases.

*Chapter 1*). In the nineteenth century, two groups of bedouin occupied the Beth Shan Valley. One group remained in the valley year round and generally practiced a mixed economy, planting small fields of barley and wheat. The second group spent only winters in the valley. Burckhardt wrote that these bedouin spent the rest of their time in the Galilee, the hill country of Samaria, and the mountains of Transjordan.<sup>116</sup>

The Beth Shan Valley was actually included within the border of aridity and the variability in rainfall placed it in the marginal steppe environment of the Irano-Turanian zone. This valley was at the lower end of the scale permitting dry farming. The lower limit is between 400 and 350 mm per year, and the 350 mm isohyet cuts through the Beth Shan Valley. The reduction in the potential of dry farming meant an increased reliance on animal husbandry. The settlement pattern discontinuities between EB I and EB II–III and the reversion in EB IV/MB I to a pattern similar to EB I signaled the shift of subsistence strategies at the transitions between these periods. It is in the marginal zones, the climatic frontier, that shifts in subsistence strategies become most apparent. Contrast, for example, the radical differences just outlined for the Beth Shan Valley with the picture of relative continuity in the western Jezreel demonstrated above.

In the Jordan Valley farther north the chronological distribution of sites from EB I through EB II–III and into EB IV remained more stable. EB II–III sites along the Naḥal Tabor provide a good illustration of an economy that may have represented the vertical exploitation of resources available in a highland/lowland topography that straddled two eco-zones. The EB I–III site of Tel Yaqush (site 230), located in the Jordan Valley just north of the Naḥal Tabor channel was a modest-sized village during this period. Farther up the wadi to the west lay the site of Miṭḥam Shaḥal, mentioned above as a possible pastoralist site. It is likely, based on ceramic dating, that Miṭḥam Shaḥal (site 211) would have been fully integrated into the economic system of the upper Jordan Valley, including contact with the lowland site of Tel Yaqush near the mouth of Naḥal Tabor as well as ultimately with the dominant EB II–III site in northern Palestine, Beth Yerah, only 10 km to the north.

Although only 5 km west of the Jordan Valley, Miṭḥam Shaḥal lay in the Mediterranean eco-zone. Its suitability for pastoral pursuits in the summer and for possible olive production has been suggested above. It could easily have functioned as a specialized site for those living in the northern Jordan Valley.<sup>117</sup>

The villagers living in the valley could practice herdsman husbandry, also known as distant pastures husbandry, in which the majority of a population leads a settled life based on agriculture. A portion of the population, however, lives for part of the year on pastures far from the settlement, tending the herds used to supplement agricultural products.<sup>118</sup> Thus, the highland/lowland exploitation by related groups may explain the distribution of dispersed highland sites in the Golan and eastern Galilee, with larger predominantly agricultural and urban lowland sites in the Ḥuleh, Jordan, and Jezreel Valleys, as well as those along the western foothills of the central hill country.

116. Schumacher also reported that one small bedouin tribe spent its winters encamped by the Yarmuk River and moved up onto the Transjordanian plateau in spring to the area around Ajlun; see again Schumacher, *The Jaulan*, p. 50. See also the recent work along the Jordan Valley by the excavators of the Chalcolithic site of Abu Hamid, who have plotted some of the recent pastoralist wintering patterns. See A. Ohanessian-Charpin, "Le Ghor de Abu Obeida à Suleikhat: Une Mosaïque d'hommes," in G. Dollfus and Z. Kafafi, eds., *Abu Hamid: Village du 4e millénaire de la vallée du Jordain* (Amman: Economic Press, 1988), pp. 11–13, especially fig. 4.

117. Because the distances between these two eco-zones are so minimal, diverse subsistence strategies are documented quite early. During the Roman period fragmented landholdings were common. Sperber recounts a passage in which the system was graphically described. A rabbi was traveling from Tiberias up to Sepphoris in Galilee. Near Tiberias he pointed out a wheat field, and said: "this field was mine and I sold it, [for] I wished to study Torah." They came to a vineyard, and he said: "this vineyard was mine and I sold it, [for] I wished to study Torah." They came to an olive-grove and he said: "this olive-grove was mine and I sold it, [for] I wished to study Torah ... ." Thus, he passed grain planted on the lowlands, vines on the hillsides, and olives on the hills of Galilee. See Sperber, *Roman Palestine*, pp. 189–92.

118. For the terms "herdsman husbandry" and "distant pastures husbandry," see Khazanov, *Nomads and the Outside World*, p. 22. The highland/lowland dichotomy, while long known in ethnographic literature, has received little archaeological attention. See now a modest attempt to analyze this phenomenon for Early Bronze Age sites north of Bab edh-Dhra' in Udo Worshech, "Die sozio-ökologische Bedeutung frühbronzezeitlicher Ortslagen in der nordwestlichen *Ard el-Kerak*," *ZDPV* 102 (1986): 41, fig. 1.

The herds in these highland sites may have been as specialized as the sites themselves. The composition of the herd among those who practice herdsman husbandry would usually have consisted primarily of animals that were not specifically needed near the permanent settlements. These fallow herds were composed of male animals, castrates, and non-lactating females.<sup>119</sup> Lactating females and young animals would have grazed near the permanent agricultural settlements in the lowland plains.

Although determining functional specialization is difficult, the rewards are great. Rather than plotting a series of amorphous "dots on a map," the potential exists for recreating a dynamic economic system in which agriculture, pastoralism, and commerce came into contact. The system was never static. For EB II–III, however, a time when the economic network was developed to a greater extent than it had ever been, specialized sites established for herdsman but linked to the permanent cities and villages in the lowlands explains the observed settlement pattern.

In EB I and EB IV/MB I, the economic system was both less centralized and less internally integrated. Although agriculture was practiced (especially in EB I), the ratio of agricultural to pastoral settlements was much less than in EB II–III. The settlement pattern reflects both semi-nomadic pastoralism (e.g., Beth Shan Valley sites in both EB I and EB IV/MB I) and semi-sedentary pastoralism (e.g., Iktanu and Jericho in EB IV/MB I).<sup>120</sup>

### THE AGRICULTURAL/PASTORAL CONTINUUM

Shifts in subsistence strategies reflect the resilience of a socio-economic system. They measure the degree of adaptation practiced and allowed by any particular system. Tracing these shifts by analyzing their archaeological residue (in this case the pattern of settlement) can yield insights into the nature of the subsistence system that produced these residues.

Recent work on relations between pastoralists and agriculturists has often stressed the symbiotic relationship that exists between these two groups. In fact, rather than viewing agriculturists and pastoralists as practicing separate and distinct subsistence strategies, the most recent trend has been toward viewing these categories as two poles on a continuum. This continuum is marked by great fluidity in which "the shifting roles between farmer and pastoralist ... would have been immeasurably easier, more frequent, and more rapid in ancient times."<sup>121</sup> Mutualism, in which scheduling of agricultural and pastoral activities results in economic interdependence and stable social relationships between these two poles on the continuum, emphasizes the fluidity and flexibility of an inherently unstable system.<sup>122</sup>

Although the emphasis on a continuum of subsistence strategies is helpful for viewing the history of the Near East over the very long term, it is not as useful for describing relatively sudden shifts in economic

119. For the term fallow herd and for details on the concept, see G. Dahl and A. Hjort, *Having Herds: Pastoral Herd Growth and Household Economy* (Stockholm: University of Stockholm, 1976), pp. 135ff. A possible archaeological example of fallow herds may be seen at the Neolithic site of Tepe Tula'i. J. Wheeler Pires-Ferreira, "Tepe Tula'i: Faunal Remains from an Early Campsite in Khuzistan, Iran," *Paléorient* 3 (1975–77): 275–80. I would like to thank B. Hesse and P. Wapnish for this reference. See also now the faunal remains from the Chalcolithic site of Abu Hamid in the Jordan Valley. The bones recovered from the site were all from mature animals, with no bones from younger animals present. This distribution may indicate specialized herding and fallow herds. J. Desse, "Une Economie de production," in Dollfus and Kafafi, *Abu Hamid*, p. 28. See also L. Kolska-Horowitz and E. Tchernov, "The Relationship between Man and Beast in the Early Bronze Age," *Qadmoniot* 21 (1988): 5.

120. Khazanov, *Nomads and the Outside World*, pp. 20, 21, discusses these terms. Semi-nomadic pastoralism is defined as having pastoralism in the dominant role with agriculture secondary and supplementary. Semi-sedentary reverses the emphasis. Agriculture is dominant, but seasonal migrations and separate pastoral groups and families remain integrated within the society. These categories are sometimes difficult to establish even in modern existing societies, and within archaeology the line between these pastoral typologies is easily blurred. They are especially helpful to keep in mind, however, when observing the disembodied laxity with which archaeologists often use terms like nomadic and semi-nomadic.

121. Marfoe, "The Integrative Transformation: Patterns of Socio-political Organization in Southern Syria," *BASOR* 234 (1979), p. 9.

122. E. B. Banning, "Peasants, Pastoralists, and *Pax Romana*: Mutualism in the Southern Highlands of Jordan," *BASOR* 261 (1986): 25–50. For an important critique of mutualism, see also D. Bates, "The Role of the State in Peasant-Nomad Mutualism," *Anthropological Quarterly* 44 (1971): 109–31.

strategies that may have been the direct result of social or political developments. The idea of a flexible continuum between agriculturists and pastoralists provides a needed corrective to the old notions of antagonism between the “desert and the sown,” but it should not be used to obscure some of the very real differences in these subsistence strategies. Environmental variability and flexible subsistence strategies may provide the backdrop for ancient Near Eastern societies, but they do not hire the actors or write the script.

The blending of functional differences between agricultural societies and pastoralism leads to difficulties in describing ancient societies, let alone trying to explain them. It seems, however, that the most useful method to derive social categories from subsistence strategies is to analyze land tenure vs. “animal” tenure. Attitudes toward land and to its use offer an important and convenient wedge to differentiate between a society predominantly based on agriculture and one mainly engaged in pastoralism, even though over time they might inhabit the same ecological niche, plant for the most part the same crops, and raise the same animals.<sup>123</sup>

Thus to differentiate between the pastoralist who plants grain crops and the farmer who practices a mixed economy of agriculture and animal husbandry becomes a matter of some subjectivity. Ratios are difficult to establish for ancient societies, and for this reason the continuum metaphor remains useful so long as one keeps in mind that the continuum was not without social interference and disruption.

The oscillations along the continuum so vividly sketched by Marfoe<sup>124</sup> are descriptive of behavioral adaptations to environment and to a rather loose social structure. Ingold suggests that nomadism and sedentism are properly cast as poles on a continuum only in a society which, to a greater or lesser degree, is based upon animal husbandry. These oscillations can be frequent and would involve little social disruption. The most crucial development, however, comes with the shift from a social system primarily based on pastoral production to one based on a system of exclusive land tenure. This shift in the social structure has serious implications for our definition of the society and may be reversible only with great social upheaval. As Ingold says:

If we mean by “sedentism” that dominant social relations are anchored by the possession of immobile, landed property rather than mobile animals, then what is regarded as sedentarization may well consist of an *irreversible* change, not of degree but of kind, in the structural matrix of practical economic activity—though one that does not necessarily entail any diminution in physical mobility.<sup>125</sup>

A fluid agricultural/pastoral continuum between idealized fixed points may be more effective in long-term ecological analyses than in detecting or describing more erratic societal disjunctions along that continuum. Social structure was intimately involved in these subsistence strategies, and it should not simply be factored out as extraneous “noise.” Agriculture and pastoralism are not necessarily evolutionary stages but are concrete strategies of resource extraction, management, and production, that are bound up *within* the social fabric.

123. It is precisely this distinction that Marfoe rejects. “Once we are freed from the notion of residential definition of social groups, the history of settlement and land use in the Bija‘ can be seen to be no more than a record of this fluidity, i.e., of periodic shifts along a spectrum of available economic strategies and sociocultural roles”; see Marfoe, “Integrative Transformation,” p. 8. I feel, however, that residential definition of social groups, i.e., attitudes toward land tenure, is one of the *most helpful* categories to assess a society.

124. *Ibid.*, “Integrative Transformation,” pp. 8, 9.

125. T. Ingold, *The Appropriation of Nature* (Iowa City: University of Iowa, 1987), p. 169. I thank Brian Hesse and Paula Wapnish for this reference.

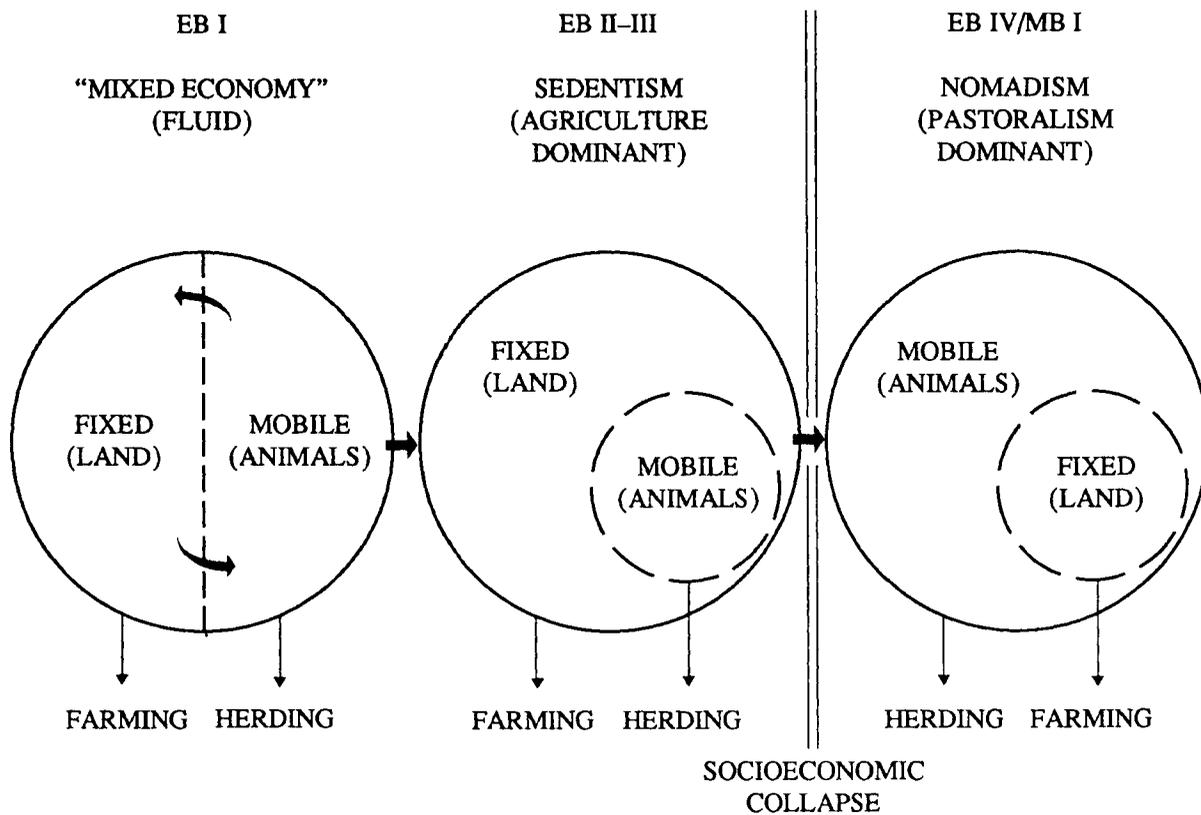


Figure 33. Socioeconomic Categories by Ratio of Pastoralism to Agriculture  
(Adapted from T. Ingold 1987, fig. 7.1).

The ratio of agriculture to pastoralism thus takes on a more serious cast, for this ratio must include behaviors which in isolation might be more characteristic of either predominantly agricultural or pastoralist societies, but which are often employed by both societies in the mix of subsistence practices seen in the Near East. Figure 32 is a representation of the general social shifts that occurred from EB I to EB II-III and then to EB IV/MB I. This figure is an attempt to display graphically the very real disjunction seen in settlement distribution between these chronological periods. The shift between the three major periods represented a shift in kind more than of degree.<sup>126</sup>

The temporal and spatial settlement distribution of the Early Bronze Age in northern Palestine can provide a regional illustration of these processes.

In the Early Bronze I period, sites located in both the Mediterranean and the Irano-Turanian steppe, climatic zones proliferated (see fig. 34). Generally, the EB I sites were small nucleated agricultural villages located along the edge of the well-watered plain of the Jezreel Valley, along the narrow alluvial strips in the Naḥal Tabor and probably in the Naḥal Yabneel. They were also located along the small channels that drained into the Qishon, the Naḥal Ḥarod, and the Jordan River. These areas were well drained and conducive to irrigation on a limited scale. The line of settlements of the Early Bronze Age along the innermost kurkar ridge of the coastal plain was also probably originally settled in EB I, but not enough information from surveys and excavations allows a definitive answer to that question.

126. Ibid., p. 170, for a similar view of the shift from "pastoralism to an agricultural economy incorporating a herding component (such as 'herdsman husbandry')."

Along with these small, presumably self-sufficient, agricultural villages, appeared sites whose function was primarily determined by pastoralists rather than farmers. Open sites were found scattered over much of the Beth Shan Valley. These sites were probably either temporary or permanent encampments of people who were primarily pastoralists. The mean size of the Beth Shan Valley sites was smaller than that of the sites in the Jezreel and eastern Lower Galilee. Despite the large increase in numbers of sites, their median size remained at 1 ha.

Even though very large sites were rare in EB I, the beginnings of site-size hierarchies were developing already by this early period. Although some evidence for site-size hierarchy was present in the previous Chalcolithic period,<sup>127</sup> the data from the EB I period are not conclusive. In EB I the size of Tel 'Ereini (possibly as large as 25 ha), Beth Yerah (20 ha), and most recently a possible fortified town at Tel Shalem (5 ha)<sup>128</sup> may indicate that the concentration of population in a few large centers in EB I presaged the later urban developments of EB II–III.

The median site size in northern Palestine tripled in EB II–III, but the number of sites dropped sharply. This process of agglomeration has been well documented in other examples of urbanism. There is no strong evidence for a large general population increase during this period. Rather, what may have happened was a shift in the proportion of subsistence strategies; many small rural agricultural communities and pastoralists were integrated into a socio-economic system dominated by urban centers and suprasubsistence interrelationships. The hinterland served as a source of labor that could be drawn to the larger centers. Thus, agglomeration could have occurred as a result of economic growth. Forced sedentarization of pastoralist groups rarely is effective, but economic incentives are often successful in attracting groups from the hinterlands.<sup>129</sup> Increased corporate power (archaeologically attested by massive fortification walls, public granaries, temples, and palaces, for example) also could have been exercised to control nearby pastoralists.<sup>130</sup> Although villages still existed in EB II–III, they were located in areas where agriculture and herdsman husbandry would have been practiced. The disappearance of sites in the steppic zones where pastoralism was dominant was almost total (see fig. 35).

One of the most important suprasubsistence relationships, at least in EB II, must have been trade contacts with Egypt. Not only did the international trade network with Egypt (and possibly Syria) expose the inhabitants of Palestine to more advanced urban systems, it probably resulted in increased crop specialization. The cultivation of cash crops such as grapes and olives required more investment of labor and capital in a few specialized crops and allowed fewer resources to be used in developing the pastoral end of the continuum.

The transition from EB II–III to EB IV/MB I was marked by an even more radical shift in the relative proportion of subsistence strategies than the shift witnessed in the previous transition from EB I to EB II–III. The collapse of the international trade network at the end of the Egyptian Old Kingdom wreaked havoc with the Early Bronze Age cities of the Levant that had invested more heavily in cash crops than in exercising their pastoral option. In effect, the large urban system of the Early Bronze Age was based on an economy which was not internally resilient because it had specialized rather than maintaining the diverse subsistence base of EB I settlements.<sup>131</sup>

In contrast with the urban evolution evident in the EB I to EB II–III period, Palestine experienced urban devolution in EB IV/MB I. The great increase in the number of sites in the Beth Shan Valley marked a pronounced return to an economy which was more pastorally oriented (see fig. 36). Although there were some agricultural villages (like Jericho, Iktanu, and Iskander), the proportion of agricultural to

127. T. Levy, "The Chalcolithic Period," *BA* 49 (1986): 99, 100.

128. E. Eisenberg, "Tel Shalem," *ESI* 5 (1986): 96, 97. See especially p. 97, photograph 7, for a mudbrick defensive wall that the excavator assigns to the EB I period.

129. N. Swidler, "Sedentarization and Modes of Economic Integration in the Middle East," in Philip Salzman, ed., *When Nomads Settle* (New York: Praeger, 1980), pp. 30, 31.

130. Bates notes a "positive correlation between the strength of the sovereign central government and the expansion of grain agriculture into the desert periphery, paralleling the sedentarization of former pastoralists"; Bates, "Role of the State," pp. 120, 121.

131. D. Esse, "Secondary State Formation and Collapse in Early Bronze Age Palestine," pp. 90–93. The system may have suffered from hyperintegration.

pastoral settlements was not nearly as great as even that of EB I. In all the surveys in which the periods were sufficiently differentiated in the Mediterranean zone of northern Palestine, there was a decrease in the gross number of sites (see table 5). This decrease was even evident in the northwestern Jezreel Valley, which generally experienced more continuity than the other intensively surveyed areas. Furthermore, fewer sites were located in the major wadi bottoms. In the Early Bronze Age a fair number of sites were located along the Naḥal Yabneel, but not one EB IV/MB I site was found. The significance of this decline in number of settlements may be even more important than simply reflecting the non-urban character of the EB IV/MB I period, however.<sup>132</sup> In *Chapter 1* it was shown that the Naḥal Yabneel was an important route for east-west traffic across northern Palestine. The absence of occupation in this period at sites 18, 19, 20, 21, and 22 in Upper Galilee (compare figures 26 and 30) and at most of the EB sites that ran the length of the modern border between Israel and Lebanon, may also mirror the decreased use of trade routes across Upper Galilee, both north-south and east-west in the EB IV/MB I period.

There is, in fact, a very positive correlation between the excavated evidence and the nature of the settlement patterns in the EB IV/MB I period. Although relatively few sites dating from the third millennium in northern Palestine have been excavated, those which have been examined yield essentially the same results. Excavations at large sites like Megiddo, Ta'anach, Beth Shan, 'Afulah, Qishyon, Hazor, Dan, and Shuneh, have revealed very little, if any, EB IV/MB I construction.<sup>133</sup> Only Beth Yerah is reputed to have EB IV/MB I domestic architecture, but a substantial EB IV/MB I stratum at that site is unlikely. In the few instances in which EB IV/MB I architecture has been examined (e.g., sites 273 and 85), the constructions have been more suited to pastoral pursuits than typical of more densely nucleated agricultural settlements.

What we observe in the settlement patterns of northern Palestine in the third millennium B.C. is a graphic illustration of the processes of growth, consolidation, and collapse. By looking at the diachronic trends of site integration, distribution, and function, we can chart the patterns that elucidate those processes.

132. This should be resurveyed, however, since we are completely dependent upon Saarisalo's survey for our knowledge of these sites. Liebowitz has found evidence for EB I occupation at Tel Yin'am. H. Liebowitz and R. Folk, "Archaeological Geology of Tel Yin'am, Galilee, Israel," *Journal of Field Archaeology* 7 (1980): 23-41.

133. Despite Thompson's attempt to demonstrate that the plastered pavement (4009) at Megiddo represents "a tradition of building," there is very little evidence for any sort of construction (other than very simple dispersed residential units) anywhere in northern Palestine; see T. Thompson, *The Historicity of the Patriarchal Narrative* (New York: de Gruyter, 1974), p. 169; see also an unconvincing attempt by Saghih (following Kenyon) to assign the large Early Bronze Age temple complex to the EB IV/MB I period; M. Saghih, *Byblos in the Third Millennium*, pp. 123, 124.

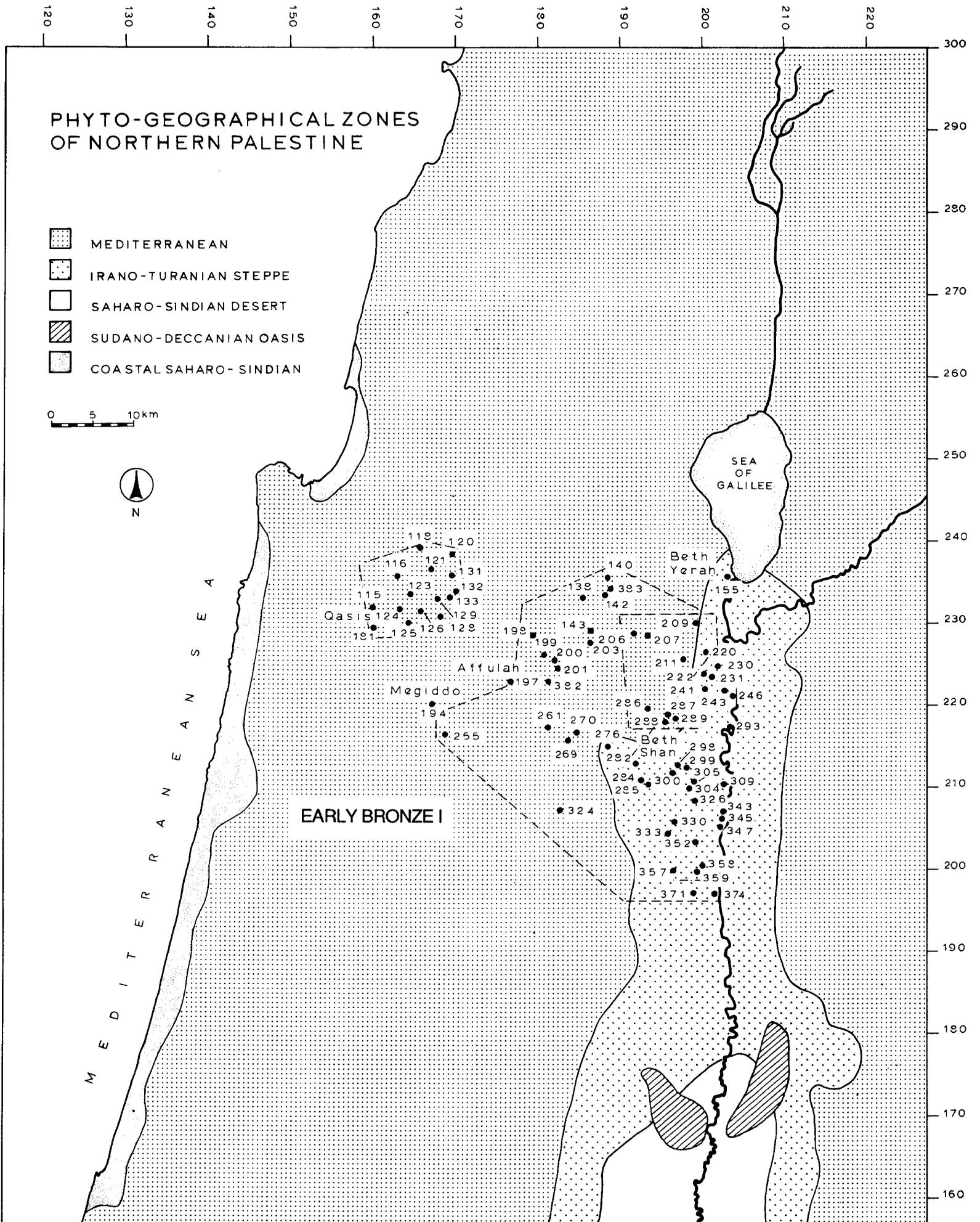


Figure 34. Distribution of Early Bronze Age I Sites Within the Survey Areas by Phyto-Geographical Zone.

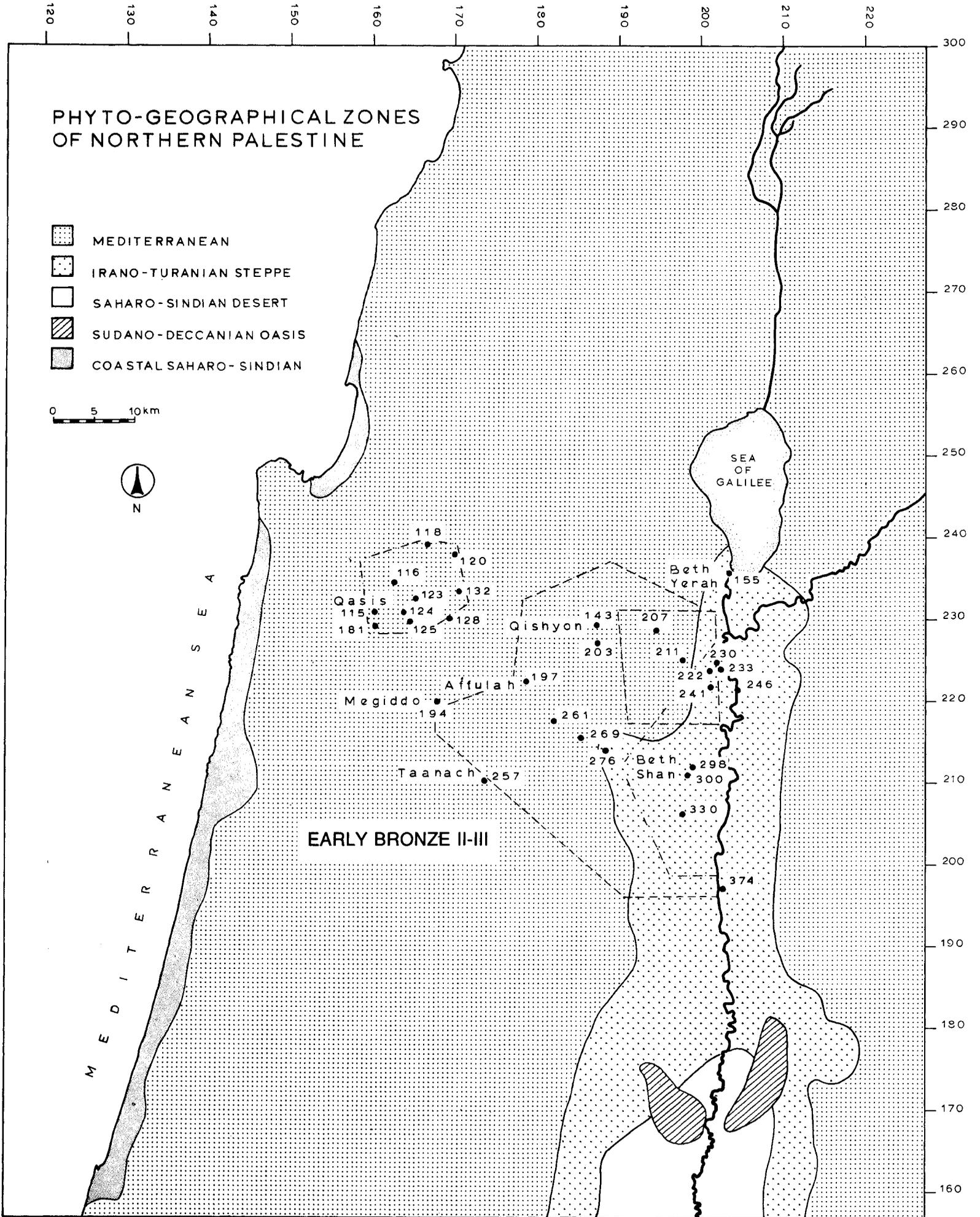


Figure 35. Distribution of Early Bronze Age II-III Sites Within the Survey Areas by Phyto-Geographical Zone.

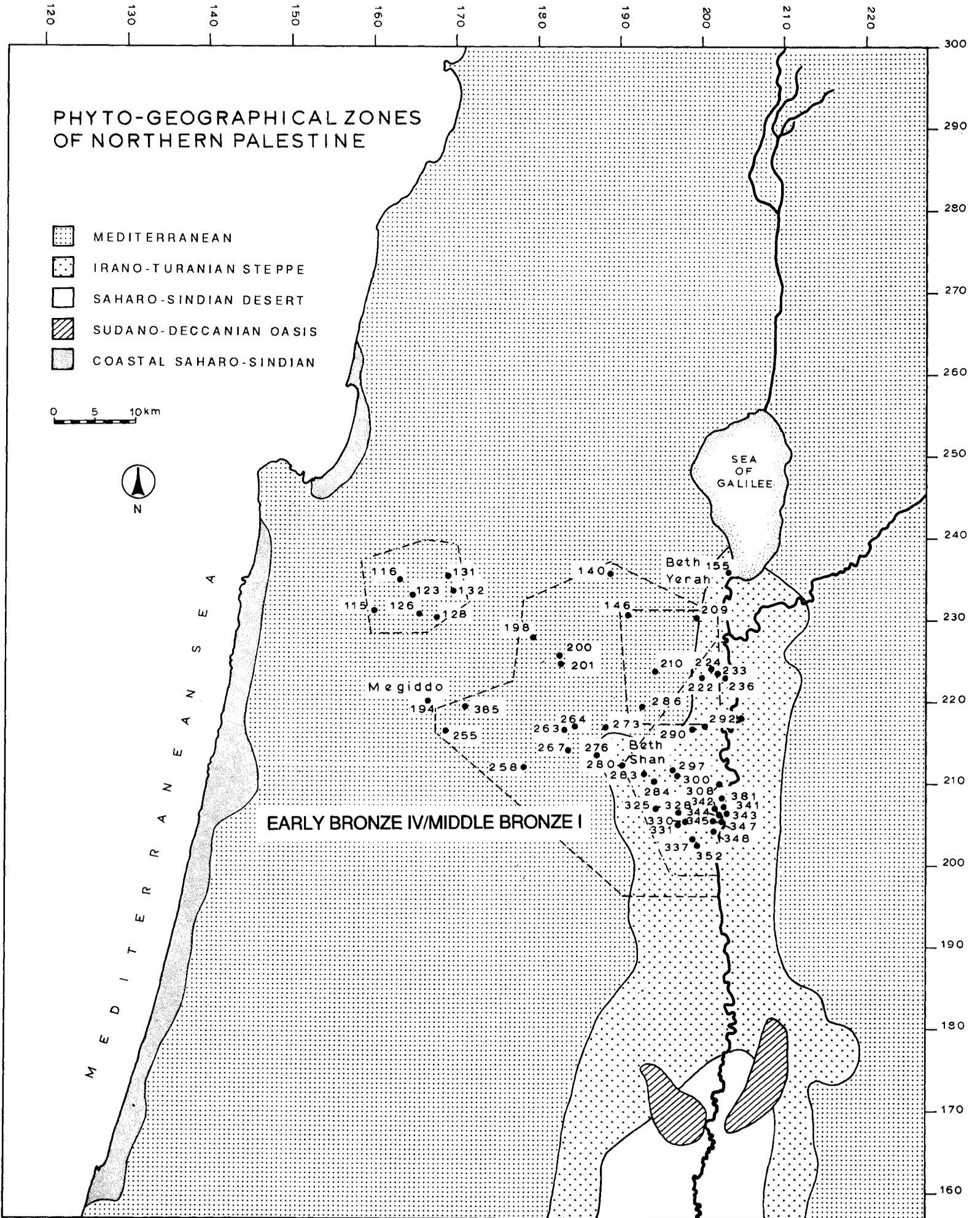


Figure 36. Distribution of Early Bronze Age IV/Middle Bronze Age I Sites Within the Survey Areas by Phyto-Geographical Zone.



## CHAPTER 5

# CONCLUSIONS

The purpose of this regional study has been not only to understand the internal cultural framework of a region but also to understand that region in its total context. This context involves the region's interaction with its neighbors as well as its function at the international level.

The Early Bronze Age marked the first time that a Palestinian region could be analyzed at all three levels: intraregional, interregional, and international. While intraregional and interregional trade could be traced back as far as the Neolithic, the formation of the Egyptian dynasties and the increasing urbanization of Syria-Palestine resulted in what truly could be termed, in a broad sense, international trade.

Before dealing with the context, however, we must examine the region itself. Northern Palestine is viewed in this study as a legitimate region, both by environmental and cultural standards. The natural eastern and western boundaries of northern Palestine were the Jordan Valley and the Mediterranean Sea. The Jezreel formed a boundary, throughout all periods, between the hill country of Samaria and the higher, more rugged hills of Galilee. Only the northern boundary is ill-defined from the standpoint of geomorphology, and such definition must await systematic archaeological work in southern Lebanon to draw the cultural boundary.

There is no doubt that northern Palestine was a distinct cultural unit. The distribution of diagnostic cultural artifacts clearly illustrates the unity of the region in the third millennium. Gray Burnished Ware, cylinder seal impressions on jars, Khirbet Kerak Ware, and the gray painted teapots of EB IV/MB I all were found predominantly in northern Palestine (see *Chapter 4*). Thus, throughout the various political, economic, and social developments of the Early Bronze Age, northern Palestine retained a certain degree of cultural distinctiveness and homogeneity in its material culture.

These artifacts form a continuous chain of diagnostic types that span the entire third millennium. This study shows that there were also local ceramic types in EB II–III with a distinctly northern distribution. The large repertoire of metallic vessels from the EB II levels at Beth Yerah seem to be concentrated primarily in northern Palestine (see *Chapter 2*). The channelled rim jars, orange metallic platters with both plain and tool-cut rims, and carinated bowls were ubiquitous at Beth Yerah. These forms and wares occasionally were found as far south as 'Ai and Jericho, but they were common in the north. They were found at Tel Qashish, Ta'anach, Beth Shan, at sites in the Golan, and in the Yarmuk River Valley.

The ceramics from EB III present a different picture from those of the EB II period. Although there do seem to be distinctively northern types (e.g., brown or gray metallic ware vessels with no white slip and loop-handled spouted vats with broad streaks of red-brown wash on their exterior) the standard EB forms and wares are similar in most respects to those from Hesi in the south to Hazor in the north.

During the EB III period, the greatest ceramic differentiation between northern Palestine and the region farther south was the appearance of Khirbet Kerak Ware. The ware is completely non-local in form and decoration. It has been traced at least as far north as the Syrian 'Amuq, and it is related to wares from Anatolia and the Transcaucasus. There is little doubt that Khirbet Kerak Ware was made locally, however, judging from the large quantities found at Beth Yerah, Beth Shan, Shuneh, and Hazor. The range of types within the Khirbet Kerak Ware assemblage was greatest in northern Palestine (see *Chapters 2 and 4*). The large potstands, heavy bowls, and kitchen accessories like lids and andirons, illustrate a clear case when moving from "pots to peoples" is appropriate.

From the evidence of the Beth Yerah excavations, there seems to be no indication that the arrival of the "Khirbet Kerak folk" caused a severe disruption in the indigenous culture. At least from the ceramic evidence, the forms and wares typical of the Palestinian EB III continued along similar lines to those from sites to the west and south.

The stratigraphic sequence of ceramic types from Beth Yerah provides a temporal and typological yardstick by which to measure other EB II and EB III sites in Palestine. Light Faced Painted Ware was found in the EB II levels of Beth Yerah, and Khirbet Kerak Ware appeared at the beginning of EB III. The standard ceramics found in association with these two types has made the regional study both possible and essential. The Beth Yerah local types have been compared to pottery from sites at which these two special types do not appear and a more secure relative chronology has been developed. These comparisons were made at both the intraregional and interregional level, since no other Palestinian site has produced both Light Faced Painted Ware and Khirbet Kerak Ware in the quantities found at Beth Yerah.

Although ceramic studies are important for defining some aspects of the cultural boundaries of northern Palestine and for establishing a chronology, subsistence is the most basic and appropriate level with which to begin a regional study. The mode of subsistence was determined by environmental constraints and potential. The topographical dichotomy between highland/lowland and the phyto-geographical dichotomy between Mediterranean/steppe environments provided limits. The climate and soils of the highland areas of Samaria and the Galilee were most suitable for growing olives and grapes, two of the principal Mediterranean products. The lowlands, on the other hand, possessed fertile alluvial soils, springs, and sufficient space to make them more efficient for producing cereal crops. The composition of the cereal crops undoubtedly varied as one moved from west to east, for barley was better suited than wheat to the heat and somewhat saline soils of the Jordan Valley (see *Chapter 1*).

The methods and degree of exploitation of these areas undoubtedly varied through time according to the industry of the inhabitants and the complexity and efficiency of their institutions. The Early Bronze Age was the first time, however, that the ancient palate could sample the distinctly Mediterranean flavor of the Levant, for by 3100 B.C., olives, grapes, and wheat were all domesticated and grown (see *Chapter 3*). But agricultural exploitation was only one end of the spectrum.

Pastoralism was the other end of the continuum and it is unlikely that at any time in the history of the Levant one or the other was exclusively practiced by the entire population of a society. The highland/lowland and Mediterranean/steppe boundaries were not rigid. Huntington's description of hill country villagers travelling down to the Jordan Valley to winter their flocks or plant wheat is probably paradigmatic for the behavior of a certain portion of the population throughout all periods. The early ripening of crops in the valley meant that villagers could reap two crops in one season if political and economic conditions permitted. Robinson noted that specific areas were set aside in the valley for exclusive cultivation by certain families, even within villages. The pastoralist end of the spectrum was just as visible to the nineteenth-century travellers, for they reported seeing bedouin (the "Ghawarineh"), some of whom had homes in the highlands and wintered in the valley and others who lived in the valley year round and considered it their patrimony (see *Chapter 1*).

The need for some sort of organized central government to provide security was clearly demonstrated by the condition of the villagers of Beth Shan when Burckhardt passed through in the early nineteenth century. This was a time when the Ottoman empire was not investing enough energy and money to maintain adequate security in Palestine. Burckhardt reports that the Beth Shan inhabitants were miserable because they were forced to pay tribute to the bedouin from the valley and to suffer constantly their depredations.

The sharp topographical and climatic differences in the region meant that several very distinct and diversified ecological zones were within a short distance of one another. Northern Palestine, with the diversity of its environment, has provided an ideal laboratory to observe change. Diachronic change, especially in the absence of historical records, was most easily detected in the continuities and discontinuities reflected in settlement patterns (see *Chapter 4*).

The number of sites in the north greatly increased between the Chalcolithic and Early Bronze I, but the median site size remained at one hectare for both periods. The increase in site number indicates an increase in population; rather than clustering into larger villages and towns, population growth in EB I became increasingly extensive. New areas were brought under cultivation, especially along the coast, in the hill-

country of Galilee, and along the wadi bottoms. The fertile soils of the western Jezreel had already been settled during the Chalcolithic, but the increased population began to settle into the more marginal areas. Dry farming, supplemented by simple gravity-flow irrigation using spring water was practiced, and was especially suitable for the small self-sufficient agricultural villages of EB I. All the site surveys done along coastal Palestine, in the Jezreel, and on both sides of the Jordan Valley showed the same dramatic increase in number of sites.

The pastoral end of the spectrum is extremely difficult to locate in the archaeological record (due to the nature of the beast). In the EB I period, however, it is possible to isolate the settlement residue of these pastoralists. The Beth Shan Valley is an ideal place to search for this elusive group. The valley is a marginal area, the northernmost extension of the steppe environment in Palestine. The lower limit of rainfall for successful dry farming is around 350 mm per year and the 350 mm isohyet cuts directly through the Beth Shan Valley. Because of the variability in rainfall, an area like the valley is more suitable for exploitation by pastoralists than by settled agriculturists.

In EB I at least eighteen sites were located south of Beth Shan and the Naḥal Ḥarod. On the average, the EB I sites in the Beth Shan Valley were substantially smaller, almost by half, than their contemporary sites in the valleys and hills to the west. It is probable that these small non-nucleated settlements served as encampments for both pastoralists and those villagers who wished to graze their flocks in the warm valley during the winter months.

Throughout the third millennium in Palestine the entire spectrum of subsistence modes from pastoralist to sedentary agriculturist and in some cases even to urban dweller were found. For part of the millennium all three modes of subsistence were probably practiced at the same time. A necessary ingredient for the definition of a society, however, is the proportion of one segment of subsistence strategy relative to another. The strategy dominant at any particular time is important for understanding the nature of the society.

The analysis of settlement patterns proves particularly useful when describing the relative proportions of these subsistence strategies diachronically. How does one determine the relative proportion of villager to pastoralist, especially in the third millennium? Dramatic shifts in settlement most likely signal shifts in subsistence strategies. These settlement shifts are most clearly seen in marginal areas like the Beth Shan Valley.

Settlement discontinuity, then, provides the key by which we might observe subsistence discontinuity. The transition from the EB I to the EB II–III period shows clear evidence for such a shift, both in terms of number and location of sites. The eighteen EB I sites in the Beth Shan Valley were reduced to two sites in the EB II–III period. Every area where EB I sites were differentiated from EB II–III sites showed a decrease in number of sites, although nowhere was the decline as great as that in the steppe zone.

The decrease in number of settlements was accompanied by a corresponding rise in the average size of the settlements. Rather than the population increase and fragmentation into small villages that was seen in the transition from Chalcolithic to EB I, the trend in EB II–III was toward population agglomeration. Whether there was a real increase in population is impossible to determine from available evidence. It is certain, however, that EB II–III sites were generally larger than EB I sites. The median site size trebled in this period.

The clustering of the population into fewer but larger villages and cities did not eliminate the pastoralist end of the scale. Although pastoral settlement of the steppe area all but ceased in EB II–III in northern Palestine, the archaeological record gives us a clue of the existence of pastoralists in other areas. A number of sites, known in the literature as “enclosures,” were located on the hilly plateaus of the eastern Lower Galilee and the Golan in EB II–III. Surface remains indicate that the architecture was not extensive at most of these sites, although the recent excavations at Lawiyah indicate that substantial dwellings were built at that site. Whether these sites were occupied throughout the year is not yet known, but their location would provide excellent access to the cool pasture lands of the Golan and Galilee in summer. The heat of the Jordan Valley becomes intense in mid-summer, and the nearby hills would provide relief from the heat and better opportunities of pasturage for the flocks of the inhabitants of the valley sites. These enclosure sites suggest a specialized function that serviced the burgeoning urban lowland sites.

It is unlikely that watching over flocks was the only function performed by those who lived in these enclosures. There is evidence that those who lived in the enclosures may have cultivated olives and other crops in addition to tending their sheep, goats, and cattle. The Jordan Valley did not possess the climate or

soils optimal for growing olives. The nearby Golan heights were well-suited for olive production, however, and there is evidence that olives were grown in the Golan as early as the Chalcolithic period. Enclosure sites were also located in the hilly plateaus of the eastern Lower Galilee (see *Chapter 4*).

The cultural connection between the hill and valley sites is evident in the seal impressions found in both areas. Metallic ware sherds found on the surface within one of the Golan enclosures (Lawiyah) were impressed with geometric designs from wooden cylinder seals. These impressions were identical in style to a large group of seal impressions from Beth Yerah. A similar situation is found farther north in the Huleh Valley. Despite the extremely small exposure of EB levels at that site, Dan has yielded the second largest group of cylinder seal impressions in northern Palestine. The enclosure site of 'Ain Kuniyeh was located just to the east of Dan in the Golan heights, and 'Ain Kuniyeh also yielded seal impressions on metallic combed ware jars.

No substantial permanent Early Bronze Age villages were located in the hills and plateaus above the major valley sites other than the enclosures. The specialized function of these enclosure sites in the Beth Yerah hinterland can be seen in the archaeological record. The location of the enclosures was best suited for summer pasturage (see details in *Chapter 3*). The finds within the sites show their dual function, however. Combed metallic ware was ubiquitous at these hilltop sites. These vessels were probably used in the olive oil industry. Combed ware was found in and around a large pressing installation at Ras Shamra. At Beth Yerah a very large combed ware jar and other smaller combed ware jars were found in the same room as at least four combed ware spouted vats. These vats were probably used as olive oil separators. A large amount of combed ware was also found with a spouted vat, identical to those from Beth Yerah, in Megiddo, Stratum XVII–XVI.

Surface pottery found at the site of Miṭḥam Shaḥal, an enclosure site located on a ridge of the plateau just above Naḥal Tabor was similar to the pottery found in the olive oil processing factory found at Beth Yerah. The large vat, the red burnished platter, the large store jar, and the collection of combed ware all serve to place this enclosure site within the cultural sphere of the Beth Yerah hinterland. Although the basaltic soils of this area were not optimal for olive growing, the few villages located here in the sixteenth century A.D. grew olives in much greater proportion than did villages in the Jordan Valley. The plateaus of the eastern Lower Galilee and portions of the southern Golan heights were undoubtedly part of the "hinterland" of Beth Yerah. The inhabitants of the city and the smaller EB II–III village sites nearby utilized the hilly areas for horticulture and pasturage and reserved the lowland areas for the cultivation of cereals.

The location of Beth Yerah on the border of the two major eco-zones may have been one of the reasons that the site developed into one of the largest urban centers of third millennium Palestine. In a redistributive economy, the most efficient location for a major collection and distribution center is at the point where subregions meet. Beth Yerah was an optimal place for the olive/grain exchange, with a diet for its inhabitants that was undoubtedly supplemented by fishing, as the presence of net weights and maybe even of anchors attest. The massive granary found at the northern end of the tell provides an even clearer illustration of the centralized function of the EB city. The existence of large storage facilities, unparalleled elsewhere in Palestine, indicates the presence of a central organization that must have controlled the means of production and exchange. Beth Yerah was truly the focal point between two very diverse ecological zones with different potentials.

The growth of villages and cities in the EB II–III period seemed to occur at the expense of the pastoral end of the continuum. Although pastoralism certainly did not disappear, as shown by the various hill-country enclosures discussed above, there seems to have been a substantial shift in the proportion of these pursuits. The sharp decrease in small sites in the Beth Shan Valley may have been partially the result of the increased specialization of authority at large sites such as Beth Yerah, Beth Shan, and Shuneh. Concentration of authority led to increasingly efficient military capabilities. Such capability was necessary to provide security. The nineteenth-century records show that, at least at that time, the fringe groups occupying the nearby steppe were certainly viewed as threats to security. An increasingly strong central authority, with power to tax and conscript for military service or *corvée* labor, may have been responsible for relocating and controlling the steppe population.

In the EB IV/MB I period discontinuity of site size and location was again apparent. The number of sites in the Beth Shan Valley increased from two sites in EB II–III to eighteen in EB IV/MB I. This was approximately the same number of sites found in the region in the EB I period. The median site size for the

EB IV/MB I period in the steppe areas was 0.37 ha, an area even less than that of the EB I period sites in the same region. There was a great similarity between the distribution of EB I and EB IV/MB I sites in the more marginal areas. The similarity ends, however, when comparing settlements from the two periods in the more fertile areas in the Mediterranean eco-zone. Many more EB I sites than EB IV/MB I sites were located in the most productive agricultural areas of northern Palestine. The excavated evidence in northern Palestine suggests that EB I sites were nucleated villages that were probably dependent primarily on agriculture. No true nucleated village of the EB IV/MB I period has been found in northern Palestine.

Thus, although the pastoralist end of the spectrum was certainly more prominent in EB I and EB IV/MB I than in EB II–III, the relative proportion of one to the other is the crucial factor for determining the nature of the society. Even though the shift in settlement between EB I and EB II–III was major, the process was one of development. It was more a gradual development than a radical break. The population of the small villages was absorbed into the larger urban polities of EB II–III. In this transition the balance between agriculture and pastoralism simply became more heavily weighted toward agriculture. The relative proportion of agricultural to pastoral sites was completely reversed between EB II–III and EB IV/MB I, however, and the pastoral end of the spectrum became dominant, not only in northern Palestine but also in the rest of the country. This second shift in settlement patterns was more radical than developmental.

So far the emphasis of this discussion has been on the intraregional level. The understanding of subsistence pursuits and economic exchange is certainly a valid concern in any regional study. One question still looms large, however. How can we explain the process of population agglomeration and agricultural specialization that signals the beginnings of urbanization in Palestine? Likewise, what eventually caused the disintegration of the large urban centers throughout Palestine and coastal Syria? Although massive changes of this sort are impossible to attribute to just one factor, I would suggest that a very important influence was the development and subsequent decline of international trade as an exogenous force in the cultural and economic world of third millennium Syria-Palestine.

Extensive trade between Egypt and southern Palestine was vigorous as early as EB I. Palestinian pottery has been found at Maadi in Egypt and as far south as Nubia. The string of EB I campsites along the northern Sinai route between Egypt and southern Palestine and the amount of Egyptian material at 'Ein Besor, 'Ereini, Lahav, and Arad all attest to the importance of the exchange. In Palestine, the string of EB I sites along the coast, some of which yielded Egyptian objects, helps track the direction and extent of the overland trade route. With the establishment of the First Dynasty in Egypt, the nature of the evidence for connections between Egypt and Palestine changes. Large quantities of Red Polished Ware jugs and some combed ware were found in Egyptian tombs of this period (see *Chapter 3*). At the same time, Palestine was undergoing its urban development. It was precisely at this point that population was clustering in large towns and cities that were surrounded by defense walls. The small self-sufficient villages of EB I decreased in number, as did the small pastoral encampments in the steppe.

The Egyptian demand for the various oils and wines produced in Syria-Palestine must have increased the tendency toward agricultural specialization by the growing urban centers and their hinterlands. Byblos was a major port in the EB II–III period and gave the Egyptians access to timber, probably one of Egypt's most desired imports. At least some of the combed ware jars found in Old Kingdom tombs probably transported olive oil from Byblos to Egypt. The Red Polished Ware jugs are more difficult to trace, for nearly identical jugs have been found from southern Palestine to as far north in Syria as Tell Sukas. Palestinian Light Faced Painted Ware was found in several First Dynasty Egyptian tombs. Light Faced Painted Ware is the best, most secure, indicator of trade between Egypt and Palestine in EB II (see *Chapter 3*). The form of the painted jars from Arad is similar to one jar from Abydos and another from Saqqarah. The large number of these jars shows that Arad was probably one of the production centers of Light Faced Painted Ware. There were other centers farther north, however. The number of sherds found at Beth Yerah suggests that it may have been one of the northernmost producers of this ware.

Egyptian trade with Syria-Palestine was anything but sporadic. The products imported into Egypt from its northern neighbors were not strictly limited to consumption by royalty. The simple graves excavated by Macramallah at Saqqarah yielded a number of Red Polished Ware and Light Faced Painted Ware jugs.

The effect that increased Egyptian demand had on Syria-Palestine should not be underestimated. The economic relationship was most likely that of a primary civilization interacting with a secondary civilization.

The pattern was not exactly akin to Renfrew's emulation, for there is no evidence that Egyptian values, cults, or governmental procedures were adopted in Syria-Palestine. There was undoubtedly a great economic effect on secondary states, however, and that had far-reaching political and social consequences. Increasing reliance on cash crops to sate the demands created by the new international trade network required increased efficiency of production and exchange. Centralized population centers grew in response to those requirements. The increased demands, in terms of labor and capital, led to a decrease in pastoralism in the marginal areas. Increased requirements for security and the ability of the increasingly organized central authority of the EB II-III urban centers to provide such control may also have had a minimalizing effect on pastoralism. The prestige of the newly imported items tended to reinforce the development of social stratification and political power. Abstract concepts are difficult to detect in the archaeological record, but the strong defenses of Beth Yerah, Ta'anach, and Megiddo, the Beth Yerah granary, and the palace/temple complex at Megiddo all indicate the presence of centralized authority, probably kingship, and in the case of Megiddo, probably kingship in conjunction with a specialized priesthood in the bureaucracy (see *Chapter 3*).

The primary/secondary relationship between Egypt and Syria-Palestine in the third millennium is even more evident when looking at the results of the collapse of the international trade network. The cause of this collapse is not known, and in fact there were probably several reasons for it. What is known, however, is the great disruption that the collapse of a primary civilization had upon a secondary civilization. Not only did trade decline, but all of Palestine and much of coastal Syria experienced a collapse of their urban institutions. The only areas which did not experience a complete urban decline were inland Syria (e.g., Hama, Ebla) and the northern Syrian coast (e.g., the 'Amuq sites). It was precisely in those areas where trade with Egypt was probably fairly minimal. Egypt's closest neighbors and trading partners experienced an economic decline that generally paralleled the First Intermediate Period.

Intraregional subsistence patterns most likely fostered population growth, such as the large numbers of relatively self-sufficient villages, and the pastoralist camps that were plentiful in EB I. The simple mixed subsistence economy practiced in northern Palestine in this period did not lead to more complex societal institutions. Although the large size of Beth Yerah during the EB I period illustrates that the highland/lowland-Mediterranean/steppe exchange required a central location even at this early date, there is no archaeological evidence anywhere in Palestine for any EB I settlements that would rival the complexity and scale of architecture and institutions in EB II-III. It was during EB II-III that northern Palestine participated, probably both directly and indirectly, in the new international trade network initiated by Egypt. For the first time in history, crop specialization, urban centers, and social stratification moved the region of northern Palestine beyond subsistence and made it an active participant in the larger cultural world of the Levant.

## APPENDIX

## SITE LIST

1. Abel Beth Ma'acah 2045.2951  
Type: tell  
Refs: Anonymous 1957: EB
2. Tel Dan (Tell el Qadi) 2112.2948  
Type: tell      Size: 20 ha  
Refs: Biran, 1980: EB II–III
3. Shamir 2117.2862  
Type: Small sounding in dolmen field  
Refs: Bahat, 1972: EB, EB IV/MB I
4. Summaqa 2182.2848  
Type: tell  
Refs: Epstein site 39: Chalco/EB
5. Rosh HaNiqlra 1601.2776  
Type: ruins  
Refs: Thompson site 1627.01: EB IV/MB I
6. Rosh HaNiqlra (Kh. el Musherifa) 1608.2768  
Type: tell  
Refs: Thompson site 1627.04: EB IV/MB I  
Tadmor and Prausnitz, 1959: EB I,  
EB II–III
7. 'Akhzib 1598.2725  
Type: tell  
Refs: Saarisalo, 1929: EB  
Thompson site 1527.02: EB
8. Shelomi (al Bassa) 1637.2759  
Type: tell  
Refs: Thompson site 1627.09: EB,  
EB IV/MB I
9. Shelomi (al Jubal) 1639.2750  
Type: ruins  
Refs: Thompson site 1627.10: EB,  
EB IV/MB I
10. H' Ovesh (Kh. el 'Abbysiya) 1645.2751  
Type: ruins near spring  
Refs: Thompson site 1627.12: EB
11. 'Ain Kovshim 1663.2763  
Type: ruins  
Refs: Thompson site 1627.05: EB
12. Mizpeh Hanita (Tell Marad) 1668.2774  
Type: tell      Size: 0.84 ha  
Refs: Thompson site 1627.02: EB,  
EB IV/MB I
13. Tell Adar (Kh. 'Ain Hor) 1674.2765  
Type: tell  
Refs: Aharoni 1956: EB, EB II–III  
Thompson site 1627.06: EB
14. Kh. 'Idmit 1691.2761  
Type: ruins  
Refs: Aharoni, 1956: EB, EB II–III  
Thompson site 1627.07: EB
15. Tel 'Avdon (Kh. 'Abda) 1655.2725  
Type: tell      Size: 2–3 ha  
Refs: Aharoni, 1956: EB  
Saarisalo, 1929: EB  
Thompson site 1627.17: EB
16. Tel Yiqrat (Iqrit) 1761.2756  
Type: tell  
Refs: Aharoni, 1956: EB  
Thompson site 1727.02: EB
17. Tel Rosh (Kh. Tell er-Ruweise) 1815.2718  
Type: tell      Size: 3 ha  
Refs: Amiran, 1953, 1967: EB I, EB II–III  
Aharoni, 1956: EB  
Thompson site 1827.02: EB,  
EB IV/MB I

18. Tell el Khirba 1908.2757  
Type: tell  
Refs: Amiran, 1967: EB  
Aharoni, 1956: EB  
Thompson site 1927.02: EB
19. Bar'am 1908.2739  
Type: ruins  
Refs: Thompson site 1927.07: EB
20. Kh. Kharruba 1914.2728  
Type: ruins  
Refs: Thompson site 1927.09: EB
21. Gush Ḥalav 1915.2701  
Type: tell  
Refs: Aharoni, 1956: EB  
Amiran, 1967: EB  
Thompson site 1927.11: EB
22. Kh. eṣ-Ṣafṣaf 1920.2684  
Type: ruins  
Refs: Thompson site 1926.03: EB
23. Har Dishon (Shummesa) 1967.2758  
Type: tell  
Refs: Thompson site 1927.04: EB
24. Tell Qadesh (Qadesh Naphtali) 1996.2798  
Type: tell Size: 10 ha  
Refs: Aharoni, 1953, 1957: EB I, EB II–III  
Thompson site 1927.01
25. Tel Re'emim (Tell er-Rumman) 2048.2774  
Type: tell  
Refs: Thompson site 2027.05: EB,  
EB IV/MB I
26. Tell Shaḥaf (Tell Abalis) 2069.2741  
Type: tell  
Refs: Thompson site 2027.07: EB
27. Ḥolata (Tell el 'Urema) 2072.2731  
Type: tell  
Refs: Thompson site 2027.08: EB
28. Kh. Khamul (Tell Zuhmul) 2099.2751  
Type: tell  
Refs: Thompson site 2027.04: EB
29. Daraja 2102.2744  
Type: ruins  
Refs: Thompson site 2127.01: EB
30. \_\_\_\_\_. 2256.2742  
Type: ruins  
Refs: Thompson site 2227.01: EB
31. Kibbutz Sa'ar 1605.2706  
Type: ruins  
Refs: Thompson site 1627.19: EB IV/MB I
32. Tel Naḥali'el 1586.2680  
Type: tell  
Refs: Thompson site 1526.02: EB IV/MB I
33. Kabri (et-Tell) 1633.2680  
Type: tell Size: 35 ha (?)  
Refs: Saarisalo, 1929: EB  
Thompson site 1626.05: EB  
Kempinski and Miron, 1987:  
Chalco, EB
34. Zahr et-Tell 1633.2683  
Type: ruins  
Refs: Saarisalo, 1929: EB  
Thompson site 1626.03: EB
35. Tell el Kabiri 1644.2690  
Type: tell  
Refs: Thompson site 1626.01: EB IV/MB I
36. \_\_\_\_\_. 1690.2691  
Refs: *Ḥad. Arkh.* 67–68 (1978): 19: EB II
37. Hazor 2033.2692  
Type: tell Size: ca. 10 ha  
Refs: Yadin, 1961, 1972: EB II, EB III
38. Gadot 2087.2694  
Type: ruins and tombs  
Refs: Thompson site 2026.04: EB
39. Meṣad 'Ateret 2090.2678  
Type: tell  
Refs: *Ḥad. Arkh.* 54–55 (1955): EB II  
Thompson site 2026.06: EB
40. ed-Dura 2124.2663  
Type: ruins  
Refs: Epstein site 83: Chalco, EB  
Thompson site 2126.02: EB
41. Gadir 2194.2674  
Type: ruins  
Refs: Epstein site 79: EB  
Thompson site 2126.01: EB

## SITE LIST

42. \_\_\_\_\_, 2188.2654  
Type: ruins  
Refs: Thompson site 2126.03: EB
43. Tell Saluqiah 2190.2653  
Type: tell  
Refs: Epstein site 87: Chalco, EB  
Thompson site 2126.04: EB
44. \_\_\_\_\_, (Mitham Yitzhaki) 2198.2654  
Type: Enclosure, ruins  
Refs: Epstein site 88: EB  
Thompson site 2126.05: EB
45. Beth Ha‘Emeq 1657.2639  
Type: tell  
Refs: *Had. Arkh.* 50 (1974): Chalco, EB I,  
EB II–III  
Thompson site 1626.10: EB
46. Yanih 1736.2655  
Type: ruins  
Refs: Thompson site 1726.05: EB
47. Jatt 172.264  
Type: tell  
Refs: Aharoni, 1956: EB, EB II–III  
Thompson site 1726.06: EB
48. Kh. Rushmiyah 1806.2658  
Type: ruins  
Refs: Thompson site 1826.04: EB
49. Tel Harashim (Kh. et-Tulul) 1814.2636  
Type: two excavated sites  
Refs: Thompson sites 1826.06.,07:  
EB IV/MB I
50. Nahf 1798.2602  
Type: ruins  
Refs: Thompson site 1726.07: EB  
Saarisalo, 1929: no recorded EB
51. Kh. Shufinin 1869.2634  
Type: tell  
Refs: Thompson site 1826.09: EB IV/MB I
52. Tell el Qaşab 2026.2641  
Type: tell Size: 1.3 ha  
Refs: Anonymous: EB  
Thompson site 2026.08: EB
53. Tel Nes (Tell es-Sanjaq) 2028.2626  
Type: tell Size: 2.4 ha  
Refs: Thompson site 2026.09: EB
54. eş-Şur 2100.2645  
Type: ruins Size: 0.8 ha  
Refs: Thompson site 2126.06: EB
55. \_\_\_\_\_, 2113.2632  
Type: ruins Size: 0.05 ha  
Refs: Epstein site 93: EB II
56. Siyar el Kherfan 2111.2642  
Type: site beneath modern village  
Refs: Epstein site 90: Chalco, (EB II)
57. \_\_\_\_\_, 2262.2584  
Type: ruins  
Refs: Thompson site 2225.03: EB
58. Tell el Jukhadar 2302.2595  
Type: tell  
Refs: Epstein site 106: EB  
Thompson site 2325.01: EB
59. Kh. Sheikh ‘Ali 1571.2603  
Type: ruins  
Refs: Thompson site 1526.07: EB
60. H ‘Uşa (Kh. el ‘Ayadiya) 1648.2576  
Type: tell  
Refs: *Had. Arkh.* 7 (1963): Chalco near,  
EB I  
Thompson site 1625.02: EB
61. Tell Qabr el Badawiya 1696.2579  
Type: tell  
Refs: Thompson site 1625.03: EB
62. Kh. esh-Shuna 1959.2571  
Type: ruins Size: 0.5 ha  
Refs: Thompson site 1925.03: EB IV/MB I
63. \_\_\_\_\_, 1958.2562  
Type: ruins Size: 0.05 ha  
Refs: Thompson site 1925.04: EB IV/MB I
64. Marj Sirin 1967.2561  
Type: ruins Size: 0.25 ha  
Refs: Thompson site 1925.06: EB,  
EB IV/MB I
65. az-Zahra 1979.2561  
Type: ruins Size: 2 ha  
Refs: Thompson site 1925.08: EB IV/MB I

66. et-Tell 2093.2574  
Type: tell Size: 8 ha  
Refs: Epstein site 111: EB II, EB IV/MB I  
Thompson site 2025.02: EB,  
EB IV/MB I  
R. Arav, *IEJ* 38 (1988): 187, 188: EB
67. Tell Bir el Gharbi (Tell Bira) 1661.2562  
Type: tell Size: 4.8 ha  
Refs: Saarisalo, 1929: no EB recorded  
*Had. Arkh.* 3 (1963): EB IV/MB I  
Thompson site 1625.05: EB IV/MB I
68. Ard es-Samara 1665.2556  
Type: ruins  
Refs: Thompson site 1625.06: EB
69. Tell Keisan 1645.2531  
Type: tell Size: 6 ha  
Refs: Saarisalo, 1929: EB  
Thompson site 1625.08: EB,  
EB IV/MB I
70. Kh. Ya'nin 1711.2555  
Type: ruins  
Refs: Saarisalo, 1929: EB  
Thompson site 1725.01: EB
71. Sha'ab 1731.2549  
Type: ruins  
Refs: Saarisalo, 1929: EB or MB  
Thompson site 1725.02
72. Tel Kinnerot (Tell el 'Urema) 2009.2528  
Type: tell Size: 10.5 ha  
Refs: *Had. Arkh.* 11 (1964): EB I, EB II  
Thompson site 2025.05: EB  
Fritz, 1986: EB I, EB II
73. Tel Ḥorim 2001.2518  
Type: tell  
Refs: Thompson site 2025.07: EB
74. Lawiyah 2140.2502  
Type: ruins  
Refs: Epstein site 141: EB II  
Thompson site 2125.06: EB
75. Lawiyah Enclosure 2145.2502  
Type: enclosure, ruins  
Refs: Epstein site 142: EB II  
Thompson site 2125.05: EB  
Beck and Kochavi, 1987–88:  
EB III, EB IV/MB I  
Kochavi, 1989: EB I, II, III
76. \_\_\_\_\_. 2155.2503  
Type: ruins  
Refs: Thompson site 2125.08: EB
77. \_\_\_\_\_. 2158.2503  
Type: ruins  
Refs: Thompson site 2125.09: EB
78. \_\_\_\_\_. 2192.2499  
Type: ruins  
Refs: Epstein site 151: no EB IV/MB I  
recorded  
Thompson site 2124.03: EB IV/MB I
79. el Khashash (Kh. Dajajiyye) 2131.2481  
Type: flint scatter  
Refs: Epstein site 156: Chalco
80. Kh. el Hutiya 2150.2483  
Type: tell  
Refs: Thompson site 2124.06: EB
81. \_\_\_\_\_. 2156.2486  
Type: ruins  
Refs: Epstein site 157: EB IV/MB I  
Thompson site 2124.05: EB IV/MB I
82. \_\_\_\_\_. 2162.2476  
Type: ruins  
Refs: Thompson site 2124.07: EB
83. 'Udessa 2169.2478  
Type: ruins  
Refs: Epstein site 167: no recorded  
EB IV/MB I  
Thompson site 2124.08: EB IV/MB I
84. Qasr el Bardawil 2198.2475  
Type: ruins  
Refs: Epstein site 171; EB II  
Thompson site 2124.11: EB
85. \_\_\_\_\_. 2147.2466  
Type: enclosure, ruins  
Refs: Epstein site 172: EB IV/MB I  
Thompson site 2124.12: EB IV/MB I
86. Kfar el Ma' 2272.2464  
Type: tell  
Refs: Thompson site 2224.02: EB  
Epstein site 178: EB

## SITE LIST

87. Tel ʿAphek (Tell Kurdaneh) 1606.2500  
Type: tell  
Refs: Saarisalo, 1929: EB  
Thompson site 1625.11: EB
88. Tel Şavat (Tell es-Subat) 1584.2466  
Type: tell Size: 1.5 ha  
Refs: Saarisalo, 1929: no recorded EB  
Thompson site 1524.02: EB
89. Tell en-Naḥal 1569.2449  
Type: Size: 0.8 ha  
Refs: Saarisalo, 1929: EB  
Thompson site 1523.09: EB
- 90, 91. Kfar ʿAtaʿ (Kufritta) 1606.2454  
Type: ruins  
Refs: Amiran, 1969, photos 54–56: EB II  
Thompson sites 1624.03, .05: EB
92. Kh. esh-Sharta 1622.2461  
Type: ruins  
Refs: Thompson site 1624.02: EB
93. Tel Regev (Tell el Harbaj) 1587.2405  
Type: tell Size: 3.2 ha  
Refs: Garstang, 1922: EB I, EB II–III  
Thompson site 1524.13: EB,  
EB IV/MB I  
Esse: EB
94. Tel Par (Tell el Far) 1601.2418  
Type: tell Size: 0.26 ha  
Refs: Thompson site 1624.06: EB,  
EB IV/MB I  
Esse: EB
95. Tel ʿAlil (Kh. Ras ʿAli) 1649.2419  
Type: tell  
Refs: Thompson site 1624.07: EB,  
(EB IV/MB I)
96. Kh. er-Rujma 1784.2468  
Type: tell  
Refs: Thompson site 1724.02: EB
97. Tel Ḥannaton (Tell el Badawayah) 1743.2434  
Type: tell  
Refs: Anonymous: EB  
Thompson site 1724.04: EB
98. Nahʿaliʿat 173.241  
Refs: Anonymous: Chalco
99. Tell el Wawiyat 1788.2449  
Type: tell  
Refs: Thompson site 1724.03: EB
100. Ḥ Qarne Ḥittim 1933.2450  
Type: tell  
Refs: Thompson site 1924.01: EB,  
EB IV/MB I
101. Wadi Abu el ʿAmis 198.245  
Type: ruins  
Refs: Anonymous: EB  
Thompson site 1924.02: EB
102. Tel Reqet (Kh. Quneitra) 1996.2458  
Type: tell Size: 0.54 ha  
Refs: Anonymous: EB I, EB II–III  
Thompson site 1924.03: EB,  
EB IV/MB I
103. Ḥ Maʿon 1983.2430  
Type: ruins  
Refs: Thompson site 1924.05: (EB)
104. Kh. Naṣir ed-Din 1995.2429  
Type: ruins  
Refs: Thompson site 1924.08: EB
105. \_\_\_\_\_, 200.243  
Type: ruins  
Refs: Thompson site 2024.01: EB
106. \_\_\_\_\_, 2010.2425  
Type: ruins  
Refs: Thompson sites 2024.07, .06: EB
108. \_\_\_\_\_, 2202.2403  
Type: ruins  
Refs: Thompson site 2224.03: EB,  
(EB IV/MB I)
110. \_\_\_\_\_, 1605.2372  
Type: lithic scatter  
Refs: Raban, 1982, site 3: Chalco
111. ʿAin el Ghafar 1599.2354  
Type: ruins  
Refs: Thompson site 1523.11: EB
112. Shaʿar HaʿAmaqim (Kh. el Kharitiya)  
1605.2364  
Type: ruins  
Refs: Thompson site 1623.03: EB

113. ḤOranim (Tell ḤAli) 1604.2353  
Type: unwalled settlement  
Refs: Raban, 1982, site 7: (Chalco) or (EB I)  
Thompson site 1623.06: EB
114. Elroḥi 1602.2348  
Type: flint and sherd scatter  
Refs: Raban, 1982, site 8: Chalco
115. Tel Qashish (Tell Qasis) 1605.2322  
Type: tell      Size: 4 ha at base,  
1 ha on summit  
Refs: Raban, 1982, site 11: Chalco, EB I,  
EB II–III, EB IV/MB I  
Thompson site 1623.10: EB  
Ben-Tor, 1981: EB I, EB II–III
116. Tell Tivḥon (Kh. el Bir) 1637.2354  
Type: tell      Size: 0.6 ha  
Refs: Raban, 1982, site 31: Chalco, EB I,  
EB II–III, EB IV/MB I  
Thompson site 1623.07: EB,  
EB IV/MB I  
*Had. Arkh.* 39 (1971)  
Esse: EB
117. ḤḤazin (Kh. Bir el Baidar) 1653.2357  
Type: ruins  
Refs: Raban, 1982, site 40: Chalco
118. Kh. Shabana 1664.2399  
Type: ruins  
Refs: Raban, 1982, site 43: EB I–II
119. \_\_\_\_\_ 1684.2395  
Type: flint scatter  
Refs: Raban, 1982, site 60: (Chalco)
120. Mizpe Zevulun (Kh. el Musheirifa) 1697.2390  
Type: two tells      Size: Raban site 69, 3 ha  
Refs: Raban, 1982, sites 69, 70: Chalco,  
EB I, EB II  
Thompson site 1623.01
121. ḤAin Ḥevraya 1676.2365  
Type: ruins  
Refs: Raban, 1982, site 57; Chalco, EB I
122. Tell el Khudeira 1686.2365  
Type: tell      Size: 0.3–0.4 ha  
Refs: Raban, 1982, site 62: Chalco
123. Tel Risim (Tell er-Rish) 1650.2339  
Type: tell      Size: 0.5–0.6 ha  
Refs: Raban, 1982, site 42: EB I, EB II,  
EB IV/MB I  
Esse: EB IV/MB I
124. ḤZeror (Kh. Musrara) 1638.2325  
Type: ruins  
Refs: Raban, 1982, site 33: Chalco, EB I,  
EB II, (EB IV/MB I)
125. Tel Shem (Tell esh-Shammam) 1649.2306  
Type: tell  
Refs: Raban, 1982, site 38: Chalco, EB I,  
EB II  
Thompson site 1623.17: EB,  
EB IV/MB I  
Esse: EB
126. Tell Reḥala 1666.2321  
Type: tell      Size: 0.3 ha  
Refs: Raban, 1982, site 49: Chalco, EB I,  
EB IV/MB I  
Esse: (EB III)
127. \_\_\_\_\_ 1668.2311  
Type: tell  
Refs: Raban, 1982, site 50: (Chalco), (EB I)  
Thompson site 1623.13: EB,  
EB IV/MB I
128. ḤSeifan (Tell el Beida) 1688.2316  
Type: tell  
Refs: Raban, 1982, sites 66, 67: Chalco,  
EB I, EB II, EB IV/MB I
- 128A. Tel Shadud 1723.2296  
Type: tell      Size: 0.58 ha  
Refs: Raban, *Had. Arkh.* 61–62 (1977):  
Chalco, EB I, EB II  
Esse: EB (mostly EB I)
129. Nahalal 1687.2334  
Type: agricultural settlement  
Refs: Raban, 1982, site 65: EB I
130. \_\_\_\_\_ 1696.2341  
Refs: Raban, 1982, site 75: (Chalco),  
(EB I), EB II
131. \_\_\_\_\_ 1699–1704.2356  
Type: ruins  
Refs: Raban, 1982, site 82: EB I,  
EB IV/MB I

132. Tell Shimron (Semunieh) 1699.2340  
Type: tell  
Refs: Raban, 1982, site 83: EB I, EB II,  
(EB III), EB IV/MB I  
Esse: EB
133. ʿAin el ʿAlayiq 1698.2339  
Refs: Raban, 1982, sites 77, 78: Chalco,  
EB I
134. Givʿat Rabbi (Jebel el ʿAin) 1753.2373  
Type: tell  
Refs: Thompson site 1723.01: EB
135. Tel Hefer (Kh. az-Zurra) 1802.2382  
Type: tell  
Refs: Thompson site 1823.01: EB
136. Har Nadav (Jebel Qibli) 1792.2351  
Type: tell  
Refs: Thompson site 1723.07: EB IV/MB I
137. \_\_\_\_\_. 1788.2311  
Type: ruins  
Refs: Thompson site 1723.10: EB IV/MB I
138. Ḥ Deburah 1868.2336  
Type: ruins Size: 6.5 ha  
Refs: Zori, 1977, site 157; EB I  
Esse: EB
139. \_\_\_\_\_. 1865.2337  
Type: ruins  
Refs: Thompson site 1823.06: EB
140. Ḥ Sauda el Qasʾaṭil 189.235  
Type: ruins  
Refs: Zori, 1977, site 191: EB I  
Esse: EB, EB IV/MB I
141. ʿAin Shaḥor (Kh. ʿAin es-Soda) 1889.2351  
Type: ruins Size: 1 ha  
Refs: Thompson site 1823.03: EB IV/MB I
142. Kh. Zelef (Kh. el Mughʾayir) 1884.2328  
Type: ruins  
Refs: Zori, 1977, site 158: EB I  
Thompson 1823.08: EB
143. Tell Qishyon 1872.2297  
Type: tell Size: 7 ha  
Refs: Zori, 1977, site 164: EB I, EB III  
Cohen and Amiran, 1977: EB I, EB III  
Esse: EB I, EB II-III  
Arnon (Cohen), 1982: EB I, EB III
144. Kh. esh-Sharrar 1887.2312  
Type: ruins  
Refs: Thompson site 1823.10: EB
145. el Koḥal 1903.2295  
Type: ruins  
Refs: Zori, 1977, site 169: EB
146. Kh. Mesiq 1910.2312  
Type: ruins Size: 1.4 ha  
Refs: Zori, 1977, site 203: no recorded EB  
Gal site 14: EB IV/MB I  
Esse: no recorded EB
147. Kfar Sabt (ʿAin Shabti) 1916.2388  
Type: ruins  
Refs: Saarisalo, 1927: EB  
Thompson site 1923.01: EB
148. Kh. Damieh (Tel Adami, Ḥ Damin) 1939.2395  
Type: ruins  
Refs: Saarisalo, 1927, site 5: EB  
Thompson site 1923.01: EB
149. Ḥ Ivṣam (Kh. esh-Sheikh Basum) 1957.2378  
Type: ruins  
Refs: Saarisalo, 1927, site 6: EB  
Thompson site 1923.03: EB
150. Kh. el Baṣṣa 1961.2377  
Type: ruins  
Refs: Saarisalo, 1927, site 7: EB  
Thompson site 1923.05: EB
151. \_\_\_\_\_. 1962.2371  
Type: tell Size: 2.5 ha  
Refs: Thompson site 1923.06: EB
152. Tel Yinʿam (Tell en-Naʿam) 1983.2355  
Type: tell Size: ca. 7 ha  
Refs: Saarisalo, 1927, site 12: EB  
Thompson site 1923.07: EB  
Liebowitz, 1980: EB I
153. Kh. Yamma 1981.2337  
Type: ruins  
Refs: Thompson site 1923.08: EB
154. Ḥ Qadish 2024.2379  
Type: ruins  
Refs: Kochavi, 1963: EB  
Thompson site 2023.01: EB

155. Beth Yerah (Khirbet Kerak) 2040.2355  
Type: tell      Size: 20 ha  
Refs: see *Chapter 2*: EB I, EB II, EB III,  
EB IV/MB I
156. Kh. Shemsin 1995.2326  
Type: ruins  
Refs: Saarisalo, 1927, site 15: EB  
Thompson site 1923.10: EB
157. Kh. Kush (Kh. el Khusha) 2021.2338  
Type: tell  
Refs: Thompson site 2023.09: EB
158. Sheikh ‘Ali 2028.2341  
Type: tell  
Refs: Saarisalo, 1927, site 32: EB  
Thompson site 2023.07: EB,  
EB IV/MB I  
Prausnitz, 1970: Chalco
159. Kh. el Mansurah 203.233  
Type: ruins      Size: 1.8 ha  
Refs: Saarisalo, 1927, site 17: EB  
Thompson site 2023.10: EB IV/MB I
160. Umm es-Sudur 2034.2332  
Type: tell  
Refs: Thompson site 2023.12: EB,  
EB IV/MB I
161. Kh. Umm Juna 2035.2338  
Type: ruins  
Refs: Thompson site 2023.13: EB,  
EB IV/MB I
162. \_\_\_\_\_, 2028.2311  
Type: ruins  
Refs: Thompson site 2023.20: EB
163. Kibbutz Sha‘ar HaGolan 2069.2325  
Type: ruins  
Refs: Thompson site 2023.17: EB,  
EB IV/MB I
164. \_\_\_\_\_, 2070.2315  
Type: tell  
Refs: Thompson site 2023.22: EB
165. \_\_\_\_\_, 2064.2306  
Type: ruins  
Refs: Thompson site 2023.29: EB IV/MB I
166. \_\_\_\_\_, 2065.2300  
Type: ruins      Size: 0.04 ha  
Refs: Thompson site 2023.30: EB,  
EB IV/MB I
167. Upper ‘Adasiyyah 2076.2303  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
site 1: EB
168. Abu en-Naml 2077.2319  
Type: tell  
Refs: Thompson site 2023.23: EB,  
EB IV/MB I
169. Abu Kabir 2085.2318  
Type: ruins  
Refs: Thompson site 2023.24: EB
170. Tel Dover (Kh. ed-Duwer) 2091.2321  
Type: tell      Size: 6 ha  
Refs: Thompson site 2023.18: EB IV/MB I
171. \_\_\_\_\_, 209.231  
Type: ruins  
Refs: Thompson site 2023.25: EB
172. Pithat HaYarmuk 2106.2324  
Type: tell  
Refs: Epstein, 1972, site 209: Chalco  
Epstein, 1985: EB I
173. el Ḥamma 2127.2322  
Type: tell  
Refs: Thompson Site 2123.15: EB,  
EB IV/MB I
174. \_\_\_\_\_, 2108.2343  
Type: ruins  
Refs: Epstein, 1972, site 206; Chalco  
flints, EB
175. Muri 2100.2372  
Type: ruins      Size: 2.4 ha  
Refs: Thompson site 2123.08: EB IV/MB I
176. ‘Ain Umm al Adam 2120.2397  
Type: ruins  
Refs: Thompson site 2123.03: EB  
Epstein, 1972, site 194: EB
177. Kh. Duweraban 2104.2394  
Type: tell      Size: 1.6 ha  
Refs: Thompson site 2123.01: EB IV/MB I

178. Kh. 'Uyun 2128.2361  
Type: tell  
Refs: Epstein, 1972, site 203: EB IV/MB I  
Thompson site 2123.11: EB IV/MB I
180. Jisr Khalid 2210.2385  
Type: ruins  
Refs: Thompson site 2223.01: EB
181. Tel Yoqne'am (Tell Qamun) 1605.2300  
Type: tell Size: 4 ha  
Refs: Thompson site 1633.16: EB  
Raban, 1982, site 16: Chalco, EB I,  
EB II  
Raban, Beth Ha'Emeq map, site 1:  
EB IV/MB I
182. 'Ain Lebaneh 1610.2295  
Type: ruins  
Refs: Raban Survey 58: EB  
Raban, Beth Ha'Emeq map, site 6:  
Chalco/EB I
183. Har Qiri 1604.2276  
Type: ruins  
Refs: Raban Survey 29: EB  
Raban, Beth Ha'Emeq map, site 21
184. Tell Qiri 1611.2277  
Type: tell  
Refs: Raban Survey 53: EB  
Raban, Beth Ha'Emeq map, site 20  
Ben-Tor and Portugali, 1987: Chalco,  
EB I
185. 'Ain Mitshurah 1610.2274  
Type: spring, way station  
Refs: Raban Survey 50: Neo/Chalco
186. Giv'at Mashul 1604.2266  
Type: ruins  
Refs: Raban Survey 23: EB
187. Tabaqat el 'Abid 1611.2269  
Type: ruins  
Refs: Thompson site 1622.07: EB  
Raban, Beth Ha'Emeq map, site 39
188. 'Ain el Jarba 1620.2269  
Type: ruins  
Refs: Raban Survey 71, 72: Neo/Chalco, EB  
Raban, Beth Ha'Emeq map, site  
31: Chalco/EB I
189. Abu Zureiq 1620.2267  
Type: tell  
Refs: Raban Survey 66, 67, 68, 70:  
Neo/Chalco  
Raban, Beth Ha'Emeq map, site  
49: Chalco/EB I  
Esse: EB I
190. Tell Abu Shusheh 1634.2246  
Type: tell Size: 1.5 ha  
Refs: Raban Survey 79: Neo/Chalco, EB  
Raban, Beth Ha'Emeq map, site 74  
Thompson site 1622.11: EB  
Esse: EB
191. Giv'at HaMosad 1636.2243  
Type: ruins  
Refs: Raban Survey 78: Neo/Chalco, EB  
Thompson site 1622.12: EB
192. Ghabiah et-Tahta 1638.2237  
Type: ruins  
Refs: Raban Survey 76: Neo/Chalco, EB  
Raban, Beth Ha'Emeq map, site 92  
Thompson site 1622.13: EB,  
EB IV/MB I
193. Dharat ed-Dar 1674.2206  
Type: ruins  
Refs: Raban Survey 108: EB  
Raban, Beth Ha'Emeq map, site  
163: Chalco/EB I
194. Megiddo 1678.2215  
Type: tell Size: 6 ha  
Refs: see *Chapter 3*: Chalco, EB I, EB II,  
EB III, EB IV/MB I  
Raban, Beth Ha'Emeq map, site 144
195. \_\_\_\_\_ 1754.2251  
Type: ruins  
Refs: Thompson 1722.08: EB
196. Tell el Far 1771.2267  
Type: tell  
Refs: Thompson site 1722.06: EB
197. 'Affulah 1774.2237  
Type: tell  
Refs: Zori, 1977, site 76; Chalco, EB I,  
EB III  
Thompson site 1722.09

198. Tell 'Adashim 1795.2287  
Type: tell Size: 1.2 ha  
Refs: Thompson site 1722.02: EB IV/MB I  
Zori, 1977, site 81: EB I, EB IV/MB I  
Esse: EB IV/MB I
199. Ḥ Ṭabat 1815.2270  
Type: ruins, terraces  
Refs: Zori, 1977, site 84: EB I
200. Nein 1825.2263  
Type: sherd scatter  
Refs: Zori, 1977, site 98: EB I, EB IV/MB I  
Esse: no recorded EB
201. 'Ain Ruz ('Ain HaMoreh) 1825.2259  
Type: sherd scatter  
Refs: Zori, 1977, site 99: EB I, EB IV/MB I  
Esse: no recorded EB
202. Tel 'Agol (Tell el 'Ajjul) 1851.2263  
Type: ruins, terraces  
Refs: Zori, 1977, site 96: (EB IV/MB I)  
Thompson site 1822.06: EB  
Esse; no recorded EB
203. Kh. Şafşafa (Kh. 'Ain Dor) 1869.2276  
Type: tell Size: 0.45 ha  
Refs: Zori, 1977, site 165; EB I, EB II–III  
Thompson site 1822.03: EB  
Esse: no recorded EB
204. Tamrah 1881.2267  
Type: ruins  
Refs: Zori, 1977, site 126: EB
205. 'Ain Na'ura 1873.2248  
Type: ruins  
Refs: Thompson site 1822.10: EB
206. Ḥ Ma'on (Kh. Magh'ajah) 1932.2291  
Type: ruins Size: 3 ha  
Refs: Zori, 1977, site 209: Chalco, EB  
Thompson site 1922.03: EB  
Gal, 1980, site 12: EB I
207. Tel Rekhesh (Tell el Mukharkhash)  
1940.2288  
Type: tell Size: 4 ha  
Refs: Zori, 1977, site 175: EB II  
Gal, 1980, site 11: EB I, EB II  
Thompson site 1922.03: EB,  
EB IV/MB I  
Esse: EB II–III
208. Ṭirat Gazit (Tell esh-Sheikh Diyab) 1934.2283  
Type: tell  
Refs: Zori, 1977, site 174: Chalco  
Gal, 1980, site 10: Chalco  
Thompson site 1922.02: EB
209. esh-Sheikh Muzeghiṭ 1998.2308  
Type: ruins Size: 0.2 ha  
Refs: Zori, 1977, site 202: EB  
Saarisalo, 1927: EB  
Gal, 1980, site 23: EB I, EB IV/MB I  
Thompson site 1923.12: EB
210. Danna 1951.2244  
Type: ruins Size: 0.3 ha  
Refs: Thompson site 1922.17: EB IV/MB I  
Zori, 1977, site 143: EB IV/MB I
211. Miṭham Shaḥal 1976.2258  
Type: scattered ruins  
Refs: Zori, 1977, site 178, 179, 180: EB I,  
EB II  
Thompson site 1922.09: EB,  
EB IV/MB I  
Gal, 1980, sites 4, 5, 6: EB I, EB II
212. Wadi 'Ain Qassab 1977.2275  
Type: scattered ruins Size: 0.8 ha  
Refs: Thompson site 1922.06: EB IV/MB I  
Gal, 1980, site 7: EB IV/MB I
213. Ḥ Ḥagal 1998.2276  
Type: scattered ruins Size: 1 ha  
Refs: Gal, 1980, site 22: EB IV/MB I
214. \_\_\_\_\_ 1978.2268  
Type: tell  
Refs: Thompson 1922.07: EB
215. 'Ain Shaḥal D 1985.2266  
Type: ruins Size: 0.2 ha  
Refs: Zori, 1977, site 181: EB IV/MB I
216. Kh. el Ṭa'qah 1985.2252  
Type: ruins  
Refs: Zori, 1977, site 186: EB
217. Ḥ Nizir 1978.2256  
Type: ruins  
Refs: Thompson site 1922.14: EB,  
EB IV/MB I

218. H Bidra 2001.2231  
Type: tell Size: 0.5 ha  
Refs: Gal, 1980, site 24: Chalco
219. H 'Akin 1991.2257  
Type: ruins Size: scattered over  
ca. 12 ha  
Refs: Zori, 1977, site 185: Chalco, EB  
Gal, 1980, site 2: Chalco  
Thompson 1922.16: EB
220. Kh. Adamot (Tel Adma) 2007.2268  
Type: ruins Size: minimal estimate  
ca. 2.4 ha  
Refs: Gal, 1980, site 25: EB I  
Thompson 2022.12: EB
221. H Badriah 2203.2232  
Type: scattered ruins Size: ca. 4 ha  
Refs: Zori, 1962, site 34: Chalco
222. Kh. el Maz'ar 2011.2243  
Type: ruins  
Refs: Zori, 1962, site 171: Chalco, EB I,  
EB II, EB IV/MB I  
Thompson 2022.22: EB, EB IV/MB I?
223. Mupaz (el Paz) 2014.2249  
Type: sherd scatter  
Refs: Zori, 1962, site 31: Chalco  
Thompson site 2022.19: EB IV/MB I
224. Gesher 2019.2253  
Type: ruins Size: 1 ha  
Refs: Zori, 1962, site 30: Chalco,  
EB IV/MB I
225. Kh. Dalhamiya 2037.2289  
Type: tell  
Refs: Thompson site 2022.07: EB  
Amiran, 1977: Chalco
226. Tell Faz 2016.2250  
Type: tell  
Refs: Thompson site 2022.13: EB IV/MB I
227. Kibbutz Gesher 2020.2252  
Type: ruins Size: 2 ha  
Refs: Thompson site 2022.15: EB IV/MB I
228. Kibbutz Gesher 2025.2255  
Type: tell  
Refs: Thompson site 2022.16: EB IV/MB I
229. Jisr el Majami<sup>c</sup> 2032.2255  
Type: tell  
Refs: Zori, 1962, site 3: Chalco  
Thompson site 2022.18: EB,  
EB IV/MB I
230. Tel Yaqush 2025.2244  
Type: tell Size: 2.5–3.0 ha  
Refs: Zori, 1962 site 8: (Chalco) EB I  
EB II, EB III  
Gophna, 1976, n.5: EB III  
Thompson site 2022.25: EB
231. Minḥa (Munhatta) 2018.2240  
Type: scattered ruins Size: 10 ha  
Refs: Zori, 1962, site 9: Chalco, EB I, EB  
Thompson site 2022.24: EB,  
EB IV/MB I
232. H Haddud (el Ḥadid) 2027.2243  
Type: tell Size: 0.4 ha  
Refs: Zori, 1962, site 7: Chalco, EB III,  
EB IV/MB I  
Thompson site 2022.26: EB,  
EB IV/MB I
233. Tel Shamat (esh-Shamdin) 2032.2244  
Type: tell Size: 0.45 ha  
Refs: Zori, 1962, site 4: Chalco, EB  
Thompson site 2022.27: EB
234. Tel Zan (ez-Zanbaqiah) W. 2032.2235  
Type: tell Size: 0.12 ha  
Refs: Zori, 1962, site 6: EB  
Thompson site 2022.31: EB IV/MB I
235. Tell Zan (ez-Zanbaqiah) E. 2037.2238  
Type: tell Size: 0.72 ha  
Refs: Zori, 1962, site 5: EB IV/MB I  
Thompson site 2022.30: EB
236. Kh. el Kuneya 2035.2281  
Type: ruins  
Refs: Thompson 2022.08: EB IV/MB I
237. \_\_\_\_\_ . 2045.2279  
Type: ruins  
Refs: Thompson site 2022.11: EB,  
EB IV/MB I
238. Baqurah 2058.2278  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
site 13: Neo/Chalco

240. ʿAin HaYadid (ʿAin el Jirani) 1995.2218  
Type: ruins Size: ca. 2.5 ha  
Refs: Zori, 1962, site 33A: (EB)  
Thompson site 1922.20: EB
241. Ḥ Ziwan (Kh. ez-Ziwan) 2008.2223  
Type: tell Size: 0.56 ha  
Refs: Zori, 1962, site 36: EB I, EB II–III  
Thompson site 2022.32: EB  
(EB IV/MB I)
242. Ḥ Ṣabon (Umm Ṣaʿbuna) 2011.2214  
Type: ruins Size: 9 ha  
Refs: Zori, 1962, site 38: EB  
Thompson site 2022.37: EB
243. Neve Ur 2035.2220  
Type: ruins Size: sherds scattered  
over 25 ha  
Refs: Zori, 1962, site 11: Chalco, EB I  
Perrot et al., 1967: Chalco
245. ed-Dahaq 2040.2222  
Type: ruins Size: 0.06 ha  
Refs: Zori, 1962, site 166: (Chalco)
246. Tell Kittan (Tell Musa) 2041.2218  
Type: tell Size: 4.3 ha  
Refs: Zori, 1962, site 12: EB I  
Thompson site 2022.36: EB,  
EB IV/MB I  
*Had. Arkh.* 39 (1971), 54–55 (1975),  
57 (1976): Chalco, EB I, EB II
247. Tell eṣ-Ṣuwwan 2049.2225  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
site 20: EB
248. Kh. Umm el Kharwa 2058.2234  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
site 16: EB
249. Tell el Madrased 2068.2214  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
site 21: EB
250. Tell esh-Shuneh 2071.2241  
Type: tell Size: minimal estimate 7 ha  
Refs: de Contenson, 1960: Chalco, EB I,  
EB II, EB III  
Mellaart, 1962: Chalco, EB I,  
EB II, EB III  
Gustavson-Gaube, 1985, 1986:  
Chalco, EB I
251. Tell el Mintar 2080.2246  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
site 14: EB
252. Tell er-Rayy (N and S) 2078.2240  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
sites 28, 30: EB
253. Kh. es-Sakhineh 2080.2213  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
site 25: EB
254. Tell es-Sakhineh 2080.2212  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
site 26: EB I
255. \_\_\_\_\_. 169.217  
Type: ruins Size: scattered over  
ca. 9 ha  
Refs: Zori, 1977, site 74: EB I,  
EB IV/MB I
256. \_\_\_\_\_. 1710.2174  
Type: ruins Size: 11.5 ha  
Refs: Thompson site 1721.02: EB
257. Taʿanach 1709.2142  
Type: tell  
Refs: see Thompson site 1721.03: EB II–III
258. Muqebila 1780.2134  
Type: “pot drop”  
Refs: Zori, 1977, site 61: EB IV/MB I  
Thompson site 1721.04: EB IV/MB I
259. Jalama 1797.2127  
Type: sherd scatter  
Refs: Thompson site 1721.06: EB IV/MB I
260. Tell Jezreel 1812.2181  
Type: tell Size: 8.4 ha  
Refs: Zori, 1977, site 34: EB  
Thompson site 1821.04: EB IV/MB I  
Esse: EB
261. ʿAin Jezreel 1818.2183  
Type: tell Size: 0.5 ha  
Refs: Zori, 1977, site 33: EB I–II, EB III  
Thompson site 1821.04: EB,  
EB IV/MB I  
Gophna, 1976, n. 5: EB III

262. Kfar Yehezq'el 1847.2197  
Type: ruins  
Refs: Thompson site 1821.01: EB,  
EB IV/MB I
263. Gid'onah (Umm el 'Amad) 1841.2171  
Type: ruins  
Refs: Zori, 1977, site 38: EB IV/MB I  
Thompson site 1821.06: EB IV/MB I
264. \_\_\_\_\_. 1848.2174  
Type: ruins  
Refs: Zori, 1977, site 106: Chalco, EB,  
EB IV/MB I  
Thompson site 1821.07: EB,  
EB IV/MB I
265. Giv'at Qumi (Kh. Qumiya) 1872.2191  
Type: ruins  
Refs: Thompson site 1821.02: EB,  
EB IV/MB I
266. H̄ Mazarim (el Maz'ar) 1841.2147  
Type: ruins  
Refs: Zori, 1977, site 3: Chalco, EB  
Thompson site 1821.22: EB,  
EB IV/MB I
267. \_\_\_\_\_. 1845.2158  
Type: scattered ruins  
Refs: Zori, 1977, site 2: EB IV/MB I  
Thompson site 1821.17: EB
268. \_\_\_\_\_. 1845.2161  
Type: ruins  
Refs: Thompson site 1821.13: EB IV/MB I
269. el Karm (Giv'at Yonaton) 1844.2162  
Type: ruins Size: 3.5 ha  
Esse: EB I, EB II-III
270. \_\_\_\_\_. 1862.2171  
Type: sherd scatter Size: 0.2 ha  
Refs: Zori, 1977, site 105: EB I  
Thompson site 1821.08: EB  
Esse: EB
271. \_\_\_\_\_. 1870.2177  
Type: house  
Refs: Thompson site 1821.10: EB IV/MB I
272. Har Sha'ul (Tell Qulela) 1853.2158  
Type: scattered ruins  
Refs: Zori, 1977, site 4: EB  
Thompson site 1821.19: EB
273. Tel Yosef (el Murkh'an) 1885.2176  
Type: scattered ruins Size: scattered  
over ca. 96 ha  
Refs: Zori, 1977, site 112: EB, EB IV/MB I  
Thompson site 1821.12: EB IV/MB I  
Esse: EB IV/MB I
274. H̄ Reḥan (Kh. er-Rikhaniya) 1869.2153  
Type: tell Size: 1.2 ha.  
Refs: Zori, 1977, site 40: EB  
Thompson site 1821.20: EB  
Esse: no recorded EB
275. \_\_\_\_\_. 1881.2149  
Type: ruins  
Refs: Thompson site 1821.23: EB IV/MB I
276. Tel Yosef Ha Yashanah 1882.2152  
Type: tell Size: 0.7 ha  
Refs: Zori, 1977, site 42: EB I, EB III,  
EB IV/MB I  
Thompson site 1821.21: EB,  
EB IV/MB I  
Esse: mostly EB I
277. Tel Shalwim 1885.2161  
Type: ruins Size: 1.12 ha  
Refs: Zori, 1977, site 118: no recorded EB  
Thompson site 1821.16: EB IV/MB I  
Esse: EB (combed ware)
278. \_\_\_\_\_. 1898.2147  
Type: ruins  
Refs: Thompson site 1821.24: EB IV/MB I
279. H̄ Shamot (Tell el Pir) 1913.2161  
Type: sherd scatter Size: scattered  
over 1.5 ha  
Refs: Zori, 1977, site 125: no recorded EB  
Thompson site 1921.04: EB IV/MB I  
Esse: no recorded EB
280. H̄epzibah 1904.2137  
Type: "pot drop"  
Refs: Zori, 1977, site 44: EB IV/MB I

281. \_\_\_\_\_ . 1907.2130  
Type: scattered remains  
Refs: Thompson site 1921.07:  
EB IV/MB I
282. Tell Zahara (Tulul ez-Zahara) 1929.2131  
Type: tell Size: 0.56 ha  
Refs: Zori, 1962, site 129: EB I  
Thompson site 1921.08: EB  
Esse: EB I
283. Tel 'Amal (el 'Asi) 1926.2123  
Type: tell and shaft tomb  
Refs: Zori, 1962, site 132: EB,  
EB IV/MB I
284. Tell Shokah (Tell esh-Shuk) 1933.2115  
Type: tell Size: 3 ha  
Refs: Zori, 1962, site 134: EB I,  
EB IV/MB I  
Thompson site 1921.27: EB,  
EB IV/MB I  
Esse: no recorded EB
285. Tell Shoqeq (Tell esh-Shamdin) 1936.2114  
Type: tell Size: 0.3 ha  
Refs: Zori, 1962, site 135: Chalco, EB I  
Thompson site 1921.28: EB  
Esse: (Chalco), EB I
286. Yuvelah (Kh. Yubla) 1943.2203  
Type: tell  
Refs: Zori, 1977, site 132: EB I,  
EB IV/MB I  
Thompson site 1922.22: EB,  
EB IV/MB I  
Gal, 1980, site 19: EB IV/MB I
287. Ḥ Yub 1965.2196  
Type: ruins  
Refs: Zori, 1977, site 136: EB I  
Gal, 1980, site 18: no recorded EB
288. Ḥ Sheḥoḥ (Kh. esh-Sheiḥa) 1964.2197  
Type: ruins  
Refs: Zori, 1977, site 137: EB I  
Thompson site 1921.01: EB,  
EB IV/MB I  
Gal site 18: no recorded EB
289. Turbiyah 1968.2191  
Type: ruins Size: ca. 1 ha  
Refs: Zori, 1977, site 138: Chalco, EB I
290. Kh. Yaḥmi 1985.2174  
Type: ruins Size: 0.8–1.0 ha  
Refs: Gal, 1980, site 16: EB IV/MB I
291. Tell Issachar (Kh. 'Isha) 2004.2174  
Type: tell Size: 0.28 ha  
Refs: Zori, 1962, site 39: EB  
Thompson site 2021.04: EB,  
EB IV/MB I
292. Beth Yosef 2017.2188  
Type: ruins  
Refs: Zori, 1962, site 13: EB IV/MB I  
Thompson site 2021.02: EB IV/MB I
293. Tell Ishma'el B 2032.2175  
Type: tell Size: 1 ha  
Refs: Zori, 1962, site 16: Chalco, EB I
294. Ba'alat es-Saqi 2025.2216  
Type: ruins Size: scattered over 6.4 ha  
Refs: Thompson site 2022.38: EB,  
EB IV/MB I
295. \_\_\_\_\_ . 1963.2109  
Type: ruins  
Refs: Thompson sites 1921.31, .33: EB
296. \_\_\_\_\_ . 1974.2113  
Type: ruins  
Refs: Thompson site 1921.29: EB
297. Tel Eṣṭaba 1971.2129  
Type: scattered ruins  
Refs: Zori, 1962, site 44: EB IV/MB I  
Thompson site 1921.09, .10, .20:  
EB IV/MB I
298. Tel Eṣṭaba 1983.2124  
Type: tell  
Refs: Zori, 1962, site 43: EB I, EB III  
Thompson site 1921.25: EB,  
EB IV/MB I  
Esse: no recorded EB
299. el Hamm'am 1985.2125  
Type: ruins  
Refs: Zori, 1962, site 25: EB I  
Thompson site 1921.25: EB,  
EB IV/MB I
300. Beth Shan 1976.2124  
Type: tell  
Refs: see *Chapter 3*: Chalco, EB I, EB II,  
EB III, EB IV/MB I

301. Hunzir 1999.2143  
Type: ruins Size: 3 ha  
Refs: Zori, 1962, site 174: Chalco, EB  
Thompson site 1921.06: EB
302. Tell esh-Sheikh Şalih 2008.2139  
Type: tell Size: 1 ha  
Refs: Zori, 1962, site 18: Chalco, EB  
Thompson site 2021.10: EB,  
EB IV/MB I
303. \_\_\_\_\_. 2011.2139  
Type: ruins Size: 0.08 ha  
Refs: Zori, 1962, site 151: Chalco
304. Tel Nissa<sup>3</sup> (Tell el Manshiya) 1989.2105  
Type: tell Size: 1.12 ha  
Refs: Zori, 1962, site 88: EB I  
Thompson site 1921.35: EB  
Esse: no recorded EB
305. Tel ʿEshtori (Tell el Malha) 1994.2112  
Type: tell Size: 0.37 ha  
Refs: Zori, 1962, site 85: EB I  
Thompson site 1921.30: EB  
Esse: EB
306. \_\_\_\_\_. 2025.2123  
Type: ruins  
Refs: Thompson site 2021.13: EB
307. Tell Nimrod A 2023.2101  
Type: tell Size: 0.37 ha  
Refs: Zori, 1962, site 79: EB  
Thompson site 2021.24: EB,  
EB IV/MB I  
Esse: no EB recorded
308. \_\_\_\_\_. 2032.2111  
Type: tell  
Refs: Zori, 1962, site 51: EB, EB IV/MB I  
Thompson site 2021.19: EB,  
EB IV/MB I
309. Tell ed-Diya<sup>3</sup>ba 2036.2111  
Type: tell Size: ca. 1.5 ha  
Refs: Zori, 1962, site 50: EB I  
Thompson site 2021.18: EB
310. \_\_\_\_\_. 2034.2103  
Type: ruins  
Refs: Thompson site 2021.25: EB,  
EB IV/MB I
311. Jisr esh-Sheikh Husein 2043.2115  
Type: tell  
Refs: Thompson site 2021.20: EB  
Ibrahim, Sauer, and Yassine, 1976,  
site 42: no EB found
312. ed-Debab 205.218  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
site 73: Neo/Chalco, EB I
313. Tell el Mudawwar 2077.2193  
Type: tell Size: 0.44 ha  
Refs: Thompson site 2021.01: EB  
Ibrahim, Sauer, and Yassine, 1976,  
site 32: EB
314. Tell el Qeşebih 2083.2182  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
site 33: EB
315. Tell esh-Sheikh Shehab 2047.2166  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
site 59: EB IV/MB I
316. Tell el ʿArba ʿin 2057.2140  
Type: tell  
Refs: Thompson site 2021.09: EB I,  
EB IV/MB I  
Ibrahim, Sauer, and Yassine, 1976,  
site 34: poss. Neo/Chalco, EB
317. Tell Fandi 2049.2127  
Type: tell  
Refs: Thompson site 2021.14: EB  
Ibrahim, Sauer, and Yassine, 1976,  
site 38: Neo/Chalco
318. Kh. ʿAraq er-Rashdan 2074.2137  
Type: ruins  
Refs: Thompson site 2021.12: EB  
Ibrahim, Sauer, and Yassine, 1976,  
site 44: poss. Neo/Chalco, EB
319. Beseileh 2072.2134  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
site 43: EB
320. Kh. esh-Sheikh Muhammad 2047.2118  
Type: tell Size: 0.072 ha  
Refs: Thompson site 2021.21: EB,  
EB IV/MB I  
Ibrahim, Sauer, and Yassine, 1976,  
site 40: poss. Neo/Chalco, poss. EB

321. Tell es-Saghir 2049.2114  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
site 41: EB IV/MB I
322. Kh. el Marqa‘ah 2073.2125  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
site 45: Neo/Chalco
323. Jenin 1783.2074  
Type: tell      Size: 3 ha  
Refs: Thompson site 1720.05: EB
324. Beth Qad 1837.2084  
Type: scattered ruins  
Refs: Zori, 1977, site 59: EB I
325. Ḥ. Migda‘ (Kh. el Mujada‘a) 1935.2078  
Type: ruins      Size: scattered over area  
of ca. 9.5 ha.  
Refs: Zori, 1962, site 157: EB IV/MB I  
Zori, 1977, site 46: EB IV/MB I  
Thompson 1920.09: EB IV/MB I
326. Tell Šemed 1995.2093  
Type: tell      Size: 0.06 ha  
Refs: Zori, 1962, site 90: EB I  
Thompson 1920.05: EB
327. ‘Ain HaNašib 1974.2086  
Type: tell  
Refs: Zori, 1962, site 92: EB  
Thompson site 1920.07: EB,  
EB IV/MB I
328. Faru‘nah 1966.2077  
Type: ruins  
Refs: Zori, 1962, site 104: EB IV/MB I  
Thompson site 1920.10: EB IV/MB I
329. \_\_\_\_\_. 1965.2072  
Type: sherd scatter  
Refs: Thompson site 1920.12: EB IV/MB I
330. Tell Reḥob 1970.2062  
Type: tell      Size: upper city—2.7 ha,  
lower city—2.6 ha  
Refs: Zori, 1962, site 102: EB I,  
EB IV/MB I  
Thompson site 1920.13: EB,  
EB IV/MB I  
Esse: EB II–III
331. Kfar Reḥob 1966.2067  
Type: tell      Size: 0.045 ha  
Refs: Zori, 1962, site 168: EB IV/MB I  
Thompson site 1920.19: EB IV/MB I
332. Ḥ Raḥav (Kh. esh-Sheikh Riḥab) 1969.2063  
Type: tell      Size: 1.2 ha  
Refs: Thompson site 1920.20: EB,  
EB IV/MB I
333. Daba‘yib en-Nawar 1962.2056  
Type: ruins, sherd scatter  
Refs: Zori, 1962, site 99: EB I  
Thompson site 1920.21: EB
334. Tell Terumot 1965.2052  
Type: tell      Size: 0.03 ha  
Refs: Zori, 1962, site 97: no recorded EB  
Thompson site 1920.22: EB IV/MB I
335. Sdeh ‘Eliahu 1974.2056  
Type: ruins  
Refs: Zori, 1962, site 100: Chalco
336. \_\_\_\_\_. 1985.2057  
Type: tell  
Refs: Zori, 1962, site 74: EB  
Thompson site 1920.24: EB
337. Tel Ro‘ah (Tulul er-Ru‘yan) 1991.2049  
Type: tell      Size: 0.06 ha  
Refs: Zori, 1962, site 73: EB, EB IV/MB I  
Thompson site 1920.25: EB IV/MB I
338. Tel Saharon (Tell esh-Sheikh Muhammad)  
2012.2063  
Type: tell  
Refs: Thompson site 2020.14: EB,  
EB IV/MB I
339. Siba 2027.2093  
Type: ruins  
Refs: Thompson site 2020.01: EB
340. Kh. el Hajj Mahmud 2028.2076  
Type: tell  
Refs: Thompson 2020.07: EB,  
EB IV/MB I
341. Tel Karpas (Tell el Qarantina) 2028.2079  
Type: tell      Size: 0.37 ha  
Refs: Zori, 1962, site 52: EB, EB IV/MB I  
Thompson site 2020.05: EB,  
EB IV/MB I

342. Tell Qataf A 2026.2076  
 Type: tell      Size: ca. 1 ha  
 Refs: Zori, 1962, site 55: EB, EB IV/MB I  
 Thompson site 2020.06: EB,  
 EB IV/MB I
343. Tell Ḥartal (Tell esh-Sheikh Dawud)  
 2030.2076  
 Type: tell      Size: 0.4 ha  
 Refs: Zori, 1962, site 53: EB I, EB IV/MB I  
 Thompson site 2020.08: EB,  
 EB IV/MB I  
 Hess, 1984: EB IV/MB I
344. el Karm 2029.2075  
 Type: tell      Size: 0.6 ha  
 Refs: Zori, 1962, site 54: EB, EB IV/MB I
345. Tell Masad 2027.2073  
 Type: tell      Size: 0.37 ha  
 Refs: Zori, 1962, site 57: EB I, EB IV/MB I  
 Thompson 2020.10: EB,  
 EB IV/MB I
346. Ḥisah 2025.2070  
 Type: sherd scatter  
 Refs: Zori, 1962, site 58: Chalco
347. Givḥah 3 2034.2069  
 Type: tell      Size: 0.15 ha  
 Refs: Zori, 1962, site 59: EB I, EB IV/MB I  
 Thompson site 2020.15: EB,  
 EB IV/MB I
348. Tel Maluah 2027.2055  
 Type: tell      Size: 0.41 ha  
 Refs: Zori, 1962, site 61: EB IV/MB I  
 Thompson site 2020.18: EB IV/MB I
349. Kh. el Ḥammeh 2066.2087  
 Refs: Ibrahim, Sauer, and Yassine, 1976,  
 site 48: EB
350. Tell Zaqqum (S) 2067.2058  
 Refs: Ibrahim, Sauer, and Yassine, 1976,  
 site 58: EB
351. Kh. Tabaqat Faḥl 2078.2064  
 Type: tell      Size: 9.6 ha  
 Refs: Thompson site 2020.16: EB,  
 EB IV/MB I
352. Tell Kfar Qarnaim (Tell Abu Faraj) 1994.2035  
 Type: tell      Size: 0.12 ha  
 Refs: Zori, 1962, site 68: EB I, EB IV/MB I
353. Tirat Zvi (Shehat Fadda) 1996.2038  
 Type: scattered ruins  
 Refs: Zori, 1962, site 148: EB IV/MB I  
 Thompson site 1920.30: EB,  
 EB IV/MB I
355. Tell Abu Ḥayyat 2047.2038  
 Type: tell  
 Refs: Thompson site 2020.20: EB IV/MB I  
 Ibrahim, Sauer, and Yassine, 1976,  
 site 56: EB IV/MB I  
 Falconer and Magness-Gardiner,  
 1984: EB IV/MB I
356. Tell Abu Ḥalubah 2060.2035  
 Refs: Ibrahim, Sauer, and Yassine, 1976,  
 site 10: EB
357. Tel Malqoah (ḤAin HaNaṣiv) 1966.2011  
 Type: tell      Size: 0.2 ha  
 Refs: Zori, 1962, site 92: Chalco, EB I  
 Thompson site 1920.35: EB IV/MB I  
 Amiran et al., 1986: EB I
358. Tel ḤAlḥal (Tell ḤAliya) 1999.2009  
 Type: tell      Size: 1.5 ha  
 Refs: Zori, 1962, site 67  
 Thompson site 1920.39: EB
359. Tell Shalem 1998.2006  
 Type: tell      Size: 0.8 ha  
 Refs: Zori, 1962, site 66: EB I  
 Thompson site 1920.38: EB  
 Eisenberg, 1986: EB I
360. Tel Ṣaf 2025.2014  
 Type: tell  
 Refs: Zori, 1962, site 64: Chalco
361. Kh. eṣ-Ṣufuḥ 2016.2013  
 Type: ruins      Size: 1 ha  
 Refs: Zori, 1962, site 159: EB or Chalco  
 Thompson site 2020.22: EB
362. Tell el Jammaḥin 2025.2017  
 Type: tell      Size: 0.35 ha  
 Refs: Zori, 1962, site 63: Chalco, EB  
 Thompson site 2020.23: EB
363. Tell Abu en-Niḥaj (N and S) 2038.2022  
 Refs: Ibrahim, Sauer, and Yassine, 1976,  
 sites 64, 67: EB IV/MB I

364. Tell el Ma'ajajeh 2033.2010  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
site 61: Neo/Chalco, EB IV/MB I
365. Tell Abu Nijras 2029.2000  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
site 62: Neo/Chalco
366. Tell el Maqbara 2058.2008  
Type: tell Size: 0.1 ha  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
site 6: EB  
Thompson site 2020.27: EB,  
EB IV/MB I
367. Tell Abu Kharaz 2061.2007  
Type: tell Size: 1.2 ha  
Refs: Thompson site 2020.28: EB,  
EB IV/MB I  
Ibrahim, Sauer, and Yassine, 1976,  
site 7: EB I, EB IV/MB I
368. Tell el Ḥamma 1973.1978  
Type: tell  
Refs: Thompson site 1919.06: EB,  
EB IV/MB I
369. Tell el Beda 1980.1985  
Type: ruins Size: 1 ha  
Refs: Thompson site 1919.02: EB,  
EB IV/MB I
370. Tell el Khabsa 1987.1986  
Type: tell Size: 0.05 ha  
Refs: Thompson site 1919.03: EB
371. Tell el Biṣah 1978.1986  
Type: tell Size: 1 ha  
Refs: Zori, 1977, site 54: EB I
372. Tell Umm el 'Amdan 1998.1986  
Type: scattered ruins  
Refs: Thompson site 1919.05: EB,  
EB IV/MB I
373. Umm el 'Amdan 2004.1981  
Type: scattered ruins  
Refs: Thompson site 2019.01: EB
374. Tell Abu eṣ-Ṣuṣ 2030.1978  
Type: tell Size: 5.4 ha  
Refs: Zori, 1977, site 56: EB I, EB II–III  
Thompson site 2019.02: EB
375. Kh. es-Sakut 2016.1967  
Type: ruins  
Refs: Thompson site 2019.05: EB
376. Tell Abu Ḥabil 2045.1972  
Type: tell  
Refs: Thompson site 2019.03: EB,  
EB IV/MB I  
Ibrahim, Sauer, and Yassine, 1976,  
sites 65, 66: Neo/Chalco, EB,  
EB IV/MB
377. Tell el Kharaba 2089.1978  
Type: sherd scatter  
Refs: Thompson site 2019.04: EB IV/MB I
378. Kh. el Qarn 2044.1954  
Refs: Ibrahim, Sauer, and Yassine, 1976,  
site 71: Neo/Chalco
379. Tell Ḥuga (Tell el Barta'a) 2005.2135  
Type: tell Size: 0.3 ha  
Refs: Zori, 1962, site 19: EB  
Thompson site 2021.11: EB,  
EB IV/MB I
380. Me'oz Ḥayyim (Sujaret el Bala) 2016.2111  
Type: ruins Size: 0.64 ha  
Refs: Zori, 1962, site 81: Chalco
381. Me'oz Ḥayyim 2032.2091  
Type: ruins Size: 0.35 ha  
Refs: Zori, 1962, site 154: EB IV/MB I  
Thompson site 2020.02: EB IV/MB I
382. Shunem (Tell Sulam) 1816.2236  
Type: tell Size: 0.45 ha  
Refs: Zori, 1977, site 86: no recorded EB  
Esse: EB I
383. Kh. Sheikh Muhammad 1891.2342  
Type: ruins and terraces Size: 0.45 ha  
Refs: Zori, 1977, site 192: no recorded EB  
Esse: EB I
384. Ḥ 'Arpad (Kh. 'Arbitech) 1891.2363  
Type: ruins and terraces Size: 0.55 ha  
Refs: Zori, 1977, site 189: no recorded EB  
Esse: EB
385. Tell ed-Dahab 1706.2199  
Type: ruins  
Refs: Zori, 1977, site 71: EB IV/MB I  
Esse: EB IV/MB I

## SITE LIST

386. Tell Turmus 2106.2912  
Type: tell Size: 0.03 ha  
Refs: Dayan, 1969: Chalco  
Epstein, 1978: Chalco
387. Tell Fanus 2178.2675  
Type: ruins  
Refs: Epstein, 1978: Chalco
388. Majamiḡ 2147.2648  
Refs: Epstein, 1978: Chalco
389. Shabbe 2201.2596  
Refs: Epstein, 1978: Chalco
390. Rasm Ḥarbush 2216.2594  
Refs: Epstein, 1978, 1982, 1985: Chalco
391. Dabʿes Catchment Site 2226.2582  
Refs: Epstein, 1978, 1985: Chalco
392. “Stone heaps” ca. 2228.2564  
Refs: Epstein, 1978: Chalco
393. Reservoir Site 2270.2545  
Refs: Epstein, 1978: Chalco
394. ʿAin Quniyye 2185.2935  
Refs: Epstein, 1972, site 12: no recorded EB  
Epstein, *IEJ* 22 (1972): EB II–III
395. Tel Teo 2035.2815  
Refs: Eisenberg, 1986, 1987: Chalco,  
EB I, EB II
396. Kh. ʿAvot 1933.2763  
Refs: Braun 1981: EB II
397. Meʿona 174.269  
Refs: Braun, 1989: EB I, EB II
398. Nabratein 197.267  
Refs: Meyers, Strange, Meyers, 1982:  
EB II–III
399. Site near Jaḡadan Stream 2215.2652  
Refs: Epstein, 1985: Chalco
400. Site northwest of Qalaq 2215.2589  
Refs: Epstein, 1985: Chalco
401. el Arbaʿin 2244.2674 - 2256.2580  
Refs: Epstein, 1987: Chalco
402. ʿAin el Ḥariri 2258.2576–8  
Refs: Epstein, 1981: Chalco
403. Gamla 2195.2565  
Refs: Gutmann, 1984;  
Gutmann and Wagner, 1986: EB II
404. Site near ʿAin el Faris 2234–5.2564–9  
Refs: Epstein, 1982: Chalco
405. Site near South Daliyyot Waterfall 2255.2560  
Refs: Epstein, 1983: Chalco
406. Rasm el Kabash 2254–5.2534  
Refs: Epstein, 1981, 1982, 1983: Chalco
407. Tel Afiq 2154.2424  
Refs: Beck and Kochavi, 1987/88:  
EB IV/MB I
408. Qaʿabiya 1671.2397  
Type: lithic scatter  
Refs: Raban, 1982, site 51: Chalco
409. Yiftaḡel 171.240  
Refs: Braun, 1984, 1985, 1986, 1987:  
(Chalco), EB I
410. En Shadud 172.229  
Type: agricultural settlement  
Refs: Braun, 1985: EB I



## BIBLIOGRAPHY

Adams, Robert McC.

1974 "Anthropological Perspectives on Ancient Trade." *Current Anthropology* 15: 239–58.

1981 *Heartland of Cities*. Chicago: University of Chicago Press.

Aharoni, Yohanon

1953a "Kadesh Naphtali: Notes and News." *IEJ* 3: 263.

1953b "Trial Excavations at Qadesh Naphtali." *Yediot* 17: 158–59 (Hebrew).

1956 "Galilee Survey: Israelite Settlements and Their Pottery." *EI* 4: 56–64 (Hebrew).

1957 *The Settlement of the Israelite Tribes in Upper Galilee*. Jerusalem: Magnes Press (Hebrew).

1967 *The Land of the Bible*. Philadelphia: Westminster.

Aharoni, Yohanan and Amiran, Ruth

1953 "Archaeological Survey." *Yediot* 17: 126–37 (Hebrew).

Albright, William F.

1923 "Contributions to the Historical Geography of Palestine." AASOR, vols. 2–3 (1921–22). New Haven: ASOR, pp. 1–46.

1926 "The Jordan Valley in the Bronze Age." AASOR, vol. 6 (1924–25). New Haven: ASOR, pp. 13–74.

1932 "The Excavation of Tell Beit Mirsim in Palestine", vol. 1. AASOR, vol. 12. New Haven: ASOR, pp. 1–165.

1933 "The Excavation of Tell Beit Mirsim, Vol. 1A." AASOR, vol. 13. New Haven: ASOR, pp. 55–127.

1944 "A Prince of Taanach in the Fifteenth Century, B.C." *BASOR* 94: 12–27.

1965 "Some Remarks on the Archaeological Chronology of Palestine before about 1500 B.C." In *Chronologies in Old World Archaeology*, edited by Robert Ehrich, pp. 47–60. Chicago: University of Chicago Press.

1969 *Archaeology and the Religion of Israel*. Garden City, New York: Doubleday.

Amélineau, E.

1899 *Les Nouvelles fouilles d'Abydos, 1895–1896*. Paris: Leroux.

Amiran, David H. K.

- 1953 "The Pattern of Settlement in Palestine." *IEJ* 3: 65–78, 192–209, 250–60.

Amiran, David H. K. and Ben-Arieh, Y.

- 1963 "Sedentarization of Beduin." *IEJ* 13: 161–81.

Amiran, David H. K.; Adler, Ron; Eliakim, Henri; Gilead, Mordehai H.; Hinberger, Yitzhak; Kadmon, Naftali; Kantor, Michael; Shachar, Arie; and Tsameret, Reuven.

- 1970 *Atlas of Israel*. Jerusalem: Survey of Israel.

Amiran, Ruth

- 1943 "Khirbet Kerak Ware and Its Relation to the EB Tomb Discovered at Kinneret." *BJPES* 10: 63–65 (Hebrew).
- 1952 "Connections between Anatolia and Palestine in the Early Bronze Age." *IEJ* 2: 89–103.
- 1953 "Khirbet Tell er-Ruweise in Upper Galilee." *EI* 2: 117–26 (Hebrew).
- 1960 "The Pottery of the Middle Bronze I in Palestine." *IEJ* 10: 204–25.
- 1967a "Khirbet Kerak Ware at 'Ai." *IEJ* 17: 185–86.
- 1967b "The Upper Galilee in the Early Bronze Age." In *All the Land of Naphtali*, edited by H. Hirshberg, pp. 44–48. The Twenty-fourth Archaeological Convention, 1966. Jerusalem: Israel Exploration Society (Hebrew).
- 1968 "Two Canaanite Vessels Excavated in Egypt with Egyptian 'Signatures'." *IEJ* 18: 241–43.
- 1969 *Ancient Pottery of the Holy Land*. Jerusalem: Massada.
- 1970 "The Beginnings of Urbanization in Canaan." In *Near Eastern Archaeology in the Twentieth Century: Essays in Honor of Nelson Glueck*, edited by James Sanders, pp. 83–100. Garden City, New York: Doubleday.
- 1974a "An Egyptian Jar Fragment with the Name of Narmer from Arad." *IEJ* 24: 4–12.
- 1974b "The Painted Pottery Style of the EB II in Palestine." *Levant* 6: 65–68.
- 1977 "Pottery from the Chalcolithic Site near Tell Delhamiya." *EI* 13: 34–56.
- 1978a "The Date of the End of the EB II City of Arad." *IEJ* 28: 182–84.
- 1978b *Early Arad*. Jerusalem: Israel Exploration Society.

Amiran, Ruth; Beit-Arieh, Y.; and Glass, Jonathan

- 1973 "The Interrelationship between Arad and Sites in Southern Sinai in the Early Bronze Age II." *IEJ* 23: 193–97.

Amiran, Ruth and Cohen, Carmela

- 1977a "Excavations at Tel Beth-Yerah." *Israel Museum News* 12: 61, 62.
- 1977b "Tel Qishyon: Notes and News." *IEJ* 27: 164, 165.

- Ammerman, Albert; Cavalli-Sforza, L. L.; and Wagener, D.  
 1976 "Toward the Estimation of Population Growth in Old World Prehistory." In *Demographic Anthropology*, edited by Ezra Zubrow, pp. 27–61. Albuquerque: University of New Mexico Press.
- Anonymous Author  
 1957 "Survey Work." *Alon* 5–6: 9 (Hebrew).
- Arav, Rami.  
 1988 "Et-Tell and el-Araj: Notes and News." *IEJ* 38: 187, 188.
- Ariel, Donald  
 1988 "Two Rhodian Amphoras." *IEJ* 38: 30–35.
- Arnon (Cohen), Carmela  
 1982 "Tel Qishyon—1981." *ESI* 1: 100.
- Ashtor, E.  
 1976 *A Social and Economic History of the Near East in the Middle Ages*. London: Collins.
- Avi-Yonah, Michael  
 1976 *Gazeteer of Roman Palestine*. Qedem: Monographs of the Institute of Archaeology, vol. 5. Jerusalem: Hebrew University.
- Bahat, Dan.  
 1972 "The Date of the Dolmens near Kibbutz Shamir." *IEJ* 22: 44–46.
- Baly, Denis  
 1974 *The Geography of the Bible*. Rev. ed. New York: Harper and Row.
- Banning, E. B.  
 1986 "Peasants, Pastoralists and *Pax Romana*: Mutualism in the Southern Highlands of Jordan." *BASOR* 261: 25–50.
- Bar-Adon, Pesah  
 1952 "Beth Yerah: Notes and News." *IEJ* 2: 142.  
 1953 "Beth Yerah: Notes and News." *IEJ* 3: 132.  
 1954 "Beth Yerah: Notes and News." *IEJ* 4: 128, 129.  
 1955a "Beth Yerah: Notes and News." *IEJ* 5: 273.  
 1955b "Khirbet Kerak (Beth Yerah): Chronique archéologique." *RB* 62: 85–88.  
 1956 "Šinnabra and Beth Yerah in the Light of the Sources and Archaeological Finds." *EI* 4: 50–55 (Hebrew).  
 1957 "Beth Yerah." *Alon* 5–6: 29–30 (Hebrew).  
 1962 "Another Bull's Head from Palestine." *BASOR* 165: 46, 47.  
 1973 "Rare Cylinder-Seal Impressions from Beth-Yerah." *EI* 11: 99, 100 (Hebrew).

Bar-Yosef, Ofer and Tchernov, Eitan

1972    *On the Palaeo-Ecological History of the Site of 'Ubeidiya*. Jerusalem: Israel Academy.

Bates, Daniel

1971    "The Role of the State in Peasant-Nomad Mutualism." *Anthropological Quarterly* 44: 109–31.

Beaumont, Peter; Blake, Gerald; and Wagstaff, J. Malcolm

1976    *The Middle East: A Geographical Study*. London: John Wiley.

Beck, Pirhiya

1976    "The Cylinder Seal Impressions from Beth Ha'Emeq." *TA* 3: 120–26.

1988    "An Early Bronze Age 'Family' of Bowls from Tel Apeh." *TA* 12: 17–28.

Beck, Pirhiya and Kochavi, Moshe

1987–88 "The Land of Geshur—1987." *ESI* 6: 75–78.

Beit Arie, Itzhaq

1974    "An Early Bronze II Site at Nabi Salah in Southern Sinai." *TA* 1: 144–56.

1981    "An Early Bronze Age II Site near Sheikh 'Awad in Southern Sinai." *TA* 8: 95–127.

Beit Arie, Itzhaq and Gophna, Ram

1981    "The Early Bronze Age II Settlement at 'Ain el-Qudeirât (1980-1981)." *TA* 8: 128-35.

1976    "Early Bronze Age II Sites in Wâdi el-Qudeirât (Kadesh-Barnea)." *TA* 3: 142–50.

Bell, Gertrude

1927    *The Letters of Gertrude Bell*, edited by Lady Bell. 2 vols. New York: Boni and Liveright.

Ben-Arie, Yehoshua

1927    *The Changing Landscape of the Central Jordan Valley*. Scripta Hierosolymitana. Vol. 15. Jerusalem: Magnes.

1965a    "Fluctuations in the Level of Lake Tiberias." *IEJ* 15: 160–68.

1965b    "The Shift of the Outlet of the Jordan at the Southern Shore of Lake Tiberias." *PEQ*: 54–65.

1979    *The Rediscovery of the Holy Land in the Nineteenth Century*. Jerusalem: Magnes.

Ben-Tor, Amnon

1963    "Ḥorvat Uṣa." *Had. Arkh.* 7: 5–8 (Hebrew).

1968    "Problems in the Early Bronze Age II-III." Ph.D. diss., Hebrew University (Hebrew).

1972    "An Ivory Bull's Head from 'Ai." *BASOR* 208: 24–29.

1973    "Plans of Dwellings and Temples in Early Bronze Age Palestine." *EI* 11: 92–98 (Hebrew).

1975a    "Two Burial Caves of the Proto-Urban Period at Azor, 1971; The First Season of Excavations at Tell Yarmuth, 1970." *Qedem: Monographs of the Institute of Archaeology*, vol. 1. Jerusalem: Hebrew University.

1975b    "Two Cylinder Seal Impressions from Northern Transjordan." *BASOR* 217: 17–21.

- 1977 "Cult Scenes on Early Bronze Age Cylinder Seal Impressions from Palestine." *Levant* 9: 90–100.
- 1978 *Cylinder Seals of Third-Millennium Palestine*, ASOR Supplement Series no. 22. Cambridge, MA: ASOR.
- 1982 "The Relations between Egypt and the Land of Canaan during the Third Millennium B.C." *Journal of Jewish Studies* 33: 3–18.
- 1986 "The Trade Relations of Palestine in the Early Bronze Age." *JESHO* 29: 1–27.
- Ben-Tor, Amnon and Bonfil, Ruhama  
1987–88 "Tel Qashish, 1984–1985 Seasons." *ESI* 6: 106–08.
- Ben-Tor, Amnon and Portugali, Yuval  
1987 *Tell Qiri: A Village in the Jezreel Valley*, Qedem: Monographs of the Institute of Archaeology, vol. 24. Jerusalem: Hebrew University.
- Ben-Tor, Amnon; Portugali, Yuval; and Avissar, Miriam  
1981 "The First Two Seasons of Excavations at Tel Qashish, 1978–1979: Preliminary Report." *IEJ* 31: 137–64.
- Bernick, H. and Greenberg, Rafi  
1987–88 "Tel Qashish, 1987 Season." *ESI* 6: 108, 109.
- Biran, Avram  
1980 "Tel Dan: Five Years Later." *BA* 43: 168–82.  
1982 "Tel Dan, 1981: Notes and News." *IEJ* 32: 138, 139.  
1985 "Tel Dan, 1984: Notes and News." *IEJ* 35: 186–89.
- Bonnet, Hans  
1928 *Ein frühgeschichtliches Gräberfeld bei Abusir*. Leipzig: Hinrichs.
- Borchardt, L.  
1913 *Das Grabdenkmal des Königs Sahure*. Wissenschaftliche Veröffentlichung der Deutschen Orient-Gesellschaft 26. Leipzig: Hinrichs.
- Borowski, Oded  
1982 "A Note on the 'Iron Age Cult Installation' at Tel Dan." *IEJ* 32: 58.
- Braidwood, Robert  
1940 "Report on Two Sondages on the Coast of Syria, South of Tartous." *Syria* 21: 183–221.
- Braidwood, Robert and Braidwood, Linda  
1960 *Excavations in the Plain of Antioch*. Vol. 1. OIP 61. Chicago: University of Chicago Press.
- Brandfon, Frederic  
1977 "The Earliest City Wall at Megiddo." *TA* 4: 79–84.
- Braun, Eliot  
1984 "Yiftah'el, 1983: Notes and News." *IEJ* 34: 191–94.

- 1985a *En Shadud: Salvage Excavations at a Farming Community in the Jezreel Valley, Israel*. BAR International Series, no. 249. Oxford: BAR.
- 1985b "Yiftah'el, 1984: Notes and News." *IEJ* 35: 58, 59.
- 1986 "Yiftah'el—1986." *ESI* 5: 112, 113.
- 1987 "Yiftah'el, 1986." *IEJ* 37: 185, 186.
- 1989 "Me'ona: Notes and News." *IEJ* 39: 96–98.
- Broshi, Magen
- 1979 "The Population of Western Palestine in the Roman-Byzantine Period." *BASOR* 236: 1–10.
- Broshi, Magen and Gophna, Ram
- 1984 "The Settlements and Population of Palestine during the Early Bronze II–III." *BASOR* 253: 41–53.
- 1986 "Middle Bronze Age II Palestine: Its Settlements and Population." *BASOR* 261: 73–90.
- Brunton, Guy
- 1948 *Matmar*. British Museum Expedition to Middle Egypt. London: Quaritch.
- Burckhardt, John Lewis
- 1822 *Travels in Syria and the Holy Land*. London: John Murray.
- Callaway, Joseph
- 1964 *Pottery from the Tombs at 'Ai (et-Tell)*. London: Quaritch.
- 1972 *The Early Bronze Age Sanctuary at 'Ai (et-Tell)*. London: Quaritch.
- 1974 "A Second Ivory Bull's Head from 'Ai." *BASOR* 213: 57–61.
- 1978 "New Perspectives on Early Bronze III in Canaan." In *Archaeology in the Levant: Essays for Kathleen Kenyon*, edited by Roger Moorey and Peter Parr, pp. 46–58. Warminster, England: Aris and Phillips.
- 1980 *The Early Bronze Age Citadel and Lower City at 'Ai (et-Tell)*. Cambridge, MA: ASOR.
- Chisholm, M.
- 1968 *Rural Settlement and Land Use*. Chicago: Aldine Press.
- Cleveland, Ray
- 1961 "An Ivory Bull's Head from Ancient Jericho." *BASOR* 163: 30–36.
- 1962 "Acknowledgement of the Bull's Head from Khirbet Kerak." *BASOR* 165: 47.
- Cohen, Amnon
- 1973 *Palestine in the 18th Century*. Jerusalem: Magnes.
- Cohen-Amon, Carmela and Amiran, Ruth
- 1981 "Excavations at Tel Qishyon (A Preliminary Report)." *EI* 15: 205–12.
- Cohen, Rudolph
- 1978 "Tel Esdar, Stratum IV." *IEJ* 28: 185–89.

Columella, Lucius Junius

- 1954 *De Re Rustica*. Translated by E. S. Forster and E. Heffner. Loeb Classical Library. Cambridge, MA: Harvard University.

Courtois, J.-C.

- 1962 "Contribution à l'étude des civilisations du bronze ancien à Ras Shamra-Ugarit," pp. 415–75. *Ugaritica*. Vol. 4. Paris: Geuthner.

Dahl, Gudrun and Hjort, Anders

- 1976 *Having Herds: Pastoral Herd Growth and Household Economy*. Stockholm: University of Stockholm.

Dalman, Gustaf

- 1935 *Sacred Sites and Ways*. Translated by Paul Levertoff. 3d ed. New York: Macmillan.

Dan, J. and Koyumdjisky, H.

- 1963 "The Soils of Israel and Their Distribution." *Journal of Soil Science* 14: 12–20.

Dayan, Y.

- 1969 "Tell Turmus in the Huleh Valley." *IEJ* 19: 65–78.

de Contenson, Henri

- 1960 "Three Soundings in the Jordan Valley." *ADAJ* 4–5: 12–98.
- 1961 "Remarques sur le chalcolithique récent de Tell esh Shuna." *RB* 68: 546–56.
- 1969 "Les Couches du niveau III au sud de l'acropole de Ras Shamra," pp. 45–89. *Ugaritica*. Vol. 6. Paris: Geuthner.
- 1970 "Rapport préliminaire sur le sondage ouvert en 1962 sur l'acropole de Ras Shamra, campagnes 1962–1968." *AAS* 20: 13–24.

de Vaux, Roland and Stève, A. M.

- 1947 "La Première campagne de fouilles à Tell el-Far'ah, près Naplouse." *RB* 54: 394–433, 573–89.
- 1948 "La Seconde campagne de fouilles à Tell el-Far'ah, près Naplouse." *RB* 55: 544–80.
- 1949 "La Deuxième campagne de fouilles à Tell el Far'ah, près Naplouse." *RB* 56: 102–38.

Delougaz, Pinhas and Haines, Richard

- 1960 *A Byzantine Church at Khirbat Al-Karak*. OIP 85. Chicago: University of Chicago Press.

Desse, J.

- 1988 "Une Economie de production." In *Abu Hamid: Village du 4e millénaire de la vallée du Jourdain*, pp. 27, 28, edited by G. Dollfus and Z. Kafafi. Amman: Economic Press.

Dever, William G.

- 1970 "The 'Middle Bronze I' Period in Syria and Palestine." In *Near Eastern Archaeology in the Twentieth Century: Essays in Honor of Nelson Glueck*, edited by James Sanders, pp. 132–63. Garden City, New York: Doubleday.
- 1980 "New Vistas on the EB IV ('MB I') Horizon in Syria-Palestine." *BASOR* 237: 35–64.

Dever, William G. and Richard, Suzanne

1977 "A Reevaluation of Tell Beit Mirsim Stratum J." *BASOR* 226: 1–14.

Dever, William G.; Lance, H. Darrell; Bullard, Reuben G.; Cole, Dan P.; and Seger, Joe D.

1974 *Gezer*. Vol. 2. Annual of the Hebrew Union College. Jerusalem: Hebrew Union College.

Dollfus, G. and Kafafi, Z., eds.

1988 *Abu Hamid: Village du 4e millénaire de la vallée du Jourdain*. Amman: Economic Press.

Dothan, Moshe

1957a "'Affula." *Alon* 5–6: 22, 23 (Hebrew).

1957b "Excavations at Meşer, 1956." *IEJ* 7: 217–28.

1975 "'Afula." In *Encyclopedia of Archaeological Excavations in the Holy Land*. Vol. 1, edited by Michael Avi-Yonah, pp. 32–36. Englewood Cliffs, New Jersey: Prentice-Hall.

du Mesnil du Buisson, R.

1935 *Le Site archéologique de Mishrifé-Qatna*, Collection de Textes et Documents d'Orient 1. Paris: Boccard.

Dunand, Maurice

1936 "Remarques sur la céramique archaïque des pays Cananéens." *Berytus* 3: 141–47.

1939 *Fouilles de Byblos*. Vol. 1. Paris: Geuthner.

1952 "Byblos au temps du bronze ancien et la conquête amorite." *RB* 59: 82–90.

1954 *Fouilles de Byblos*. Vol. 2. Paris: Librairie d'Amérique et d'Orient.

Dunayevsky, Immanuel and Kempinski, Aharon

1973 "The Megiddo Temples." *ZDPV* 89: 161–87.

Edelstein, Gershon

1964 "Tell Oreimeh." *Had. Arkh.* 11: 10, 11 (Hebrew).

Ehrich, Ann

1939 *Early Pottery of the Jebel Region*. Memoires of the American Philosophical Society 13. Philadelphia: American Philosophical Society.

Eisenberg, Emmanuel

1981 "Tel Beth Yerah." *Had. Arkh.* 76: 11–13 (Hebrew).

1986a "Tel Shalem." *ESI* 5: 96–97.

1986b "Tel Teo." *ESI* 5: 107–09.

1987 "Tel Teo: Notes and News." *IEJ* 37: 173–75.

Emery, Walter B.

1949 *Great Tombs of the First Dynasty: Excavations at Saqqara*. Vol. 1. Cairo: Service des Antiquités de l'Égypte.

1958 *Great Tombs of the First Dynasty*. Vol. 3. London: Egypt Exploration Society.

- 1972 *Archaic Egypt*. Harmondsworth, England: Penguin Books.
- Emery, Walter B. and Saad, Zaki  
1938 *The Tomb of Hemaka*. Cairo: Service des Antiquités de l' Egypte.
- Engberg, Robert M. and Shipton, Geoffrey M.  
1934 *Notes on the Chalcolithic and Early Bronze Age Pottery of Megiddo*. SAOC 10. Chicago: University of Chicago Press.
- Epstein, Claire  
1972 "Early Bronze Age Seal Impressions from the Golan." *IEJ* 22: 309–17.  
1973 "The Sacred Enclosure of Stratum XIX at Megiddo." *EI* 11: 54–57 (Hebrew).  
1975 "Basalt Pillar Figures from the Golan." *IEJ* 25: 193–201.  
1978 "A New Aspect of Chalcolithic Culture." *BASOR* 229: 27–45.  
1981 "Golan, Chalcolithic Sites, 1979, 1980: Notes and News." *IEJ* 31: 112–16.  
1982a "Golan, Chalcolithic Sites, 1980, 1981: Notes and News." *IEJ* 32: 141–44.  
1982b "Golan, Chalcolithic Sites, 1982: Notes and News." *IEJ* 32: 252–54.  
1983 "Golan, Chalcolithic Sites, 1983: Notes and News." *IEJ* 33: 255–57.  
1985a "Golan, Chalcolithic Sites, 1984: Notes and News." *IEJ* 35: 53–56.  
1985b "Pithat ha-Yarmuk: Notes and News." *IEJ* 35: 56, 57.  
1987a "Golan, Chalcolithic Sites, 1985: Notes and News." *IEJ* 37: 293–95.  
1987b "Golan, Chalcolithic Sites, 1986: Notes and News." *IEJ* 37: 274, 275.
- Epstein, Claire and Gutmann, S.  
1972 "The Golan." In *Judaea, Samaria, and the Golan: Archaeological Survey, 1967–1968*, edited by Moshe Kochavi, pp. 244–98. Jerusalem: Archaeological Survey of Israel.
- Esse, Douglas  
1984 "A Chronological Mirage: Reflections on Early Bronze IC in Palestine." *JNES* 43: 317–30.  
1989a "Secondary State Formation and Collapse in Early Bronze Age Palestine." In *L'Urbanisation de la Palestine à l'âge du bronze ancien*, edited by Pierre de Miroschedji, pp. 81–96. BAR International Series, no. 527. Oxford: BAR.  
1989b "Village Potters in Early Bronze Age Palestine: A Case Study." In *Essays in Ancient Civilization Presented to Helene Kantor*, edited by Albert Leonard, Jr. and Bruce Beyer Williams, pp. 77–92. SAOC 47. Chicago: The Oriental Institute.
- Esse, Douglas and Hopke, Philip  
1986 "Levantine Trade in the Early Bronze Age: From Pots to Peoples." *Proceedings of the 24th International Archaeometry Symposium*, edited by J. Olin and M. J. Blackman, pp. 327–39. Washington, D.C.: The Smithsonian Institution Press.
- Falconer, Steven and Magness-Gardiner, Bonnie  
1984 "Preliminary Report of the First Season of the Tell el-Hayyat Project." *BASOR* 255: 49–74.

## Fargo, Valerie

- 1979a "Early Bronze Age Pottery at Tell el-Hesi." *BASOR* 236: 23–40.
- 1979b "Settlement in Southern Palestine during Early Bronze III." Ph.D. diss., University of Chicago.

## Finkelstein, Israel

- 1988 *The Archaeology of the Israelite Settlement*. Jerusalem: Israel Exploration Society.

## FitzGerald, G. M.

- 1931 *Beth-Shan Excavations 1921–1923: The Arab and Byzantine Levels*. Philadelphia: University of Pennsylvania.
- 1934 "Excavations at Beth-Shan in 1933." *PEFQS*: 123–34.
- 1935 "The Earliest Pottery of Beth-Shan." *Museum Journal* 24: 5–32.

## Forbes, Hamish and Foxhall, Lin

- 1978 "'The Queen of All Trees': Preliminary Notes on the Archaeology of the Olive." *Expedition* 21: 37–47.

## Frankel, Raphael and Kempinski, Aharon

- 1973 "Beth Ha-'Emeq: Notes and News." *IEJ* 23: 242, 243.

## Fritz, Volkmar

- 1986 "Kinneret: Vorbericht über die Ausgrabungen auf dem *Tell el-'Oreme* am See Genezaret in den Jahren 1982–1985." *ZDPV* 102: 1–39.

## Frost, Honor

- 1969 "The Stone-Anchors of Byblos." *Mélanges de l'Université Saint Joseph* 45: 423–42.

## Gal, Zvi

- 1980 *Ramat Issachar: Ancient Settlements in a Peripheral Region*. Tel Aviv: HaKibbutz HaMeuchad (Hebrew).
- 1985 "Khan et-Tuggar: A New Look at a 'Western Survey' Entry." *PEQ*: 69–75.
- 1988 "H. Shaḥal Taḥtit and the 'Early Enclosures'." *IEJ* 38: 1–5.

## Garstang, John

- 1922 "Geography of the Plain of Acre." *BBSAJ* 2: 10–17.
- 1932 "Jericho: City and Necropolis." *LAAA* 19: 3–22.
- 1935 "Jericho: City and Necropolis, Fifth Report." *LAAA* 22: 143–84.
- 1936 "Jericho: City and Necropolis, Sixth Report." *LAAA* 23: 67–100.

## Glueck, Nelson

- 1935 "Tell el-Hammeh." *AJA* 39: 321–30.
- 1940 "Palestine and Transjordan during 1939." *AJA* 44: 139–44.
- 1951 *Explorations in Eastern Palestine*. Vol. 4. AASOR, vols. 25–28. New Haven: ASOR.

Goldschmidt, M. J. et al.

- 1967 "The Mechanism of the Saline Springs in the Lake Tiberias Depression." *Geological Survey of Israel*. Vol. 45.

Golumb, B. and Kedar, Y.

- 1971 "Ancient Agriculture in the Galilee Mountains." *IEJ* 21: 136–40.

Gophna, Ram

- 1974 "The Settlement of the Coastal Plain of Eretz Israel during the EB Age." Ph.D. diss., Tel Aviv University (Hebrew).
- 1976 "Egyptian Immigration into Southern Canaan during the First Dynasty." *TA* 3: 31–37.
- 1978 "Archaeological Survey of the Central Coastal Plain, 1977." *TA* 5: 136–47.
- 1984 "The Settlement Landscape of Palestine in the Early Bronze Age II-III and Middle Bronze Age II." *IEJ* 34: 24–31.

Gophna, Ram and Kochavi, Moshe

- 1966 "Archaeological Survey of the Sharon." *Had. Arkh.* 17: 10–13 (Hebrew).

Gophna, Ram and Portugali, Juval

- 1988 "Settlement and Demographic Processes in Israel's Coastal Plain from the Chalcolithic to the Middle Bronze Age." *BASOR* 269: 11–28.

Guigues, P. E.

- 1937 "Lébé'a, Kafer-Garra, Qrayé, nécropoles de la région sidonienne." *BMB* 1: 35–76.

Gustavson-Gaube, Carrie

- 1985 "Tell esh-Shuna North 1984: A Preliminary Report." *ADAJ* 29: 43–87.
- 1986 "Tell esh-Shuna North, 1985: A Preliminary Report." *ADAJ* 30: 69–113.

Gutmann, S.

- 1984 "Gamla—1983." *ESI* 3: 26–27.

Gutmann, S. and Wagner, David

- 1986 "Gamla—1984/1985/1985." *ESI* 5: 38–41.

Guy, P. L. O.

- 1938 *Megiddo Tombs*. OIP 33. Chicago: University of Chicago Press.
- 1951 "Beth Yerah." *Alon* 3: 32, 33 (Hebrew).

Hauptmann, A., and Weisgerber, G.

- 1987 "Archaeometallurgical and Mining-Archaeological Investigations in the Area of Feinan, Wadi 'Arabah (Jordan)." *ADAJ* 31: 419–37.

Helbaek, Hans

- 1961–62 "Les Grains carbonisés de la 48ème couche de fouilles de Tell Soukas." *AAS* 11/12: 185, 186.

Helck, Wolfgang

- 1971 *Die Beziehungen Ägyptens zu Vorderasien im 3. und 2. Jahrtausend v. Chr.* Rev. ed. Ägyptologische Abhandlungen 5. Wiesbaden: Harrassowitz.

## Helms, Svend

- 1976 "The Early Bronze Age Gate at Ras en-Naqura (Roš ha-Niqra)." *ZDPV* 92: 1–9.
- 1984 "Excavation at Tell Umm Hammad esh-Sharqiya in the Jordan Valley." *Levant* 16: 35–54.
- 1986 "Excavations at Tell Um Hammad, 1984." *Levant* 18: 25–50.
- 1987 "Jawa, Tell Um Hammad and the EB I/Late Chalcolithic Landscape." *Levant* 19: 49–81.

## Hennessy, J. Basil

- 1967 *The Foreign Relations of Palestine during the Early Bronze Age*. London: Quaritch.

## Hennessy, J. Basil and Millet, A.

- 1963 "Spectrographic Analysis of the Foreign Pottery from the Royal Tombs of Abydos and Early Bronze Age Pottery of Palestine." *Archaeometry* 6: 10–17.

## Herbert, Sharon

- 1979 "Tel Anafa 1978: Preliminary Report." *BASOR* 234: 67–83.
- 1982 "Tel Anafa, 1981: Notes and News." *IEJ* 32: 59–61.

## Hess, Orna

- 1984 "Middle Bronze I Tombs at Tel 'Artal." *BASOR* 253: 55–60.

## Hestrin, Ruth

- 1975 "Beth Yerah." In *Encyclopedia of Archaeological Excavations in the Holy Land*. vol. 1, edited by Michael Avi-Yonah, pp. 253–62. Englewood Cliffs, New Jersey: Prentice-Hall.

## Hood, Sinclair

- 1951 "Excavations at Tabara el Akrad." *Anatolian Studies* 1: 113–47.

## Horowitz, Aharon

- 1975 "The Quaternary Stratigraphy and Paleogeography of Israel." *Paléorient* 3: 47–86.
- 1979 *The Quaternary of Israel*. New York: Academic Press.

## Huntington, Ellsworth

- 1911 *Palestine and Its Transformation*. Boston: Houghton Mifflin.

## Huot, J. L.

- 1967 "Typologie et chronologie relative de la céramique du bronze ancien à Tell el Far'ah." *RB* 74: 517–54.

## Hütteroth, Wolf-Dieter and Abdulfattah, Kamal

- 1977 *Historical Geography of Palestine, Transjordan, and Southern Syria in the Late 16th Century*. Erlangen: Erlanger Geographische Arbeiten.

## Ibrahim, M.; Sauer, J.; and Yassine, K.

- 1976 "The East Jordan Valley Survey, 1975." *BASOR* 222: 41–66.

## Ilan, Ornit and Sebbane, Michael.

- 1989 "Copper Metallurgy, Trade, and the Urbanization of Southern Canaan." In *L'Urbanisation de la Palestine à l'âge du Bronze ancien*, edited by Pierre de Miroshedji, pp. 139–62. BAR International Series, no. 527. Oxford: BAR.

- Ingold, Tim  
1987 *The Appropriation of Nature*. Iowa City: University of Iowa Press.
- Irby, Charles L. and Mangles, James  
1823 *Travels in Egypt and Nubia, Syria and Asia Minor*. London: White.
- Jacobsen, Thorkild and Adams, Robert McC.  
1958 "Salt and Silt in Ancient Mesopotamian Agriculture." *Science* 128: 1251–58.
- Johnson, Gregory  
1977 "Aspects of Regional Analysis in Archaeology." *Annual Review of Anthropology* 6: 479–508.
- Kantor, Helene  
1965 "The Relative Chronology of Egypt and Its Foreign Correlations before the Late Bronze Age." In *Chronologies in Old World Archaeology*, edited by Robert W. Ehrich, pp. 1–46. 2d ed. Chicago: University of Chicago Press.  
— "The Relative Chronology of Egypt and Its Foreign Correlations before the First Intermediate Period." In *Chronologies in Old World Archaeology*, edited by Robert Ehrich. 3d ed. Chicago: University of Chicago Press. (In Press).
- Karmon, Yehuda  
1960 "Jacotin's Map of Palestine." *IEJ* 10: 155–73.  
1961 "Geographical Influences on the Historical Routes in the Sharon Plain." *PEQ*: 43–60.  
1971 *Israel: A Regional Geography*. New York: Wiley.
- Kelso, James  
1968 *The Excavations of Bethel (1934–1960)*. AASOR, vol. 39. Cambridge, MA: ASOR.
- Kempinski, Aharon  
1978 *The Rise of an Urban Culture*. Israel Ethnographic Society Studies 4. Jerusalem: Israel Ethnographic Society.
- Kempinski, Aharon and Miron, E.  
1987 "Kabri, 1986–87: Notes and News." *IEJ* 37: 175–77.
- Kenyon, Kathleen  
1958 "Some Notes on the Early and Middle Bronze Age Strata of Megiddo." *EI* 5: 51–60.  
1960 *Excavations at Jericho*. Vol. 1. Jerusalem: British School of Archaeology.  
1965 *Excavations at Jericho*. Vol. 2. Jerusalem: British School of Archaeology.  
1979 *Archaeology of the Holy Land*. 4th ed. London: Ernest Benn.
- Khazanov, Anatolii  
1983 *Nomads and the Outside World*. Cambridge: Cambridge University Press.
- Kitchener, H. K.  
1877 "Lieutenant Kitchener's Reports." *PEFQS*: 113–25.
- Knudtzon, J. A.  
1915 *Die El-Amarna Tafeln*. Leipzig: Hinrichs.

## Kochavi, Moshe

- 1963 "Khirbet Qadish-Qadesh Naphtali." *Yediot* 27: 165–72 (Hebrew).
- 1973 "A Built Shaft Tomb of the Middle Bronze Age I at Degania A." *Qadmoniot* 6: 50–53 (Hebrew).
- 1975 "The First Two Seasons of Excavations at Aphek-Antipatris, Preliminary Report." *TA* 2: 17–42.
- 1989 "The Land of Geshur Project: Regional Archaeology of the Southern Golan (1987–1988 Seasons)." *IEJ* 39: 1–17.

## Kochavi, Moshe, ed.

- 1972 *Judea, Samaria and the Golan: Archaeological Survey, 1967–1968*. Jerusalem: Archaeological Survey of Israel.

## Kolska-Horowitz, Liora and Tchernov, Eitan

- 1988 "The Relationship between Man and Beast in the Early Bronze Age." *Qadmoniot* 21: 2–5 (Hebrew).

## Kramer, Carol

- 1979 "An Archaeological View of a Contemporary Kurdish Village: Domestic Architecture, Household Size, and Wealth." In *Ethnoarchaeology*, edited by Carol Kramer, pp. 139–63. New York: Columbia University Press.

## Kroeper, Karla and Wildung, Dietrich

- 1985 *Minshat Abu Omar*. Munich: Lipp.

## Lapp, Nancy

- 1989 "Cylinder Seals and Impressions of the Third Millennium B.C. from the Dead Sea Plain." *BASOR* 273: 1–15.

## Lapp, Paul

- 1964 "The 1963 Excavations at Ta'anek." *BASOR* 173: 4–44.
- 1966 "Bab edh-Dhra'." *RB* 73: 556–61.
- 1967 "The 1966 Excavations at Ta'anek." *BASOR* 185: 2–39.
- 1969 "The 1968 Excavations at Ta'anek." *BASOR* 195: 2–49.
- 1970 "Palestine in the Early Bronze Age." In *Near Eastern Archaeology in the Twentieth Century: Essays in Honor of Nelson Glueck*, edited by James Sanders, pp. 101–31. Garden City, New York: Doubleday.

## Leonard, Albert, Jr.

- 1983 "The Proto-Urban/Early Bronze I Utilization of the Kataret es-Samra Plateau." *BASOR* 251: 37–60.

## Levy, Thomas

- 1986 "The Chalcolithic Period." *BA* 49: 82–108.

## Levy, Thomas, ed.

- 1987 *Shiqmim*. Vol. 1. BAR International Series, no. 356. Oxford, BAR.

Liebowitz, Harold and Folk, Robert

- 1980 "Archaeological Geology of Tell Yin'am, Galilee, Israel." *Journal of Field Archaeology* 7: 23–41.

Loud, Gordon

- 1948 *Megiddo*. Vol. 2. OIP 62. Chicago: University of Chicago Press.

Lynch, W. F.

- 1849 *Expedition to the River Jordan*. Philadelphia: Lea and Blanchard.

Macalister, R. A. Stewart

- 1912 *The Excavation of Gezer*. 3 vols. London: John Murray.

MacGregor, J.

- 1870 *The Rob Roy on the Jordan*. New York: Harper.

Macramallah, Rizkallah

- 1940 *Un Cimetière archaïque de la classe moyenne du peuple à Saqqarah*. Cairo: Service des Antiquités de l'Égypte.

Marfoe, Leon

- 1978 "Between Qadesh and Kumidi." Ph.D. diss., University of Chicago.
- 1979 "The Integrative Transformation: Patterns of Socio-political Organization in Southern Syria." *BASOR* 234: 1–42.
- 1980 Review of *The Rise of an Urban Culture* by Aharon Kempinski, and *Early Arad* by Ruth Amiran. *JNES* 39: 315–22.

Margalit, Hanna

- 1963 "Some Aspects of the Cultural Landscape of Palestine during the First Half of the Nineteenth Century." *IEJ* 13: 208–23.

Marquet-Krause, Judith

- 1935 "La Deuxième campagne de fouilles à 'Ay (1934)." *Syria* 16: 325–45.

Masterman, Ernest

- 1909 *Studies in Galilee*. Chicago: University of Chicago Press.

Mazar, Benjamim; Amiran, Ruth; and Haas, N.

- 1973 "An Early Bronze II Tomb at Beth Yerah (Kinneret)." *EI* 11: 176–93 (Hebrew).

Mazar, Benjamin; Stekelis, Moshe; and Avi-Yonah, Michael

- 1952 "The Excavations at Beth-Yerah (Khirbet el-Kerak) 1944–46." *IEJ* 2: 165–73, 218–29.

Mazzoni, Stefania

- 1984 "Seal Impressions on Jars from Ebla in EB IA–B." *Akkadica* 37: 18–45.
- 1985 "Giza ed una produzione vascolare di Biblo." In *Studi in Onore di Edda Bresciani*, edited by S. F. Bondi; S. Pernigotti; F. Serra; and A. Vivian, pp. 317–35. Pisa: Giardini.

McConaughy, Mark

- 1980 "Chipped Stone Tools." *BASOR* 240: 53–58.

## McCreery, David

1980a "The Nature and Cultural Implications of Early Bronze Age Agriculture in the Southern Ghor of Jordan." Ph.D. diss., University of Pittsburgh.

1980b "Paleobotany." *BASOR* 240: 52, 53.

## Mellaart, James

1962 "Archaeological Sites Endangered by the Yarmuk and Jordan Irrigation Scheme and Recommendations for Work to be Done." *ADAJ* 6-7: 129-57.

## Meyers, Eric; Strange, James; and Meyers, Carol

1982 "Nabratein, 1981: Notes and News." *IEJ* 32: 139-41.

## Miller, Robert

1980 "Water Use in Syria and Palestine from the Neolithic to the Bronze Age." *World Archaeology* 11: 331-341.

## Miroschedji, Pierre de

1971 *L'Époque pré-urbaine en Palestine*. Cahiers de la Revue Biblique. Paris: Gabalda.

1981 "Tel Yarmut, 1980: Notes and News." *IEJ* 31: 121-24.

1988a "Données nouvelles sur le bronze ancien de Palestine: Les Fouilles de Tel Yarmouth." *Académie des Inscriptions and Belles-Lettres. Comptes Rendus des séances de l'année 1988*, pp. 186-211. Paris: Boccard.

1988b "Tel Yarmut, 1986: Notes and News." *IEJ* 38: 84-88.

1988c "Tel Yarmut, 1987: Notes and News." *IEJ* 38: 194-99.

1988d *Yarmouth. Vol. 1. Rapport sur les trois premières campagnes de fouilles à Tel Yarmouth (Israël)*. Mémoire no. 76. Paris: Editions Recherche sur les Civilisations.

## Miroschedji, Pierre de, ed.

1989 *L'Urbanisation de la Palestine à l'âge du Bronze ancien*, BAR International Series, no. 527. Oxford: BAR.

## Mittmann, Siegfried

1970 *Beiträge zur Siedlungs- und Territorialgeschichte des nordlichen Ostjordanlandes*. Abhandlungen des Deutschen Palästina-Vereins. Wiesbaden: Harrassowitz.

1974 "Zwei Siegelbildscherben der frühen Bronzezeit aus dem nordlichen Ostjordanland." *ZDPV* 90: 1-13.

## Na'aman, Nadav

1977 "Yeno'am." *TA* 4: 168-77.

## Naroll, Raoul

1962 "Floor Area and Settlement Population." *American Antiquity* 27: 587-89.

## Naveh, Joseph

1962 "The Excavations at Meşad Hashavyahu." *IEJ* 12: 89-113.

## Negbi, Ora

1972 "Contacts between Byblos and Cyprus at the End of the Third Millennium B.C." *Levant* 4: 98-110.

Nelson, Harold

- 1934 "Fragments of Egyptian Old Kingdom Stone Vases from Byblos." *Berytus* 1: 19–22.

Neubauer, Adolphe

- 1967 *La Géographie du Talmud*. 1868. Reprint. Hildesheim: Olms.

Neuville, R.

- 1930 "Notes de préhistoire palestinienne." *JPOS* 10: 193–221.

Nir, Dov

- 1963 "Nahal Chisafime (Basse Galilée): Etude morphométrique." *IEJ* 13: 182–94.
- 1968 *La Vallée de Beth-Chéane*. Ecole Pratique des Hautes Etudes: Études et Mémoires 65. Paris: Colin.
- 1974 *The Semi-Arid World: Man on the Fringe of the Desert*. New York: Longman.

Oded, Bustanai

- 1971 "Darb el-Hawarneh: An Ancient Route." *EI* 10: 191–97 (Hebrew).

Ohanessian-Charpin, A.

- 1988 "Le Ghor de Abu Obeida à Suleikhat: Une Mosaïque d'hommes." In *Abu Hamid: Village de 4e millénaire de la vallée du Jordain*, edited by G. Dollfus and Z. Kafafi, pp. 11–13. Amman: Economic Press.

Oren, Eliezer

- 1973a "The Overland Route between Egypt and Canaan in the Early Bronze Age." *IEJ* 23: 198–205.
- 1973b *The Northern Cemetery of Beth Shan*. Leiden: Brill.

Omi, Ephraim and Ephrat, Elisha

- 1976 *Geography of Israel*, 3d ed. Jerusalem: Israel Universities.

Parr, Peter

- 1956 "A Cave at Arqub el Dhahr." *ADAJ* 3: 61–73.
- 1958 "Palestine and Anatolia: A Further Note." *Bulletin of the Institute of Archaeology, University of London* 1: 21–23.

Perrot, J.; Zori, N.; and Reich, Y.

- 1967 "Neve Ur, un nouvel aspect du Ghassoulien." *IEJ* 17:201–32.

Petrie, William Flinders

- 1891 *Tell el Hesy (Lachish)*. London: Committee of the Palestine Exploration Fund.
- 1901 *Royal Tombs*, vol. 2. London: Egypt Exploration Fund.
- 1902 *Abydos*, vol. 1. London: Egypt Exploration Fund.

Petrie, William Flinders; Brunton, Guy; and Murray, M. A.

- 1923 *Lahun*. Vol. 2. London: Quaritch.

Picard, Leo

- 1932 "Geologische Probleme am Südrand des Tiberiasees." *JPOS* 12: 162–67.

## Plog, Fred

- 1974 "Settlement Patterns and Social History." In *Frontiers of Anthropology*, edited by Murray Leaf, pp. 68–91. New York: Van Nostrand.

## Pococke, Richard

- 1811 "A Description of the East, &c." In *A General Collection of the Best and Most Interesting Voyages and Travels in all Parts of the World*, edited by John Pinkerton. Vol. 10. London: Longman, Hurst, Rees, Orme, Brown, Cadell, and Davis.

## Portugali, Yuval

- 1982 "A Field Methodology for Regional Archaeology (The Jezreel Valley Survey, 1981)." *TA* 9: 170–88.

## Prag, Kay

- 1985 "Ancient and Modern Pastoral Migration in the Levant." *Levant* 17: 81–88.
- 1986a "Byblos and Egypt in the Fourth Millennium B.C." *Levant* 18: 59–74.
- 1986b "The Intermediate Early Bronze-Middle Bronze Age Sequences at Jericho and Tell Iktanu Reviewed." *BASOR* 264: 61–72.

## Prausnitz, Moshe

- 1954 "Abydos and Combed Ware." *PEQ*: 91–96.
- 1955 "Ay and the Chronology of Troy." *Eleventh Annual Report of the University of London Institute of Archaeology*: 19–28.
- 1957 "Khirbet Quneitra, 1952." *Alon* 5–6: 35–36 (Hebrew).
- 1959 "The First Agricultural Settlements in Galilee." *IEJ* 9: 166–74.
- 1962a "Tell Bir el-Gharbi." *Had. Arkh.* 3: 13–14 (Hebrew).
- 1962b "Tell Bir el-Gharbi (Yas'ur)." *IEJ* 12: 143.
- 1970 *From Hunter to Farmer and Trader*. Bonn: Habelt.

## Prausnitz, Moshe and Kempinski, Aharon

- 1977 "Kabri, 1976: Notes and News." *IEJ* 27: 165, 166.

## Pritchard, James

- 1958 *The Excavation at Herodian Jericho, 1951*. AASOR, vols. 32–33 (1952–1954). New Haven: ASOR.

## Quibell, J. E.

- 1898 *El Kab*. London: Quaritch.

## Raban, Avner

- 1982 *Archaeological Survey of Israel: Naḥalal Map*, no. 28. Jerusalem: Archaeological Survey of Israel.
- *Archaeological Survey of Israel: Beth Ha'Emeq Map*, no. 32. Jerusalem: Archaeological Survey of Israel. (In Press).

## Rainey, Anson

- 1981 "Toponymic Problems." *TA* 8: 146–51.

Rast, Walter and Schaub, R. Thomas

- 1974 "Survey of the Southeastern Plain of the Dead Sea, 1973." *ADAJ* 19: 5–53.
- 1980 "Preliminary Report of the 1979 Expedition to the Dead Sea Plain, Jordan." *BASOR* 240: 21–61.
- 1981 *The Southwestern Dead Sea Plain Expedition: An Interim Report of the 1977 Season*. AASOR, vol. 46. Cambridge, MA: ASOR.

Reifenberg, Adolf

- 1938 *The Soils of Palestine*. London: Murby.
- 1955 *The Struggle between the Desert and the Sown*. Jerusalem: The Jewish Agency.

Reisner, George A.

- 1942 *A History of the Giza Necropolis*. Vol. 1. Cambridge, MA: Harvard University and The Boston Museum of Fine Arts.

Reisner, George A. and Smith, William Stevenson

- 1955 *A History of the Giza Necropolis*. Vol. 2. Cambridge, MA: Harvard University Press.

Renfrew, Colin

- 1972 *The Emergence of Civilization*. London: Methuen.
- 1975 "Trade as Action at a Distance." In *Ancient Civilization and Trade*, edited by Jeremy Sabloff and C. C. Lamberg-Karlovsky, pp. 3–59. Albuquerque: University of New Mexico.

Richard, Suzanne

- 1980 "Toward a Consensus of Opinion on the End of the Early Bronze Age in Palestine-Transjordan." *BASOR* 237: 5–34.

Riis, P. J.

- 1961–62 "L'Activité de la mission archéologique Danois sur la côte phénicienne en 1960." *AAS* 11/12: 133–44.

Rizkana, Ibrahim and Seeher, Jürgen

- 1987 *Maadi*, vol. 1: *The Pottery of the Predynastic Settlement*. Archäologische Veröffentlichungen 64. Mainz am Rhein: Philipp von Zabern.

Robinson, Edward

- 1860 *Biblical Researches in Palestine*. 2d ed. 2 vols. Boston: Crocker and Brewster.
- 1871 *Later Biblical Researches in Palestine*. 2nd ed. Boston: Crocker and Brewster.

Rosen, Steven

- 1983a "The Canaanite Blade and the Early Bronze Age." *IEJ* 33: 15–29.
- 1983b "Tabular Scraper Trade: A Model of Material Cultural Dispersion." *BASOR* 249: 79–86.
- 1989 "The Analysis of Early Bronze Age Chipped Stone Industries: A Summary Statement." In *L'Urbanisation de la Palestine à l'âge du Bronze ancien*, edited by Pierre de Miroschedji, pp. 199–222. BAR International Series, no. 527. Oxford: BAR.

Ross, James

- 1979 "Early Bronze Age Structures at Tell el-Hesi." *BASOR* 236: 11–21.

## Saarisalo, Aapeli

- 1927 "The Boundary between Issachar and Naphtali." *Suomalaisen Tiedeakatemia Toimituksia. Annales Academiae Scientiarum Fennicae. Series B. Volume 21, no. 3.* Helsinki.
- 1929 "Topographical Researches in Galilee." *JPOS* 9: 27–40.
- 1930 "Topographical Researches in Galilee, II." *JPOS* 10: 5–10.

## Saghieh, Muntaha

- 1983 *Byblos in the Third Millennium B.C.* Warminster: Aris and Phillips.

## Schaeffer, Claude F. A.

- 1960 "Résumé des résultats de la XXIIe campagne de fouilles à Ras Shamra-Ugarit, 1959." *AAS* 10: 133–58.
- 1962 "Les Fondements préhistoriques d'Ugarit." pp. 151–249. *Ugaritica*, Vol. 4. Paris: Geuthner.

## Schattner, Isaac

- 1962 *The Lower Jordan Valley.* Scripta Hierosolymitana. Vol. 11. Jerusalem: Magnes.

## Schick, Tamar

- 1978 "Flint Implements." In *Early Arad*, edited by Ruth Amiran, pp. 58–63. Jerusalem: Israel Exploration Society.

## Schumacher, Gottlieb

- 1888 *The Jaulan.* London: Bentley.

## Sellin, Ernst

- 1905 *Eine Nachlese auf dem Tell Ta'annek in Palästina.* Denkschriften der Kaiserlichen Akademie der Wissenschaften in Wien. Vienna: Hölder.

## Sellin, Ernst and Watzinger, Carl

- 1913 *Jericho: Die Ergebnisse der Ausgrabungen.* Wissenschaftliche Veröffentlichungen der Deutschen Orient-Gesellschaft 22. Leipzig: Hinrichs.

## Sharon, D.

- 1965 "Variability of Rainfall in Israel." *IEJ* 15: 169–76.

## Shiloh, Yigal

- 1980 "The Population of Iron Age Palestine in the Light of a Sample Analysis of Urban Plans, Areas, and Population Density." *BASOR* 239: 25–35.

## Shipton, Geoffrey M.

- 1939 *Notes on the Megiddo Pottery of Strata VI–XX.* SAOC 17. Chicago: University of Chicago Press.

## Smith, George Adam

- 1966 *Historical Geography of the Holy Land.* London: Hodder and Stoughton, 1894. Reprint. London: Fontana Library.

## Sperber, Daniel

- 1978 *Roman Palestine: 200–400: The Land.* Ramat-Gan, Israel: Bar-Ilan University.

## Stager, Lawrence

- 1976 "Agriculture." In *The Interpreter's Dictionary of the Bible, Supplementary Volume*, edited by Keith Crim, pp. 11–13. Nashville: Abingdon.
- 1985a "The Archaeology of the Family in Ancient Israel." *BASOR* 260: 1–35.
- 1985b "The Firstfruits of Civilization." In *Palestine in the Bronze and Iron Ages: Papers in Honour of Olga Tufnell*, edited by Jonathan Tubb, pp. 172–87. London: Institute of Archaeology.
- "The Periodization of Palestine From Neolithic through Early Bronze Times." In *Chronologies in Old World Archaeology*, edited by Robert Ehrich. 3d ed. Chicago: University of Chicago Press. (In Press).

## Sukenik, E. L.

- 1922 "The Ancient City of Philoteria (Beth Yerah)." *JPOS* 2: 101–09.
- 1948 "Archaeological Investigations at Affula." *JPOS* 21: 1–79.

## Sussman, Varda

- 1980 "A Relief of a Bull from the Early Bronze Age." *BASOR* 238: 75–77.

## Swidler, Nina

- 1980 "Sedentarization and Modes of Economic Integration in the Middle East." In *When Nomads Settle*, edited by Philip Salzman, pp. 21–33. New York: Praeger.

## Tadmor, Miriam

- 1964 "Contacts between the 'Amuq and Syria-Palestine." *IEJ* 14: 253–69.
- 1978 "A Cult Cave of the Middle Bronze Age I near Qadesh." *IEJ* 28: 1–30.

## Tadmor, Miriam and Prausnitz, Moshe

- 1959 "Excavations at Rosh Hanniqra." *'Atiqot* 2: 72–88.

## Thompson, Thomas

- 1974 *The Historicity of the Patriarchal Narrative*. New York: de Gruyter.
- 1979 *The Settlement of Palestine in the Bronze Age*. Wiesbaden: Ludwig Reichert.

## Thomsen, Peter

- 1917 "Die römischen Meilensteine der Provinzen Syria, Arabia und Palaestina." *ZDPV* 40: 1–141.

## Thomson, W. M.

- 1882 *The Land and the Book: Central Palestine and Phoenicia*. New York: Harper.

## Tristram, H. B.

- 1866 *The Land of Israel*. London: Society for Promoting Christian Knowledge.

## Tubb, Jonathan

- 1988 "Tell es-Sa'idiyeh: Preliminary Report on the First Three Seasons of Renewed Excavations." *Levant* 20: 23–88.

## Tufnell, Olga

- 1958 *Lachish (Tell ed-Duweir): The Bronze Age*. Vol. 4. London: Oxford University Press.

Urman, Dan

1985 *The Golan*. BAR International Series, no. 269. Oxford: BAR.

Ussishkin, David

1968 "Beth Yerah." *RB* 75: 266–68.

Vickery, K. F.

1936 *Food in Early Greece*. Illinois Studies in the Social Sciences, vol 20. Urbana, Illinois: University of Illinois.

Wachsmann, Shelley and Raveh, Kurt

1978 "Underwater Investigations by the Department of Antiquities and Museums: Notes and News." *IEJ* 28: 281–83.

Wagner, Norman

1972 "Early Bronze Age Houses at 'Ai (et Tell)." *PEQ*: 5–25.

Walmsley, Alan G.

1987 "The Administrative Structure and Urban Geography of the Jund of Filastin and the Jund of al-Urdunn: The Cities and Districts of Palestine and East Jordan during the Early Islamic, Abbasid and Early Fatimid Periods." Ph.D. diss., University of Sydney.

Wheeler Pires-Ferreira, Jane

1975–77 "Tepe Tula'i: Faunal Remains from an Early Campsite in Khuzistan, Iran." *Paléorient* 3: 275–80.

Wightman, G. J.

1988 "An EB IV Cemetery in the North Jordan Valley." *Levant* 20: 139–59.

Williams, Bruce.

1986 *Excavations between Abu Simbel and the Sudan Frontier, Keith C. Seele, Director. Part 1: The A-Group Royal Cemetery at Qustul: Cemetery L*. Oriental Institute Nubian Expedition, vol. 3. Chicago: The Oriental Institute.

Wilson, C. W., ed.

1877 "Taricheae and Bethsaida." *PEFQS*: 10–13.

1971 "The Pilgrimage of the Russian Abbot Daniel in the Holy Land." *Palestine Pilgrims' Text Society*, pp. 1–108. Vol. 4. London, 1895. Reprint. New York: AMS Press.

Wilson, John

1969 "Egyptian Historical Texts." In *Ancient Near Eastern Texts*, edited by James Pritchard, pp. 227–64. 3d ed. Princeton: Princeton University Press.

Woolley, Leonard

1953 *A Forgotten Kingdom*. Baltimore: Penguin.

Worshech, Udo

1986 "Die sozio-ökologische Bedeutung frühbronzezeitlicher Ortslagen in der nordwestlichen *Ard el-Kerak*: Ein Vorbericht." *ZDPV* 102: 40–52.

Wright, G. E.

1937 *The Pottery of Palestine from the Earliest Times to the End of the Early Bronze Age*. New Haven: ASOR.

- 1958 "The Problem of the Transition between the Chalcolithic and Bronze Ages." *EI* 5: 37\*–45\*.
- 1965 "The Archaeology of Palestine." In *The Bible and the Ancient Near East: Essays in Honor of William Foxwell Albright*, edited by G. E. Wright, pp. 85–139. Garden City, New York: Anchor Books, Doubleday.
- Yadin, Yigael
- 1961 *Hazor*, vol. 3–4. Jerusalem: Magnes Press.
- 1972 *Hazor*. The Schweich Lectures of the British Academy. London: Oxford University Press.
- Yeivin, Shmuel
- 1955 *Archaeological Activities in Israel, 1948-1955*. Jerusalem: Department of Antiquities.
- 1961 *First Preliminary Report on the Excavations at Tel 'Gat' (Tell Sheykh 'Ahmed el-'Areyny)*. Jerusalem: Department of Antiquities.
- 1963 "Further Evidence of Narmer at 'Gat'." *Oriens Antiquus* 2: 205–13.
- Yogev, Ora and Eisenberg, E.
- 1985 "Bet Yerah—1985." *ESI* 4: 14, 15.
- Zertal, Adam
- 1983 "Har Menashe Survey—1982." *ESI* 2: 43, 44.
- Zohary, Daniel and Hopf, Maria
- 1988 *Domestication of Plants in the Old World*. Oxford: The Clarendon Press.
- Zohary, Daniel and Spiegel-Roy, Pinhas
- 1975 "Beginnings of Fruit Growing in the Old World." *Science* 187: 319–27.
- Zohary, Michael
- 1962 *Plant Life of Palestine*. New York: Ronald.
- 1973 *Geobotanical Foundations of the Middle East*. 2 vols. Stuttgart: Fischer.
- Zori, Nehemiah
- 1955 "A Cylinder-Seal Impression from Mount Gilboa." *PEQ*: 89, 90.
- 1962 *The Beth Shean Valley*. 17th Archaeological Convention. Jerusalem: Israel Exploration Society (Hebrew).
- 1977 *The Land of Issachar: Archaeological Survey*. Jerusalem: Israel Exploration Society (Hebrew).